Plastering Management Application

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Chapter 1

Analysis

1.1 Introduction

1.1.1 Client Identification

My client is 30 year old plasterer Dan Austin who runs his own plastering business known as DnA Plastering. Dan mainly uses his Toshiba laptop (Dual Core Intel with 6 GB Ram and running Windows 8 64 bit) to do basic tasks such as social networking and receiving/sending emails.

The current system is a paper based method where he records the prices and measurements of the plastering/screening/rendering jobs he undertakes. Dan works in an around the Suffolk/Essex area but occasionally takes on larger jobs further afield in places such as London or Epping. All the recording and calculations are done by Dan himself and does not require additional assistance in completing these tasks but is looking for a digital solution to the organisation problems faced with the current manual paper method.

Dan is looking to introduce a computer based system to replace the current one in order to make keeping track of jobs and pricing up new jobs easier and more efficient. Alongside this he would like to be able to keep information on all of his customers so he can simply search for clients' details and contact information all in one location. He will also be able to look up the jobs that he has done for them to make sending invoices easier and manageable.

1.1.2 Define the current system

The current system in place is a paper/notebook based system where details of clients are stored along with prices of jobs and cost of materials needed etc.

The details of the clients include their address, phone number, email, first name and surname. The infromation about the job usually includes the measurements of what needs to be plastered along with how long it will take to complete and if he is taking any labourers to too. Calculations are often also made to work out how much to charge depending on the price he is charging per square meter. This rate often changes depending on the current economy.

Once all the calculations are made, he works out how much the materials are going to cost and also how long it will take him to complete the job. Once all these calculations and prices have been evaluated he notifies the client of the price; when the price is confirmed the job is undertaken.

Finally, Dan writes out an invoice using a standard invoice book purchased from a stationary store to inform the client of the costs and charges of the job. The current folder containing the invoices for his clients is not organised and offers another problem whereby finding information for jobs is difficult due to the inability to search quickly for any given customer.

1.1.3 Describe the problems

Problems are plentiful in the current system. One of the main problems is keeping valuable client data from being lost or damaged as there is only one hard copy made in a notebook. Another problem with the notebook is not being able to easily search through the details of all the clients to find specific phone numbers or contact details. Using a computer based system would allow Dan to search through his clients efficiently and allow him to make backups of the valuable client and job data.

1.1.4 Section appendix

1.2 Investigation

1.2.1 The current system

Data sources and destinations

There are four main data sources within the current system - The plasterer, the client, the builders merchant and visting the clients job. A client contacts Dan through a phone call placed to Dan's mobile. Sometimes a client may leave Dan a voicemail message if he is too busy to answer the call at that given moment. If this is the case then Dan will get back to the client as soon as possible. Most of the data in the current system will come from the client or the clients job - this data will be the job measurements and the clients

contact information. The main data destinations are the forms given to the client i.e the quote and the invoice document.

Source	Data	Example Data	Destination
Client	Client Contact information Firstname - Lastname - phoneNumber - AddrLine1 - AddrLine2 - AddrLine3 - AddrLine4 - PostCode - Email - JobType	John - Smith - 07809726812 - 15 - Crowley Road - Haverhill - Suffolk - CB90DJ - john@gmail.com - Plastering Bedroom	Appointment and Client Book.
Plasterer	Appointment Time and Place	16:00 at 15 Crowley Road, Haverhill	Client Calendar or Diary
Visiting Job Site	Measurements of Job Size and Materials that need to be purchased	4m x 5m x 3m = $60m^2$ 10 Bags of Plaster	Work Notebook
Plasterers Calculations	Quote for the work that needs doing and agree a date it can be done.	£600, 1 Day, 15th October	Quote written out on paper or agree in person.
Plasterers calculations for the materials needed for the job	Quantity of materials needed for the job	25 bags of plaster and 12m of angle beading	Builders Merchant
Builders Merchant	A price for the materials needed	£350 for the bags of plaster and angle beading	Plasterer
Plasterer	Total cost of the job broken down - cost of parts,labouring and vat. Date of Job	£600 - £350 materials - £50 VAT - 14/08/14	Client.

Algorithms

There are three main algorithms utilised in the current system. The first is an algorithm to agree the price of the job with the client.

Algorithm 1 Agreeing a price Algorithm

```
1: SET agreed TO false
2: WHILE agreed = False DO
3:     IF Clientdoesnotagreewithquotedprice THEN Discuss price and change quote if new price is agreed upon.
4:     ELSE
5:         SET agreed TO true Arrange a date for the work to be started on.
6:     END IF
7: END WHILE
```

The second algorithm currently being used in the system is an algorithm used to clculate the price for the job.

Algorithm 2 Calculating the price

```
1: SET pricanPerSfsrPice
   . SETwb. F f F d ith SP F g F f
```

Data flow diagram

Input Forms, Output Forms, Report Formats

1.2.2 The proposed system

Data sources and destinations

Data flow diagram

Data dictionary

Volumetrics

1.3 Objectives

1.3.1 General Objectives

1.3.2 Specific Objectives

1.3.3 Core Objectives

1.3.4 Other Objectives

1.4 ER Diagrams and Descriptions

1.4.1 ER Diagram

1.4.2 Entity Descriptions

1.5 Object Analysis

1.5.1 Object Listing

1.5.2 Relationship diagrams

1.5.3 Class definitions

1.6 Other Abstractions and Graphs

1.7 Constraints

1.7.1 Hardware

1.7.2 Software

1.7.3 Time

1.7.4 User Knowledge

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

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2.5.1 Identification of all data input items

2.5.2 Identification of all data output items

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

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

3.1.4 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

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

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4.5.3 Database Table Views

4.5.4 Database SQL

4.5.5 SQL Queries

4.6 Testing

4.10.1 Module 1

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

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

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