

## Appendix A

### Feasibility Study of proposed CIIS

#### A.1 Introduction

The purpose of this feasibility study is to provide a comprehensive analysis of benefits of the proposed computerized System for the Compulsory Import Inspection Scheme (CIIS) operated by the Sri Lanka Standards Institution (SLSI)

This feasibility study covers the following aspects,

- Organizational Feasibility
- Technical Feasibility
- Legal Feasibility
- Political Feasibility

The intended audiences of this study are the Management and the council members of SLSI



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#### A.2 Scope:

This feasibility report is applicable to the proposed system of CIIS that supports the implementation of major activities from Notification submission by the importer to issue the method of approval by the SLSI.

There are web interfaces for the Importer to submit notifications online and the customs to verify the method of approval given.

#### A.3 Organizational Feasibility

At present the CIIS is the service of SLSI that has the largest employee involvement in various categories and the demand for human resources is still growing. Even though the CIIS accounts for the largest number of employee population, the present way of implementing the CIIS has inherent drawbacks as identified in the problems and weaknesses.

The proposed computerized system will facilitate to achieve many tangible and intangible benefits that in turn drive the Organization towards the goals.

- The Cycle time of the Entry processing will be minimized as the move of documents by manual means has been eliminated.
- The contracted labor for document handling is no longer required .Therefore, the staff overhead will be reduced which will be beneficial to the organization.
- Stationary cost becomes minimized
- From the customer's point of view, they will be satisfied with the quick service that prevents them incurring unnecessary demurrage payments

ANALYSIS OF TANGIBLE BENEFITS		
		(LKR) per month
1	Reduction of labor cost	9000.00x4
2	Re-allocation of permanent Employees	75000.00
3	Reduction of Stationary, photocopy, telephone, fax	10000.00

ANALYSIS OF INTANGIBLE BENEFITS	
1	Employee morale will be improved
2	Improved customer satisfaction
3	Better utilization of human resources
4	Faster decision making
5	The effect of the scheme is more strengthening
6	Improved information processing

### A.3.1 Cost benefit Analysis

The cost involved in this project can be divided into two categories as follows.

1. Initial cost
2. Recurring cost

In this project Initial cost is associated with development cost, new hardware and software purchases, user training, etc.

INITIAL COST ESTIMATION		
		COST(LKR)
1	Development cost	0.00
2	New Hardware installation	300,000.00
3	New software Purchase (OS & backup software)	25,000.00
4	Expansion of LAN	50,000.00
Total		375,000.00

RECURRING COST ESTIMATION		
		COST(LKR) per year
1	Software Maintenance	0.00
2	Increment of data Storage	20,000.00
4	Stationary	30,000.00
Total		50,000.00

#### **A.4 Technical Feasibility**

The purpose of assessing Technical Feasibility is to gain an understanding of the SLSP's ability to construct the proposed CIIS System.

##### **A.4.1 Proposed hardware requirement for CIIS :**

Server with at least 3 GHz speed .Ram with 8 GB. Hot pluggable Hard Disk at least 500 GB with expandable slots .

Configure the server with RAID-5 .One is Data base server, One is Web server.

Auto loader with 10 tape cartridges for backup data. . Backups should schedule differential backup daily & take full backup weekly.

Storage Area Network (SAN) with expandable slots .This is an additional storage device (which has only the disk & disk controller ) support the servers ,since server has limited expandable hot pluggable slots .

##### **A.4.2 System Software Requirement :**

OS	Windows 2003 server
Web server	Apache 2
Programming languages	PHP, Java Script
DBMS	MySQL



### **A.4.3 Communication Infrastructure:**

SLSI has a leased ADSL line already

### **A.5 Legal Feasibility**

Since the SLSI is a Government Organization every activity of the organization should conform to the directions stipulated in the following regulatory documents

1. SLSI act No 06 of Year 1984
2. labor law
3. Organizational Operational Procedures
4. directives issued by the controller Imports & Exports

However the proposed system doesn't have any violations in the directions stipulated in the above mentioned four documents.

Since the Government has a policy in adopting computerized systems to State Organizations to uplift their services, if necessary ,amending any legal requirement that would be a constrain in implementing a computerized system will be considered positively .

Also there is no need to obtain licenses for the proposed software implementation because all sources required are free and open source except the OS. Now the organization is in the process of updating all its computers with Windows license versions.

### **A.6 Political Feasibility**

Our last focus in this feasibility study is how the key stakeholders of the organization react to the proposed computerized system.

It is obvious that the proposed system will have a revolutionary change in the implantation of CIIS. Even though such a change is expected, there is no threat of losing the jobs of permanent staff because they can be reallocated for other services

Currently there are 5 trade unions existings in the organization. However, every one accepts that the activities of CIIS should be computerized to enhance its effectiveness. On the other hand , the cost savings by implementing the system can be used for employee welfare so that unwanted labor issues will not arise.

## Appendix B

### Problems and weaknesses of the existing system

#### B.1 High Cycle time

In the present manual system the document cycle time is nearly four hours. In the worst cases it is more than one day. In explaining the present system, it is observed that the Entry needs to pass through various points of processing by manual interventions. Due to this drawback of the system, people wait for long hours in the SLSI and that had already created several issues including security. Most of the time, this delay is potential to incur losses to Importers especially during seasonal business peaks, like the New Year.

#### B.2. Contracted labor

The present way of implementing the system demands high involvement of human resources. They are in the categories of Executive, Clerical and other supportive grades. Due to the scarcity of supportive grade employees casual laborers supplied by a labor contractor are employed in the QA division. This situation has already created following issues in the organization,

- I. Employees in other categories always have an additional burden of training contract people from time to time because these casual workers leave the place when they find a better offer. This situation badly affects the implementation of the system.
- II. Organizational assets are under threat as they have no control over accessing them. It is always found that they use computers in the division freely. Also they have access to files of Importers. Hence there is no guarantee of security for that information especially for the files with quality related issues.

### **B.3. Poor use of Organizational resources**

Services of all officers in the SLSI are obtained in the implementation of other schemes like “SLS” mark, ISO 9001 certification etc. However the present method of implementing the CIIS inhibits such participation as it is very difficult to move documents from (Entries and the Importers’ files) from and to between QA and other divisions. Hence the effective use of organizational HR resources in the implementation of CIIS is poor.

### **B.4. No feedback to the Importer.**

In the present system there is no method to update the Importer about the progress of the processing of Entries. Therefore, the importers are making much number of telephone calls to know about the processing stage of the Entry. That again consumes the productive time of the staff that leads, to increase the delay of processing.

### **B.5. Document misplace**

It has been regularly observed that the staff members waste time to find missing documents daily. The most approximate reasons for document misplacements are,

- I. One Importer’s documents may have been filed to some other’s file accidentally. In this situation, it is almost impossible to locate the document.. This is a very dangerous issue in case of a quality issue arises with respect to the particular consignment.
- II. Entry may be lying unnoticed at a point in the processing chain. Sometimes it might be mixed with other documents of the person who acted upon the Entry at that point.

### **B.6. Difficulty in evaluating individual performance**

In the present manual system, it is very difficult to evaluate the individual performance of staff. For example, the number of Entries that were perused by a particular employee or how many inspections were carried out within the year.

### **B.7. Forged Notifications**

It has been observed several times, forged notification had been produced at the Customs pretending that the SLSI has no objection to release the consignment. This is possible because, the only document customs look for is the endorsed notification form indicating the SLSI decision. There is no option in the system other than the telephone, that the Customs can verify the originality of the document.

#### **B.8 Poor follow up activities**

Follow up activities are required in the following situations

- In case of a consignment being rejected the importer is required to rework or re-export it
- Consignments lying at the importer's warehouse pending for sample collection.

For the rejected consignments a rejection letter is sent to the Importer (*please see the clause 07 of AD's decisions*) asking him to comply with the directions given in the letter within the specified time frame. Most of the time it is observed that follow up activities after this letter is poor because of the heavy day to day workload.

In the second situation (*please refer the clause 02 AD's decisions*), it has been observed that many entries pending for longer times to conduct inspections. This is because of the importer has not indicated his readiness for the inspection. Here the risk is that goods would have been sold taking the advantage of the delay.

#### **B.9. Higher operational and overhead cost**

Among the other schemes operated by the SLSI, the CIIS has the highest operational cost. This is due to,

- High stationary and other utensil cost
- telephone charges
- Maintenance charges of computers, printers and photocopiers. In the QA division there are eleven printers and more than fifteen computers .Out of these eleven printers there are nine laser printers. Also there are two photocopiers.
- Salaries of casual workers. There are about six casual workers in the QA division.

### Analysis of the Existing System

#### C.1 Functional requirements

Receive/ Issue clerk ,

1. system shall ensure the availability of required documents in the Notification
2. system shall validate the documents submitted in the Notification
3. system shall update the II database with received Notification details
4. system shall generate an Entry Number for a registered Notification
5. system shall print Entry number , date of receipt, time of receipt, name of the importer, name of the exporter, on the form FM – II – GN – 03
6. system shall print the Entry number on rest of the pages of the Entry
7. system shall place the Entry in the relevant tray
8. system shall return the Notification to the importer in case if changes required before the registration
9. system shall issue a copy of the FM – II – 01 to importer indicating the recommendation

CC,

10. system shall complete the importer's file number on the form FM – II –GN – 03
11. system shall update the items register with Entry details
12. system shall submit the Entry at the DO for the nomination of a perusing officer
13. system shall submit the Entry and the relevant file to the nominated perusing officer
14. system shall calculate the applicable charges for the Entry
15. System shall issue an invoice to importer for making payments

DO,

16. system shall keep track on the pending Entries at each perusing officer
17. system shall allocate Entries for perusing considering the pending load
18. system shall reallocate Entries for perusing in case of a request

19. System shall reallocate Entries in case of delay in perusing.

Perusing Officer,

20. system shall have facility to retrieve past information of the manufacturer

21. system shall ensure that the perusing staff receive importer's file, item register along with the Entry

22. system shall have a facility to retrieve the date of last sampling

23. system shall have a facility to retrieve the number of consignments approved without sampling after last sampling

24. system shall allow perusing staff to indicate perusing results on the Entry

AD,

25. system shall ensure that AD receives perused Entry for his recommendation

26. system shall have a facility to view results of perusal

27. system shall have a facility to review past recommendations

28. system shall allow AD to indicate his recommendation on the Entry

29. system shall facilitate AD to forward Entries for D(QA)'s recommendation

30. system shall ensure that AD receives back Entries with D(QA)'s recommendation

31. system shall have a facility to communicate with the importer

D (QA),

32. system shall ensure that D(QA) receive Entries from the AD for his recommendation

33. system shall have a facility to view AD's recommendation on the Entry

34. System shall have a facility to indicate D (QA)'s recommendation on the Entry.

Importer,

35. system shall issue blank FM-II-01 (notification form) to importer

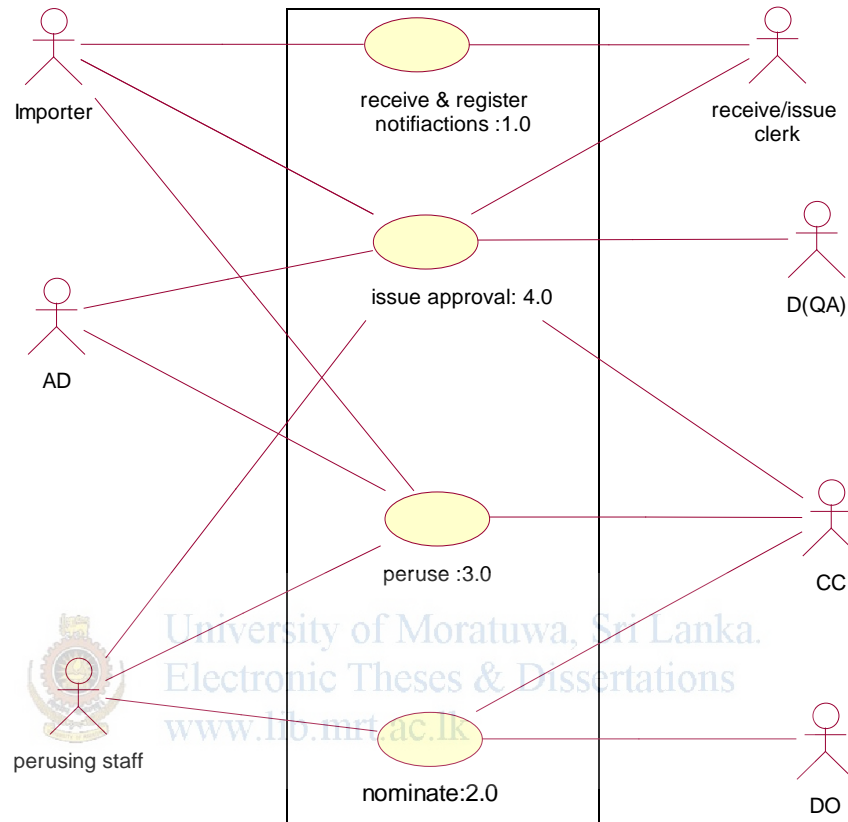
36. System shall ensure that importer submits separate notifications for items covered by different standards.

37. System shall allow Importer to rectify shortcomings of the Entry during the processing stage.

**C.2 Non functional requirements,**

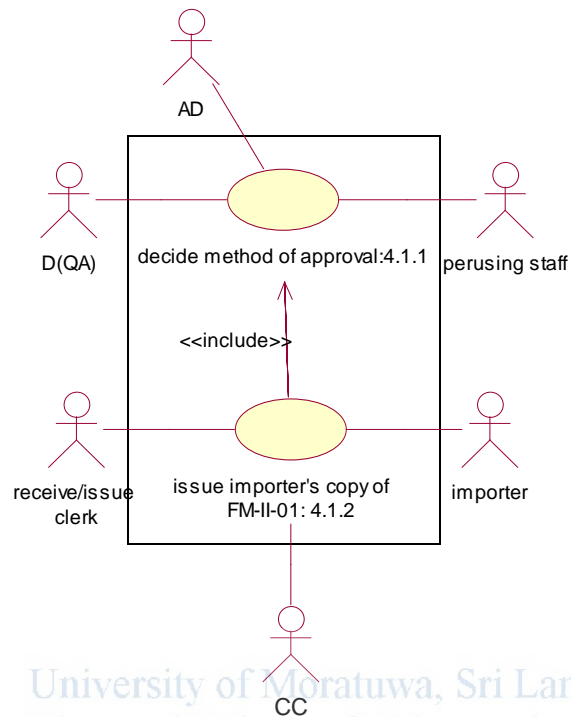
1. system should not accept notifications before 09 00 hrs
2. system should not accept notifications after 15 45 hrs
3. system should be unavailable to importers during weekends
4. system should be unavailable to importers during holidays
5. system should issue a copy of FM-II-01 with recommendations to importer within four hours of submission
6. system should not allow importers to gain access to others information
7. system should not allow importers to access their information without prior approval from AD
8. system should not allow unauthorized staff members to gain access importers information
9. System should not allow importers to make changes in the documents once submitted.
10. System should keep importer's informations for two years.

### C.3 Existing system overview





## Level 01 use case diagram of issue approval



### Use case description of receive and register notifications

**System:** Entry processing of compulsory import inspection scheme (CIIS)

**Use case:** receive & register notifications (1.0)

**Actors:** importer, receive/issue clerk

#### Data:

Receive/ issue clerk at the counter verifies the availability of the form FM-II-01 in three copies, a copy of bank stamped invoice, packing list, B/L in the Notification and ticks the checklist of section A1 of FM-II-GN-03. After that the clerk validates the FM-II-01 for the completion of the required fields. If satisfactory, the Notification is registered entering the following information in the database. Else return it to importer for the corrections.

- Name and address of the consigner
- Name and address of the consignee
- Country of origin
- Number and date of invoice

- Number and date of B/L
- Total net weight
- Description of goods(product, brand, type, sizes, quantity, etc)

Also the following information will be entered in the database only if available.

- Customs Entry number
- Shipping marks and container numbers
- Organization that has issued the quality certificates

**Stimulus:**

The importer submits a notification at the counter and request SLSI decision for the consignment.

**Response:**

Entry is registered in the system. System will assign an Entry No.

The assigned Entry No. is printed on the FM-II-GN-03 along with the date of receipt, time of receipt, name of the importer, Name of the exporter, are printed on the FM-II-GN-03. Also manually print the Entry No on rest of the pages in the Entry. After all, the Entry will be placed in the relevant tray.

**Comments:**

Importers are required to submit separate notifications for all the items in the invoice covered by the different standards mandated under CIIS

## Activity diagram 01- receive & register notifications



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**System:** Entry processing of compulsory import inspection scheme (CIIS)

**Use case:** nominate (2.0)

**Actors:** DO, CC, Perusing Staff

**Data:**

The DO will identify the item referred in the Entry and decide a suitable perusing officer from those who are currently available. Subsequently he fills the following fields in the section B of FM-II-GN-03.

- Name of the perusing officer
- Date of nomination
- Time of nomination

- Name of the DO
- Signature

Also DO will do the re-nomination in the same way only by changing the Name of the perusing officer and time of nomination

**Stimulus:**

CC forwards the Entry to the DO and requests to nominate a suitable perusing officer

**Response:**

A perusing officer is nominated and the Entry is returned to CC.

**Comments:**

There are two DO s in the QA division for a particular day. They serve for food and non food sections. According to a roster, they are appointed from the Executive officers daily. CC is required to submit Entries for nominations as she receives them. DO is required to keep attendance of perusing staff, to avoid delays in nominations.



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## Activity diagram 02- Nominate



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**System:** Entry processing of compulsory import inspection scheme (CIIS)

**Use case:** peruse (3.0)

**Actors:** CC, Perusing Staff, AD, Importer

**Data:**

The perusing officer starts perusing verifying the nomination. He goes through the invoice and packing list. Then compares the information given in FM-II-01 with invoice, packing list and B/L. If any acceptable document for product quality is available in the Entry, they too will be read and assessed for the product quality.

The section D1 of FM-II GN-03 will be completed accordingly. Any comments will be indicated under remarks. If any acceptable document for product quality is available, the

date of last sampling done and the number of consignments approved without sampling are retrieved from the importer's file. In case of the consignment is being canned fish, the section 03 of FM-II-GN-03 also completes. At the end of the perusing process, the Entry is forwarded at the AD. Any technical issues in the Entry during the perusal will be referred to the relevant AD. The AD will contact the importer and ask to rectify the shortcomings if required.

**Stimulus:**

The CC sends the nominated Entry, importer's file and the items register to the perusing officer and request to peruse the Entry.

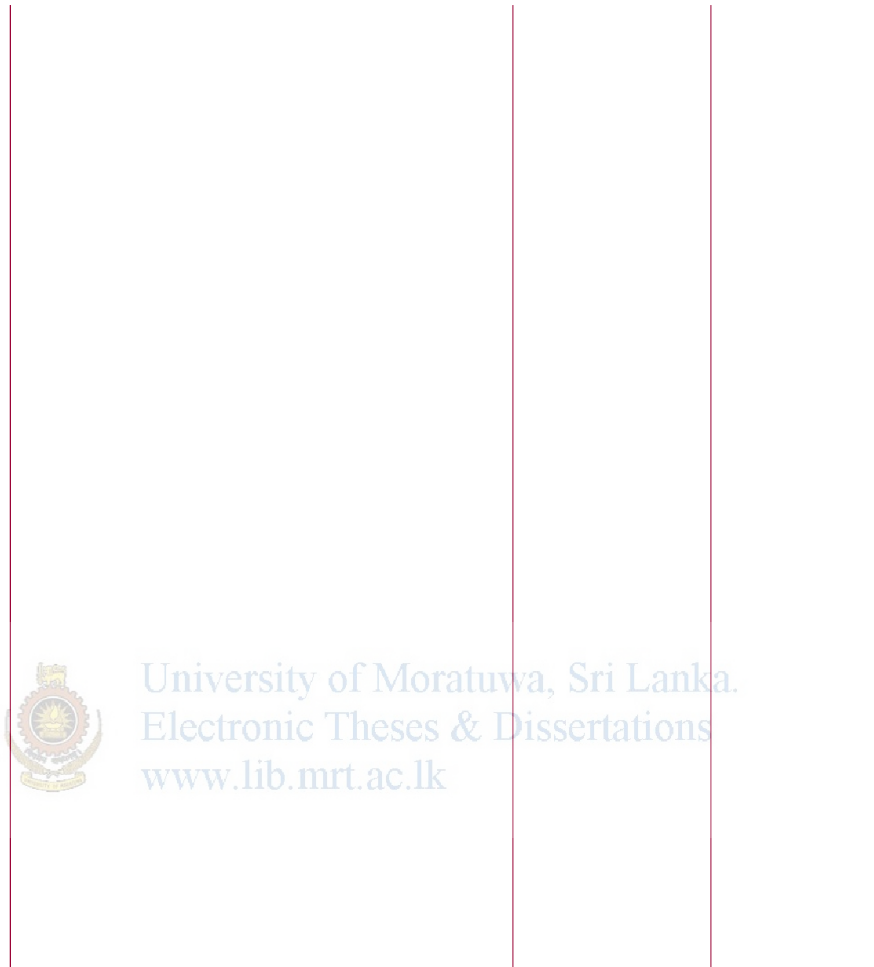
**Response:**

Perused Entry will be forwarded to the AD

**Comments**

Even though, receive/ issue clerk verifies the availability of required documents and validate the FM-II-01 before the registration, the contents may not be technically tallied with other documents. Also the importer may have not submitted separate Entries for the rest of the covered items appearing in the invoice. Sometimes the certificates provided for product quality, may not represent the item referred to in the Entry. These issues are surfaced during the perusal and the perusing officer seeks the assistance of AD to resolve them.

### Activity Diagram 03 - notification perusing



**Use case:** decide method of approval (4.1.1)

**Actors:** AD, D (QA), perusing staff

**Data:**

AD reviews the section D of FM-II-GN-03 completed by the perusing officer. According to the results of perusing, AD decides one of the following methods of approvals.

- test samples without releasing the consignment from the port
- test samples releasing the consignment to importer's ware house
- test samples releasing the consignment to importer's warehouse permitting sale after sample collection

- approve the consignment is of satisfactory quality
- approve the consignment of being a not covered item.

AD requests D (QA)'s prior approval in all four decisions except the first. The D (QA)'s approval is requested sending the Entry at D (QA) completing the section F of FM-II-GN-03 appropriately. D (QA) indicates his recommendation on FM-II-GN-03 completing the section G and return the Entry to AD. AD places the relevant rubber stamp on all three copies FM-II-01 including FM-II-GN-03 and places his signature on the endorsement. In all situations, except when the consignment is released without sampling, AD is required to complete the section E of FM-II-GN-03. Finally, the SLSI logo is embossed on the rubber stamp, placed on the copy of FM-II-01 which will be issued to the importer the importer.

**Stimulus:**

Perusing officer submits the perused Entry with his findings to the AD, requesting AD's decision

**Response:**

CC receives an Entry indicating the method of approval on all three copies of FM-II-01

**Comments:**

There is no requirement to approve only the AD's decision by the D (QA). He has the authority to change the AD's recommendation. In case a consignment is release to importers warehouse for sampling without any acceptable document for product quality , the importer is required to produce a guarantee letter indicating his agreement not to sell until the SLSI approval is granted.



#### Activity diagram 04 -Deciding method of approval



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**System:** Entry processing of compulsory import inspection scheme (CIIS)

**Use case:** issue FM-II-01 (4.1.2)

**Actors:** CC, receive/issue clerk, importer

**Data:**

CC goes through sections E, F & G of FM-II-GN-03 and calculates the charges accordingly. The calculation is indicated in the section C of FM-II-GN 03. For the calculation of transport charges, the CC inquires the importer, where the place of the consignment is located at. The CC issues the invoice to the importer and sends the Entry to receive/issue counter.

**Stimulus:**

AD sends the processed Entry to the CC and request him to issue a copy of FM-II-01 to the importer.

**Response.**

Importer is informed of the charges needs to be settled. Importer's copy of FM-II-01 is issued by the receive/issue clerk, once the importer produces the receipt of payment.

Activity diagram 05- the Issue of importer's copy of FM-II-01(Notification)



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#### C.4 Use case check list of the existing system

Use case number	Software requirement numbers	Use case description number	Activity diagram number
1	1,2,3,4,5,6,7,8,35,36	01	01
2	10,11,12,16,17,18,19	02	02
3	13,20,21,22,23,24,31,37	03	03
4.1.1	25,26,27,28,29,30,32,33,34	04	04
4.1.2	14,15,9	05	05

#### Data dictionary

Term	Type	Purpose
D(QA)	Actor	Director-Quality Assurance who is the in charge of the QA division
AD(QA)	Actor	Persons who are in charge of QA division sub units
DO	Actor	Duty Officer- selected executive officer according to a roster for nomination of Entries for the day
Perusing staff	Actor	Who does the perusing of Entries
CC	Actor	Chief clerk of QA sub unit
Receive/issue clerk	Actor	Who is receiving entries at the counter
Importer	Actor	Who submits Entries requesting the approval for consignments
Customs	Actor	Sri Lanka customs who verifies the SLSI decision for consignments
SLSI	Abbreviation	Sri Lanka Standards Institution
CIIS	Abbreviation	Compulsory import inspection scheme

## C.5 Grammatical Analysis

Nouns, Noun phrases	type		Verbs or verb phrases	type
Receive/ issue clerk	c		Verifies	m
the counter	c		Ticks	m
form FM-II-01	c		validates	m
bank stamped invoice	a		is registered	m
packing list	a		Else return it to importer	m
B/L	a		submits a notification	m
the Notification	c		System will assign an Entry No	m
the checklist of	a		Entry will be placed	m
Form FM-II-GN-03	c			
the database	a			
Name and address of the consigner	a			
Name and address of the consignee	a			
Country of origin	a			
Number and date of	a			
Number and date of B/L	a			
Total net weight	a			
Description of goods	a			
invoice	a			
Customs Entry number	a			
Shipping marks	a			
container numbers	a			
Organization that has issued the quality certificates	a			
The importer	c			
SLSI decision				
Entry	c			
date of receipt	a			
time of receipt	a			
name of the importer	a			
Name of the exporter	a			
tray.	a			
items in the invoice	a			
standards	a			
the corrections.	a			

<b>Nouns, Noun phrases</b>	<b>type</b>		<b>Verbs or verb phrases</b>	<b>type</b>
DO	c		identify the item referred in the Entry	m
CC	c		decide a suitable perusing officer	m
Perusing Staff	c		fills fields in section B of FM-II-GN-03	m
section B of FM-II-GN-03.	a		DO will do the re-nomination	m
Name of the perusing officer	a		nominate	m
Date of nomination	a		keep attendance	m
Time of nomination	a		perusing	m
Name of the DO	a		verifying the nomination	m
Executive officers	c		compares the information	
nomination	c		read and asses	
attendance of perusing staff	c		will be indicated under remarks	m
product quality	a		are retrieved from	m
section D1 of FM-II GN-03	a		Entry is forwarded	m
comments	a		will be referred to the relevant AD	m
any acceptable document	a		contact the importer	m
			seeks assistance	m
the date of last sampling	a		perusing	m
the number of consignments approved without sampling	a			
the importer's file.	a			
consignment	a			
canned fish	c			
items register	a			
the certificates	a			
the assistance of AD	a			

<b>Nouns, Noun phrases</b>	<b>type</b>		<b>Verbs or verb phrases</b>	<b>type</b>
the results of perusing	a		reviews the section D of FM-II-GN-03	m
methods of approvals	a		decides	m
D (QA)'s prior approval	a		test samples	
section F of FM-II-GN-03	a		approve	m
D (QA)' recommendation	a		D (QA)'s approval is requested	m
section G of FM-II-GN-03	a		Place signature	m
rubber stamp	a		CC goes through	m
the endorsement	a		Calculates	m
copy of FM-II-01			calculation is indicated	m
approval	c		inquires the importer	m
AD's recommendation	a		issues the invoice	m
Warehouse	a		sends the Entry at receive/issue counter	m
guarantee letter	a		Importer is informed of the charges	m
SLSI approval				
sections E, F & G of FM-II-GN-03	a			
charges	c			
section C of FM-II-GN 03	a			
transport charges	a			
place of the consignment	a			
invoice	c			
Importer's copy of FM-II-01	a			
receipt of payment	a			

### Analysis and Design of the proposed system

#### Functional requirements of the proposed system

##### Importer

1. Importer shall have a facility to submit notifications online
2. system shall validate the contents of FM-II-01 before accepting it into the system
3. System shall ensure availability of required documents in the notification before the acceptance
4. system shall validate the file sizes of attachments before sending them to the database
5. Importer shall receive an acknowledgement email after a successful submission
6. Importer shall have an appropriate viewer to see the progress of processing the Entry
7. system shall provide an appropriate viewer to importer and Customs to see the method of approval given on the Entry
8. Importer shall be able to do the required rectifications in the Entry

##### Receive /issue clerk

9. Receive/issue clerk shall be able to print invoices
10. receive/issue clerk shall be able to view the pending Entry for issue
11. receive /issue clerk shall be able to publish the method of approval

##### CC

12. System shall facilitate CC to mark perusing staff attendance
13. CC shall be able to view the pending Entry for charges
14. CC shall be able to calculate charges
15. CC shall have a facility to inform charges generating an Email

## **AD**

16. AD (or DO) shall have a facility to change the initial nomination
17. system shall facilitate AD (or DO) to update the availability of perusing staff
18. AD shall be able to review the perused Entry
19. AD shall be able to review past performance of the manufacturer
20. AD shall be able to retrieve past decisions given for the manufacturer
21. AD shall be able to allow the Importer to do the necessary rectifications in the Entry
22. system shall facilitate AD to select a method of approval
23. System shall facilitate AD to publish the final decision based on the test report
24. AD shall be able to send an Email to importer informing the final decision
25. AD shall have the facility to send an Email to importer informing the shortcomings observed during the perusal
26. AD shall have the facility to inform product failures by generating an Email

## **Perusing staff**

27. perusing staff shall be able to view pending Entry
28. system shall facilitate perusing officers to peruse the allocated Entry
29. System shall complete the date of last sampling and No. of consignments released after last sampling when perusing staff identifies him as a registered manufacturer.

## **System Administrator**

30. system administrator shall be able to
  - add users
  - delete users
  - change user privileges
  - allow user password change
- 31 Administrator shall be able to update the list of items in the database
- 32 Administrator shall be able to delete records in the database
- 33 Administrator shall be able generate management reports



**D (QA)**

- 33 D(QA) shall be able to view the pending Entries
- 34 system shall facilitate D(QA) to indicate his recommendation on the Entry

**Staff (common requirements)**

- 35. SLSI system users shall be able to login to the system
- 36. users shall be able send the Entry at next person once they finish their part
- 37. users shall be able to
  - search information
  - print information

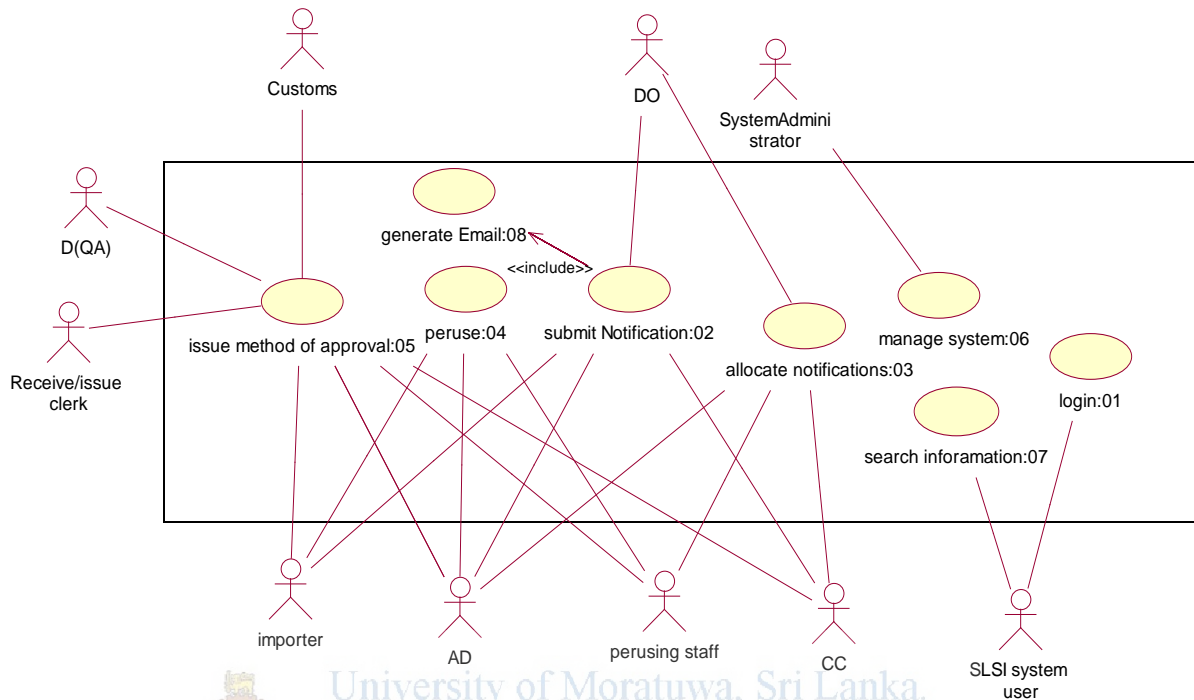
**Other**

- 38. system shall register an Entry by generating an Entry Number
- 39. system shall nominate received entry for available perusing officers automatically
- 40. system shall update the progress summary of Entries displayed to the staff
- 41. system shall update the processing stage shown to importer from time to time
- 42 system shall notify CC , AD & DO if attendance is not marked

### **Non Functional Requirements of the proposed system**

1. The importer shall receive a message for successful submission within 12 seconds
2. system shall be unavailable from 23 00 h - 00 h for backups
3. system shall not allow importers access to others' Notifications
4. system shall not allow importers access to their Notifications without prior approval from AD
5. system shall not allow unauthorized staff members access to importers information
6. System shall not allow importers, unless permitted, to make changes in the documents once submitted.
7. System shall keep importer's information for two years if not required.
8. system shall not allow any staff member to change documents submitted by the Importer
9. system shall not allow any staff user to alter others' activities in the processing channel
10. System shall not allow any staff member to change the method of approval, once it is published.

## Proposed system overview



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## Use case description of login process

Use case name	1:0	Login
Description	This use case is started by the system user. Once a system user is login to the system with his username, password and role, the system allows to use all the privileges given to him or her.	
Actors	All SLSI system users.	
Pre conditions	System must be available to users System users have been added to the system by the administrator	
Post conditions	User has logged into the system and relevant user interface has appeared.	
Flow of events	<ol style="list-style-type: none"> <li>1. user requests login in to the system</li> <li>2. login interface appears and user enters his username and password</li> </ol>	



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### Use case description of submit notifications

Use case name	2:0	Submit Notifications
Description	This use case is started by the importer. It facilitates for the importer to submit Notifications online.	
Actors	Importer, CC	
Pre conditions	<p>The Importer has logged into the system.</p> <p>The Notification form for submitting notifications has appeared on the importer's computer.</p>	
Post conditions	<p>The message for successful submission is displayed on the Importer's computer and the acknowledgement Email is sent to the importer comprising the information of Entry No, Date of submission, time of submission, importer's name, item, invoice number and the relevant AD's name.</p> <p>Summary of received Entries displayed at CC, AD&amp; DO is updated.</p>	
Flow of events	<ol style="list-style-type: none"> <li>1. Importer opens the web form of FM-II-01 on his computer(<i>if hard copies are submitted exception 01 is executed</i>)</li> <li>2. The importer completes the form with consignment details</li> <li>3. He moves in to the attachment page after completion of FM-II-01</li> <li>4. Scanned copies of Bank stamped invoice, packing list and B/L in PDF format is attached.</li> <li>5. Scanned copies in PDF format of quality certificates, test reports, importer's guarantee letter and catalogues are attached as optional documents only if available(<i>if the file size exceeds the maximum limit, exception 02 is executed</i>)</li> <li>6. Importer submits the completed document into the system</li> <li>7. System validates the notification before sending it in the</li> </ol>	

	<p>database(<i>if not valid exception 03 is executed</i>)</p> <p>8. System verifies in the database for duplicate submissions(<i>if previous record is available , exception 04 is executed</i>)</p> <p>9. If no previous record is available , the database is updated with the new information</p> <p>10. System displays the message for successful submission</p> <p>11. System updates the processing stage that is shown to the importer in the database</p> <p>12. The use case ends when the acknowledging Email is sent to the importer.</p>
Exceptions	<p>01. <i>Notifications are processed under the existing system</i></p> <p>02. <i>The message of “Exceeds the file size” is displayed</i></p> <p>03. <i>A summary of shortcomings in the Notification is displayed and that enables the importer to correct.</i></p> <p>04. <i>The message of “Notification already exists” is displayed and that enables the importer to resubmit after correcting the FM-II-01.</i></p>




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### Use case description of Allocate Notifications

Use case name	3	Allocate Notifications
Description	This use case is started by the AD. It provides the system capable of assigning received Entries in the database to available perusing staff depending on their completed and pending work load. Also it gives the authority to AD or DO to change the nomination	
Actors	DO, AD, perusing staff, CC	
Pre conditions	SLSI system users has been updated Pending Entries are available for nomination.	
Post conditions	Entries have been reasonably allocated to suitable perusing officers and the are ready for perusal	
Flow of events	 <ol style="list-style-type: none"> <li>1. System displays relevant perusing officers</li> <li>2. Entries are assigned depending on the pending and completed work load</li> <li>3. Summaries of received Entries displayed at AD, CC and Perusing officer are updated</li> <li>4. System updates the processing stage shown to Importer in the database</li> <li>5. The log record of Entry is updated with the time of allocation and name of perusing officer.</li> </ol>	
Exceptions	<ol style="list-style-type: none"> <li>1. <i>If the perusing officer requests to nominate some other person for a valid reason, then AD or DO nominate a suitable person and reason for re-nomination is indicated in the log record.</i></li> <li>2. <i>If the perusing officer hasn't login to the system, the CC informs him over the phone about the pending Entries.</i></li> <li>3. <i>if the perusing officer does not attend the nominated Entries within thirty minutes of the allocation , the system will notify the situation to AD and DO and if required the AD or DO can re-nominate some other person</i></li> </ol>	





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### Use case description of peruse notifications

Use case name	4:0	Peruse
Description	<p>The process of perusing Entries is covered by this use case. This use case is started by the perusing officer. It facilitates the perusing officer to go through every document in the Entry and verify them against each other. Also it enables the perusing officer to request AD's assistance, if required, to resolve technical shortcomings in the Entry. Further it gives the authority to AD to allow the Importer to rectify the shortcomings if required.</p>	
Actors	Perusing staff, AD, Importer	
Pre conditions	<p>Allocated Entries are available for the perusing officer.</p> <p>The perusing officer has log on to the system.</p>	
Post conditions	<p>Perused Entry is forwarded to the AD</p> <p>Log record about the Entry is updated with the time of starting perusing and finishing. Also, if AD's assistance was obtained to peruse it is, also recorded.</p>	
Flow of events	<ol style="list-style-type: none"> <li>1. System displays the pending Entries for perusal in the summary of Entries of the particular perusing officer</li> <li>2. The perusing officer opens the Entry</li> <li>3. Goes through every document in the Entry and verifies the information given in the form FM-II-01. (<i>technically invalid Entries are handled under exception 1</i>)</li> <li>4. If any supporting document for product quality and catalogues are available, they are evaluated.</li> <li>5. He completes section D1 of FM-II-GN-03 accordingly.</li> <li>6. System completes the section D2 of FM-II-GN-03, if "yes" column of section D1 has been ticked.</li> <li>7. For canned fish Entries, the perusing officer completes section D3 of FM-II-GN-03</li> <li>8. The perusing officer gives any additional information found</li> </ol>	

	<p>during the perusal under remarks of section D1 of FM-II-GN-03</p> <p>9. The Entry is forwarded to the AD when perusing is over.</p> <p>10. System updates the processing stage shown to importer in the database</p>
Exceptions	<p><i>1. Entries with shortcomings (technical contents) are forwarded at the AD with the list of shortcomings observed. He decides whether the importer is required to rectify those shortcomings and notify the shortcomings to importer ( by an Email) allowing the rectification.</i></p>



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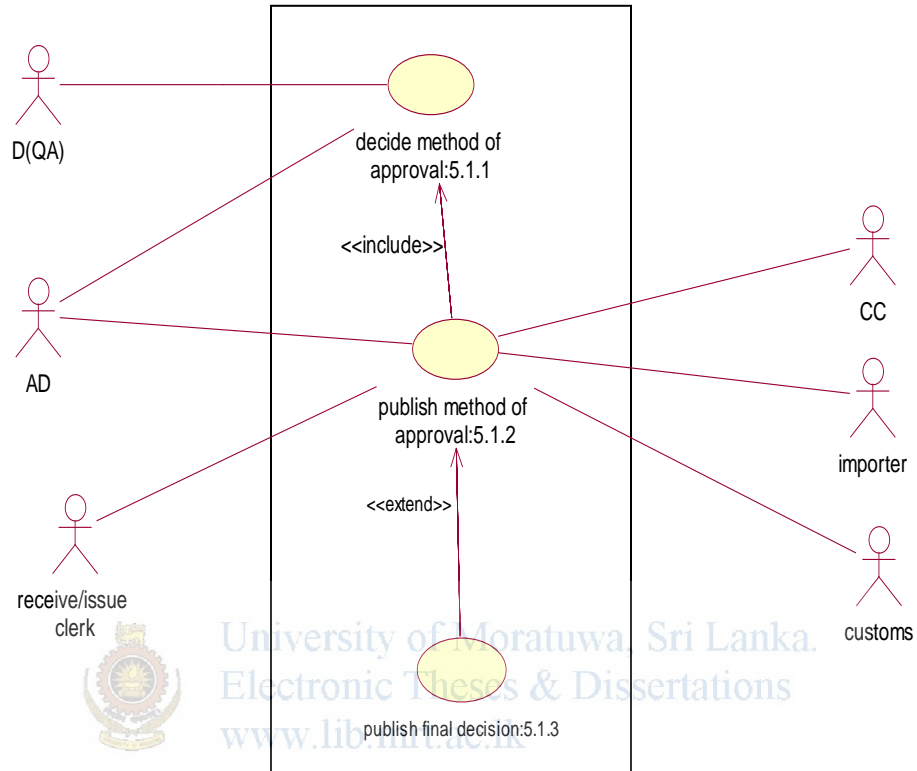


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## Issue method of approval



### Use case description of Decide Method of approval

Use case name	5:1:1	Decide method of approval
Description	<p>This use case is started by the AD. It gives the capability for AD to indicate the method of approval on FM-II-GN-03(processing form) based on the results of perusal. Also it provides the capability for AD to review the perused Entry for a verification of the perusal if required. Further it facilitates the AD to return the Entry at the perused officer if changes are needed.</p> <p>Also it facilitates the D (QA) to view the processing form and to indicate his recommendation on method of approval suggested by AD.</p>	
Actors	AD,D(QA)	
Pre conditions	<p>AD has logged on to the system</p> <p>D(QA) has logged on to the system</p> <p>Perused Entries are pending for method of approval</p>	
Post conditions	<p>Method of approval is decided and D (QA)'s recommendation (if required) received.</p> <p>AD forwards the Entry at CC for the calculation of charges.</p>	
Flow of events	<ol style="list-style-type: none"> <li>1. AD opens Entries pending for deciding the method, of approval</li> <li>2. Reads section D of the processing form</li> <li>3. Completes the section E of the processing form for sampling or inspection ( <i>if sampling or inspection is not required, the exception 1 is applicable</i>)</li> <li>4. Completes the section F of the processing form and forwards the Entry to D (QA). A justification for the suggested method of approval is given if required. ( <i>if D(QA)'s approval is not required, the exception 2 is applicable</i>)</li> <li>5. System updates the summary displayed at D(QA) for his recommendation</li> <li>6. D (QA) indicates his recommendation by completing the section G of the processing form and return the Entry at AD.</li> </ol>	

	<ol style="list-style-type: none"> <li>7. System updates the summary displayed at AD about the D(QA)'s approval</li> <li>8. AD views the D(QA)'s recommendation</li> <li>9. Forwards the Entry at CC for the calculation of charges</li> <li>10. System updates the log record of the Entry with the information of method of approval.</li> <li>11. System updates the summary displayed at CC and AD indicating the pending calculation of charges</li> <li>12. System updates the processing stage shown to importer in the database</li> </ol>
Exceptions	<ol style="list-style-type: none"> <li>1. AD indicates that sampling or inspection is not required in the section E of the processing form</li> <li>2. AD completes the section E of the processing form and forwards the Entry at CC for the calculation of charges.</li> </ol>





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### Use case description of publish method of approval

Use case name	5:1:2	Publish Method of approval
Description	This use case is started by the CC. It facilitates the CC to calculate charges and inform the importer generating an Email. Also it provides the facility for Customs to verify the method of approval given, when the importer produces his copy of FM-II-01 at the Customs.	
Actors	AD, CC, receive/issue clerk, Customs, Importer	
Pre conditions	CC has logged in to the system Entries with method of approval given are available for calculation of charges System administrator has added the charges in the database.	
Post conditions	Section E of the processing form has been completed by the CC Receive /issue clerk prints the invoice and FM-II-01. Importer receives an Email informing the charges.	
Flow of events	<ol style="list-style-type: none"> <li>1. CC opens the pending Entry for the calculation of charges</li> <li>2. She goes through the sections E &amp; F of the processing form</li> <li>3. Inquire the importer about the location of the warehouse and whether urgent basis testing is needed</li> <li>4. include (Decide method of approval ).Completes the section C of the processing form and generate the invoice</li> <li>5. Inform the charges to importer generating an Email( <i>any additional charges taken after informing initial charges will be handled under the exception 01</i>)</li> <li>6. System update the summary displayed at the receive/issue clerk, AD and CC</li> <li>7. System updates the processing stage shown to importer in the database</li> <li>8. Receive/ issue clerk prints the invoice</li> </ol>	

	<p>9. Importer handover hard copies of the submitted Entry at the counter and receives the invoice</p> <p>10. AD or Nominated officer by the AD verifies the hardcopies</p> <p>11. If satisfactory AD places the appropriate rubber stamp on the copies of FM-II-01 and send it to the receive/ issue clerk</p> <p>12. Receive/ issue clerk embosses the importers copy of FM-II 01</p> <p>13. Receive/ issue clerk requests the system to publish the method of approval</p>
Exceptions	<i>Separate invoice is raised in case any additional charge is required for testing charges, urgent basis charges or penalty.</i>



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### Use case description of publish final decision

Use case name	5:1:3	Publish final decision
Description	This use case facilitates the AD to publish the final decision taken from those based on the sample test conducted for the product quality.	
Actors	AD, CC, Customs, Importer	
Pre conditions	CC has received the test results from the laboratory.	
Post conditions	CIIS database has updated with the final decision Importer has received an Email informing the decision	
Flow of events	<ol style="list-style-type: none"> <li>1. CC indicates the Entry number on the test report received from the laboratory</li> <li>2. CC forwards the test report to the AD</li> <li>3. AD evaluate the test report( <i>if AD is not available the exception 01 is applicable</i>)</li> <li>4. (based on test results)If product quality is satisfactory , updates the system with “Approved” status for the Entry and send an Email to Importer informing the final decision (<i>if product quality is unsatisfactory, the exception 02 is applicable</i>)</li> <li>5. Importer gets his copy of FM-II-01 updated with the final decision from the SLSI</li> <li>6. Customs verifies the final decision in the system when the Importer produces his copy of FM-II-01</li> </ol>	
Exceptions	<ol style="list-style-type: none"> <li>1. AD updates the system with “Reject” status and a letter will be sent to customs with a copy to Importer explaining the failures. Also an Email will be sent to the importer explaining the shortcomings before the rejection letter.</li> <li>2. A senior officer in the unit will cover up the AD’s activities</li> </ol>	



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### Use case description to Maintain database

Use case name	6:1:1	Maintain database
Description	This use case is started by the System Administrator. It facilitates System Administrator to remove expired records from the database, update charges and to add details of new products recently taken under CIIS.	
Actors	System Administrator	
Pre conditions	requirements for change in the database contents of records, charges and list of items exist	
Post conditions	Required changes in the system contents have been completed	
Flow of events	<ol style="list-style-type: none"> <li>1. Administrator logins to the system ( <i>if Administrator privileges were not given the exception 01 is applicable</i>)</li> <li>2. select the area where the changes are required as follows, <ul style="list-style-type: none"> <li>• Record management</li> <li>• Update list of item under CIIS</li> </ul> </li> <li>3 If record management area is selected , he prepares lists of expired records unit wise and sends to the relevant AD for his approval he deletes the records approved by the AD</li> <li>4 the Administrator updates the charges as he receives the approved new charges</li> <li>5 the list of items coming under CIIS will be updated when the list of newly included items are made available to the Administrator</li> </ol> Administrator logout from the system ending the use case	
Exceptions	01. system informs him that he is not given the adequate privileges as Administrator thus ending the use case	



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### Use case description of Manage users

Use case name	6:1:3	Manage users
Description	This use case is started by the system Administrator. It facilities the system Administrator to Add, delete, change user privileges or user password if required.	
Actors	System Administrator	
Pre conditions	System should be accessible Change of a user requirement exists Administrator privileges	
Post conditions	Required changes for the user requirements have been completed	
Flow of events	<ol style="list-style-type: none"> <li>1. administrator logs in to system( <i>if Administrator privileges were not given the exception 01 is applicable</i>)</li> <li>2. selects the type of user management activity</li> <li>3. if new user needs to be added <ul style="list-style-type: none"> <li>• Add new user</li> <li>• Update user privileges</li> </ul> </li> <li>4. if user is to be removed <ul style="list-style-type: none"> <li>• remove user from the database</li> </ul> </li> <li>5. if user privileges to be changed <ul style="list-style-type: none"> <li>• Update user privileges with new requirements</li> </ul> </li> <li>5. if user password needs to be changed <ul style="list-style-type: none"> <li>• allow user to change the password</li> </ul> </li> <li>7. logout as Administrator</li> </ol>	
Exceptions	01. system informs him that he his not given the adequate privileges as Administrator, thus ending the use case	



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6.1.2	33	6.1.2 – print management reports	09 – printing management reports
6.1.3	30	6.1.3- Manage users	10 – Managing users
7	37	7- search information	11- Searching Information
8	5,15,24,25,26	8 – Generate Email	12 – sending Acknowledgement Email

### Grammatical analysis

a-attribute c-class m-method

Noun or Noun phrase	Type		Verb or Verb phrase	Type
login interface	c			
username	a		user <b>requests</b> login	m
password	a		user <b>enters</b> his username and password	
privileges	a		<b>validates</b> username and password	m
Importer	c		message for successful submission <b>is displayed</b>	m
message for successful submission	a		acknowledgement Email has <b>sent</b> to the importer	m
acknowledgement <b>Email</b>	c		Summary of received Entries <b>displayed</b> at CC, AD& DO <b>is updated</b>	m
Entry No	a		Importer <b>opens</b> the web form of FM-II-01	m
time of submission	a		importer <b>completes</b> the form	m
importer's name	a		He <b>moves</b> in to the attachment page	m
item	a		Bank stamped invoice, packing list and B/L in PDF format <b>is attached</b> .	m
invoice number	a		quality certificates, test reports, importer's guarantee letter and catalogues <b>are attached</b> as optional documents	m
relevant AD's name	a		Importer <b>submits</b> the completed document	m
Summary of received	a		System <b>validates</b> the notification	m

Entries				
web form of FM-II-01	c		System <b>verifies</b> in the database for duplicate submissions	m
attachment page	c		System <b>updates</b> the processing stage shown to importer	m
Bank stamped invoice	a			
packing list	a		<i>The message of “Exceeds the file size” is <b>displayed</b></i>	m
B/L	a		<i>A summary of shortcomings in the Notification is <b>displayed</b></i>	m
quality certificates	a		<i>The message of “Notification already exists” is <b>displayed</b></i>	m
test reports	a		<b>enables the importer to resubmit</b>	m
importer’s guarantee letter	a		Update database (generate Entry No)	m

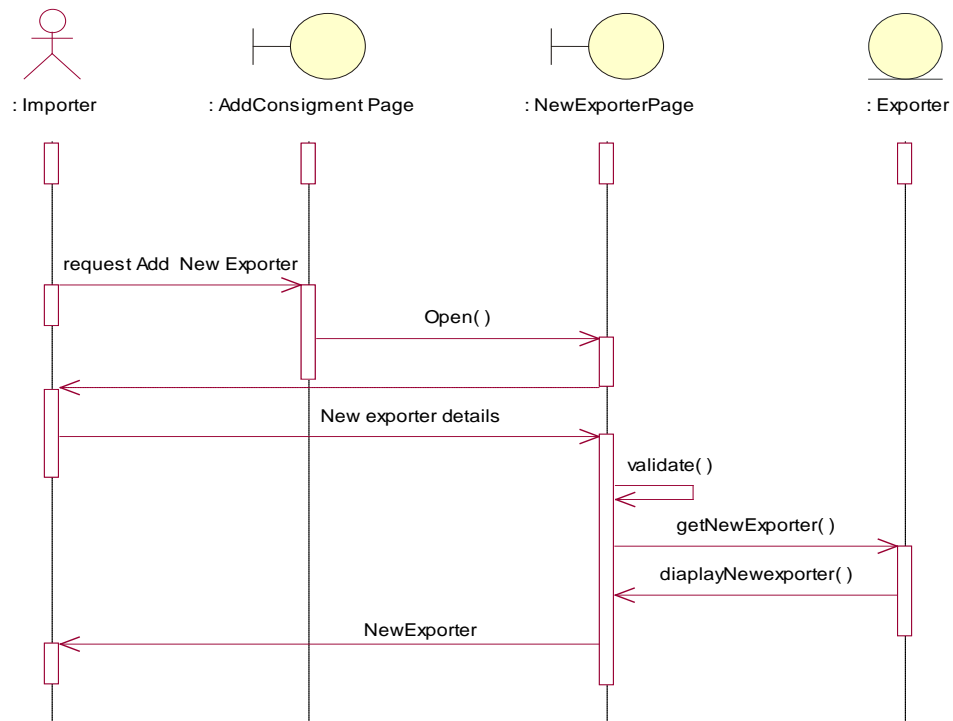
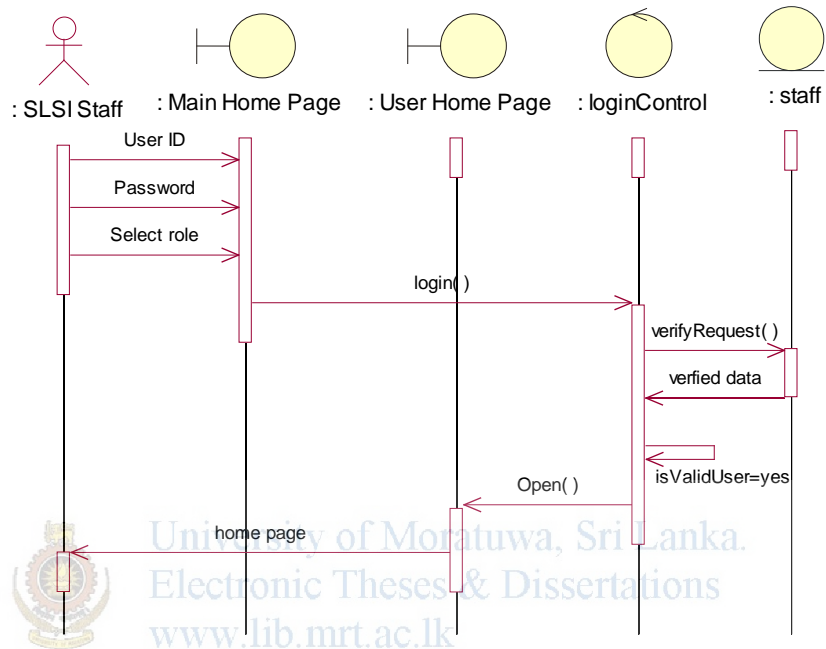
catalogues	a		<b>mark</b> the daily attendance	m
optional documents	a		<b>update</b> the availability of perusing staff	m
file size	a		System <b>requests</b> CC to mark the attendance	m
the completed document			DO <b>views</b> the attendance	m
notification	c		DO or AD <b>makes</b> a log note for the reason for unavailability	m
duplicate submissions	a		<b>Assigning</b> received Entries in the database	m
processing stage shown to importer	a		<b>change the nomination</b> initially done by the system	m
<i>message of “Exceeds the file size”</i>	a		<b>System searches for</b> available suitable perusing officers	m
<i>summary of shortcomings</i>	a		Summaries of received Entries displayed at AD, CC and Perusing officer <b>are updated</b>	m
<i>message of “Notification already exists”</i>	a		<i>the system <b>will notify the situation</b> to AD and DO</i>	m
Daily attendance	c		<i>if required the AD or DO can <b>re-nominate</b> some other person</i>	m
units	c		<b>perusing</b> Entries	m
the availability	a		<b>go through</b> every document in the Entry	m
perusing staff	c		<b>verify</b> them against each other	m

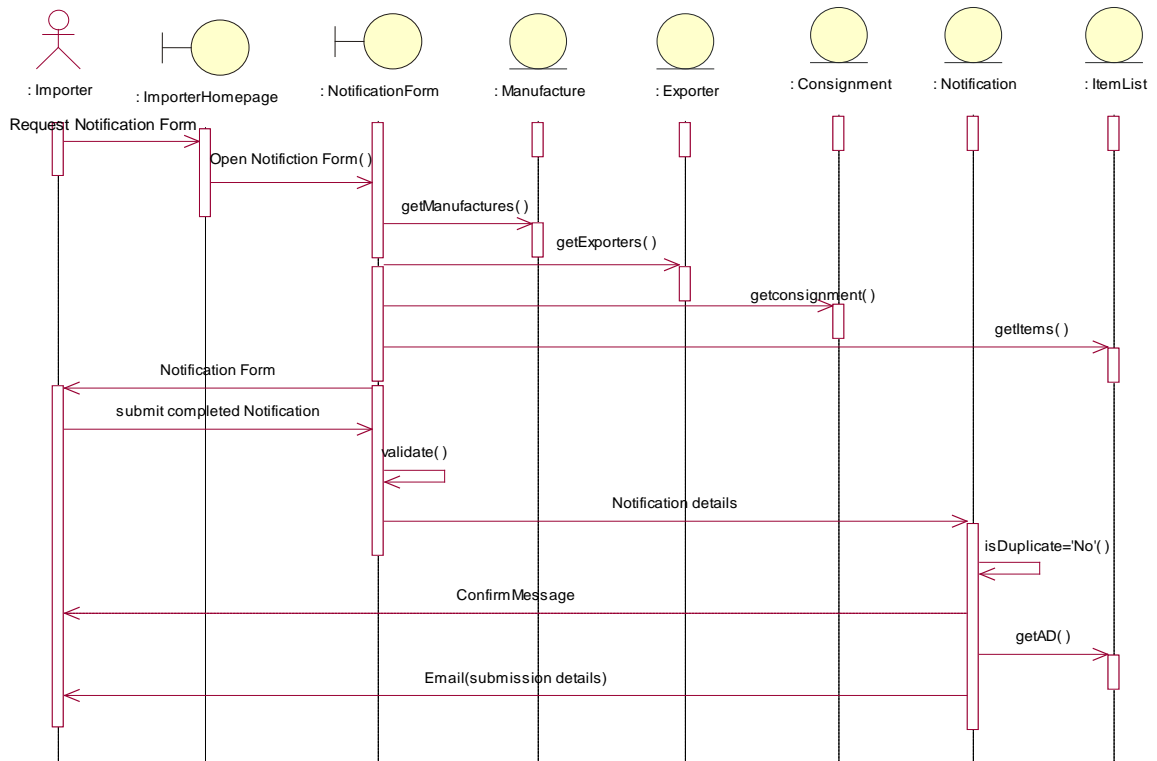
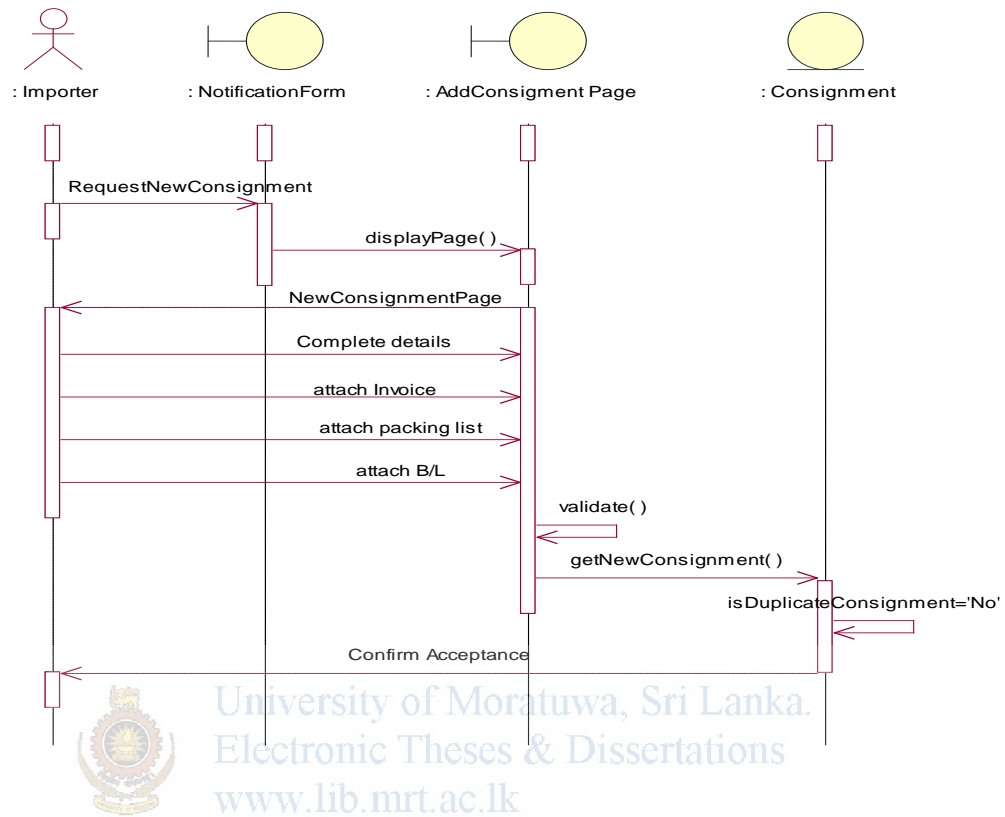
beginning of every working day	a		<b>request</b> AD's assistance	m
the time period that they are going to unavailable	a		Importer to <b>rectify</b> the shortcomings	m
log note	a		Perused Entry <b>is forwarded</b> at the AD	m
available perusing staff	a		Log record about the Entry <b>is updated</b>	m
completed and pending work load	a		System <b>displays</b> the pending Entries for perusal	m

every document in the Entry	a		the perusing officer <b>completes section D3 of FM-II-GN-03</b>	m
Technical shortcomings in the Entry	a		The perusing officer <b>gives</b> any additional information found	m
time of start perusing and finish	a		Entry <b>is forwarded</b> at the AD when perusing is over	m
AD's assistance	a		System <b>updates</b> the processing stage shown to importer	m
summary of Entries of the particular perusing officer	a		<i>notify the shortcoming</i>	m
supporting document for product quality	a		<i>Allowing the rectification</i>	m
product quality	a		<b>indicate</b> the method of approval	m
catalogues	a		<b>review</b> the perused Entry for a verification	m
information given in the form FM-II-01	a		<b>return</b> the Entry at the perused officer	m
section D1 of FM-II-GN-03	a		D (QA) to <b>view</b> the processing form and to indicate his recommendation	m
section D2 of FM-II-GN-03	a		AD <b>forwards</b> the Entry at CC	m
"yes" column of section D1 has ticked	a		AD <b>opens</b> Entries	m
canned fish Entries	c		<b>Reads</b> section D of the processing form	m
section D3 of FM-II-GN-03	a		<b>Completes</b> the section F of the processing form	m
			<b>forwards</b> the Entry at D (QA)	m

## Appendix E

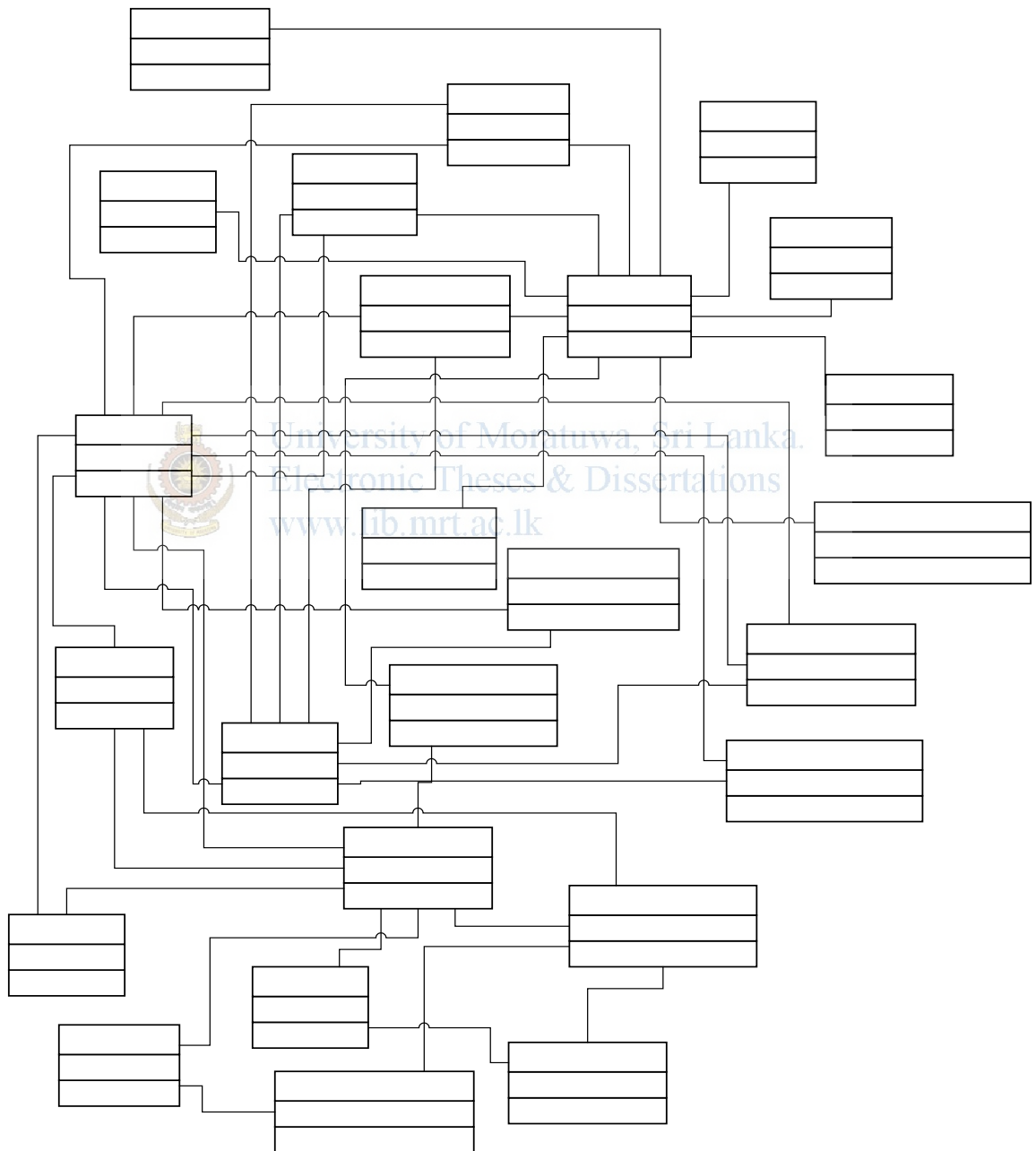
### Sequence Diagrams





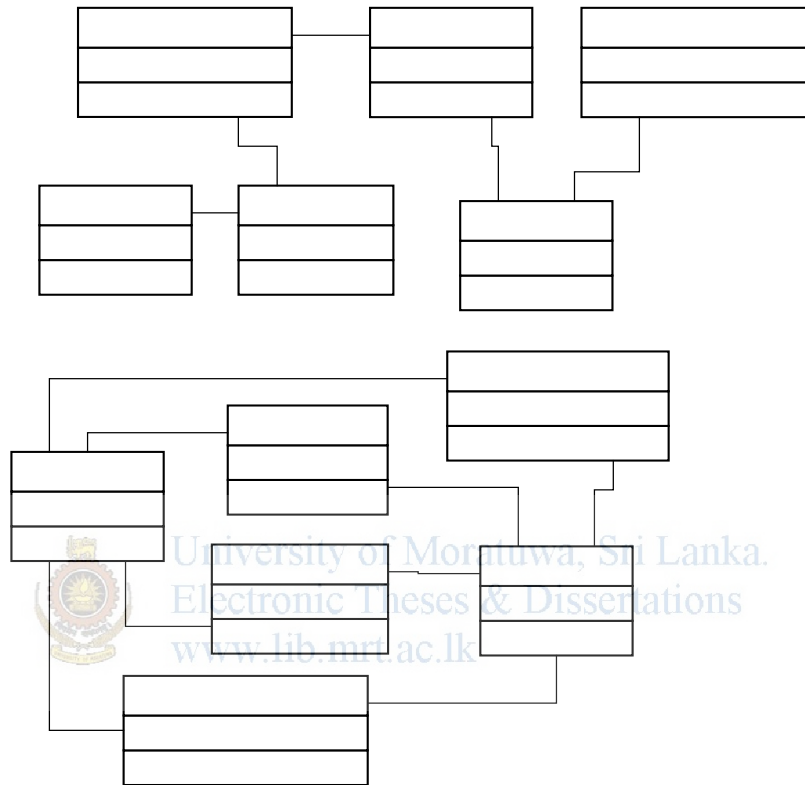
## Appendix F

### Class Diagram





## Class Diagram (contd)



**E-R Diagram and E-R Mapping**



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## **E-R Mapping**



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## GUI Design Details

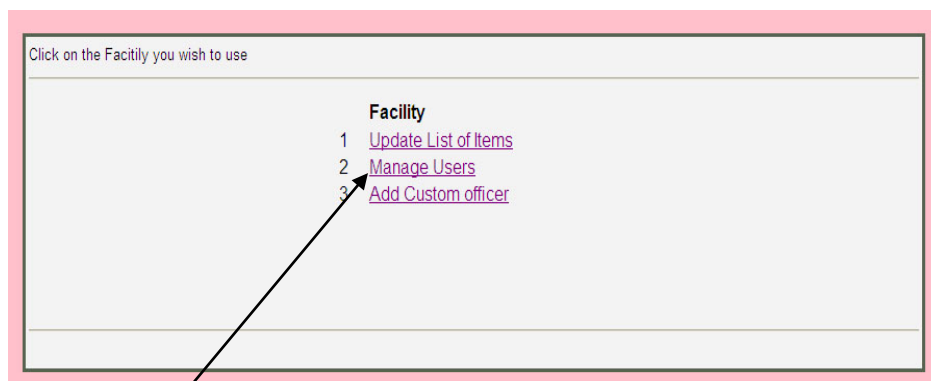


Figure H.1

Interface Navigation Structure

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**List of Items**

Product:

Standard:

Handle By:

Delete	Product	Standard	Handle By
<input type="checkbox"/>	CFL	SLS 1231	L H Karalliyadde
<input type="checkbox"/>	GI Pipes	SLS150	S Santhakumar
<input type="checkbox"/>	MCB	SLS1175	L H Karalliyadde
<input type="checkbox"/>	Ordinary Portland Cement	SLS107	L H Karalliyadde
<input type="checkbox"/>	RCCB	SLS1008	L H Karalliyadde
<input type="checkbox"/>	Tooth Paste	SLS165	D S Fernando



Figure H.2

Same Interface is used to Add, Edit & Delete tasks

Delete	Product	Standard	Handle By
<input type="checkbox"/>	CFL	SLS 1231	L H Karalliyadde
<input type="checkbox"/>	GI Pipes	SLS150	S Santhakumar
<input type="checkbox"/>	MCB	SLS1175	L H Karalliyadde
<input type="checkbox"/>	Ordinary Portland Cement	SLS107	L H Karalliyadde
<input type="checkbox"/>	RCCB	SLS1008	L H Karalliyadde
<input type="checkbox"/>	Tooth Paste	SLS165	D S Fernando

Figure H.3

Use of two different background colors to differentiate adjacent records in the captured data display tables

		Assistant Director-Home page			
Allocate Entry: current user:-881,STO					
Select Entry	47	Select Perusing officer	W Rathnayake	Reserved space	Nominate

EntryNo	Importer	Product	SubmittedDate	SubmittedTime	NominatedTime	NominatedTo	ProcessStage
41	ABC & Company	RCCB	2009-06-20	12:07:39	02:18:44	L W Gunawardana	Issued
42	ABC & Company	CFL	2009-06-22	03:10:30	10:10:14	Ampama	Perusing is pending
43	ABC & Company	RCCB	2009-06-22	03:12:38	03:14:35	L W Gunawardana	Issued
44	ABC & Company	Ordinary Portland Cement	2009-07-21	10:36:46	10:38:00	L W Gunawardana	Payment to be settled
45	ABC & Company	MCB	2009-07-25	02:36:57	01:38:34	Ampama	Perusing is pending
46	ABC company	CFL	2009-10-13	22:49:17	22:58:55	L W Gunawardana	Payment to be settled
47	Lafarge Cement	CFL	2009-11-27	10:43:40	10:09:59	W Rathnayake	Perusing is pending

Figure H4

System dynamically highlights the records being referenced in the Data Display tables by the red color, when pointed by the mouse pointer

<input type="checkbox"/> Delete	Product	Standard	Handle By
<input type="checkbox"/>	CFL	SLS 1231	L H Karalliyadde
<input type="checkbox"/>	GI Pipes	SLS150	S Santhakumar
<input type="checkbox"/>	MCB	SLS1175	L H Karalliyadde
<input type="checkbox"/>	Ordinary Portland Cement	SLS107	L H Karalliyadde
<input type="checkbox"/>	RCCB	SLS1008	L H Karalliyadde
<input type="checkbox"/>	Tooth Paste	SLS165	D S Fernando

Figure H5

Disable the “DELETE” button in “ItemList” GUI when performing an Editing task of a record in order to avoid accidental deletion

List of Items

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Product:

CFL

Standard:

SLS 1231

Handle By:

D S Fernando

Save

Cancel

<input type="checkbox"/> Delete	Product	Standard	Handle By
<input type="checkbox"/>	CFL	SLS 1231	L H Karalliyadde
<input type="checkbox"/>	GI Pipes	SLS150	S Santhakumar
<input type="checkbox"/>	MCB	SLS1175	L H Karalliyadde
<input type="checkbox"/>	Ordinary Portland Cement	SLS107	L H Karalliyadde
<input type="checkbox"/>	RCCB	SLS1008	L H Karalliyadde
<input type="checkbox"/>	Tooth Paste	SLS165	D S Fernando

Figure H6

Use of dropdown lists, checkboxes, radio buttons at every possible place in order to minimize the “knowledge in the Head” for the user

Perusing of Entry No- 43 - Microsoft Internet Explorer

Address: http://localhost/CIIS/AD\_main.php?EntryNo=%2043

1. Name and address of the Cosignor (Exporter) J K Morisons 21,1st cross street, MG Marg India	4. SLSI Entry No(for office use): 43
2. Name and address of the Consignee (Importer) ABC &Company Tel:0112671567 Fax:5354320 Email:wickramag@gmail.com	5. Customs Entry No:
3. Name and address of Manufacturer Seimens AG	6. Vessel/Aircraft: sas
	7. Port of Loading: ssAS
	8. Country where consigned: SAS
	9. Country of Origin: SAS
	10. Number and Date of Invoice: 13213 of 2009-03-02
	11. Invoice value(FOB)of the product under consideration: USD 1000000

FM-II-GN-03

Approved Manufacturer	<input checked="" type="checkbox"/>	Remarks
Acceptable Quality Certificate	<input checked="" type="checkbox"/>	
Acceptable test report(s) attached	<input type="checkbox"/>	
Valid Product Certification Mark	<input type="checkbox"/>	
Other Valid Documents	<input type="checkbox"/>	

1 Recommendation	<input type="checkbox"/> Sampling <input type="checkbox"/> Visual Inspection
2 Reasons for above, if relevant	<input type="checkbox"/> Decision Making <input type="checkbox"/> Monitoring <input type="checkbox"/> Random
3 Tests to be performed	<input type="checkbox"/> Spot <input type="checkbox"/> Detail <input type="checkbox"/> Microbiology <input type="checkbox"/> Heavy Metal
4 Scale of sampling(if recommended)	<input type="text" value="square"/>

i Date of last	Visual Inspection	Sampling	Entry_No
ii No. of consignments approved after	2009-06-22	0	43

Need D(QA) Approval? ☐

Part 11: THE SRI LANKA ENGINEERING COUNCIL

3.1 There shall be established a Council called the Sri Lanka Engineering Council which shall be a body corporate with perpetual succession.

3.2 The Sri Lanka Engineering Council called "the Engineering Council" in this Act shall consist of seventeen members, including the Chairman, as follows:

(a) The President of the Institution of Engineers Sri Lanka as an ex-officio member,

(b) The President of the Institution of Incorporated Engineers Sri Lanka as an ex-officio member,

(c) Director General of the Vocational Training Authority as an ex-officio member

(d) One member nominated by the University Grants Commission from the students staff of the Institutions



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Figure H7

Every stage of the Entry processing is performed using a single user interface created by combining all required forms and relevant documents in a three pane HTML frame



# Appendix I

## Important implementation codes

### I.1 Checking UserID , password and Role hence granting access to the Home page.

```
<?php
session_start();
        include 'config.php';
        include 'opendb.php';

$_SESSION['logged']=0;

$user=$_POST['userId'];

if(((isset($_POST['submit'])) && ($_POST['roll']!= '8' )) && ((isset($_POST['submit']))
&& ($_POST['roll']!= '9' )))
{
    $query="select s.Emp_No,s.Pwd, s.Is_First_Login from staff s where
s.Emp_No='".$_POST['userId']."' and s.Pwd= password("'" .$_POST['password']."'");
    $result= mysql_query($query) or die (mysql_error());
    $firstLogin= mysql_result($result,'0','Is_First_Login');
    //echo $firstLogin ;

    if ($firstLogin!='0')
    {
        header(" Refresh:2; URL=PasswordChange.php?user=$user");
        echo "You are trying to login to the system for the first
time. Please change your password ";
    }
    else
    {

        $query="select s.Emp_No,s.Pwd, r.Role_Id from staff s,".
        " staff_roles r where s.Emp_No=r.Emp_No and
s.Emp_No='".$_POST['userId']."'and".
        " s.Pwd=(password("'" .$_POST['password']."'")) and r.Role_Id='".$_POST['roll']."'
";
        $result= mysql_query($query) or die (mysql_error());
        $empNo= mysql_result($result,'0','Emp_No');
        if (mysql_num_rows($result)!=0)
        {
```

```

        $_SESSION['user_logged']=$_POST['userId'];
        $_SESSION['user_password']=$_POST['password'];
        $_SESSION['user_roll']=$_POST['roll'];
        $_SESSION['logged']=1;
        if($_POST['roll']==1')
        {
            header("location:DQA_Home_Page.php");
        }
        else
        if($_POST['roll']==2')
        {
            header("location:AD_Home_Page.php");
        }
        else
        if($_POST['roll']==3')
        {
            header("location:PO_Home_Page.php");
        }
        else
        if($_POST['roll']==4')
        {
            header("location:PO_Home_Page.php");
        }
        else
        if($_POST['roll']==5')
        {
            header("location:CC_Home_Page.php");
        }
        else
        if($_POST['roll']==6')
        {
            header("location:RIC_Home_Page.php");
        }
        else
        if($_POST['roll']==7')
        {
            header("location:SysAd_Home_Page.php");
        }
        }else{
?>
<script type="text/javascript">
    alert("Invalid user ID,password or Roll");
    window.location="Main_Home_Page.php";
</script>
<?php
    }

```



```

    }
}

else

if((isset($_POST['submit'])) && ($_POST['roll']=='8'))
{
    $query="select i.Importr_Id ,i.Importr_Pwd, i.Is_First_Login from importer i
where i.Importr_Id='".$_POST['userId']."'and
i.Importr_Pwd=password('".$_POST['password']."'");
    $result= mysql_query($query) or die (mysql_error());
    $firstLogin= mysql_result($result,'0', 'Is_First_Login');

    if ($firstLogin!='0')
    {
        header(" Refresh:2; URL=ImporterPassChange.php?user=$user");
        echo "You are trying to login to the system for the first
time. Please change your password ";
    }
    else
    {

        $query="select i.Importr_Id,i.Importr_Pwd from importer i where
i.Importr_Id='".$_POST['userId']."'and
Importer_Pwd=password('".$_POST['password']."'");
        $result= mysql_query($query) or die (mysql_error());
        if (mysql_num_rows($result)!=0)
        {
            $_SESSION['user_logged']=$_POST['userId'];
            $_SESSION['user_password']=$_POST['password'];
            $_SESSION['user_roll']=$_POST['roll'];

            header("location:Importer_Home_Page.php");
        }
        else
        {

?>
<script type="text/javascript">
    alert("Invalid Importer ID,password or Roll");
    window.location="Main_Home_Page.php";
</script>
<?php
    }
}
}
}

```

```

else
    if((isset($_POST['submit'])) && ($_POST['roll']=='9'))
    {
        $query="select cs.Empno ,cs.Password, cs.Firstlogin from customstaff cs
where cs.Empno='".$_POST['userId']."'and
cs.Password=password('".$_POST['password']."'");
        $result= mysql_query($query) or die (mysql_error());
        $firstLogin= mysql_result($result,'0', 'Firstlogin');

        if ($firstLogin!='0')
        {
            header(" Refresh:2; URL=CustompassChange.php?user=$user");
            echo "You are trying to login to the system for the first
time. Please change your password ";
        }
    }
    else
    {

        $query="select cs.Empno ,cs.Password from customstaff cs where
cs.Empno='".$_POST['userId']."'and cs.Password=password('".$_POST['password']."'");
        $result= mysql_query($query) or die (mysql_error());
        if (mysql_num_rows($result)!=0)
        {
            $_SESSION['user_logged']=$_POST['userId'];
            $_SESSION['user_password']=$_POST['password'];
            $_SESSION['user_roll']=$_POST['roll'];

            header("location:Custom_Home_Page.php");
        }
        else
        {
            ?>
            <script type="text/javascript">
                alert("Invalid Custom ID,password or Roll");
                window.location="Main_Home_Page.php";
            </script>
            <?php
            }
        }
        include 'closedb.php';

        ?>

```

## I.2 JavaScript code segment for form validation

```
<script type="text/javascript">
function chkBlanks()
{
    // Traversing though all the form elements.
    for (i=0;i<document.forms[0].elements.length;i++)
    {
        // Checking if the current element in this iteration is a text box
        if(document.forms[0].elements[i].type == "text")
        {
            // Checking if the current element in this iteration is empty.
            if(document.forms[0].elements[i].value == "")
            {
                // A message informing the user about the field being left empty
                alert("Data Not Completed");
                // Setting the focus to the field left empty
                document.ExporterDetail.elements[i].focus();
            }
        }
    }
    //Returning the value as false
    return false;
}
}
}
</script>
```



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### I.3 SQL code segment that uses “count ()” function of MySQL

```
<? php
```

```
$query="select s.Designtn from staffs where s.Emp_No
        =".$_SESSION['user_logged'].""";
$result = mysql_query($query) or die('Query failed: ' . mysql_error());
if( mysql_result($result,0,'Designtn')=='AD')
{
$query = "select Nominations, Emp_Name from (SELECT count(*) AS Nominations,
Nominated_to FROM processing p, staff s where p.Nominated_to=s.Emp_No and
p.Date_Entry_Alllocated=CURDATE() and
        s.Supervisor_Emp_No=".$_SESSION['user_logged'].""GROUP BY
Nominated_to) r,staff s where r.Nominated_to=s.Emp_No" ; }else
if( mysql_result($result,0,'Designtn')=='STO')
{
$query="select s.Supervisor_Emp_No from staff s where
        s.Emp_No=".$_SESSION['user_logged'].""";
$result = mysql_query($query) or die('Query failed: ' . mysql_error());
$ad=mysql_result($result,0,'Supervisor_Emp_No');
{
$query = "select Nominations, Emp_Name from (SELECT count(*) AS Nominations,
Nominated_to FROM processing p, staff s where p.Nominated_to=s.Emp_No and
p.Date_Entry_Alllocated=CURDATE() and
        s.Supervisor_Emp_No='$ad' GROUP BY Nominated_to)
r,staff s where r.Nominated_to=s.Emp_No" ;
}
}
$resultSet=mysql_query($query) or die("Execution Of The SQL Query failed 1");
$numrows=mysql_numrows($resultSet);
```

```

        if ($numrows)
        {

?>

```

#### **I.4 JavaScript Code segment that use for the calculation of charges.**

```

<script language="javascript">

```

```

function cal(){
    var a=document.FeeCal.a;
    var b=document.FeeCal.b;
    var c=document.FeeCal.c;
    var d=document.FeeCal.d;
    var e=document.FeeCal.e;
    var f=document.FeeCal.f;
    var g=document.FeeCal.g;
    var h=document.FeeCal.h;
    var t=document.FeeCal.t;
    if (isNumeric(a)){
        var aa=0;
    }else{ var aa=a.value;}
    if (isNumeric(b)){
        var bb=0;
    }else{ var bb=b.value;}
    if (isNumeric(c)){
        var cc=0;
    }else{ var cc=c.value;}
    if (isNumeric(d)){
        var dd=0;
    }else{ var dd=d.value;}
    if (isNumeric(e)){
        var ee=0;
    }else{ var ee=e.value;}
    if (isNumeric(h)){

```

```

        var hh=0;
    }else{ var hh=h.value;}
    f.value=parseFloat(aa)+ parseFloat(bb) + parseFloat(cc)+parseFloat(dd)+parseFloat(ee);
    g.value= Math.round(((f.value)*(0.12))*100/100);
    var x = parseFloat(f.value)+parseFloat(g.value)+parseFloat(hh);
    t.value= (x*10)/10;
return true;
}

//Function for check numaric field
function isNumeric(elem){
    var numericExpression = /^[0-9.]+$/;
    if(elem.value.match(numericExpression)){
        return false;
    }else{
        elem.focus();
        return true;
    }
}
</script>

```



## Appendix J

### Relationship between System Architectural Design and PHP Files

Sub system	Module	unit	Php files
Importer facility	Request Approval	Notification submission	Consignment, ExorterDetail, ManufacturerDetail, entryForm
		Acknowledge submissions	AutoMail
		Follow up submissions	ImporterFeedback SearchResults
	Change importer passwords		ImporterSelfPassChange
QA facility	Entry Processing	Entry Allocation	Nomination, AD_ProgressMonitor
		Perusing	PO_Home_Page PO_ProgressMonitor PO_ProcessingForm, Notification, OpenUploads, PO_main,
		Decide Method of Approval	AD_Home_Page AD_ProgressMonitor Notification, AD_ProcessingForm, OpenUploads AD_Main
		D(QA) Approval	DQA_Home_Page DQA_ProgressMonitor Notification, DQA_ProcessingForm OpenUploads DQA_main
		Charges calculation	CC-Home_Page CC-ProgressMonitor Notification OpenUploads

			CCFeeCalForm CC_main
		Publish method of approval	RIC_Home_Page RIC_ProgressMonitor Notification OpenUploads RIC_main

Sub system	Module	unit	Php files
QA facility	Importer Registration		RIC_Home_Page ImporterDetail
	Change staff passwords		StaffSelfPasswordChange
Administration	User Management	Manage user Accounts	SysAd_Home_Page StaffAdd
		Manage user rolls	Staff_Role
	Manage Item List		SysAd_Home_Page ItemList
Customs implementations	Verify Decisions		Custom_Home_Page CustomSearch CustomSearchResults
	Change customs passwords		Custom_Home_Page customSelfPassChange

Table J.1- Relationship between System Architectural Design and PHP Files

## Appendix K

### Relationship between classes and PHP files

Class	.PHP File(s)
LoginPage	Main_Home_page,
Login Control	Main_Home_page_Process
Staff	,StaffAdd_Process, Staff_Role_Process, StaffSelfPasswordChange_process,
ADHomePage	AD_Home_Page, Nomination
PoHomePage	PO_Home_Page,
D(QA)HomePage	DQA_Home_Page
CcHomePage	CC_Home_Page
importer	Importer_process, ImporterPassChange, ImporterSelfPassChange_process
CustomOfficer	CustomAdd_process, CustomPassChange_process, CustomSelfPassChange_process
PoProcessingForm	Notification, OpenUploads, PO_ProcessingForm
Notification	entryForm_process, AutoMail
RIC HomePage	RIC_Home_Page
SysAdHomePage	SysAd_Home_Page
D(QA)ProcessingForm	Notification, OpenUploads, DQA_ProcessingForm
Consignment	Consignment_process
ImporterHomePage	Importer_Home_Page
ADProcessingForm	Notification, OpenUploads, AD_ProcessingForm
processing	Nomination_process, Perusing_process, AD_Rec_process, DQA_ProcessingForm_Process, To_DQA_process, FeeCal_process, ImporterFeedback_process, IssueEntry_process, CustomSearch_process
NotificationForm	entryForm
customOfficerHomePage	Custom_Home_Page


AddConsignmentPage	Consignment
ItemList	ItemList_process
Exporter	ExporterDetail_process
NewExporterPage	ExporterDetail
manufacturer	ManufacturerDetail_process
NewManufacturerPage	ManufacturerDetail
SysAdHomePage	SysAd_Home_Page
AddStaffPage	StaffAdd
AddStaffRolePage	Staff_Role
ItemListPage	ItemList
CCHomePage	CC_Home_Page
CcProcessignForm	Notification, OpenUploads, CCFeeCalForm
RIC HomePage	RIC_Home_Page
RIC ProcessingForm	Notification, OpenUploads, IssueEntry
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Table K.1- Relationship between Classes and PHP Files

## Appendix L

### Test cases

Test case – Item Add

Test Case ID	2			
Tested Component	Item Add			
Tested Area	Functionality			
Purpose	Add new Item to the system			
Prerequisites	The relevant Assistant Directors should already have been added in the system			
Tested by	UserID:881			
Tested Date	2009-10-01			
Test System	Windows XP, IntelP(IV) , Internet Explorer			
Test Data	Product Name = {New, Existing, Empty} Standard = { Valid, Invalid, Empty}			
Test Case Description				
No.	Test Case	Sample Data	Expected output	Results
1	Click on ‘update list of items’		Display list of Items window	Pass
2	Enter new Product name and standard. Click on ‘Save’ button.	Product : Fans Standard: SLS 814 Handled by: L H Karalliyadde	New item is added to the list of items displayed below.	Pass
3	Enter new Product name and empty standard. Click on ‘Save’ button.	Product : Fans Standard: Handled by: L H Karalliyadde	Error message “Data Not Completed.” should be displayed	Pass
4	Empty Product name and a standard. Click on ‘Save’ button.	Product : Standard: SLS 814 Handled by: L H	Error message “Data Not Completed.” should be displayed	Pass

		Karalliyadde		
5	Empty Product name and empty standard. Click on 'Save' button.	Product : Standard: Handled by: L H Karalliyadde	Error message "Data Not Completed." should be displayed	Pass
6	Enter existing Product name and a standard. Click on 'Save' button.	Product : Fans Standard: SLS 814 Handled by: L H Karalliyadde	Should be added to the system as a new record and displayed as a separate new record	Pass

Table L.1 - Test case –Add Item

Test case – Edit Item

Test Case ID	2			
Tested Component	Item Edit			
Tested Area	Functionality			
Purpose	Edit existing Item			
Prerequisites	Item should be in the system			
Tested by	UserID:881			
Tested Date	2009-10-01			
Test System	Windows XP, IntelP(IV) , Internet Explorer			
Test Case Description				
No.	Test Case	Sample Data	Expected output	Results
1	Click on ‘update list of items’		Display list of Items window	Pass
2	Click on ‘the required item from the displayed list of items’		Data loaded in the form elements.  Delete button disabled	Pass
3	Not changed Product name and standard.	Product : CFL Standard: SLS 1231	No change in the Display list shall be observed	Pass

	Click on 'Save' button.	Handled by: L H Karalliyadde		
4	Not change Product name but empty standard. Click on 'Save' button.	Product : CFL Standard: Handled by: L H Karalliyadde	Error message "Data Not Completed." should be displayed	Pass
5	Empty Product name and not change standard. Click on 'Save' button.	Product : Standard: SLS 1231 Handled by: L H Karalliyadde	Error message "Data Not Completed." should be displayed	Pass
5	Changed Product name and not changed standard. Click on 'Save' button.	Product : Helmets Standard: SLS 1231 Handled by: L H Karalliyadde	Product name in the display shall be changed into new name	Pass
6	Changed Product name and standard. Click on 'Save' button.	Product : Helmets Standard: SLS 456 Handled by: L H Karalliyadde	Product name and the standard in the display shall be changed with new data	Pass

Table L.2 - Test case –Edit Item

Test case – Delete Item

<b>Test Case ID</b>	3
<b>Tested Component</b>	Item Delete
<b>Tested Area</b>	Functionality
<b>Purpose</b>	Delete existing Item
<b>Prerequisites</b>	Item should in the system
<b>Tested by</b>	UserID:881
<b>Tested Date</b>	2009-10-01
<b>Test System</b>	Windows XP, IntelP(IV) , Internet Explorer
<b>Test Case Description</b>	

No.	Test Case	Sample Data	Expected output	Results
1	Click on 'update list of items'		Display list of Items window	Pass
2	Click on the delete button		Message" Please Choose records you wish to delete" shall be displayed	Pass
3	Tick the check box of the record needs to delete	Ticked the check box of Ordinary Portland cement	Check box ticked	Pass
4	Uncheck the check box of the record needs to delete	Uncheck the check box of Ordinary Portland cement	Check box cleared	Pass
5	Tick the check box of the record needs to delete and click the delete button	Ticked the check box of Ordinary Portland cement	Message "Are you sure to delete the selected items" shall be displayed	pass
6	Click the 'No' button of the message" Are you sure to delete the selected items"		Record shall not be deleted	pass
7	Click the 'Yes' button of the message" Are you sure to delete the selected items"		Record shall be deleted from the list	pass

Table L.3 - Test case –Delete Item



## Appendix M

### Forms used in the manual system



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## Appendix N

### Software Evaluation Results



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