

Computing Coursework

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October 24, 2014

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Chapter 1

Analysis

1.1 Introduction

1.1.1 Client Identification

My client is Susannah Mason, she is 50 years old and has little usage of computers, except when having to order new stock for the pharmacy. currently the pharmacy uses computerised methods to submit orders to the warehouse.

Susannah is a pharmaceutical manager at Spire Healthcare in Impington
by creating this program it would speed up the process making keeping track of
and ordering of new equipment and stock a lot easier for her

1.1.2 Define the current system

The current system uses mostly computer based order submission and price checks but the orders have to be put through the computer manually

1.1.3 Describe the problems

The orders for the stock take too long to submit and all stock has to be counted
by hand

1.1.4 Section appendix

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1.4. Section Appendix

Questionnaire

1. please give a brief description of your job Title?
Pharmacy manager of the village Pharmacy.
I am responsible for dispensing and stock control.
2. please give an explanation on what computer programs you currently use?
Computer system is used to maintain patient records
and produce labels for medication.
3. with the current system in use at the moment,(if any), have you found any problems?
Current stock control system is via a card base system which is labour intensive and makes accurate stock levels difficult.
4. what would you like the program to do?, what are the main function of your current computer program?
I need a programme which will maintain information with regards to the amount of stock held. It would also produce an order at the end of each day.
5. how much computer usage do you have both inside and outside of your worklife?
1 computer at home and 1 at work.

The client confirms that this information is accurate:

date: 24/10/2014

Henry Mason

Figure 1.1: questionnaire

1.2 Investigation

1.2.1 The current system

the current system at the pharmacy is a data base that holds the information of over 500 items. the data base holds the price the mass the desription and how much is in the pharmacy at that point in time. when an item is taken out of stock the pharmacist has a card to say that an item has been removed from the storage cupboard. sometimes the system deosn't update even when the card is swiped to say a product has been removed

Data sources and destinations

Data Source	Travels via	destination
doctor	gives prescription	patient
patient	requests medicine	pharmacist
pharmacist	checks stock	stock system
stock system	gives information	pharmasict
pharmacist	collects medication	medicine cupboard
pharmacist	gives medicine	patient

Table 1.1:

Algorithms

i will be using quite a few algorithms for this assignment

Algorithm 1 if statement

```

1: FOR EACH item to check = 0 to 50 IN
2:   IF THENDOitem = lowest minimum amount
3:     "you don't need any more tablets"
4:   ELSE
5:     "you need more tablets"
6:   END IF
7: END FOR

```

this other algorithm will be used to calculate the exact price of all of the order using the information in the list Items the exact price is calulated

Data flow diagram

```

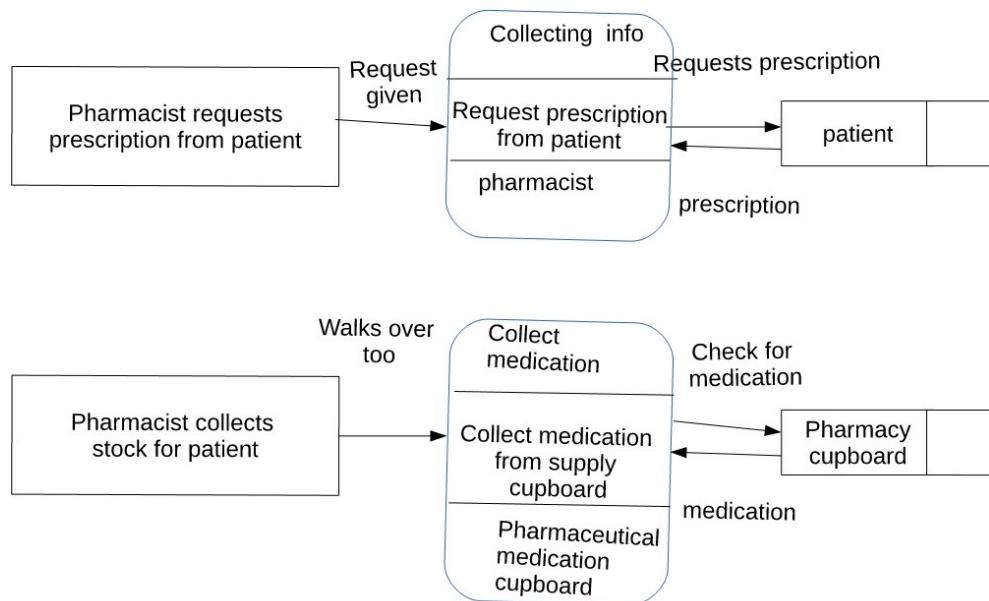
1: IF order Submitted = True THEN
2:   calculate Order
3: ELSE
4:   Restart stock check
5: END IF

```

```

1: IF item in items = True THEN
2:   total ← total + itemPrice
3: ELSE
4:   total ← total
5: END IF

```



Input Forms, Output Forms, Report Formats

The screenshot displays a medical records system interface. At the top, it shows a header with the text "Medical records copy". Below the header, there's a section for "Patient details" containing fields for "First name", "Last name", "Address", "City", and "Postcode". To the right of these fields is a "Search patient" button. Further down, there's a "Medicine details" section with a table for "Drug name and code" and "Strength and quantity". The table includes rows for Aspirin 500mg, Paracetamol 500mg, Ibuprofen 400mg, Aspirin 300mg, Paracetamol 300mg, and Aspirin 200mg. The last row is empty. On the left side of the interface, there's a green sidebar with the title "Medical records copy" and a "Prescription" section containing fields for "Prescriber", "Practitioner", "Registration number", "Phone number", and "Address". At the bottom of the interface, there's a footer with the text "Please click here for privacy notice".

pres.JPG

1.2.2 The proposed system

the proposed system will be used to order, check stock and be informed as soon as anything leaves the pharmacy the data base will be updated of the removal, as well as if the product falls below a certain point it will be program to replace the stock by ordering new stock form the warehouse automatically but the order will go through a master control point before being sent off

Data sources and destinations

Data Source	Travels via	destination
doctor	sends email	pharmacy
pharmacist	checks stock	stock system
stock system	gives information	pharmacist
pharmacist	collects medication	medicine cupboard
patient	collects from	pharmacy

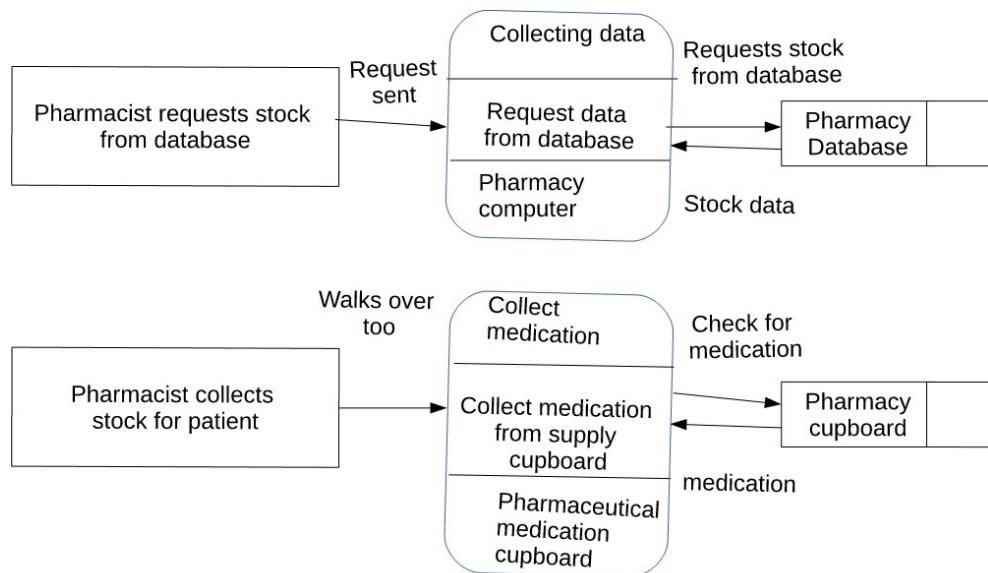
Data flow diagram

Figure 1.2: data flow diagram

Data	Uses	Name
stock detail	stock number	stock check
prescription information	mediction needed	prescription
enough item in stock False	order more item	update stock

Data dictionary

Volumetrics

this system should only be used by pharmaceutical staff in hospitals my client uses this system normally after every patient has gone through to update the stock. so my predicted amount of memory used by the system should calculate up to around 64 bytes to 256 bytes.

1.3 Objectives

1.3.1 General Objectives

- to make a stable system that checks, updates, restocks and sends payment for the ordered items
- to give the system to auto restock items when they fall below a certain number of items
- to graph which items are being bought or used faster and updates the resocking system accordingly

1.3.2 Specific Objectives

- to design a program that will make sorting through the items at the pharmacy as well as store the price and item location in the pharmacy as well as the amount.

1.3.3 Core Objectives

- self updating stock system
- easy accessability
- order more items to refill stock

1.3.4 Other Objectives

- the stock keeping on the program should be accurate. E.G. showing how much one tablet of paracetamol costs
- the system must have automatic communication between the wholesale (warehouse) and the pharmacy

1.4 ER Diagrams and Descriptions

1.4.1 ER Diagram

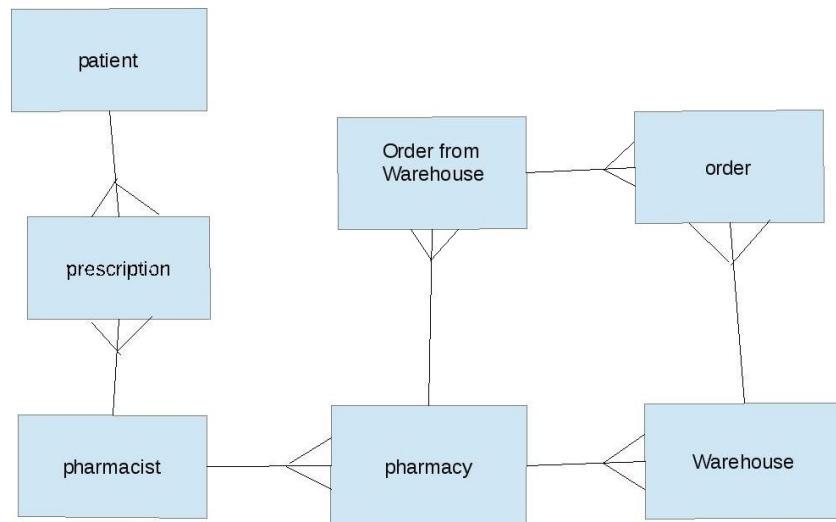


Figure 1.3: entity relationship diagram

1.4.2 Entity Descriptions

- Client(clientID, PharmacyNum, surname, FirstName, PhoneNumber, Address, Postcode)
- Pharmacist(PharamacistID, *PharmacyNum*, Surname, FirstName, PhoneNumber, Address, Email)
- Pharmacy(PharmacyNum, PharmacyAddress, PharmacyPhoneNumber)
- Warehouse(WareHouseNum, PharmacyAddress, WareHouseAddress)
- Order(OrderNum, WareHouseNum, PharmacyLocation, OrderDate, size)

1.5 Object Analysis

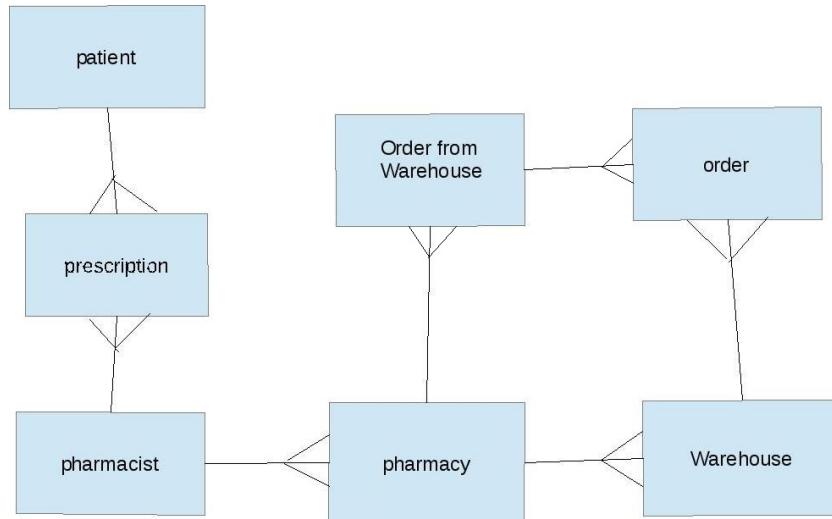
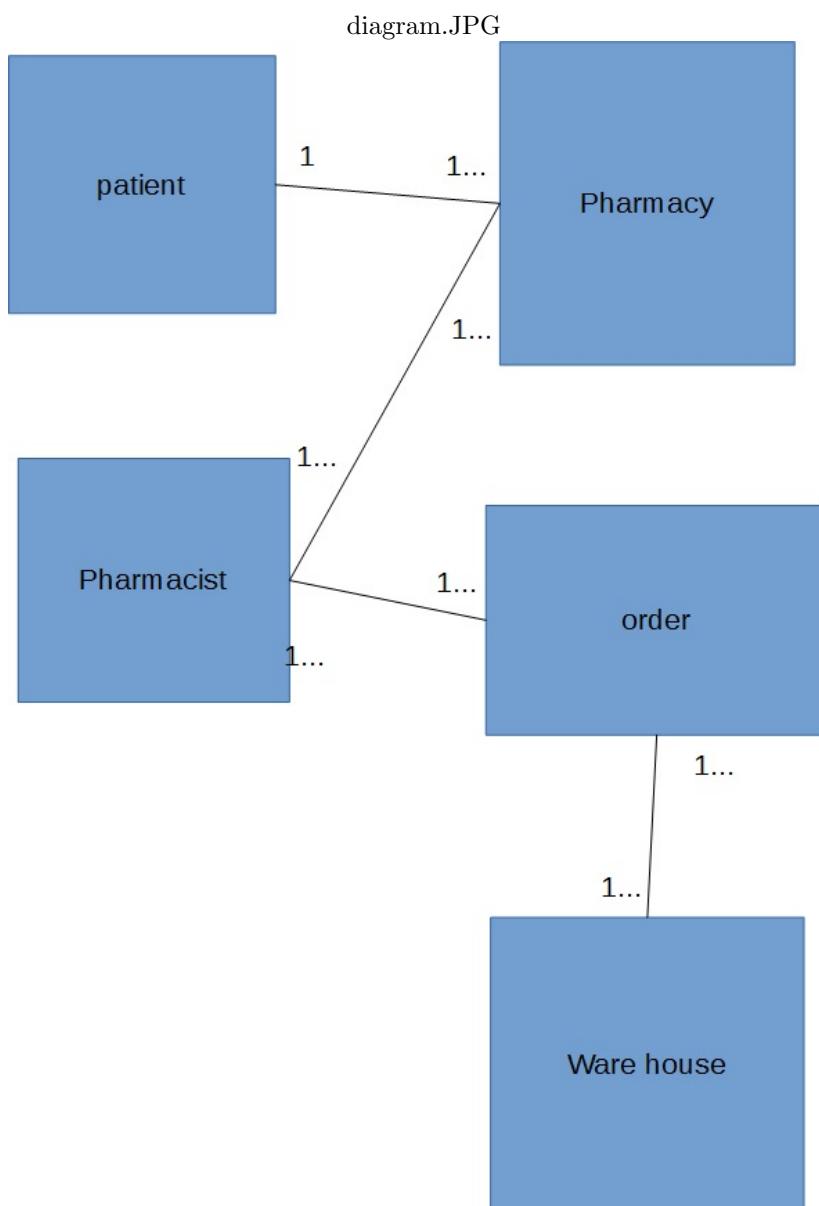


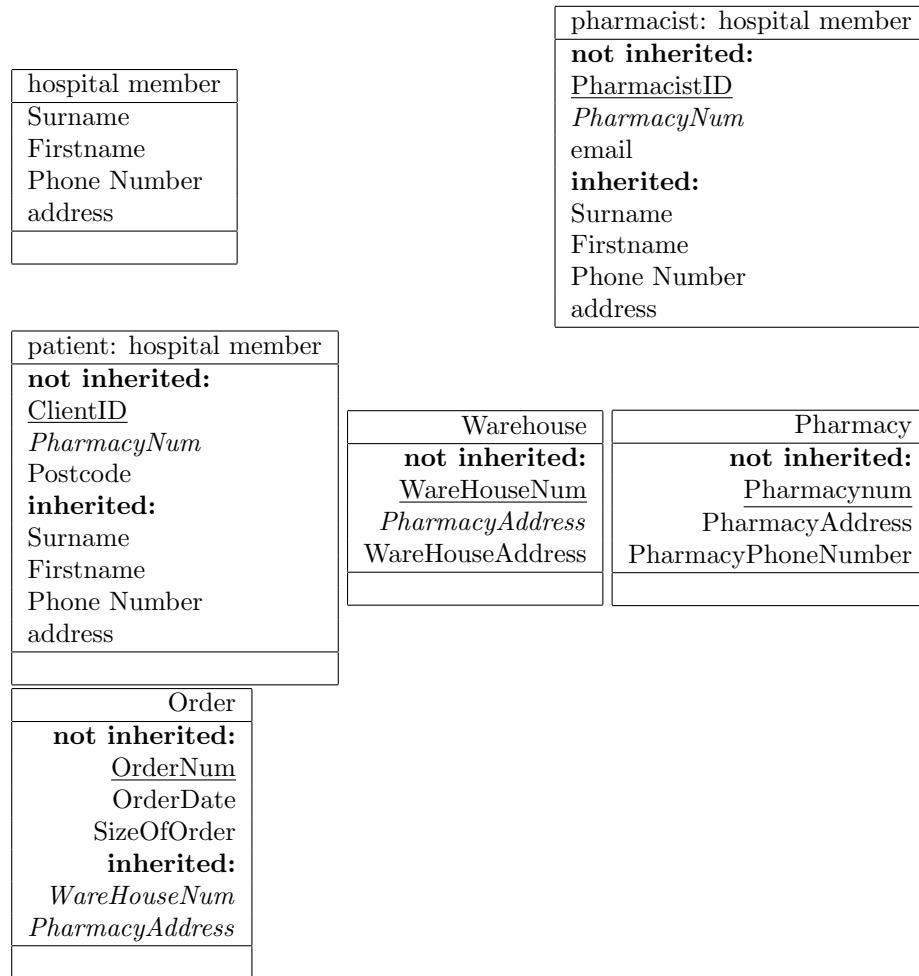
Figure 1.4: entity relationship diagram

1.5.1 Object Listing

- Client
- Pharmacist
- Pharmacy
- Warehouse
- Order

1.5.2 Relationship diagrams





1.5.3 Class definitions

1.6 Constraints

1.6.1 Hardware

Susannah uses a small laptop computer. the components of that laptop are listed below:

- 10.1" display
- intel core N270 atom 1.6 ghz
- 1.00GB DDR3 RAM

- 160GB HDD

The proposed system should work on this laptop because of the laptops fast processor it will run through the calculations fast enough.

If using the laptop doesn't work i will switch back to my desktop computer which has:

- 17" display 1024 x 768 pixels
- 34" display 1360 x 768 pixels
- amd A6-3500 APU 3.0 ghz
- 4.00GB DDR3 RAM
- 0.5TB HDD

There should be no problems running the program on this computer.

1.6.2 Software

The operating system used on the laptop is windows xp. Whereas the operating system used on the desktop is running windows 7. The programs that i will be using will be python 3.2.

1.6.3 Time

The final submission of the implimentation of the program must be in by the 13th of February

1.6.4 User Knowledge

The system i will be building will require at least a little background into the pharmaceutical area. This is due to some of the medicines in the system do not have abbreviated names. The installation should take about 5 to 10 minutes.

1.6.5 Access restrictions

the proposed system should only be accessable and privileges to the people in pharmacy, as well as the system should be password protected to ensure no body outside the system can access the stock information.

1.7 Limitations

1.7.1 Areas which will not be included in computerisation

the prescriptions are not given in electronic format so when the patients come to the pharmacy to collect there medicine it has to be collected by the pahrmacists once the patient has got to the pharmacy

1.7.2 Areas considered for future computerisation

the prescriptions should be sent by the doctors to the pharmacy before the patient leaves the doctor so the pharmacy have time to prepare for the patient so they can pick up there prescription and pay and leave all within the space of one minute.

1.8 Solutions

1.8.1 Alternative solutions

solution	advantages	disadvantages
created program that checks the stock after an item is removed	this will keep a continually accurate stock check	this will take up more space to program in

Table 1.2:

1.8.2 Justification of chosen solution

I have chosen to the Python 3.2 desktop application with a GUI and SQL' solution. My reason for using this method is:

- the application will be specific for pharmacy which will be updated at the start of every week and will continuously keep track of the database where the old system.
- the database used will take up less space required to store the data.
- due to the databases size making back ups is very easy so if the system.

Chapter 2

Design

2.1 Overall System Design

- 2.1.1 Short description of the main parts of the system
- 2.1.2 System flowcharts showing an overview of the complete system

2.2 User Interface Designs

2.3 Program Structure

- 2.3.1 Top-down design structure charts
- 2.3.2 Algorithms in pseudo-code for each data transformation process
- 2.3.3 Object Diagrams
- 2.3.4 Class Definitions

2.4 Prototyping

2.5 Definition of Data Requirements

- 2.5.1 Identification of all data input items
- 2.5.2 Identification of all data output items²⁰
- 2.5.3 Explanation of how data output items are generated
- 2.5.4 Data Dictionary
- 2.5.5 Identification of appropriate storage media

2.9.1 Outline Plan

Test Series	Purpose of Test Series	Testing Strategy	Strategy Rationale
Example	Example	Example	Example

2.9.2 Detailed Plan

Test Series	Purpose of Test	Test Description	Test Data	Test Data Type (Normal/ Erroneous/ Boundary)	Expected Result	Actual Result	Evidence
Example	Example	Example	Example	Example	Example	Example	Example

Chapter 3

Testing

3.1 Test Plan

3.1.1 Original Outline Plan

Test Series	Purpose of Test Series	Testing Strategy	Strategy Rationale
Example	Example	Example	Example

3.1.2 Changes to Outline Plan

Test Series	Purpose of Test Series	Testing Strategy	Strategy Rationale
Example	Example	Example	Example

3.1.3 Original Detailed Plan

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Test Se- ries	Purpose of Test	Test Descrip- tion	Test Data	Test Data Type (Nor- mal/ Er- roneous/ Boundary)	Expected Result	Actual Re- sult	Evidence
Example	Example	Example	Example	Example	Example	Example	Example

3.1.4 Changes to Detailed Plan

Test Series	Purpose of Test	Test Description	Test Data	Test Data Type (Normal/ Erroneous/ Boundary)	Expected Result	Actual Result	Evidence
Example	Example	Example	Example	Example	Example	Example	Example

3.2 Test Data

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3.2.1 Original Test Data

3.2.2 Changes to Test Data

3.3 Annotated Samples

3.3.1 Actual Results

3.3.2 Evidence

3.4 Evaluation

3.4.1 Approach to Testing

3.4.2 Problems Encountered

3.4.3 Strengths of Testing

3.4.4 Weaknesses of Testing

3.4.5 Reliability of Application

3.4.6 Robustness of Application

Chapter 4

System Maintenance

4.1 Environment

4.1.1 Software

4.1.2 Usage Explanation

4.1.3 Features Used

4.2 System Overview

4.2.1 System Component

4.3 Code Structure

4.3.1 Particular Code Section

4.4 Variable Listing

4.5 System Evidence

4.5.1 User Interface

4.5.2 ER Diagram

4.5.3 Database Table Views

4.5.4 Database SQL 27

4.5.5 SQL Queries

4.6 Testing

4.6.1 Summary of Results

4.10.1 Module 1

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Candidate No. 2634

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Chapter 5

User Manual

5.1 Introduction

5.2 Installation

5.2.1 Prerequisite Installation

Installing Python

Installing PyQt

Etc.

5.2.2 System Installation

5.2.3 Running the System

5.3 Tutorial

5.3.1 Introduction

5.3.2 Assumptions

5.3.3 Tutorial Questions

Question 1

Question 2

30

5.3.4 Saving

5.3.5 Limitations

5.4 Error Recovery

Chapter 6

Evaluation

6.1 Customer Requirements

6.1.1 Objective Evaluation

6.2 Effectiveness

6.2.1 Objective Evaluation

6.3 Learnability

6.4 Usability

6.5 Maintainability

6.6 Suggestions for Improvement

6.7 End User Evidence

6.7.1 Questionnaires

6.7.2 Graphs

6.7.3 Written Statements