

References

- [1] http://en.wikipedia.org/wiki/Class_diagram
- [2] <http://en.wikipedia.org/wiki/OOAD>
- [3] http://en.wikipedia.org/wiki/Class_diagram
- [4] http://en.wikipedia.org/wiki/Software_design
- [5] http://en.wikipedia.org/wiki/Software_Requirements_Specification
- [6] http://en.wikipedia.org/wiki/Structured_Systems_Analysis_and_Design_Method
- [7] http://en.wikipedia.org/wiki/Structured_Systems_Analysis_and_Design_Method
- [8] http://en.wikipedia.org/wiki/Unified_Modeling_Language
- [9] <http://www.agilemodeling.com/artifacts/sequenceDiagram.htm>
- [10] <http://www.ambysoft.com/essays/userInterfaceDesign.html>
- [11] http://www.comp.lancs.ac.uk/computing/resources/IanS/SE5/syseng/cbse/evolution.ppt#256,1,Systems_evolution
- [12] http://www.comp.lancs.ac.uk/computing/resources/IanS/SE6/Slides/PPT/ch3.ppt#270,5,Generic_software_process_models
- [13] http://www.comp.lancs.ac.uk/computing/resources/IanS/SE6/Slides/PPT/ch3.ppt#271,6,Waterfall_model
- [14] http://www.comp.lancs.ac.uk/computing/resources/IanS/SE6/Slides/PPT/ch3.ppt#273,10,Evolutionary_development
- [15] http://www.comp.lancs.ac.uk/computing/resources/IanS/SE6/Slides/PPT/ch3.ppt#312,23,Software_specification
- [16] <http://www.databasejournal.com/sqletc/article.php/1469521>
- [17] <http://www.lcpl.lk/inpages/aboutus/history.shtml>
- [18] <http://www.lcpl.lk/inpages/customers/customers.shtml>
- [19] http://www.peoplesbank.lk/site_map.shtml
- [20] Ian Sommerville – Software Engineering - Seventh Edition Page 69
- [21] Ian Sommerville – Software Engineering - Seventh Edition Page 71
- [22] Quatrani T 2002, *Visual Modeling with Rational Rose 2002 and UML*, Pearson Education, New Delhi 110092

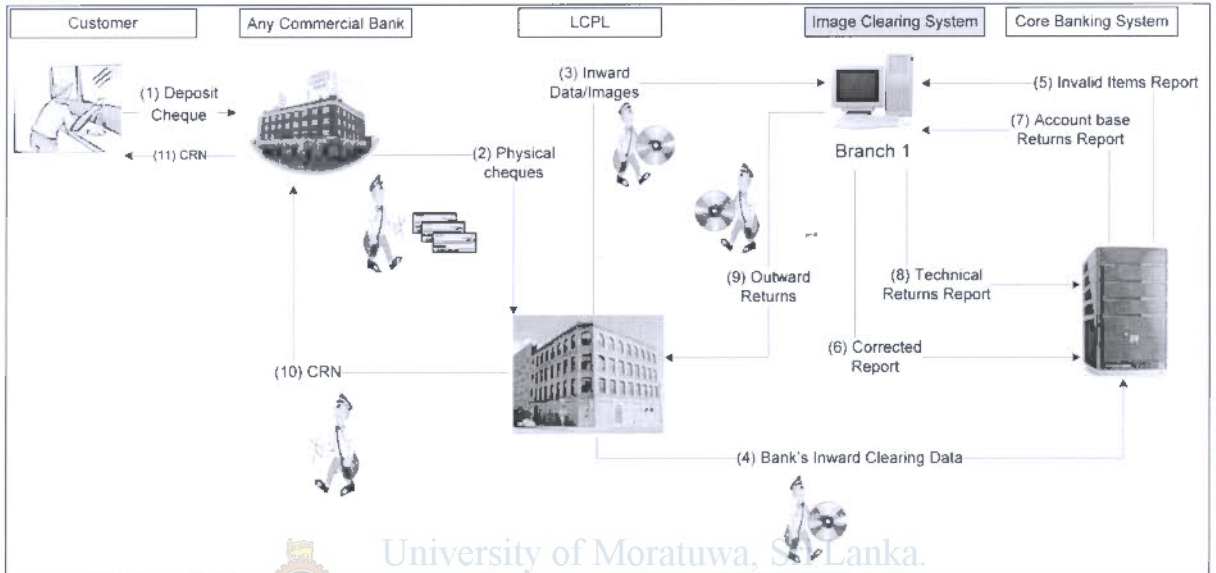


Appendix A

List of Return Reasons which is prescribe by the LCPL

RETURN CODE	RETURN CODE DESCRIPTION	REPRESENTABLE	CATEGORY
1	Refer to Drawer	Yes	Account base
2	Effects not Realized	Yes	Account base
10	Payee's Endorsement Required	Yes	Technical
11	Payee's Endorsement Irregular	Yes	Technical
12	Payee's Endorsement Illegible	Yes	Technical
13	Post-dated Cheque	Yes	Technical
14	Payment Postponed Pending Drawer's Confirmation	Yes	Account base
15	Credits not Verified	Yes	Account base
16	Funds in Transition	Yes	Account base
50	Stale Cheque	No	Technical
51	Account Closed	No	Account base
52	Payment Stopped by Drawer	No	Account base
53	Drawer Deceased	No	Account base
54	Funds attached	No	Account base
55	Amount in Words and Figure Differ	No	Technical
56	Drawers Mandate Determined	No	Technical
57	Drawer's Signature differs from Specimen	No	Technical
58	Alteration not Confirmed by Drawer	No	Technical
59	Cheque Incomplete	No	Technical
60	Cheque not Drawn in Accordance with Mandate	No	Technical
61	Cheque Crossed to more than one Bank	No	Technical
62	Cheque Irregularly Drawn	No	Technical
63	Validity expired	No	Technical
64	Scheduled in Error	No	Technical
65	Encoding/Data Entry Error	No	Technical
66	Bad Image	No	Technical

Current Clearing Process of a Branch



University of Moratuwa, Sri Lanka.
 Electronic Theses & Dissertations
www.lib.mrt.ac.lk

Feasibility Study

Economic Feasibility

Total cost will be bearing by the People's Bank. Some parts of the charges for the inter facing with Core banking system still can be omitted if that part is done by the developer. The cost which is submitted in the PAR – Project Authorization Request has approved by the EOC –Executive Operational Committee of the bank.

Risks

The bank has already agreed to finance the project. And there is no risk of getting funds as the client is a well established government own bank.

If the developer has to leave the project in an accident case, a backup person has already arranged as per the policy of the department. If the necessity arises the backup person could be easily continued the work as the documentation is going with the development too.

Technical Feasibility

The Desktop application is selected in multi user environment using the VPN for the CICPS. Technologies used for the product are followings.

Description	Tool/Method
Operating Systems	MS Windows Server 2003, MS Windows XP
Developing Tool	MS Visual Basic 6, MS VB.NET
Database	MS SQL Server 2005
Interfacing – Core Banking System	ISO 8583 Standard Message format
	OR IBM iSeries ODBC Driver
- SVS	API OR MySQL ODBC Driver
Designing Tool	UML

Risks

Development Risk

As a leading commercial bank in the country its clearing process has to be well tested and reliable. The project is aim to strengthen this. So the responsibility of the product is very high as far as the bank's business is concern.

The project is highly depending on the interfacing with the core banking system. The cooperation of the software vendor – Silverlake (Pvt) Ltd, is needed for the success of the project. In order to align with the time line of the project, activities of the Silverlake (Pvt) Ltd should be in time.

In the project image processing is covered in the auto signature verification and correcting the inward data file. Usually image processing makes the performance slow. As far as the business and volume is concern this can not be tolerate in the system. If this challenge couldn't over come successfully image processing module will be kept optional or kept available on demand in the system.

Technical Know-how

The developer has experience of 5+ years in MS Visual Basic 6. And the knowledge of relational databases including Oracle is same period of time. The product is intended to develop in Microsoft Visual Studio .NET and developer has to gain that knowledge base

on Microsoft Visual Basic 6. In this project developer has to focus on image handling and processing too. It is considered as a challenge.

To gain the knowledge of image processing it is intended to refer relevant books and web sites. The assistance of expert persons in this subject will be a great help to the success of the project.

Organizational Feasibility

In the early stage of the project the management kept open the option of purchasing the software or in house developing. The new Head of the department and corporate management is encouraging the internal developments with the past experience of outsourcing. They have extended their trust and support on the IT Department and the developer.

Risks

There will be no situation loose of any bank staffs' job due to implementation of the system. This project is aim to improve the efficiency of the clearing process with reducing the cost involved with currier charges etc. So the need of staff is still valid. In current scenario the said process in the branches is additional burden. Then employees of the bank will praise the system in high rank.

Due to reduction of the charges goes to the LCPL that will be added to the bank's profit. It is intended to implement other back office duties of the bank like CRN printing, outward clearing etc. The project will be extended as whole back office operation center of the bank.

Legal Feasibility

As the image clearing has begun operating in the country and the People's Bank is on of the registered commercial banks, there is no legal restrain on the project.

License

The bank has already purchased license of MS Windows XP, MS Office packages. The other software need for the project - MS SQL Server and MS Visual Studio .NET will be purchasing with the license with the project progresses.

Agreement

The developer is a permanent employee of the organization's IT department. The developer is bounded to the appointment conditions of the bank. This product too pertains to said conditions.

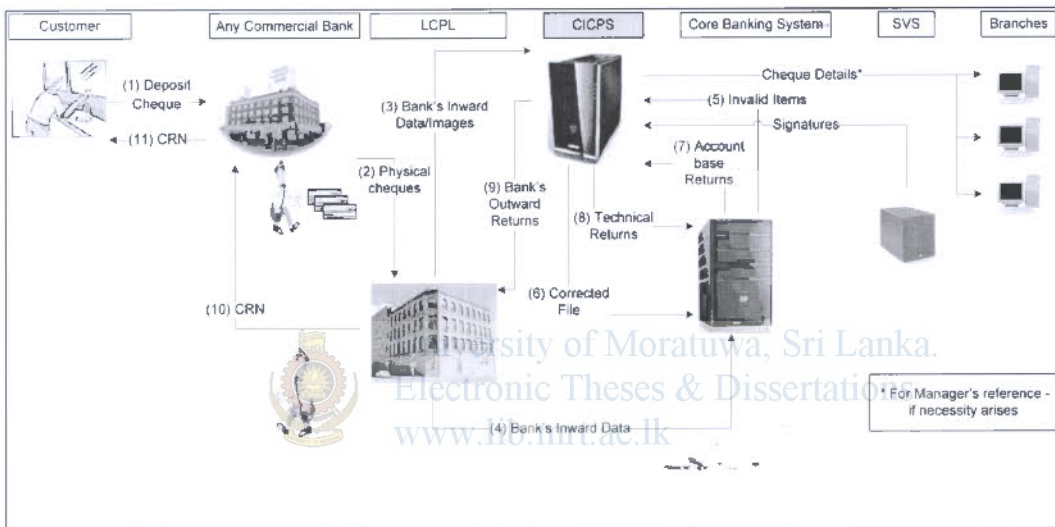
Confidential Documents & Data

The developer has the responsibility of none disclosing of financial information or the other confidential documents. Revelling of cheque or its details to a third party can be done only on courts order.



University of Moratuwa, Sri Lanka.
Electronic Theses & Dissertations
www.lib.mrt.ac.lk

Overview of the Proposed System



Appendix E

Use Case Descriptions

Use Case 2: Allocation
Actors : Administrator, Clearing Officer, Section Manager
Pre-conditions <ul style="list-style-type: none">• Inward Data/Images uploading must have taken place• List of day's reported clearing officers must be with the administrator• The allocation criteria must be pre-defined
Post-conditions <ul style="list-style-type: none">• The cheques must be available for users to view and process, those are allocated to them.
Basic Flow <ol style="list-style-type: none">1. Administrator selects what the allocation is based on. (Region codes, branch codes etc.)2. Select Clearing Officers and assigned branch or region codes.3. Do allocation4. Checks whether all the cheques has allocated by the allocation<ol style="list-style-type: none">4.1 If success acknowledge the success5. Acknowledge Clearing Officers and Section Managers/Clearing Officers.
Exceptions <ol style="list-style-type: none">4.2 If still some cheques to be allocated acknowledge it.
Use case relationships <ul style="list-style-type: none">• "Scrutinizing system" identifies how many cheques were allocated among Clearing Officers and what are them.

Use Case 3: Mark Invalid Items
Actors : <i>Administrator</i>
Pre-conditions <ul style="list-style-type: none"> The system must be connected with the Core Banking System
Post-conditions <ul style="list-style-type: none"> All the invalid items must be marked in the system
Basic Flow <ol style="list-style-type: none"> Get the invalid items (account no or/and cheque incorrect) file from the Core banking System. Mark the invalid items in the database Acknowledge the Section Managers
Exceptions
Use case relationships “Correcting Inward Data” uses these items for corrections



University of Moratuwa, Sri Lanka.
Electronic Theses & Dissertations
www.lib.mrt.ac.lk

Use Case 4: Correcting Inward Data
Actors : <i>Clearing Officer, Core Banking System, Section Manager</i>
Pre-conditions <ul style="list-style-type: none"> All the cheques must be allocated among Clearing Officers. Invalid items must be acknowledged by the Core Banking System by a text file. The system must be connected with the Core Banking System
Post-conditions <ul style="list-style-type: none"> All the invalid items must be corrected against the Core Banking System.
Basic Flow <ol style="list-style-type: none"> Check for invalid items marking taken palce <ol style="list-style-type: none"> If yes continue View the cheque image. Fill the Account Number and Cheque Number by using OCR.



4. Validate Account Number and Cheque Number against the Core Banking System.
 - 4.1 If validation success update the database
5. If both account number and cheque number has been changed in the cheque, it is indicated as pending to authorize.

Exceptions

- 1.2 Else stop the process
- 4.2 Else enter the Account Number or/and Cheque Number by the Clearing Officer.
- 4.3 Validate Account Number and Cheque Number against the Core Banking System.
- 4.4 Update the database.

Use case relationships

- “Authorization system” use to check if there are any items have been changed in both account number and cheque number
- “Sending the corrected file” sends the corrected items data file to the Core banking system.



Use Case 5: Authorization

Actors : *Section Manager, Core Banking System*

Pre-conditions

- There must be items including changes in the both account number and cheque number

Post-conditions

It will be allowed to create the repaired file which should be sent to the core banking system

Basic Flow

1. The system checks for item include both the account number and cheque number changed.
2. View those cheques
3. The Section Manager match with the cheque’s image
4. Authorize the change

Exceptions

- 1.1 If the change does not match with the image Section Manager enters the correct Account Number and/or Cheque Number
- 1.2 Validate above changes against Core Banking System
- 1.3 Update the database

Use case relationships**Use Case 6: Send the Corrected File**

Actors : Administrator, Core Banking System, Section Manager

Pre-conditions

- The data file must be day's file
- The data files must be in pre-agreed format
- The data files must be consist with complete data set
- The data link must be live within Core Banking Server and CICPS

Post-conditions

- The data file must be in the Core Banking server

Basic Flow

1. Check for further corrections of inward data
 - 1.1 If no further corrections continue
2. Check for items to be authorized
 - 2.1 In no items to be authorized continue
3. Create the corrected file
4. Check the availability of data line
5. Send the file

Exceptions

- 1.2 Else acknowledge relevant Section Manager to Correct them
- 2.2 Else acknowledge to Section Manager to Authorize

Use case relationships

- "Sending the corrected file" uses "Correcting Inward Data system" for sending the data

Use Case 7: Scrutinizing

Actors : Clearing Officer, Section Manager, Branch Manager

Pre-conditions

- Cheques must be allocated among users.
- The system must be connected with the Signature Verification System and Core Banking System.
- Incorrect account numbers and cheque numbers which are rejected by the Core Banking System must be corrected.

Post-conditions

- All the cheques except additional day branches must be marked for accept or reject.

Basic Flow

1. Select the cheque viewing criteria
2. View the cheque
3. Signature verification - auto or visual
4. Clearing Officer scrutinizes cheque and accepts or rejects
5. If it is rejected marks the reasons

Exceptions

- 4.1 If he needs to refer a higher authority for final decision he can forward to Section Manager
- 4.2 Section Manager views the cheque
- 4.3 Signature verification
- 4.4 Section Manager scrutinizes cheque and accepts or rejects
- 4.5 If it is rejected marks the reasons
 - 4.4.1 If he needs to refer the Branch Manager forward the cheque
 - 4.4.2 Branch Manager views the cheque
 - 4.4.3 Signature verification
 - 4.4.4 Branch Manager scrutinizes cheque and accepts or rejects
 - 4.4.5 If it is rejected marks the reasons

Use case relationships

- Burn Outward Return File to a CD system can get data those are rejected in the Scrutinizing system.

- Send and Get Data Files System get the rejected data items which are due to technical reason, sends to the Core Banking System.

Use Case 8: Burn Outward Return CD

Actors : *Administrator*

Pre-conditions

- All the cheque must be scrutinized mark for accept or reject
- All the account base returns must be marked using the data file which was given by the Core Banking System
- If there are any additional day branches those must be marked

Post-conditions

- If there is need for re burn a CD an authorization is required

Basic Flow

1. If there are any additional day branches exist Administrator marks them
2. Avoid additional day branch's data
3. Check for there are any unmarked cheques except additional day branches
 - 3.1 If no unmark items continue
4. Get the account base return file from the Core Banking System
5. Mark account base returns
6. Create the return data file
7. Burn the file to CD

Exceptions

- 3.2 Else acknowledge Section Manager to mark them

Use case relationships

Use Case 9: Sending Technical Return File

Actors : *Administrator, Core Banking System, Section Manager*

<p>Pre-conditions</p> <ul style="list-style-type: none"> • The data file must be day's file • The data files must be in pre-agreed format • The data files must be consist with complete data set • The data link must be live within Core Banking Server and CICPS
<p>Post-conditions</p> <ul style="list-style-type: none"> • The data file must be in the Core Banking Server
<p>Basic Flow</p> <ol style="list-style-type: none"> 1. Check for there are any unmarked cheques except additional day branches <ol style="list-style-type: none"> 1.1 If no unmark items continue 2. Create the technical return data file 3. Check the availability of the data line 4. Send the data file
<p>Exceptions</p> <ol style="list-style-type: none"> 1.2 Else acknowledge Section Manager to mark them
<p>Use case relationships</p> <ul style="list-style-type: none"> • Correcting Inward Data system gets the invalid data file which get by the Send and Get Data Files system • Burn Outward Return File to a CD system gets the Account base return file which get by the Send and Get Data Files system

<p>Use Case 10: Re-Allocation</p>
<p>Actors : <i>Administrator, Section Manager</i></p>
<p>Pre-conditions</p> <ul style="list-style-type: none"> • Allocation must be already done • There must be unprocessed checks available
<p>Post-conditions</p> <ul style="list-style-type: none"> • Section Managers request must be full fill.
<p>Basic Flow</p>

1. Section Manager request for re allocation
2. Administrator select the assignee and assigner
3. Enter no of checks to be re allocated
4. Re allocate

Exceptions

Use case relationships

- “Scrutinizing system” identifies how many cheques were allocated among Clearing Officers and what are them.

Use Case 11: View own cheques

Actors : *Customer*

Pre-conditions

- Data Images must be uploaded to the system
- Correcting inward data must be completed

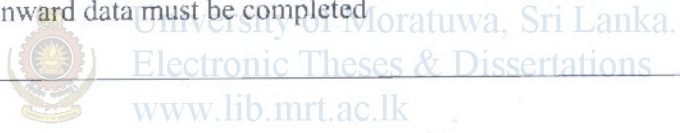
Post-conditions

Basic Flow

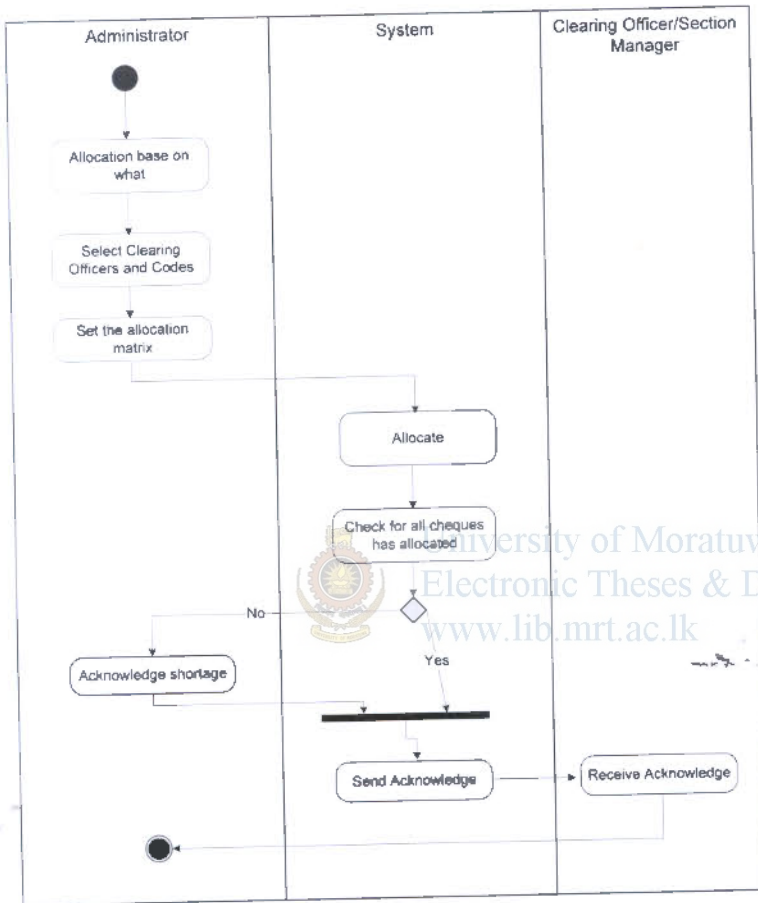
1. View own cheques presented for clearing in the day

Exceptions

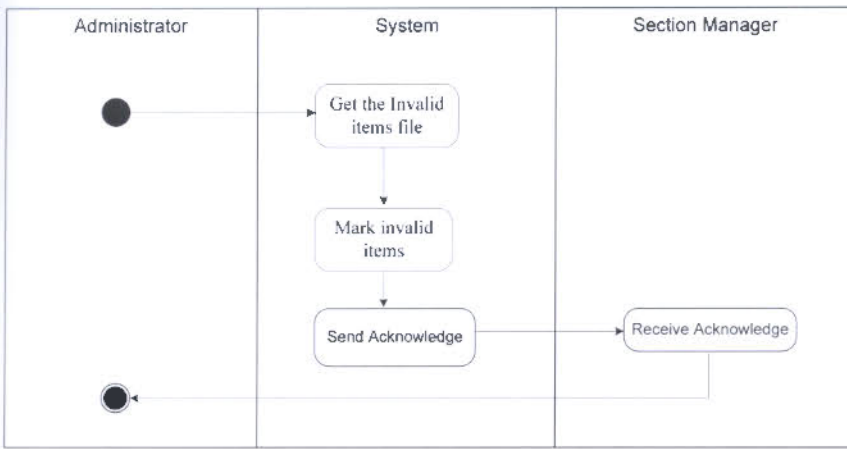
Use case relationships.



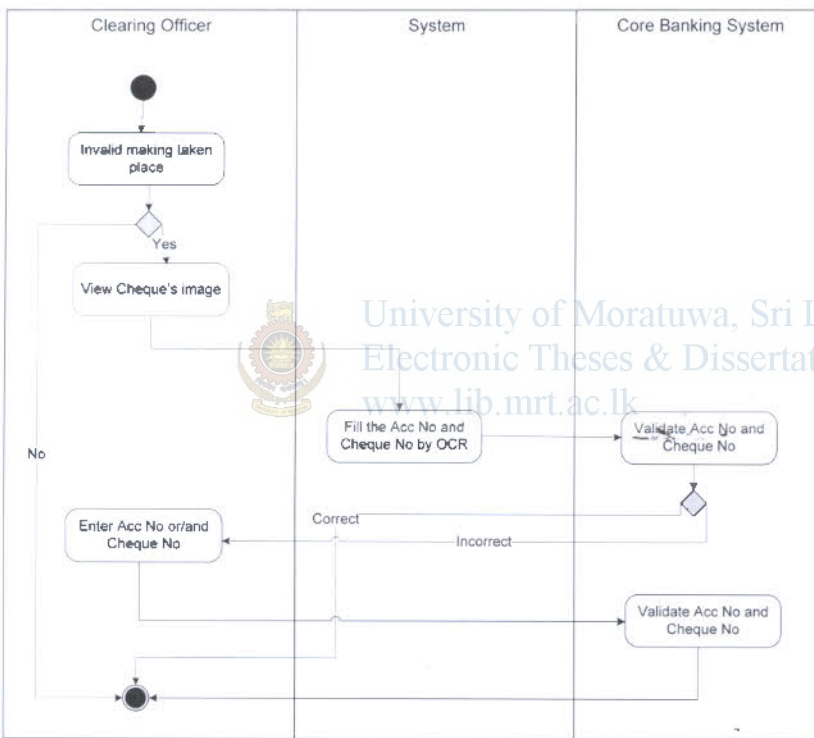
Activity Diagrams



Activity diagram for Allocation

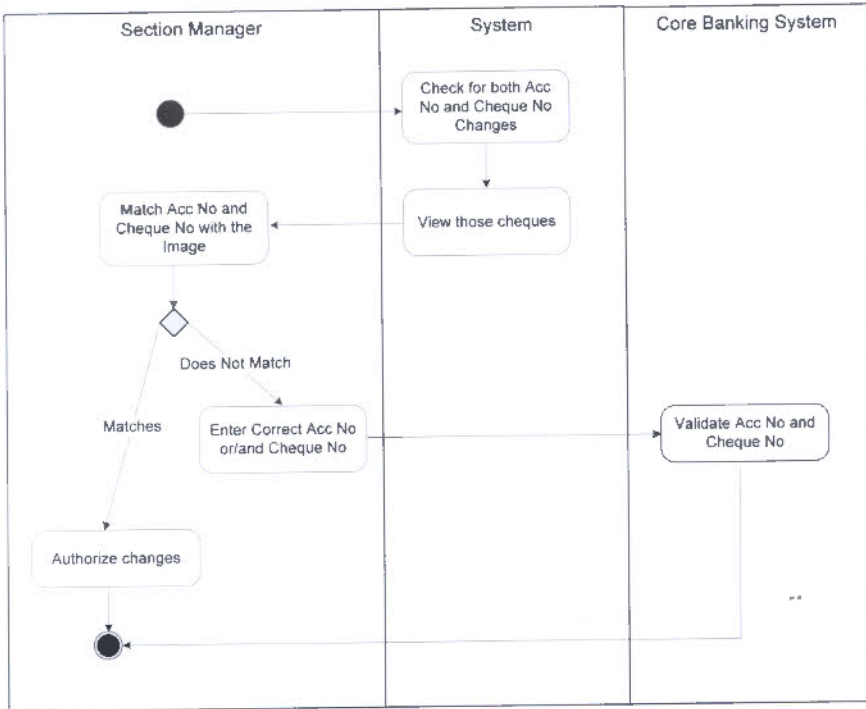


Activity diagram for Marking Invalid Items



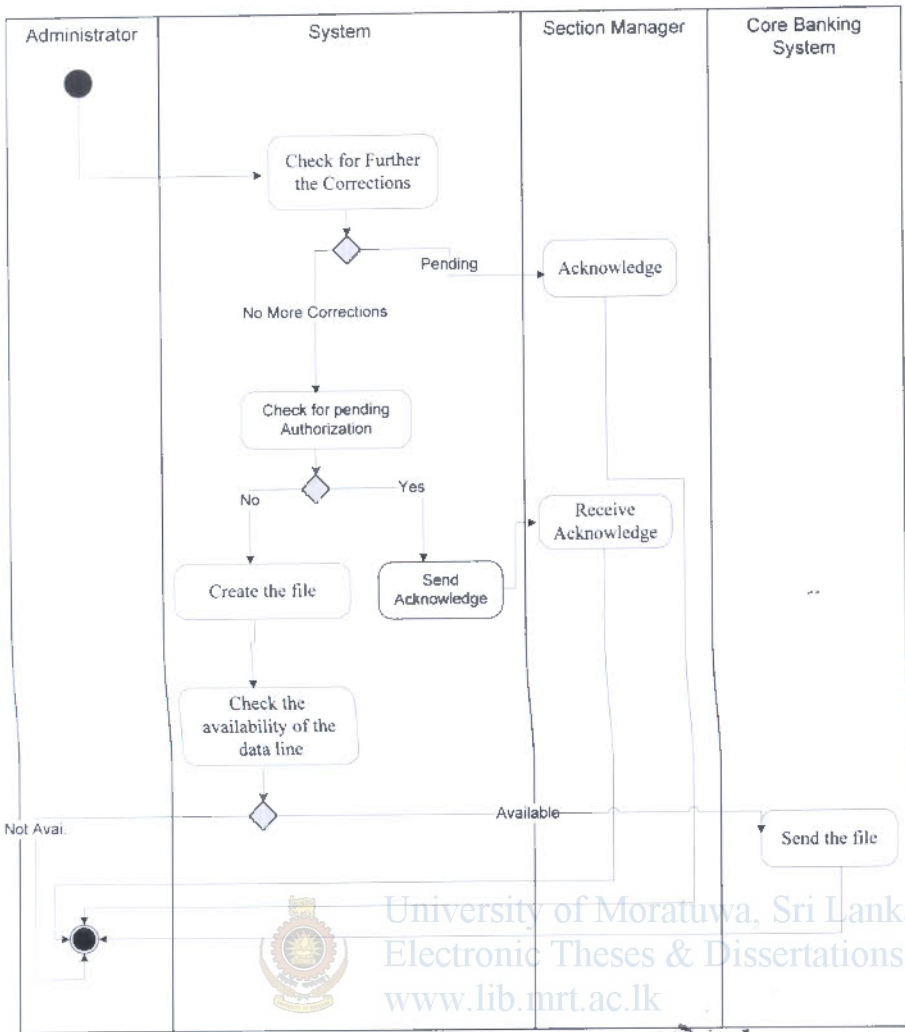
Activity diagram for Correcting Inward Data



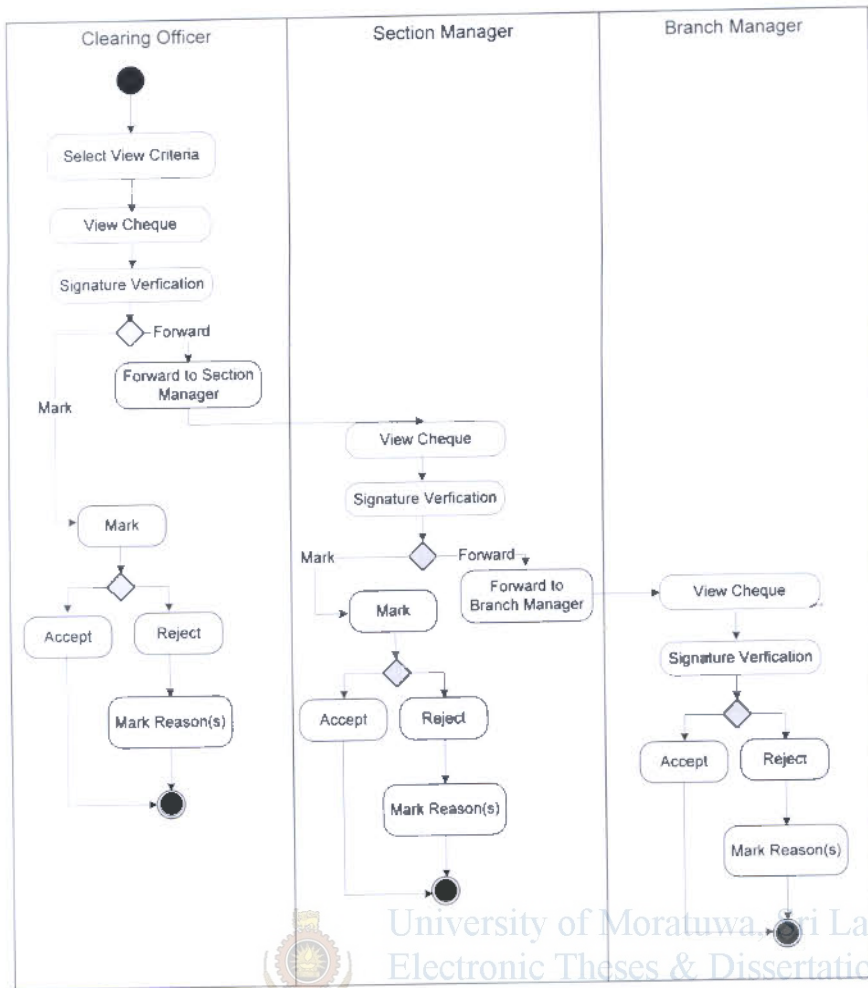


Activity diagram for Authorization





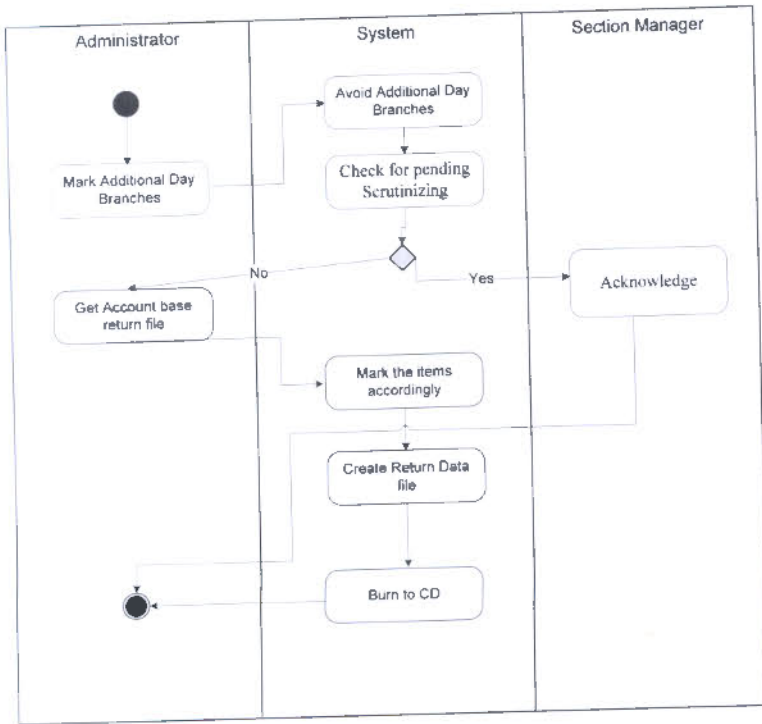
Activity diagram for Send the Corrected File



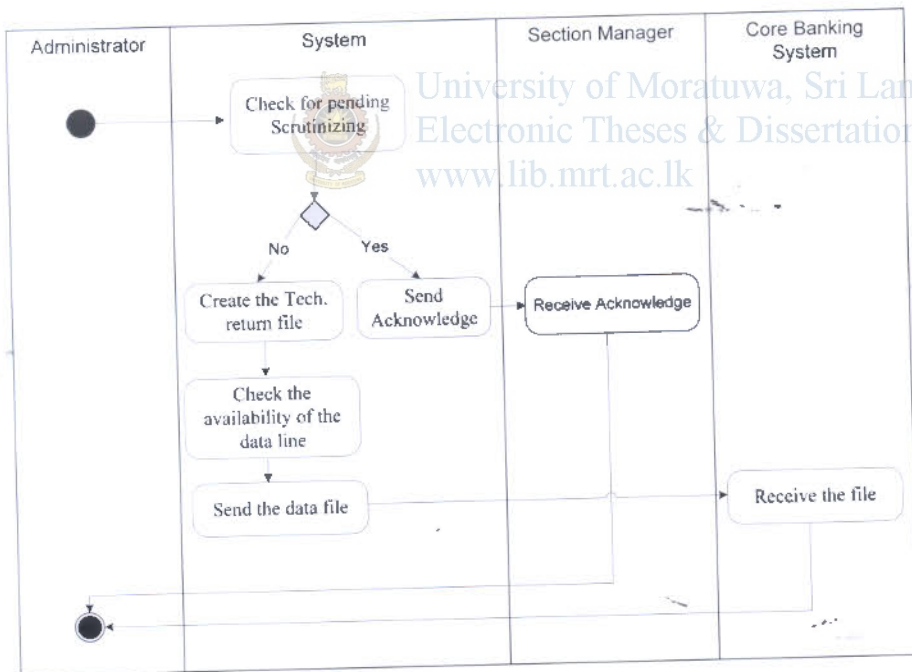
Activity diagram for Scrutinizing



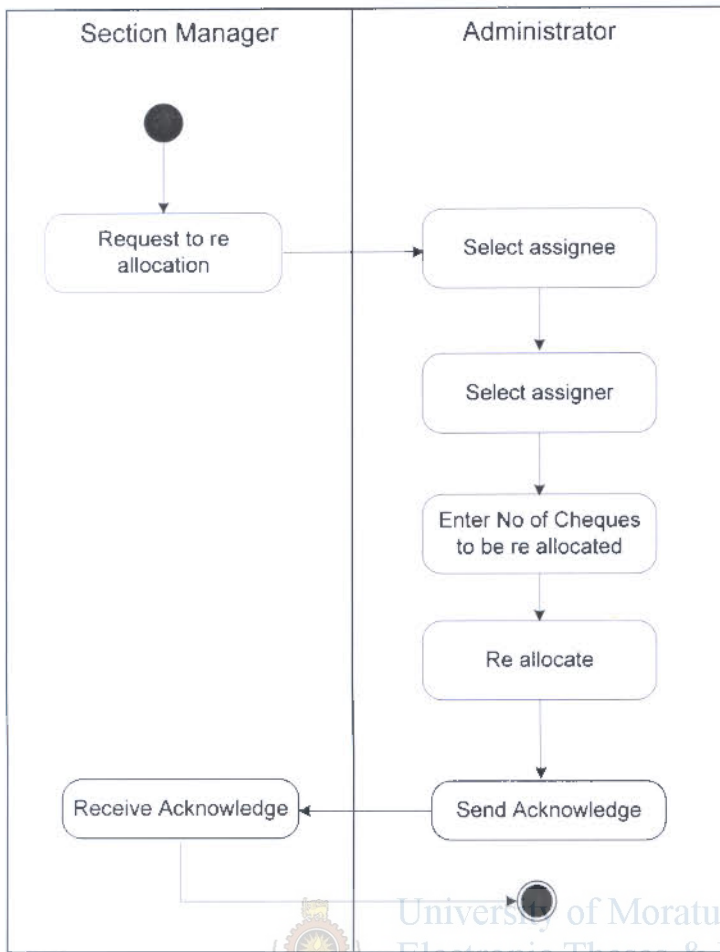
University of Moratuwa, Sri Lanka.
 Electronic Theses & Dissertations
www.lib.mrt.ac.lk



Activity diagram for Burn Outward Return CD



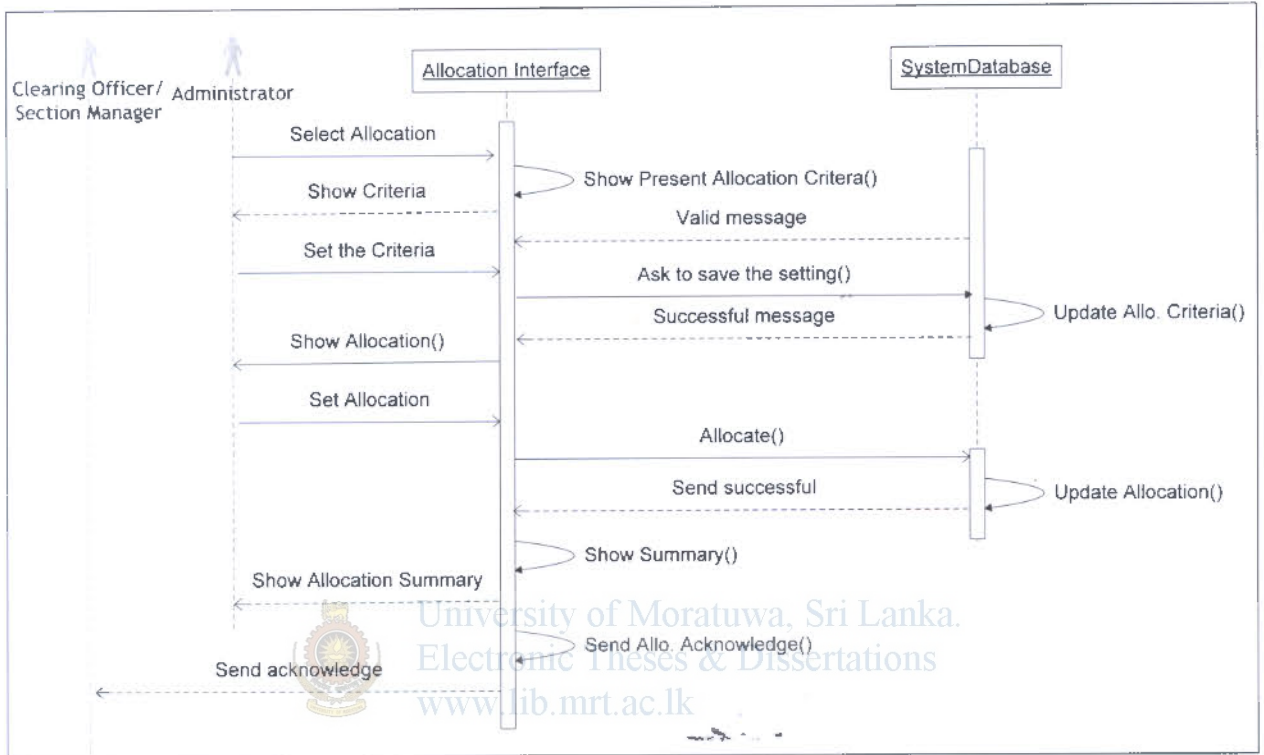
Activity diagram for Sending Technical return file



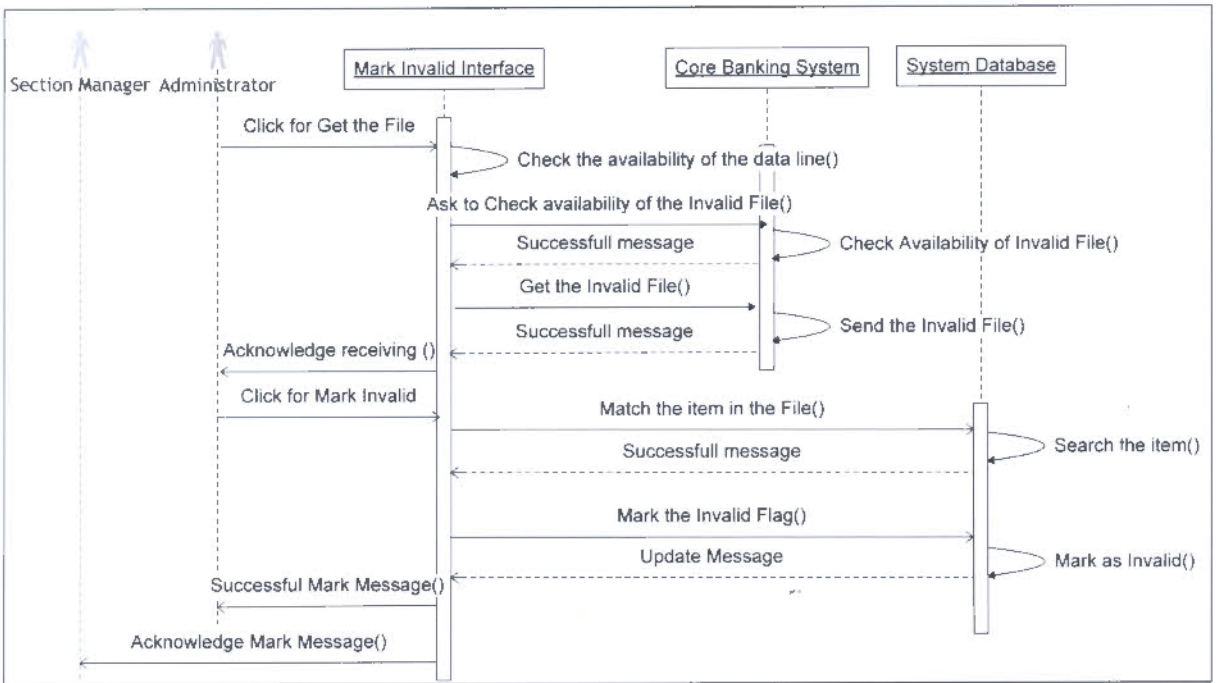
Activity diagram for Re allocation

University of Moratuwa, Sri Lanka.
 Electronic Theses & Dissertations
www.lib.mrt.ac.lk

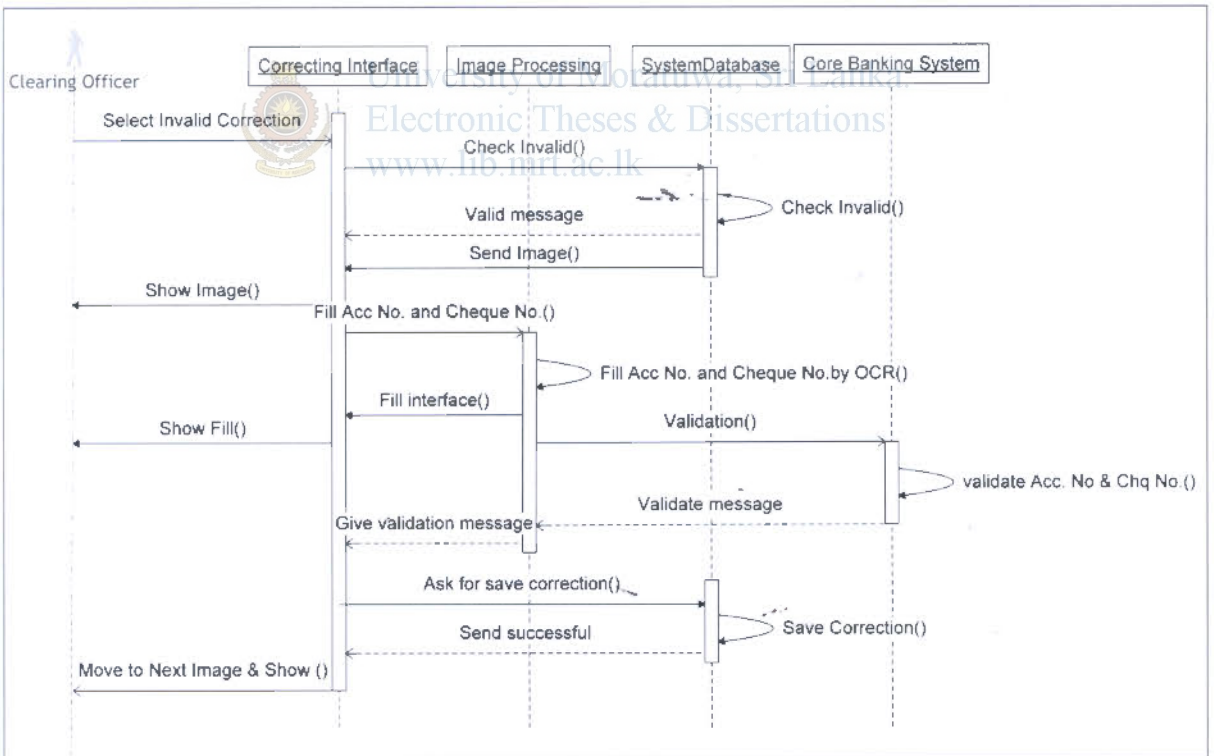
Sequence Diagrams



Sequence diagram for Allocation

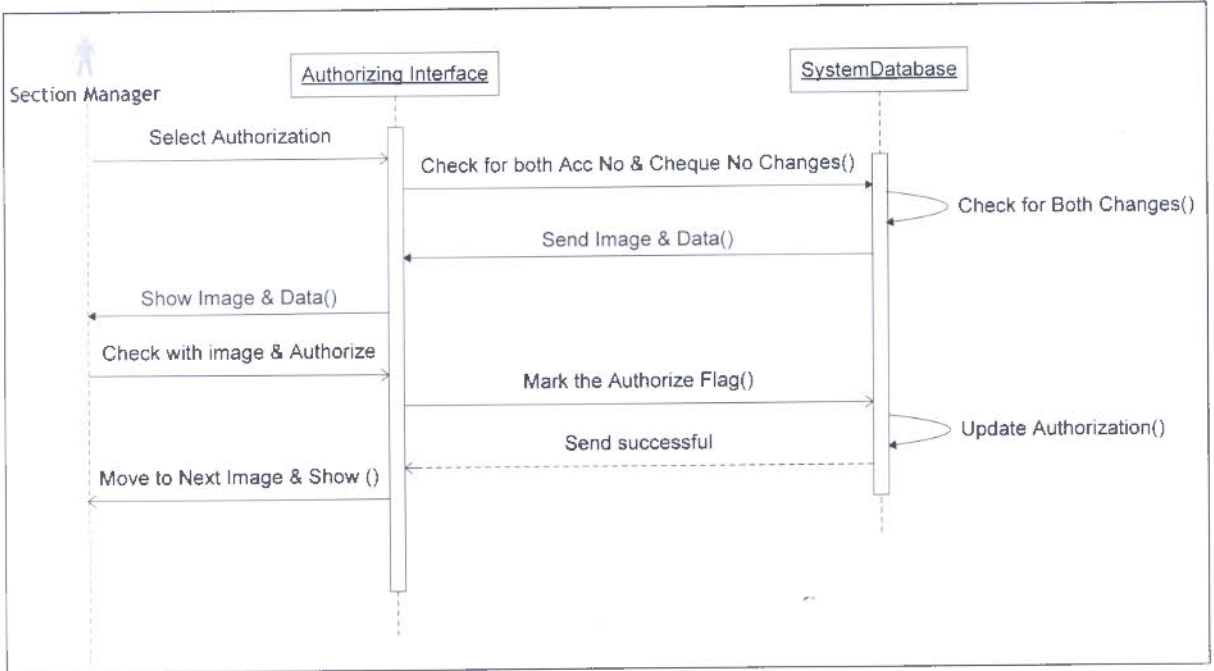


Sequence diagram for Mark Invalid Items

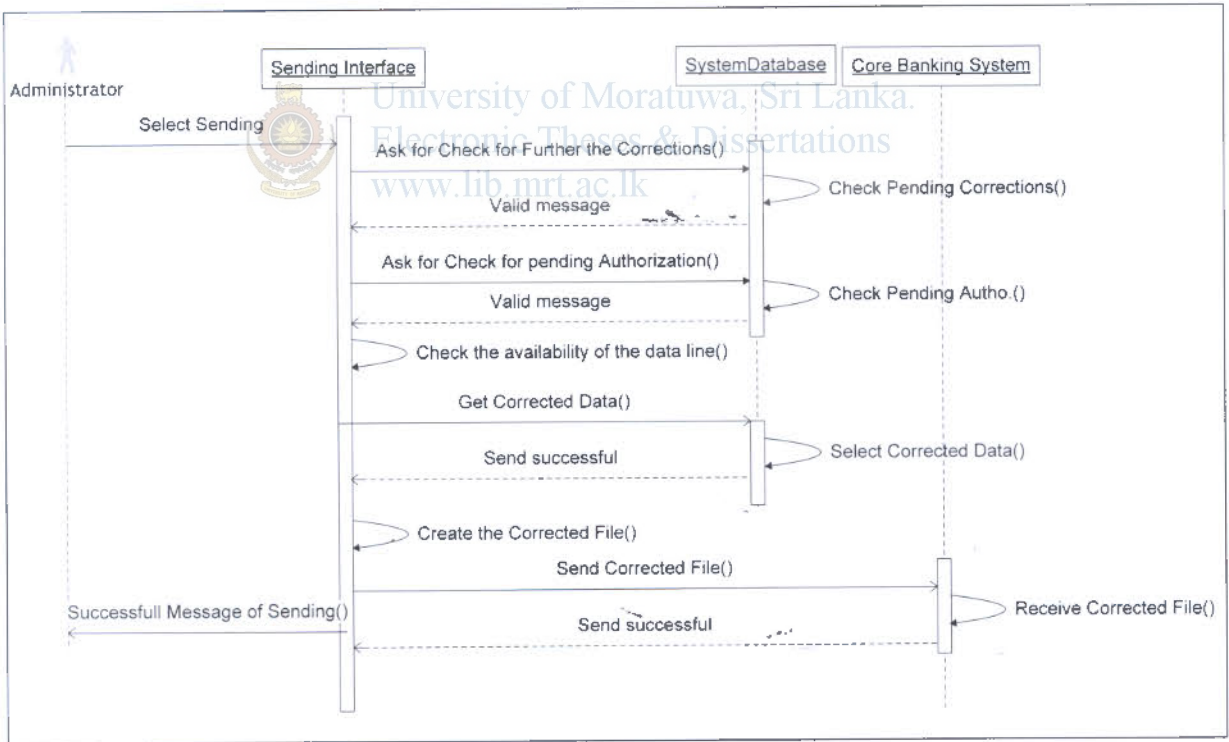


Sequence diagram for Correcting Inward Data

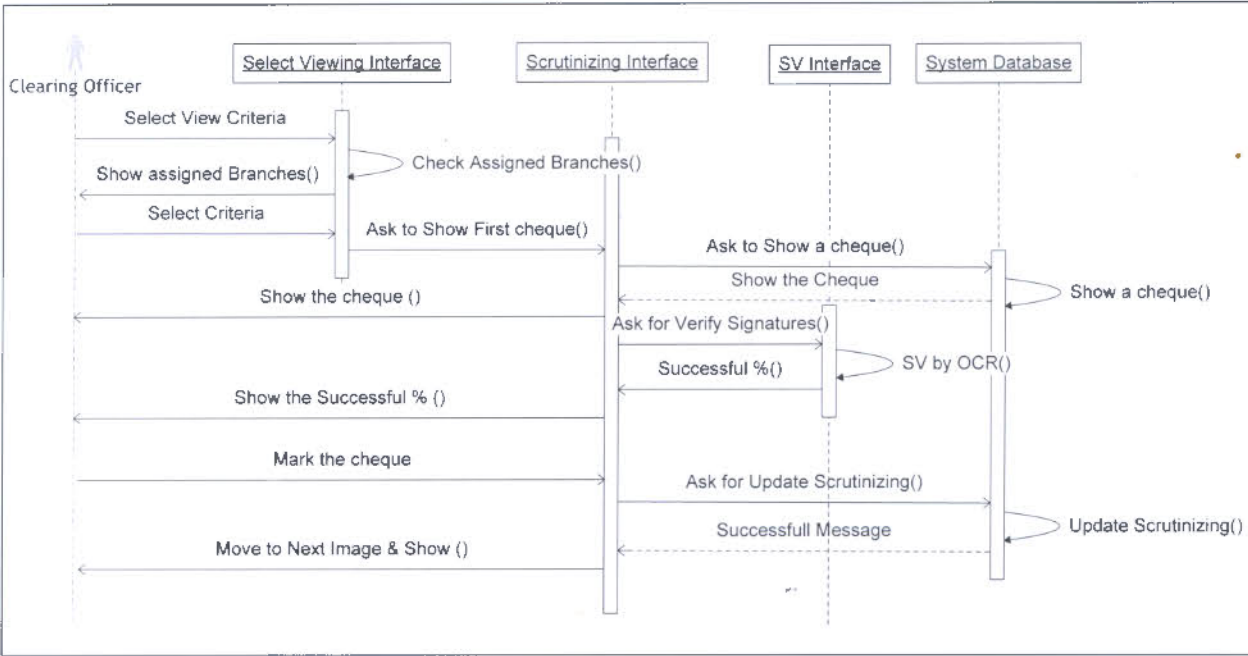




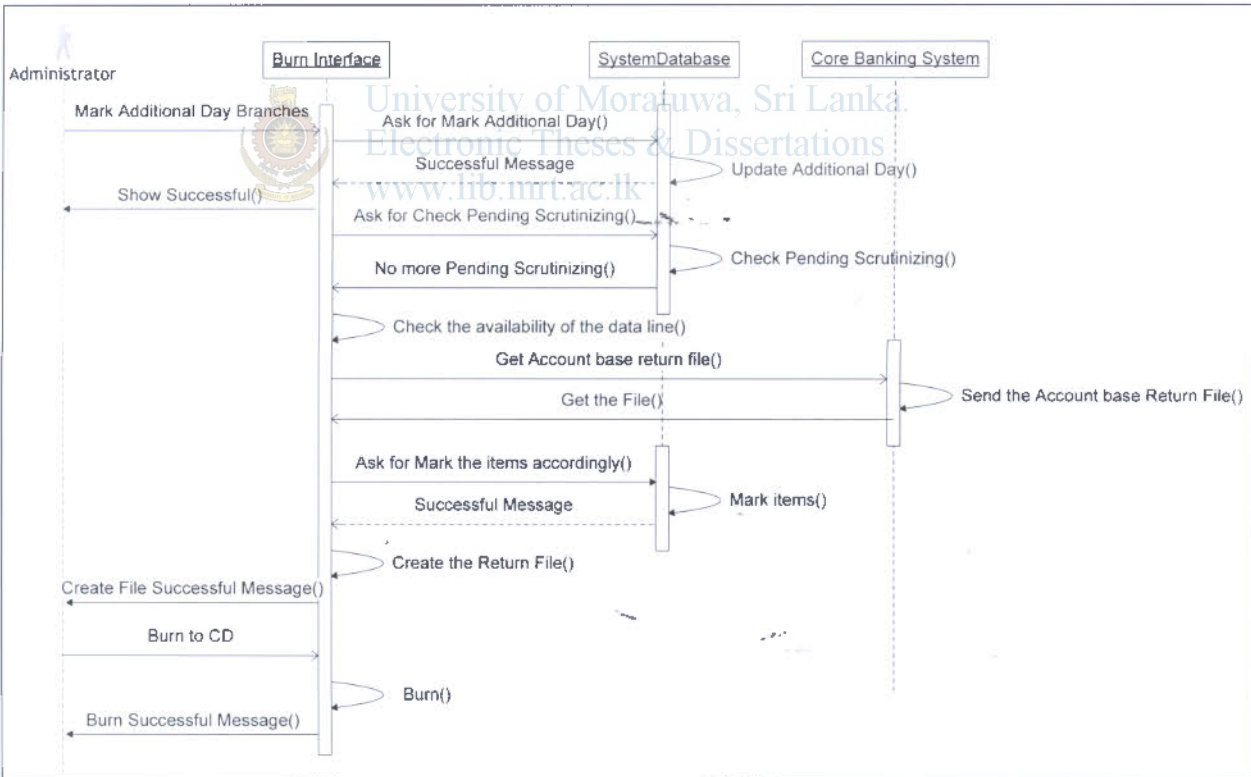
Sequence diagram for Authorization



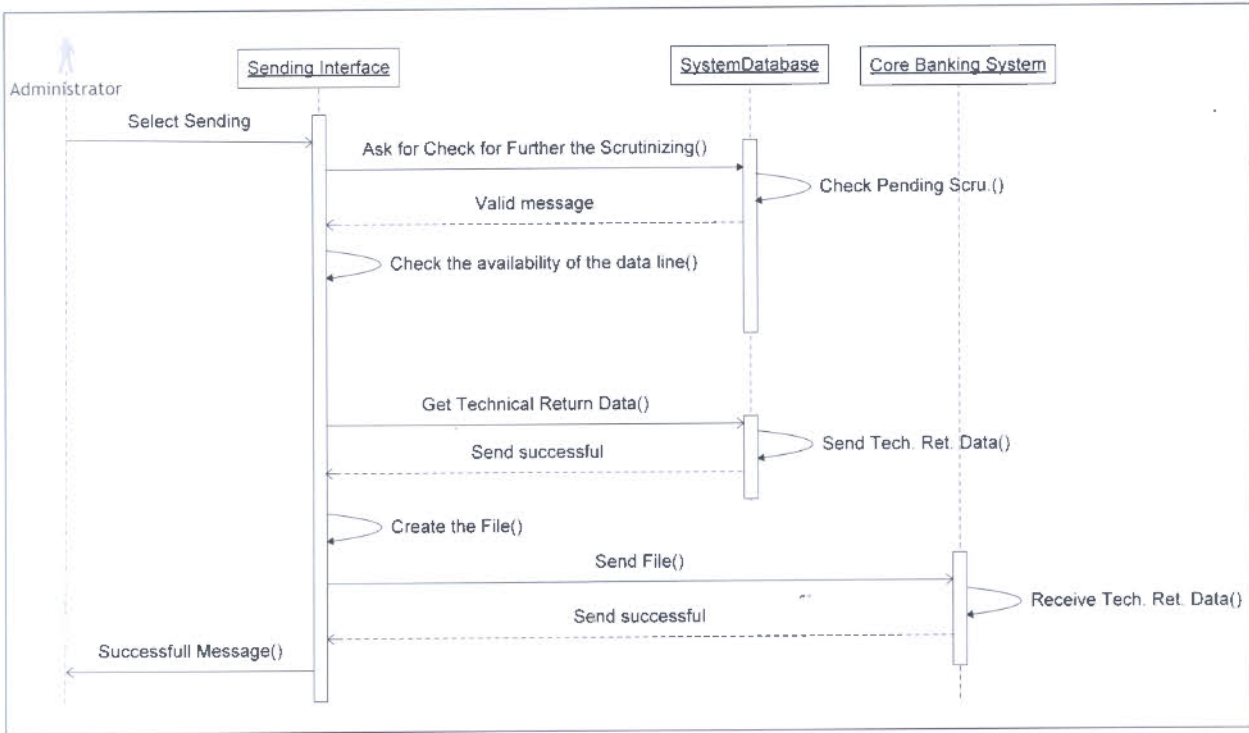
Sequence diagram for Sending Corrected Inward Data file



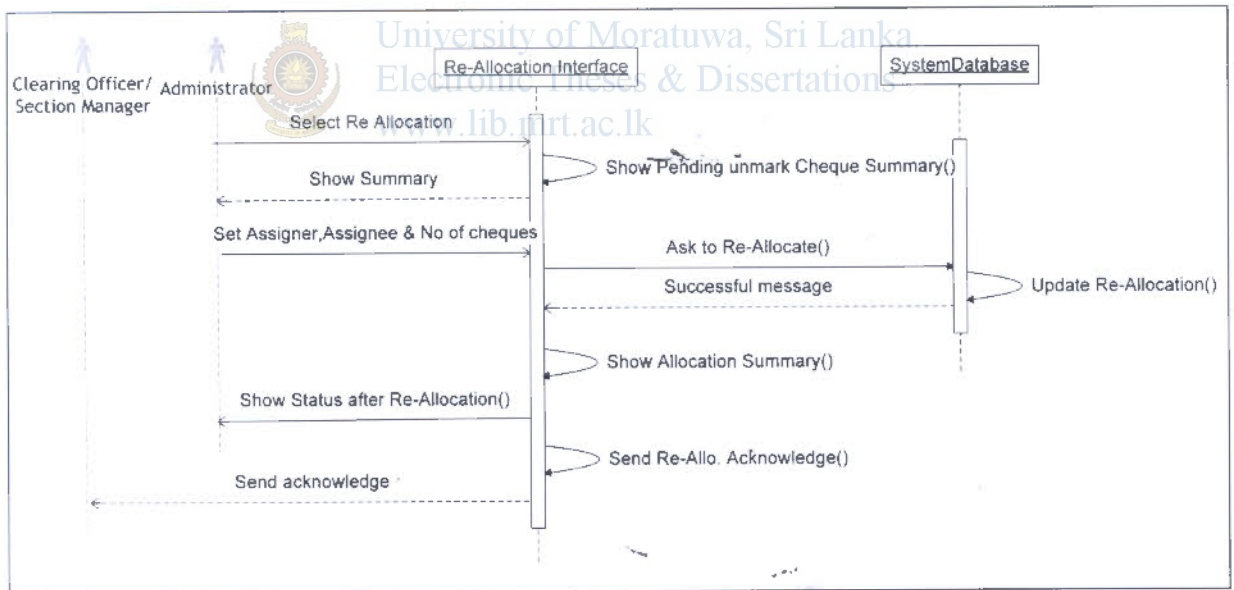
Sequence diagram for Scrutinizing



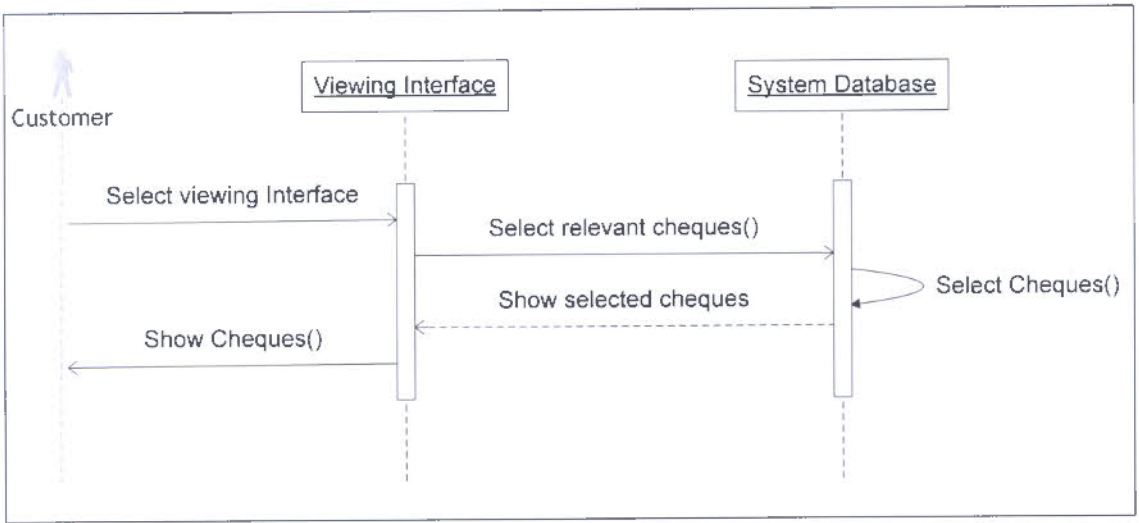
Sequence diagram for Burn Outward Return CD



Sequence diagram for Send Technical Return File



Sequence diagram for Re-Allocation



Sequence diagram for View own cheques



Implementation- screen shots

Login-

You are connecting from the machine: DILSHANT
 Connect Date: 03/10/2008 Current Time: 12:39:09 PM Status: Connected to SQL Server

User Id:
 Password:

Upload CD-

Branch	No of Chq	Amount
007 - Hambantota	49	3,527,008.62
066 - Trincomalee	147	71,229,056.70
125 - Kalpiya	61	4,731,383.69
268 - Girandurukotte	48	3,430,067.37
Total	82,917,916.38	

- 007 - Hambantota Done
- 045 - Embilipaya NDT Activated
- 066 - Trincomalee Done
- 125 - Kalpiya Done
- 268 - Girandurukotte Done

100% Completed

CD Rom Drive: D:\

Allocation Criteria-

Branch Region

User Id: Branch:

User ID	Field Name	Value
dilshan	BANK_BRANCH_CODE	007
dilshan	BANK_BRANCH_CODE	045
dilshan	BANK_BRANCH_CODE	066
dilshan	BANK_BRANCH_CODE	125
dilshan	BANK_BRANCH_CODE	169

Reset

Allocation-

Allocation

User wise Allocation

Assigned User	Branch	# of Cheques
dilshan	007	49
dilshan	066	147
dilshan	125	61
dilshan	168	48

Cheque Total : 305

Allocated Total : 305

Re-allocation-

Re Allocation

User wise Cheques To be Process

Assigned User	Branch	# of Cheques
dilshan	007	49
dilshan	066	147
dilshan	125	61
dilshan	168	48

Re-Allocate To :

dilshan
Sanjsewa

No of Cheques :

Re-Allocate

View Criteria-

Branch : [Dropdown]

Display Status:

Unprocess All

Skipped

Accepted

Rejected

Sort By:

Branch Code

Amount

Cheque Number

Account Number

Spring Order:

Ascending

Descending

View

Invalid Correction-

Invalid Correction

Done 0 To be Done 13

125 Rajpitha 1/7/13

19-03-2008

125100133102210

6000/=

Bank of Ceylon

194119

Acc No

UI 2008031970100040120520168

Amount 6,000.00

Presenting Bank 7010 Bank of Ceylon

Presenting Branch 004 Pettah

Invalid Reason

Navigation buttons: << < > >> ↺ ↻

Authorizing-

Account Number Authorization

University of Moratuwa, Sri Lanka.
Electronic Theses & Dissertations
www.lib.ait.ac.lk

19-03-2008

125100133102210

6000/=

Bank of Ceylon

UI	New Acc	Old Acc	New Chq	Old Chq
✓ 2008031970100040120520168	3102210001	194119	004	

Select All

Authorize

Invalid Correction-

Invalid Correction

Done 0 To be Done 13

125 - Kalpitiya 1/1/1

UI: 2008031970100040120520168
 Amount: 6,000.00
 Presenting Bank: 7010 Bank of Ceylon
 Presenting Branch: 004 Petah

Navigation buttons: << < > >> ↺ ↻

Authorizing-

Account Number Authorization

UI	New Acc	Old Acc	New Chq	Old Chq
<input checked="" type="checkbox"/>	2008031970100040120520168	3102210001	194119	004

Select All

Authorize

Scrutinizing-

Burn Outward Return-

University of Moratuwa, Sri Lanka.
 Electronic Theses & Dissertations
www.lib.mrt.ac.lk



View Burned CD Content-

Outward Return CD Content

Acc No: Chq No: UI: Search: Open File

125 - 1 tabular No of Returns: 24

Unique Identifier	Acc No	Chq No	Amount	Return Code	Add Return Codes	Presenting Bank	Presenting Branch	Branch
2008022570100480540110065	Not Av ble	Not Av ble	5,000.00	13		7010 Bank of Ceylon	480 Unidentified	125
2008022570105480211140051	Not Av ble	Not Av ble	89,000.00	11		7010 Bank of Ceylon	480 Unidentified	125
2008022570105480211140052	Not Av ble	Not Av ble	60,000.00	10		7010 Bank of Ceylon	480 Unidentified	125
2008022570105480211140088	Not Av ble	Not Av ble	1,700.00	13		7010 Bank of Ceylon	480 Unidentified	125
2008022570105480211140090	Not Av ble	Not Av ble	33,000.00	55		7010 Bank of Ceylon	480 Unidentified	125
2008022570560165030806765	Not Av ble	Not Av ble	6,000.00	10		7056 Commercial Bank	165 Unidentified	125
2008022570560165030806706	Not Av ble	Not Av ble	5,000.00	56		7056 Commercial Bank	165 Unidentified	125
2008022570560235031528755	Not Av ble	Not Av ble	9,700.00	12		7056 Commercial Bank	235 Unidentified	125
2008022570560245013633516	Not Av ble	Not Av ble	35,000.00	10		7056 Commercial Bank	245 Unidentified	125
2008022570560419013421288	Not Av ble	Not Av ble	25,115.00	10		7056 Commercial Bank	415 Unidentified	125
2008022570560435030817191	Not Av ble	Not Av ble	4,000.00	55		7056 Commercial Bank	435 Unidentified	125
2008022570560435030817192	Not Av ble	Not Av ble	1,800.00	11		7056 Commercial Bank	435 Unidentified	125
2008022570560665022832393	Not Av ble	Not Av ble	4,000.00	12		7056 Commercial Bank	665 Unidentified	125
2008022570560665022832394	Not Av ble	Not Av ble	2,136.00	10		7056 Commercial Bank	665 Unidentified	125
2008022570560725022093329	Not Av ble	Not Av ble	12,000.00	10		7056 Commercial Bank	735 Unidentified	125
2008022571620005750756674	Not Av ble	Not Av ble	6,000.00	10		7162 Nations Trust Bank	005 Wellawatte	125
2008022571620005751188751	Not Av ble	Not Av ble	7,000.00	57		7162 Nations Trust Bank	005 Wellawatte	125
2008022571620005751340809	Not Av ble	Not Av ble	42,185.00	55		7162 Nations Trust Bank	005 Wellawatte	125
2008022571620005751390945	Not Av ble	Not Av ble	50,600.00	13		7162 Nations Trust Bank	005 Wellawatte	125
200802257278060000201166	Not Av ble	Not Av ble	12,275.00	56		7269 WCB Bank	040 Unidentified	125
200802257278060000301177	Not Av ble	Not Av ble	19,000.00	59		7278 Sampath Bank	060 Kadasaltha azhn	125
20080225727806000060101081	Not Av ble	Not Av ble	19,536.00	55		7278 Sampath Bank	060 Kadasaltha azhn	125
20080225727802700270032326	Not Av ble	Not Av ble	108,150.00	13		7278 Sampath Bank	270 Unidentified	125
2008022572780420420042777	Not Av ble	Not Av ble	70,000.00	10		7278 Sampath Bank	420 Unidentified	125

View Data/Images in the CD-

CD Data

Available Branches in CD: Search:

Single Branch

Cheque No	Acc No	Amount	Presenting Bank	Presenting Branch	Unique Identifier	Branch
248361	0000000000	100,000.00	7038 Standard Chartered Bank	001 Standard Chartered Bank	200803197038001000040114	007
252039	0000467040	232,802.00	7135 People's Bank	169 Galle Bazaar	2008031971351630410080081	007
252049	0000467040	956,183.22	7135 People's Bank	169 Galle Bazaar	2008031971351630410080116	007
252051	0000467040	6,091.00	7056 Commercial Bank	063 Ambalantota	2008031970560635010198139	007
252064	0000467040	86,452.81	7083 Halton National Bank	004 Head Office	2008031970830047453525592	007
650242	6431762001	3,625.60	7010 Bank of Ceylon	747 Taprobane (Gov.)	2008031970107470111510941	007
650243	6431762001	600.00	7083 Halton National Bank	004 Head Office	2008031970830045021254142	007
258859	6431780001	223,000.00	7010 Bank of Ceylon	537 Ambalantota	2008031970105370410500006	007
258863	6431780001	173,000.00	7135 People's Bank	205 Anguralakpeddessa	2008031971352050410710004	007
246438	6431780001	624,086.25	7135 People's Bank	032 Matara Uyanwalita	2008031971352050410710004	007
248875	6431250001	2,252.00	7010 Bank of Ceylon	538 Tissamaharama	2008031970105300411020009	007
249125	6431250001	15,926.00	7287 Seylan Bank	081 Hambantota	2008031972870815024636126	007
249193	6431950001	16,115.00	7010 Bank of Ceylon	085 Hambantota	2008031970100850411090038	007
251382	6431085001	7,250.00	7083 Halton National Bank	004 Head Office	2008031970830045021274151	007
593684	6431950001	2,604.00	7278 Sampath Bank	028 Tissamaharamaya	2008031972780280290020594	007
593686	6431950001	4,000.00	7135 People's Bank	264 Susupewewa	2008031971352640410670010	007
247318	6431963001	20,000.00	7010 Bank of Ceylon	139 Welisara	2008031970101390411000006	007
247327	6431963001	20,000.00	7010 Bank of Ceylon	537 Ambalantota	2008031970105370410500010	007
251865	6431960001	100,000.00	7287 Seylan Bank	001 City Office	2008031972870015024917610	007
242556	6431960001	7,770.00	7287 Seylan Bank	081 Hambantota	2008031972870815024636089	007
593777	6432035001	4,750.00	7162 Nations Trust Bank	000 Overseas Trust Bank Lt.	2008031971620005759785383	007
588074	6432063001	4,000.00	7287 Seylan Bank	037 Tissamaharama	20080319728703705300511510	007
593915	6432065001	1,000.00	7010 Bank of Ceylon	024 Matara	2008031970100240410470647	007
593924	6432065001	15,470.00	7083 Halton National Bank	004 Head Office	2008031970830047453524343	007
252652	6432077001	3,500.00	7278 Sampath Bank	028 Tissamaharamaya	2008031972780280290020616	007
593767	6432090001	4,300.00	7287 Seylan Bank	081 Hambantota	2008031972870815024636079	007

CD Rom Drive: No of Cheques: 48

System Parameters-

System Parameters

Bank Code: 7135

Drives:

CD Rom Drive: D:\

CD Writer Drive: F:\

Backup Drive: C:\

System Type:

Centralized

Decentralized

Interface Media

Signature Server: _____

Bank Host: _____

Change Password Cycle (Days): _____

Update Exit

System Calendar-

Calendar

May 2008 Month: May Year: 2008

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

Update Exit

Login by the Customers-

University of Moratuwa, Sri Lanka

PEOPLE'S BANK

Theses & Dissertations

www.lib.mrt.ac.lk

Welcome to the People's Bank

Current Accounts Services

Sign on to the System

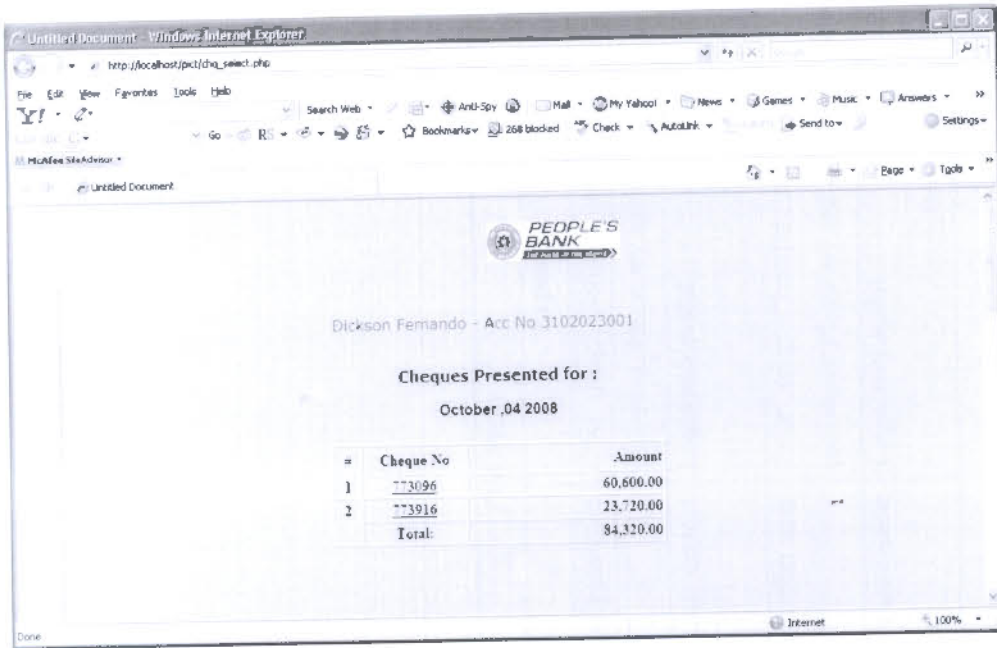
User Name: _____

Password: _____

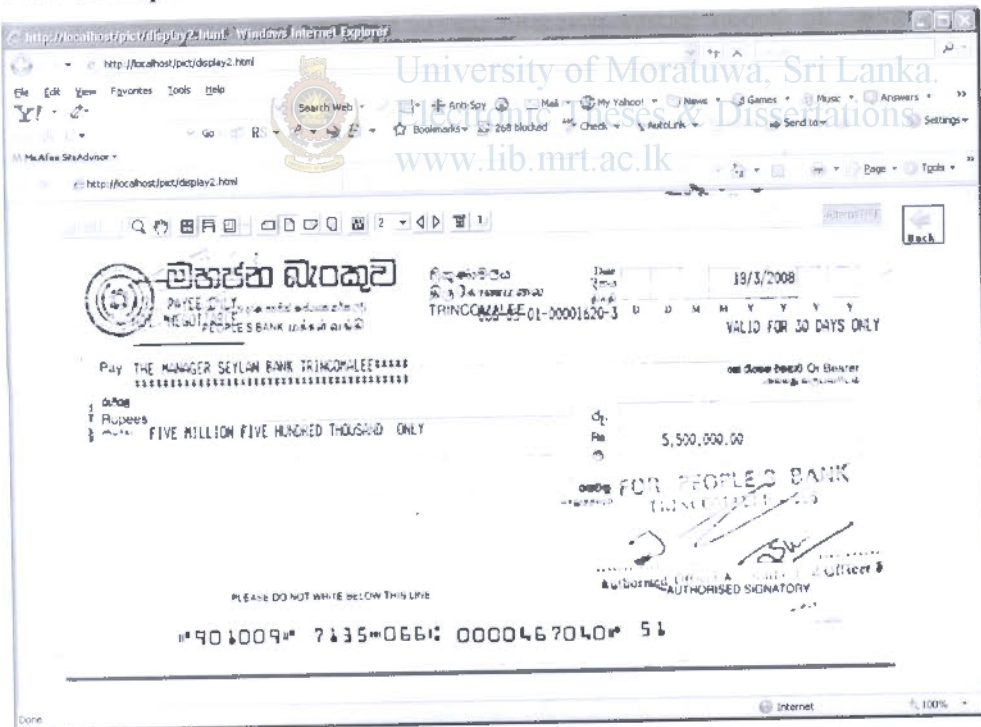
Submit Reset

Done Internet 100%

Cheque Selecting-



View a cheque-





Test Cases

Log in to CICPS				
Test Case ID	Test Case Name	Test Case Description	Test Steps	
			Step	Expected
Login01	Validate Login	To verify that user name on login screen is valid	Enter a non-existing user name and password and click Log On button	Error msg: "Invalid userID or password. Please try again"
			Enter an existing user name and correct password and click Log On button	Login successful
Login02	Validate Password	To verify that password on login screen is valid	Enter an incorrect password and correct user name and click Log On button	Error msg: "Invalid userID or password. Please try again"
			Enter correct password and correct user name and click Change Password button	Login successful

Upload DVD

Test Case ID	Test Case Name	Test Case Description	Test Steps		
			Step	Expected	Actual
Upld01	Verify Empty DVD drive	To verify empty the DVD drive	Click upload button when the DVD drive is empty	Error message "Drive is Empty"	
Upld02	Verify DVD Upload	To verify that an invalid CD cannot be uploaded	Insert a CD which is not a Inward Data DVD and Click Upload button Insert a CD which belongs to branch and Click Upload button	Error message: "Incorrect DVD" Upload successful	
Upld03	Verify CD Upload	To verify that the same CD cannot be uploaded more than once	Insert a CD which belongs to the branch and Click Upload button and process the cheque. Click Upload button again	Error message: "Already uploaded cheques exists"	
Upld04	Verify CD Upload	To verify that the CD cannot be uploaded with out completing the EOD	Insert a CD which belongs to the branch but which has not been uploaded before. Click Upload button Process cheques and burn the outward return text file. Upload the next days CD	Upload successful Error message: "Previous Clearing Day work Has Not Being Completed"	

Account No /Cheque No Update

Test Case ID	Test Case Name	Test Case Description	Test Steps		
			Step	Expected	Actual
Acc01	Validate Account No	To verify that the system will not accept an Account No which is not validate with the Core Banking System	Go to Invalid Correction screen. Enter valid Account No	The name of the Account display in the below text box in Blue color	
			Go to Invalid Correction screen. Enter invalid Account No	"Invalid Acc" display in the below text box in Red color	
Chq02	Validate Cheque No	To verify that the system will not accept an Cheque No which is not validate with the Core Banking System	Go to Invalid Correction screen. Enter valid Cheque No when the Account No is valid	"Valid Chq" display in the below text box in Blue color and <input checked="" type="checkbox"/> button become enable	
			Go to Invalid Correction screen. Enter invalid Cheque No when the Account No is valid	"Invalid Chq" display in the below text box in Red color and <input checked="" type="checkbox"/> button become disable	

Cheque Allocation

Test Case ID	Test Case Name	Test Case Description	Test Steps		
			Step	Expected	Actual
Alloc01	Validate Allocation	To verify that a user cannot scrutinize a cheque not allocated to him	<ol style="list-style-type: none"> Go to Allocation Criteria screen and set the criteria avoid allocating a particular Branch/Region. Update and in the next screen click allocate. Select Scrutinizing screen and select the 	Error msg: "No cheques to view for this Status"	

			said Branch/Region and click View.	
			Do the same with selecting a particular Branch/Region	Allocated Cheques will be displayed
Alloc02	Validate all cheques Allocation	To validate that the all the cheques has allocated	Go to Allocation Criteria screen and set the criteria avoid allocating one Branch/Region	A blink message display "Still Some Cheques to Be Allocated"
			Go to Allocation Criteria screen and set the criteria allocating all the Branches/Regions	Message "Allocated Successfully" is displayed

Cheque Scrutinizing				
Test Case ID	Test Case Name	Test Case Description	Test Steps	
			Step	Expected
Scru01	Verify Cheque Scrutinizing	To verify that any of the display fields cannot be amended.	In Scrutinizing screen Click on Cheque No, Account No, UI No, Amount or Presenting Bank/Branch field and try to type in something	Will not add or change any values
Scru02	Verify Cheque Scrutinizing	To verify that an already accepted cheque can be rejected	In Scrutinizing screen accept a cheque and go back to the same cheque and reject it.	It will move to next cheque and increase the accepted total and reduce from the rejected total
Scru03	Verify Cheque	To verify that an already rejected cheque can be accepted	In Scrutinizing screen reject a cheque and go back to the same cheque and	It will move to next cheque and increase the rejected total and

	Scrutinizing		accept it.	reduce from the accepted total
Scru04	Verify Cheque Scrutinizing	To verify that it's possible to select additional return reasons	Reject a cheque and click on More button and select few return reasons and click on <input type="checkbox"/> button	When you go back to the particular cheque additional return codes will appear on the display field.
Scru05	Verify Cheque Scrutinizing	To verify that selecting "Accept" option is enough to accept a cheque	Select "Accept" option and go back to the particular cheque	It will appear as accepted
Scru06	Verify Cheque Scrutinizing	To verify that it's not enough to reject a cheque without selecting a return reason and clicking on <input type="checkbox"/> button	Select "Reject" option and select a return reasons and click on next button. Go back to the particular cheque	It will appear as Unprocessed
Scru07	Verify Cheque Scrutinizing	To verify when you select the Scrutinizing screen, cheques appear according to the selection criteria	<ol style="list-style-type: none"> Select "Reject" option, select a return reason, click accept button and click on next button. Go back to the particular cheque Select "Amount" as Sort By, descending as Sort Order, Accepted as Process status and click on View button	It will appear as reject All Accepted cheques will be sorted on Amount in descending order. You can verify by clicking on move last, move previous, move next and move first buttons
Scru08	Verify Cheque Scrutinizing	To verify when you Scrutinizes cheques they update as marked	Scrutinize few cheques. Exit the screen and re-enter Scrutinizing by selecting only unprocessed cheques	Only the unprocessed cheques will appear

Corrected file for Core Banking System

Test Case ID	Test Case Name	Test Case Description	Test Steps		
			Step	Expected	Actual
Core01	Verify the creation of Corrected file	To verify that the file cannot be created with out correcting all invalid items	In the Invalid Correction screen correct all the items except one cheque and in Send Corrected File screen click Create File	Message: "There are Still Invalids for Following Users :"	
Core02	Verify the creation of Corrected file	To verify that the file cannot be created with out authorizing both Account No and Cheque No change	In the Invalid Correction screen correct both Account No and Cheque No of one item and in Send Corrected File screen click Create File	Message "There are Invalids for Authorizing for Following Users : "	

Re-Allocation

Test Case ID	Test Case Name	Test Case Description	Test Steps		
			Step	Expected	Actual
RA1101	Verify Re-allocation	To verify only the Unprocessed items can be re-allocated	<ol style="list-style-type: none"> Go to Scrutinizing screen by login particular user and check his number of items unprocessed Go to Re Allocation screen and check number of items in unprocessed against his user name 	Two number of cheque count will be same	
RA1102	Verify Re-allocation	To verify the number of items re-allocate is success	<ol style="list-style-type: none"> In the Re Allocation screen select one of the assigned users Select a user from "Re-allocate To:" 	The deducted number of items from first user is same to the number of	

			list who has not participated yet in the day	items has gone to the new user.
			3. Enter number of items to be re-allocated and click Re-Allocate button.	
			4. Go to Scrutinizing screen by login both user and check their number of items to be processed	



Authorization

Test Case ID	Test Case Name	Test Case Description	Test Steps		Actual
			Step	Expected	
Auth01	Validate Authorization	To verify that all the items that should be authorize come to the Account Number Authorization screen	1. Go to Invalid Correction screen and change both Account No and Cheque No in few items 2. Go the Account Number Authorization screen and count number of items	Number of items changed and in the Account Number Authorization screen will be same.	
Auth02	Validate Authorization	To verify once an item is authorized it not comes to the Account Number Authorization screen	1. Go to Invalid Correction screen and change both Account No and Cheque No in few items 2. Go to Account Number Authorization and authorize one of the items 3. Go back to the Account Number Authorization screen check whether the particular item still in the screen	Particular item will not be in the screen	

Burn Outward Return

Test Case ID	Test Case Name	Test Case Description	Test Steps		Actual
			Step	Expected	

Burn01	Validate Outward Return burn to CD	To verify that burning can not be done if there still unprocessed items exist	<ol style="list-style-type: none"> 1. Make sure to exist pending item(s) to be marked 2. Go to Burn Outward Return screen and click Create File button 	Message will display as "Following Branches are to be Completed"
Burn02	Validate Outward Return burn to CD	To verify that Outward return CD is burnt	<ol style="list-style-type: none"> 1. Burn the Outward return CD with returns. 2. Click on View File 3. In the Open File button and browse for a return text file in the CD 4. Open the file 	Details of all the returned cheques will be displayed

User wise Status

User wise Status			Test Steps		
Test Case ID	Test Case Name	Test Case Description	Step	Expected	Actual
Stat01	Verify User wise Status	To verify marking of items by the users reflect in the User wise Status screen	<ol style="list-style-type: none"> 1. Open two screens of the system 2. In one of them go to Scrutinizing screen and in the other go to Status screen 3. In the Scrutinizing screen mark a cheque 4. Move to User wise Status screen and observe the change 	It will be reflect the change in the screen against the particular user and summary of status.	
Stat02	Verify Branch wise Status	To verify marking of items by the users reflect in the Branch User wise Status screen	<ol style="list-style-type: none"> 1. Follow above 3-steps 2. Move to User wise Status screen and click Branch wise button observe the change 	It will be reflect the change in the screen against the particular branch and summary of status.	

History Inquiries				
Test Case ID	Test Case Name	Test Case Description	Test Steps	
			Step	Expected Actual
Hist01	Verify History Inquiries	To verify that any day's all Inward clearing cheques can be viewed using the particular DVD	<ol style="list-style-type: none"> 1. Insert the DVD 2. Go to View Old Cheques screen and select a branch by Available Branches In CD list 3. Click one of the items displayed on the grid 	<ol style="list-style-type: none"> 1. It will display all cheques details of the selected branch 2. Once click on one item the image of the cheque will be displayed

Security				
Test Case ID	Test Case Name	Test Case Description	Test Steps	
			Step	Expected Actual
Sec01	Verify user status change	To verify that user status data can be altered	<ol style="list-style-type: none"> 1. Go to Add/Update User screen 2. Change user status to "Disable" 3. Try to login to system using disabled user 	<p>Message will displayed as "This User has been Disabled"</p>
Sec02	Verify password change	Verify it can not use Old password as new	<ol style="list-style-type: none"> 1. Go to Change Password 2. Use the Old password as new one 	<p>Message will displayed as " Can not use Old Password as New"</p>
Sec03	Verify user Roles	To verify a user can not go to a screen which is belong to a role, is not assigned to him	<ol style="list-style-type: none"> 1. Login to the system using user id which has no "Administrator" role 2. Go to Parameter screen 	<p>Message will displayed as "You Don't Have Sufficient Privileges to Do the Task"</p>

System Parameters					
Test Case ID	Test Case Name	Test Case Description	Test Steps		
			Step	Expected	
Para01	Verify effect of Parameters	Verify changes of Parameters effect to the system functionality	<ol style="list-style-type: none"> Go to System Parameters screen Change CD Rom Drive to some other drive Go to Upload CD screen and upload a DVD 	Message will displayed as "No Inward DVD to Upload"	Actual

University of Moratuwa, Sri Lanka.
 Electronic Theses & Dissertations
www.lib.mrt.ac.lk



Project Charter

Project Charter



University of Moratuwa, Sri Lanka.
Electronic Theses & Dissertations
www.lib.mrt.ac.lk

A.D.S. De Silva - 06/10008

**MSc in Information Technology
Faculty of Information Technology
University of Moratuwa**

PROJECT CHARTER

Name of the Candidate A.D.S. De Silva
Registration Number 06/10008 Index Number
email Address dilshan@peoplesbank.lk
Title of the Project Centralized Image Clearing Processing System - CICPS (for People's Bank)

Executive Summary

Supervisor

Name : Dr. Gamini Wijayarathna
Organization : University of Kelaniya
Designation : Senior Lecturer
Address : University of Kelaniya, Dalugama, Kelaniya
Telephone : 2914482, 0773687533

Fax :

eMail :

gamini@kln.ac.lk



University of Kelaniya, Sri Lanka.
Electronic Theses & Dissertations
www.lib.mrt.ac.lk

1. Introduction to the Project

When a cheque present to a bank/branch for realization it can be dishonor due to various reasons. Once a cheque dishonor it shall be reported to the Central Bank of Sri Lanka - CBSL for the accordance settlements within bank/branches.

Image Clearing is refers to honor or dishonor a cheque by scrutinizing its image not the physical cheque. In Sri Lanka physical cheque was replaced by the Image in 2006. . This expediting the payment and settlement system in the banking sector. The Lanka Clear Pvt Ltd – LCPL whose shareholders are the CBSL and all commercial banks in Sri Lanka, coordinates the cheque payment system within the banks/branches.

Cheque Imaging & Truncation (CIT) is an image-based cheque clearing system, which replaces

the presentment of physical cheques with electronic information, flowing throughout the clearing cycle. This process eliminates the actual cheque movement in cheque clearing and reduces the delays associated with the physical movement of cheques.

This in turn increases efficiency, reduces operational costs and expedites the clearing process across the nation.

As far as the People's Bank is concerned its clearing process is operated by distributed manner or in branch level. This makes huge operational and maintenance cost.

The project is focused on the centralizing said operations with the following enhancements.

1. Some cheque's data consists of wrong account number and/or cheque number due to misread of Magnetic Ink Character Recognition – MICR. Automate correcting those account numbers and cheque numbers (Invalid Items) by Optical Character Recognition – OCR with validation against the core banking system.
2. Automate Signature Verification System (SVS) should be implemented using existing SVS. In addition to that validate whether signature instructions has followed.
3. In the cheque clearing process, the involvement of the branch manager is essential in some particular instants. The facility of forwarding those cheque data with its image to the manager by electronic media (e-mail, in a screen) is a great advantage.
4. It is required to grant additional day(s) by implementing data pausing system for those branches failed to complete the cheque processing in their own or technical failure.
5. Web based cheque view for customers; those are presented for clearing in the day.

2. Problem Domain and Motivation

The bank branch staffs are the people who should focus on customer services not the back office operations. In new concept of banking the back office operations are to be centralized. These operations can be assigned to specialized personnel. Cheque clearing is considered as the main banking activity in commercial banks. So it has to be highly accurate and efficient.

People's Bank has 300+ branch network scattered throughout the country. The Bank has no

mechanism to monitor the status of its branches with regard to the cheque clearing, other than manual way. Island wide process monitoring system is needed.

Minimizing in frauds is another challenge in such a huge financial institute.

Branches have to submit there return data in a CD to a currier service. Reaching the CD to LCPL's regional centers takes considerable time. Misplace of CDs happens occasionally. In addition to that the CBSL has emphasized the need of submitting returns in time.

Said charges for currier service are considerable amount. Failing submitting return data in the day, subject to fine the branch by the LCPL. The cost for the bank increases in operational and administrative due to existing decentralized system of cheque clearing.

3. Project Goals and Objectives

The objective of this project is to develop a system which centralizes the clearing process of the bank in cost effective way. The said task of day to day branch operations hand over to the specialized personnel. Then branch staff can allocate more time to focus on customer services.



University of Moratuwa, Sri Lanka
Electronic Theses & Dissertations
www.lib.mrt.ac.lk

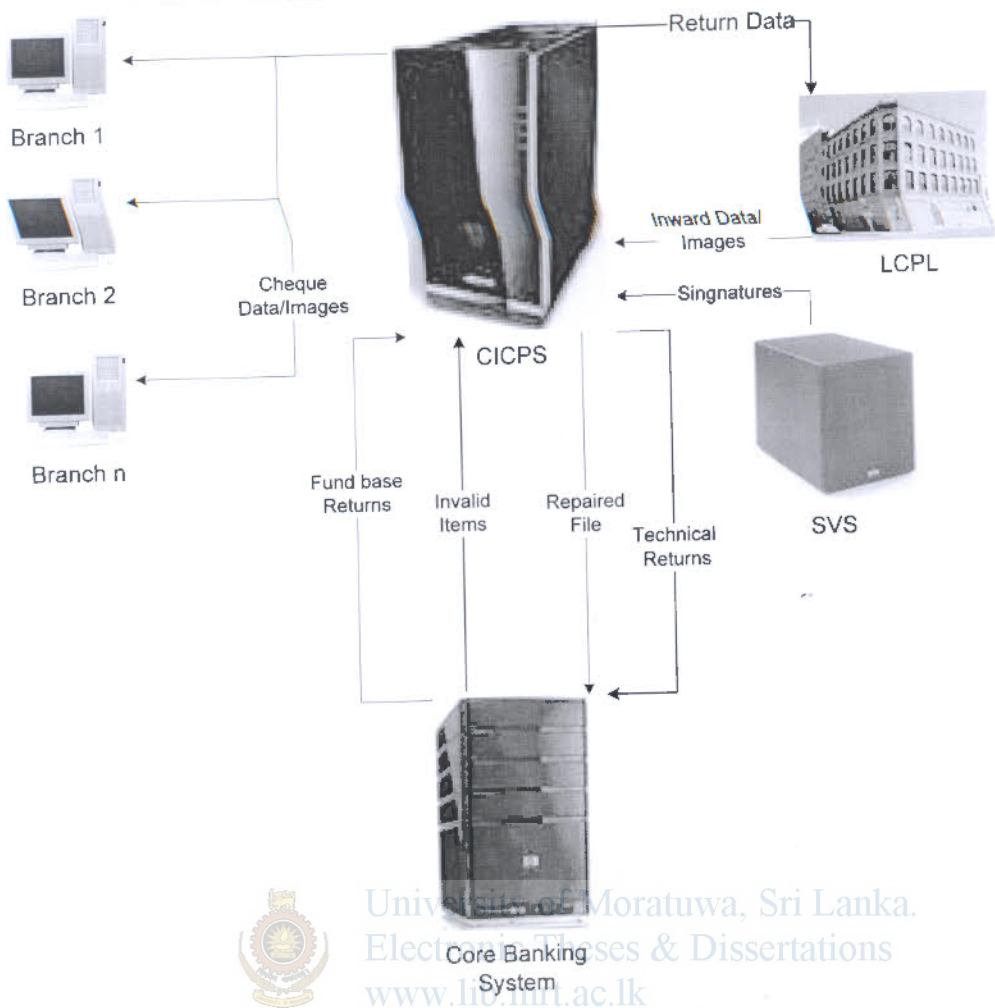
In addition to that modern banking demand for speed with accuracy. Centralizing the operation pave the way to the demand.

Proposed system target submitting return cheque details in time.

4. Similar work and Relationship to the Project

5. Scope of the Project

Whole clearing process consists of four legs of clearing circle. Here we consider only two legs, namely inward clearing and outward return.



6. Deliverables

The deliverables of the project are

- Software Requirement Specification
- A working prototype of the software module which consist of the following.
 - Correcting invalid items those rejected by the core banking system.
 - Scrutinizing cheques honor or dishonor
 - Passing the honor or dishonor decision to a higher authority or bank manager
 - Monitoring of user activities
 - Signature verification
 - Flexible cheque allocating method among system users
 - Error Report of Inward data

- Burn Return Data to a CD
- Web based cheque view for customer, those are presented for clearing in the day
- Final documentation with test cases, test results and user manual

7. **Parameters for the measurement of success**

8. **Resource requirement for the project**

- Software requirement
- Hardware requirement
- Middleware requirements

9. **Risk and Risk Mitigation Plan**

- There is essential interfacing with the core banking system and Signature Verification System which should align with the proposed system. To make this success building a healthy relationship with the parties involved.
- Sudden fail of the system due to a disaster, the whole clearing process of the bank will be stagnating. So it is proposed to add a provision in disaster recovery center already established in the bank.

10. **The Client or the Sponsor (the user or the user group of the final solution). If you have an actual client who is interested in the project, indicate here.**

People's Bank

11. **Project Schedule (with a Gantt Chart – Annexure I)**

Submission of the Project Charter Document	09 th March, 2008
Feedback on the Project Charter Document	09 th March, 2008
Submission of revised Project Charter (if applicable)	15 th March, 2008
Submission of SRS	23 rd March, 2008
Design solution	10 th April, 2008
Study and identify cheque viewer control and other technologies to be used	15 th April, 2008
Software coding	27 th May, 2008
Preparation of interim report	15 th June, 2008



Interim Project Presentations	16 th June, 2008
Presentation and Viva-Voce Examination	01 st July, 2008
Submission of Final Documentation (Hard Bound)	07 th August, 2008

Student's Signature

Date : 15/02/2008

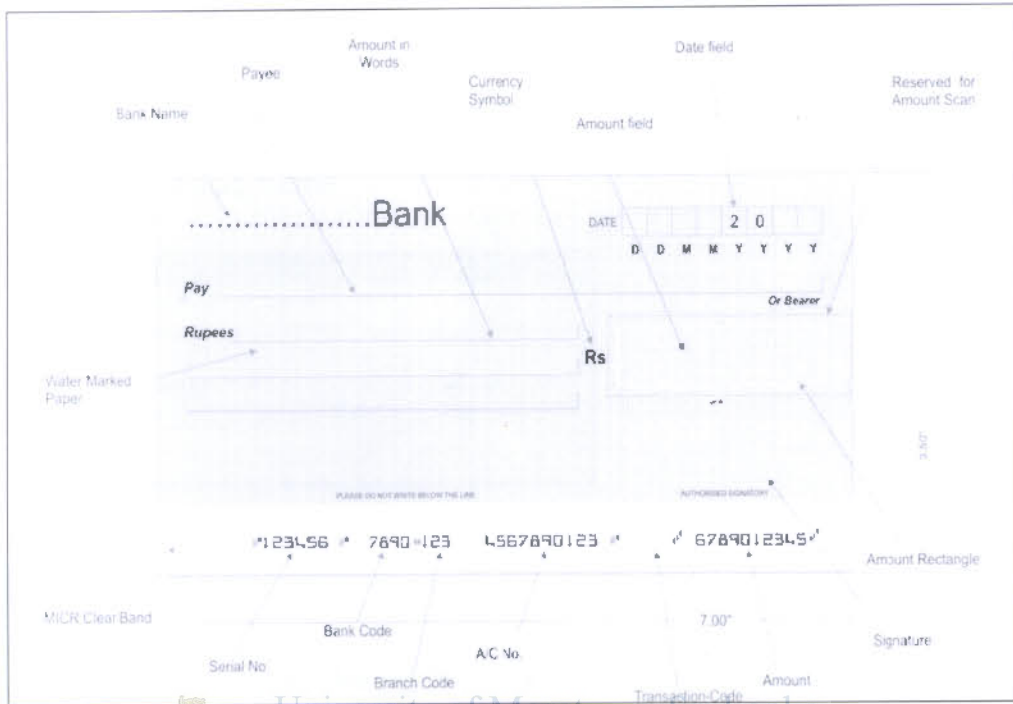
Supervisor's Signature

Date :

Annexure I

ID	Task Name	Duration	Start	Finish	Feb '08	Mar '08	Apr '08	May '08	Jun '08	Jul '08	Aug '08
1	Submission of the Project Charter Document	6 days	Sun 02/03/08	Sun 09/03/08							
2	Feedback on the Project Charter Document	0 days	Sun 09/03/08	Sun 09/03/08							
3	Submission of revised Project Charter (if applicable)	6 days	Sun 09/03/08	Sat 15/03/08							
4	Submission of SRS	7 days	Sun 16/03/08	Sun 23/03/08							
5	Design solution	14 days	Mon 24/03/08	Thu 10/04/08							
6	Study and identify cheque viewer control and other technologies to be used	3 days	Fri 11/04/08	Tue 15/04/08							
7	Software coding	30 days	Wed 16/04/08	Tue 27/05/08							
8	Preparation of interim report	13 days	Wed 28/05/08	Sun 15/06/08							
9	Interim Project Presentations	1 day	Mon 16/06/08	Mon 16/06/08							
10	Presentation and Viva-Voce Examination	11 days	Tue 17/06/08	Tue 01/07/08							
11	Submission of Final Documentation (Hard Bound)	27 days	Wed 02/07/08	Thu 07/08/08							

Image Friendly Cheque

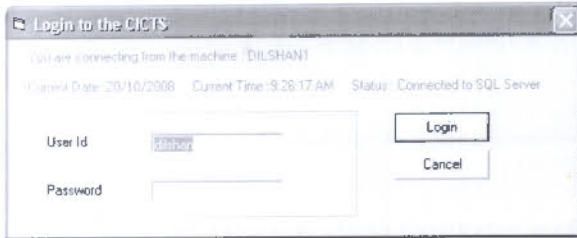


University of Moratuwa, Sri Lanka.
Electronic Theses & Dissertations
www.lib.mrt.ac.lk

User Manual

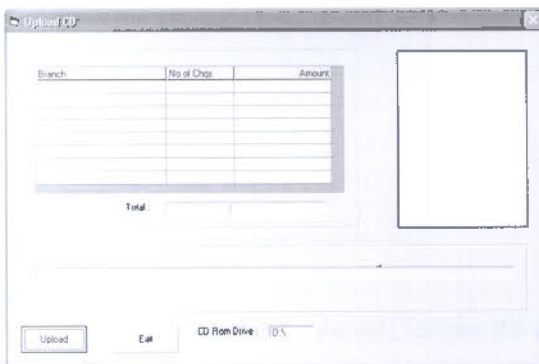
1. Logging on to the System

1. Click on CICPS icon on the desktop and press Enter key.
2. Enter the User name and Password.
3. Click **Login** button



2. Upload CD

1. Insert the Inward Clearing DVD to the CD drive of your Computer. A screen will appear giving what's in the CD.
2. Exit the screen by clicking on the cross at the top right hand corner.
3. Go to **Inward Clearing** → **Uploading**
4. Click on **Upload** button.
5. Exit the screen if uploading is successful.



3. Cheque Allocation

1. Go to **Inward Clearing** → **Cheque Allocation**
2. **Select the Branch or Region**
3. **Select the person** who will be clearing the cheques on that day, by clicking on **User ID** drop down list
(This step can be skipped if it is the same person who clears cheques everyday)

4. Select the Branch or Region form drop down list
5. Click on **Add** button
6. User name should appear in the Allocation list
7. Click on **Update** button and **Exit** the screen

User ID	Field Name	Value
dhan	BANK_BRANCH_CODE	007
dhan	BANK_BRANCH_CODE	045
dhan	BANK_BRANCH_CODE	066
dhan	BANK_BRANCH_CODE	125
dhan	BANK_BRANCH_CODE	168

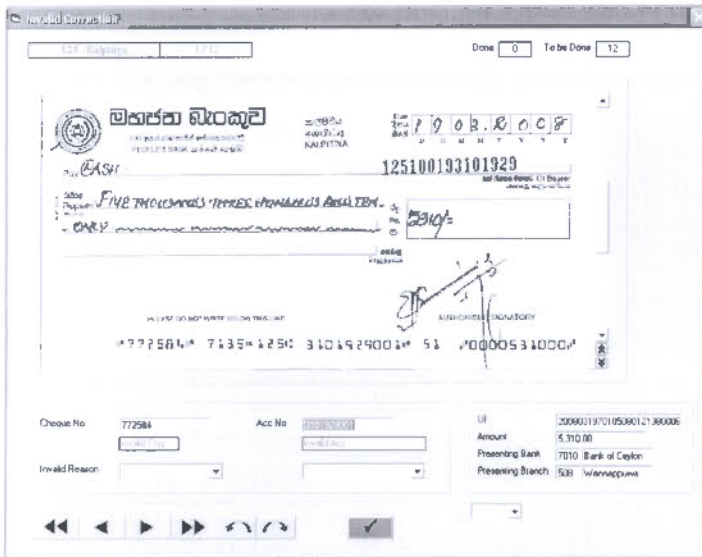
1. Click on **Allocate** button (has to be **performed daily** even if clearing is carried out by the same person everyday)
2. Clearing person's name will appear under **Assigned User** and the **number of cheques** allocated to him.
3. **Exit** the screen

Assigned User	Branch	# of Cheques

4. Update Account Numbers/Cheque Numbers

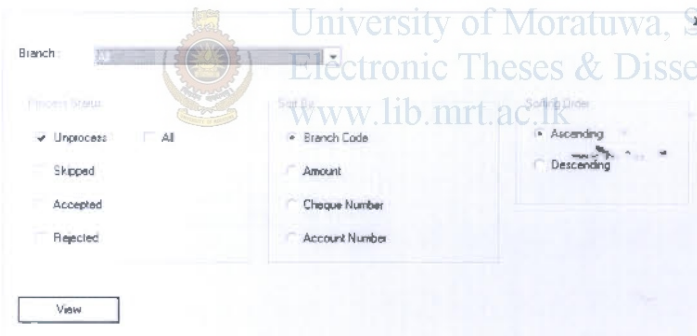
1. Go to **Inward Clearing** → **Correcting Inward Data**
2. Enter the Account number in the **Account Number** field. if it is correct the name of the account will be displayed.
3. Click on the **Green Tick** or **Enter Key** to confirm the updating.
4. The next cheque will be displayed OR

You can continue checking all the cheque images using the Blue arrows.

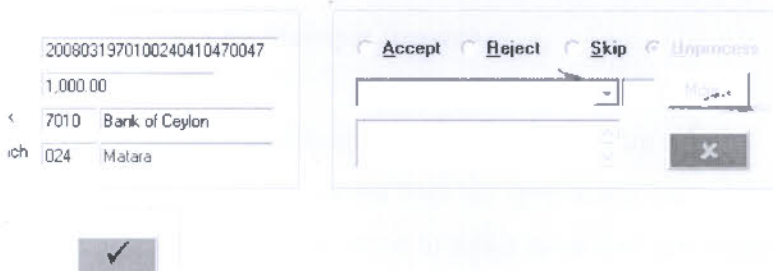


5. Cheque Scrutinizing

1. Go to **Inward Clearing → Scrutinizing**
2. Following screen will allow you to sort cheques according to your requirements
3. Click on **View** button



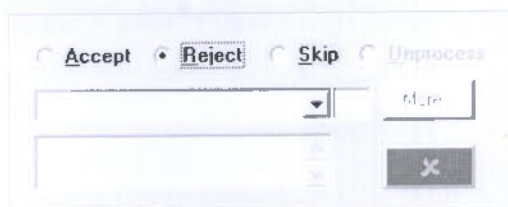
Accept Cheques



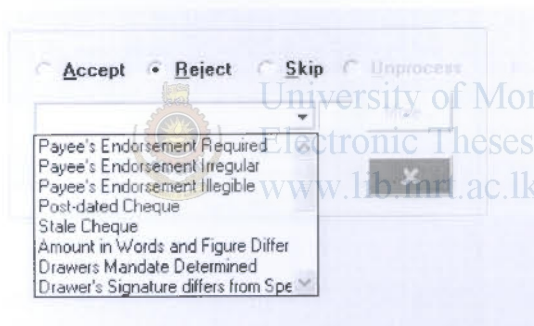
1. Select **Accepted** from the **cheque verification** option OR Click the **Green tick** to confirm the acceptance
2. After clicking once on the Green tick, you can continue accepting cheques by simply pressing the Enter key.

Return Cheques

1. Select **Reject** from the **cheque verification** option



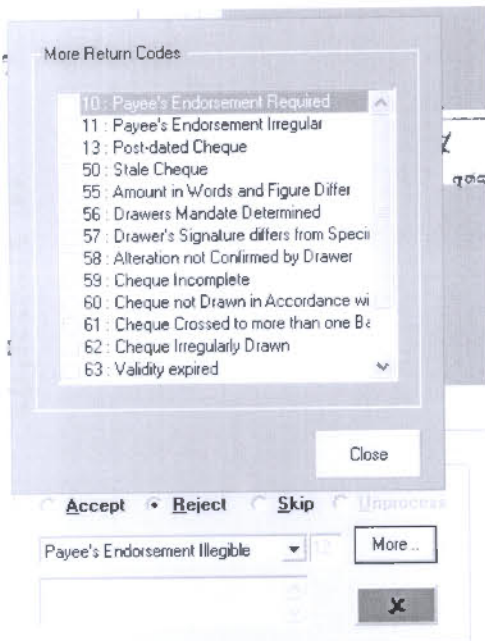
2. Select a **Return reason** from the drop-down list



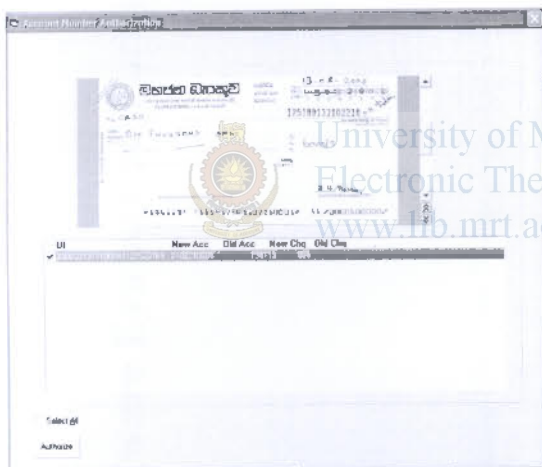
3. Click on the **Red Cross** to confirm the rejection. Automatically the next cheque image will appear.

Return Cheques on Multiple Reasons

1. Select **Rejected** from the **cheque verification** option
2. Select a **Return reason** from the drop-down list.
4. Click on the **More** button to select more than one reason
5. Click on **Close** button
6. Click on the **Red Cross** to confirm the rejection. Automatically the next cheque image will appear.



6. Authorization



1. Go to **Inward Clearing** → **Authorization**
2. Select cheque by click and click **Authorize** button

7. Burn Outward Return CD

1. Go to **Outward Return** → **Burn CD**
2. Select the branches which return data should be burn
3. Click on **Create File** button
4. Click on **Burn**

Software Evaluation Form



Your Name :

Date Reviewed :

Title of the Software : Centralized Image Clearing Processing System

Please tick in the most appropriate cage.

	Excellent	Good	Satisfactory	Fair	Poor
1. Screen formats is understandable					
2. Input method is simple					
3. Can easily correct mistakes					
4. Responds to input in a timely manner					
5. Colour is used appropriately					
6. Move to different parts of the program easily					
7. Easy to exit from any screen					

8. Printing options							
9. Achievement of overall software solution							

What do you see as the product's three main strengths?

- a) _____
- b) _____
- c) _____

What are your suggestions for improving the product?



University of Moratuwa, Sri Lanka.
 Electronic Theses & Dissertations
www.lib.mrt.ac.lk

