

COMPUTERIZED INVENTORY CONTROL  
APPLICATIONS IN  
OPERATIONAL RESEARCH TECHNIQUES



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## DECLARATION

I certify that this dissertation does not incorporate, without acknowledgement, any material previously submitted for a Degree or Diploma in any university and to the best of my knowledge and belief, it does not contain any material previously published or written by another person or myself except where due reference is made in the text. I also hereby give consent for my dissertation, if accepted, to be made available for photocopying and for inter library loans, and for the title and summary to be made available for outside organizations.

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## ABSTRACT

Operational Research (OR) is the use of advanced analytical techniques to improve decision making. OR is sense to make the best use of available resources. OR consistently delivers significant value strategic to tactical, top-line to bottom-line to the organizations and executives who use it. Organizations worldwide in business, the military, health care, and the public sector are realizing powerful benefits from Operational Research.

Basically, OR models contained hard mathematical calculations such as matrices, differentiations, integrations, calculus, Lagrangian multipliers with very complex formulas. To find solutions for selected OR model, needed to memorized the final formulas or needed to have a good OR, Mathematical and Statistical theory background in order to derive final formulas. However, to achieve the final solutions, wants to passed lots of calculations and also it might take more time. It has to be carefully worked with numerical calculations to reached accurate answers in short time period, for handle the final decision. Therefore, to find accuracy solutions for selected OR model in short time period without having any theoretical background, it is important to have software.

There is a few number of Computerized Operational Research Applications are available; Such as Windows based TORA, Excel Spreadsheet templates, LINGO, QM and AMPL applications. By considering, OR models, there were no options to solve Inventory Control and Replacement & Maintenance models by using a software. Studying, Inventory Control and Replacement & Maintenance techniques and identified the requirements in each model.

Designed software based on structured system analysis design method. To implemented, Microsoft Visual C++ 6.0 is a textual language used to create the required system. Test the models to verify the accuracy for each possibility with actual expected answer and computerized answer.

The main advantage of this software is, user doesn't need to worry about the mathematical and statistical calculations and can be saved time and energy.



## CONTENT

	Page
Acknowledgement .....	ii
Declaration.....	iii
Abstract.....	iv
Table of content.....	v
 <b>Chapter 1: Introduction</b>	
1.0 Background .....	01
1.1 Focus of the Research.....	03
1.2 Inventory Control .....	04
1.3 Replacement and Maintenances .....	05
1.4 Objectives.....	07
1.5 Methodology .....	08
1.6 Overview of Chapters .....	09
 <b>Chapter 2: Literature Review</b>	
2.0 Introduction .....	11
2.1 Inventory Control .....	10
2.1.1 Deterministic Inventory Model .....	13
2.1.2 Probabilistic Inventory Model .....	14
2.2 Replacement and Maintenance.....	15
2.2.1 Replacement of assets that deteriorate with time (Replacement due to gradual failure).....	16
2.2.2 Simple probabilistic model for assets which fail completely (Replacement due to sudden failure) .....	16
 <b>Chapter 3: Requirements and Analysis</b>	
3.0 Introduction .....	17
3.1 Purchasing model without shortages .....	17

3.2	Manufacturing model without shortage .....	20
3.3	Purchasing model with shortage .....	24
3.4	Manufacturing Model with Shortage .....	29
3.5	Quantity Discount .....	37
3.6	Purchase Model for Multi Items with Carrying Cost Constraint .....	39
3.7	Reorder Point Quantity (Q System) .....	41
3.8	Periodic Review Order Quantity (P System) .....	42
3.9	Value does not change with time (Maintenance) .....	43
3.10	Value does not change without time (Maintenance + Resale) .....	44
3.11	Value change with time (Maintenance) .....	45
3.12	Value change with time (Maintenance +Resale ) .....	47
3.13	Individual Replacement .....	47
3.14	Group Replacement .....	48


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4.0	Introduction.....	49
4.1	Inventory Control.....	51
4.1.1	Purchasing model without shortages .....	51
4.1.2	Manufacturing model without shortage .....	53
4.1.3	Purchasing model with shortage .....	53
4.1.4	Manufacturing Model with Shortage .....	58
4.1.5	Quantity Discount .....	61
4.1.6	Purchase Model for Multi Items with Carrying Cost Constraint .....	63
4.1.7	Reorder Point Quantity ( Q System ) .....	64
4.1.8	Periodic Review Order Quantity ( P System ) .....	65
4.2	Replacement and Maintenances Analysis .....	68
4.2.1	Value does not change with time (Maintenance) .....	68
4.2.2	Value does not change with time (Maintenance + Resale) .....	69
4.2.3	Value change with time (Maintenance) .....	70
4.2.4	Value change with time (Maintenance +Resale) .....	71
4.2.5	Individual Replacement .....	72
4.2.6	Group Replacement .....	73

## Chapter 5: System Implementation

5.0	Introduction .....	74
5.1	Inventory Control.....	75
5.1.1	Purchasing model without shortages.....	75
5.1.2	Manufacturing model without shortage.....	76
5.1.3	Purchasing model with shortage .....	77
5.1.4	Manufacturing Model with Shortage .....	79
5.1.5	Quantity Discount .....	80
5.1.6	Purchase Model for Multi Items with Carrying Cost Constraint .....	86
5.1.7	Reorder Point Quantity ( Q System ) .....	88
5.1.8	Periodic Review Order Quantity ( P System ) .....	89
5.2	Replacement and Maintenances Analysis .....	92
5.2.1	Value does not change with time (Maintenance).....	92
5.2.2	Value does not change with time (Maintenance + Resale) .....	94
5.2.3	Value change with time (Maintenance) .....	96
5.2.4	Value change with time (Maintenance +Resale) .....	98
5.2.5	Individual Replacement .....	100
5.2.6	Group Replacement.....	101

## Chapter 6: Results and Conclusions

6.0	Introduction .....	103
6.1	Purchasing model without shortages .....	103
6.2	Manufacturing model without shortage .....	104
6.3	Purchasing model with shortage.....	105
6.4	Manufacturing Model with Shortage.....	106
6.5	Quantity Discount.....	107
6.6	Purchase Model for Multi Items with Carrying Cost Constraint .....	109
6.7	Reorder Point Quantity (Q System) .....	110
6.8	Periodic Review Order Quantity (P System) .....	111
6.9	Value does not change with time (Maintenance) .....	114

6.10	Value does not change with time (Maintenance + Resale) .....	114
6.11	Value change with time (Maintenance) .....	115
6.12	Value change with time (Maintenance +Resale).....	115
6.13	Individual Replacement .....	116
6.14	Group Replacement .....	116
6.15	Conclusions .....	117
6.16	Further Recommendations .....	118
<b>References</b> .....		119
<b>Appendix I</b> .....		121
<b>Appendix II</b> .....		136



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