ANALYSIS

INTRODUCTION

Mikes garage has been running for almost ten years now. Based in Iford Essex, it is a small business in comparison to most other garages. The garage provides a number of services for customers. These services include tyre change, oil change, engine servicing, MOTs and engine tune-ups. The garage hasn't really changed all that much since it was set up in early 1993. There has been a general increase in the number of mechanics employed by Mike. This was originally three but has increased to a dozen mechanics, each working a different shift.

Although small in comparison to other garage businesses, Mikes garage seems to be growing at a fairly slow but steady rate. At present the garage employees a dozen mechanics, with Mike helping out on occasions. Recently Mike has introduced a number of new services, including a car washing and engine changing services. This introduction of new services was due to the large client demand in recent months. Since the business was set up new tools and machinery have been introduced. This recent investment was to replace old worn out tools.

In recent years Mike has given some thought to the possibilities of future expansion. He is currently considering purchasing a garage within the local area. This will mean that Mike will have to employ more mechanics to man that branch. Currently Mike handles the client appointment making in the present garage. If he decides to purchase this new garage then he will have to employ someone to handle any inquires that may arise by clients at that branch.

PROBLEM STATEMENT

The system implemented at the garage records car servicing appointments and client details. The way the system works is that a client and a member of staff would agree on a date for the client's car to be serviced. This is then recorded in a non-IT system. However a computer is used for keeping accounting records. The system resembles a yearly calendar, which displays dates free for a client to book in for. This is impractical as the record document could be damaged and/or misplaced. If this should happen there is no way for the garage to know the dates for future appointments.

The system that I will design will allow the garage to utilise the full advantages of an IT system. The system will be constructed on Microsoft Access. Customer details and dates of services will be inputted into the system via a simple form that I will create in Access. This data will be stored on a database, which shows all the appointments at the click of a button in ascending order of date. The system will also store each mechanics details. This will allow a particular mechanic to be designated to a particular customer car. The system will allow the user to look up a certain customer's details if they need to cancel an appointment.

I will also utilise the queries feature of Microsoft Access. This will allow the user to get to information quickly regarding a number of queries made, for example a customer calls to cancel an appointment. The system will also have reports, which will identify which cars have been serviced by date. The reports will also look at whether car jobs have to take longer to be worked on and those ready for collection.

INVESTIGATION

The current system employed by Mikes garage is a manual one. It consists of a calendar dairy that displays the days of the year, including time slots. The manual system has been used since the business was started. There are a number of steps to the use of the manual system;

- A customer would come in or call and speak to Mike, in regards to making an appointment for a service.
- The customer would give their details as well as booking details, such as type of service requested.
- Mike would then record the details and allocate the earliest free appointment slot available.
- Once an appointment date has been agreed between Mike and the client the appointment is made and recorded in the book.

In my interview with Mike, he stressed the importance of the system to the running of the garage. All the clients' details are stored in the appointments book as well as their service type and date of appointment. When I was shown the book I found it was divided into a number of columns. Each column is allocated for a particular piece of data. These include name, surname, telephone, service type, date of appointment and time. The book was fairly damaged. Its binder was starting to unravel, as well as parts where covered in grease. The data within the book where still reader able.

DATA FLOW DIAGRAM OF CURRENT SYSTEM

The data flow diagram of the current system shows the flow of the data within the manual system. The arrows show the flow of data around the system. The system starts when a client inquires into a service run by the garage. Here the process of identifying what service the customer wants and other details takes place. Once the inquires process is completed, details stored by the customer are transferred to the appointment making process. Here the customer passes on data to the garage such as name, address and other details required. Once an appointment date and time are agreed the data is stored. The customer is given a read out of the appointment details and the process is complete.

THE INPUTS, PROCESSING, & OUTPUT NEEDS

INPUTS

The system is a manual one where data is recorded by hand directly into the book. The systems input data consists of a number of things. These are as follows;

- Customers personal details, such as name, address and telephone number
- The type of service the customer would like.
- To some extent the date of the service to take place.

The details of the customer that are taken are general information need in case they need to be contacted for any reason. Before an appointment can be set up the garage will need to know what type of service the customer is after. This is important, as the garage may not carry out a particular service. The reason why the date could be argued is that an appointment slot maybe free but the customer maybe otherwise busy. All these data inputs are relayed to Mike or one of the mechanics that record them.

PROCESSES

The client's details are recorded for future references. Clients telephone numbers are used to contact them if need be. Data on the type of service is used to identify whether the garage offers that service. The date on which the client would like is used to decide on a date suitable to both parties, for the selected service to take place. The data is then stored for the appropriate time when it is needed. Before the data is store it is checked once over with the client to make sure that everything is correct and the client is happy with the details.

OUTPUTS

Once the processing of all the data is completed the client is given a read out of the details of the appointment. The garage uses the stored data to let them know and prepare for a clients appointment. When a job takes longer than usual or if it is finished earlier than usual, then the client's details are used to contact them in order to inform them. A copy of the appointment details, including the day and time of the appointment is made for the customer as a reference for them to keep.

INTERVIEW QUESTIONS AND ANSWERS

1) How are appointments for services recorded?

A customer would call us up and I would take their details, writing them in the appointment book kept on my table. Depending on the day they would like and given that that day and time is free, they will be allocated a time slot for their service. Of course this will depend on whether we do that particular service.

2) How would you rate the importance of your booking system?

Without a way of keeping a record a our clients details as well as their appointment dates there is no way that the garage would function. So I would say the appointment system is the key to the business running.

3) How regularly do you back up the data stored?

We don't really back up information stored in the book.

4) Given that you don't back up the data stored in the book, what would be the effect to the business if the appointment book was damaged, lost, stol en or destroyed?

Well it's like I said if the system should fail at any time there is no way of knowing which client is booked in. So if we get a number of clients turning up we won't know who is first to be serviced. Also jobs which end up over running, taking longer than usual means that we have no way to contact clients to inform them about the progress of their cars.

5) How easy is it to look up particular clients details if required, say within half a minute?

I'm not too sure. Usually I can find a c lients details fairly quickly but some times it'll be right there in front of me but I'll still won't be able to find.

6) What do you think are the greatest problems with the system?

The greatest problem I say would be backing up of data, which you menti oned earlier. If something happened to the appointment book then like I said a number of times, the garage will be in shambles by the end of the week. I can't really think of anything except the importance of the book.

7) How would you improve or what wou ld you want from a new IT system?

A new system would have to be able to do the same job as the normal system at the moment. It would have to allow direct and easy access to the information stored on it. If it could over come the problem of backing up the information would be great too. It would need to be easy to use as my current IT skills are fairly poor, since I have never really used them before.

PROBLEMS WITH THE CURRENT SYSTEM

From the interview with Mike, it appears that the biggest problem with the system is that information is not backed up regularly. If the appointment book were to be damaged, lost or stolen then irreplaceable information valuable to the success of the business will be lost. There are also a number of other problems, which I have identified. These are as follows;

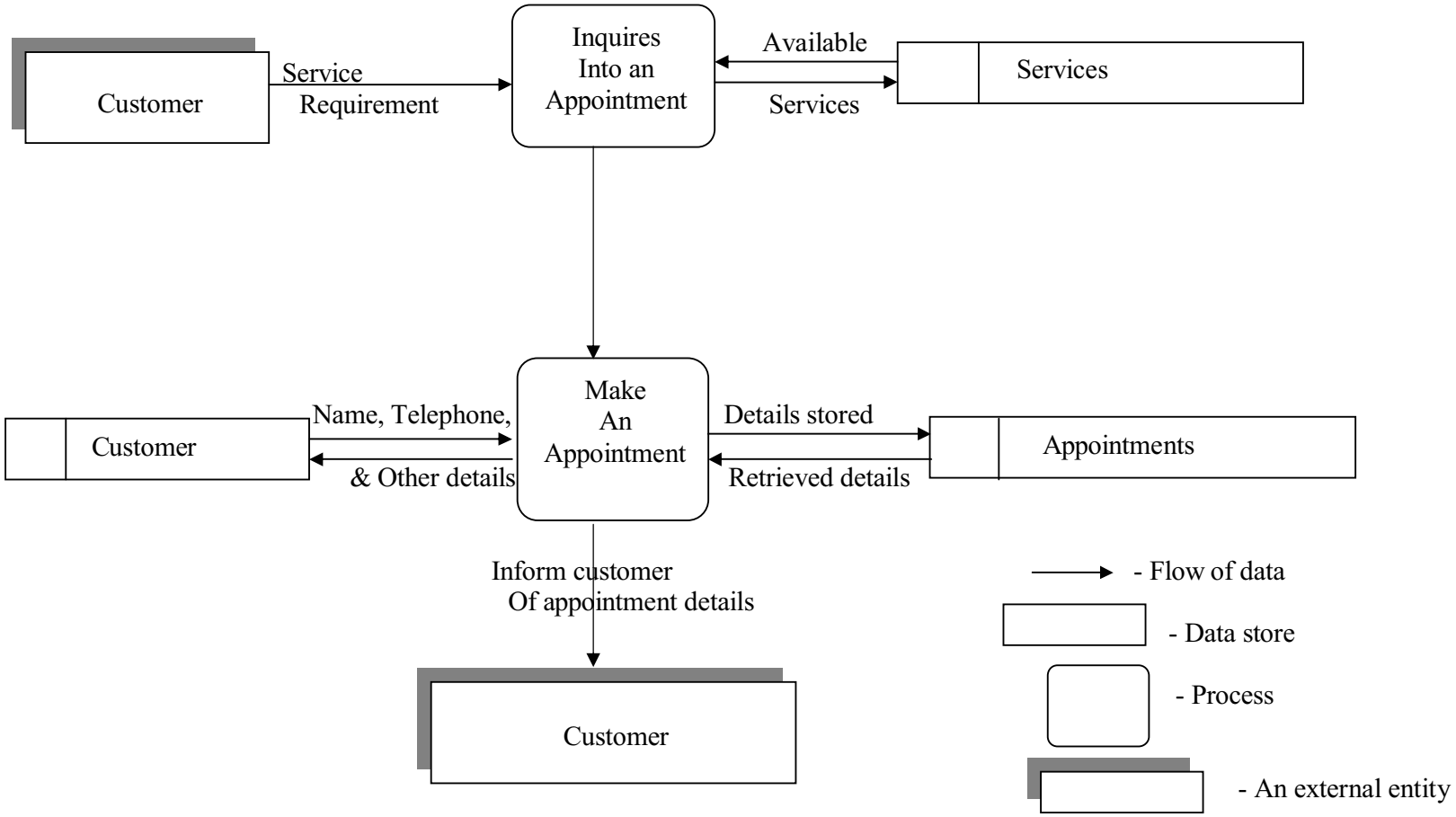
- Security; the appointment book can be viewed by any one in the building. This means that non-authorised personnel can view customer details.
- It takes time to look up particular pieces of information.
- It is hard to keep track of a client's job. That is, a job may require more time to complete. This means that the system can't generate reports about different jobs and there status.

REQUIREMENTS OF THE NEW SYSTEM

In order for the new system to be efficient and useful to Mike it will have to over come a number of key problems. These will include;

- The system will have to be easy for the user to back up data and information.
- The system will need to be able to find a particular piece of information quickly and easily.
- Information must be presented in a clear and understandable way to the user.
- The system must be able to allow the user to record and view data with ease.
- The system needs to generate reports about jobs, which may require more time for the user.
- The system must be easy to use by Mike and any other authorised person.
- The system must protect data and information stored on it, so that unauthorised personnel do not get access to it

DATA FLOW DIAGRAM OF CURRENT SYSTEM



QUANTITATIVE OBJECTIVE

The quantitative objective is that the system must be able to locate any piece of data or information as quick as possible. Therefore it should not take more than a minute to find any particular clients details, from opening the system. Time is crucial in such a business, as clients maybe waiting a response.

QUALITATIVE OBJECTIVE

The qualitative objective is that the system must be easy for the user to locate a particular piece of data and information. For example, trying to find certain details about a client's appointment. This is a fairly important problem as Mike as reported that he sometimes has trouble with finding certain pieces of information.

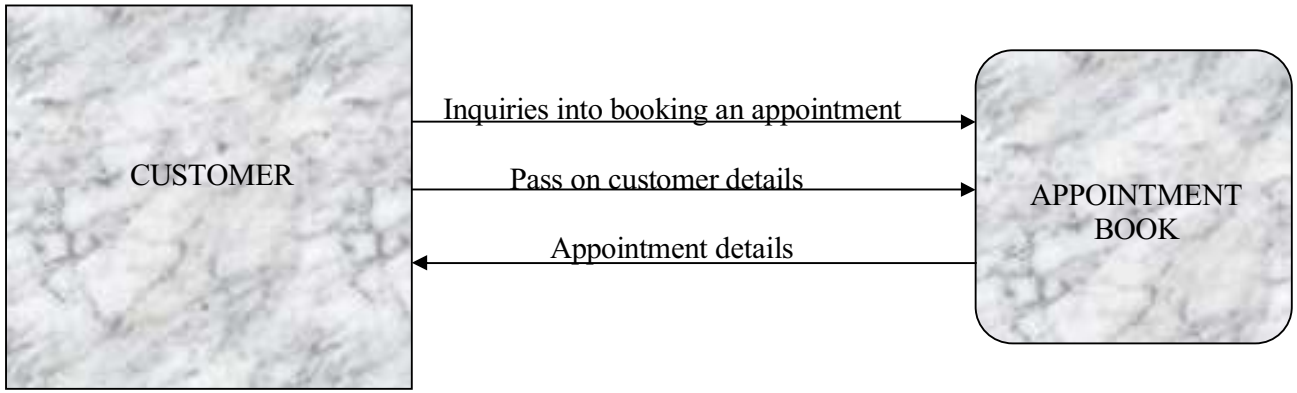
THE SYSTEMS CONSTRAINTS

SOFTWARE

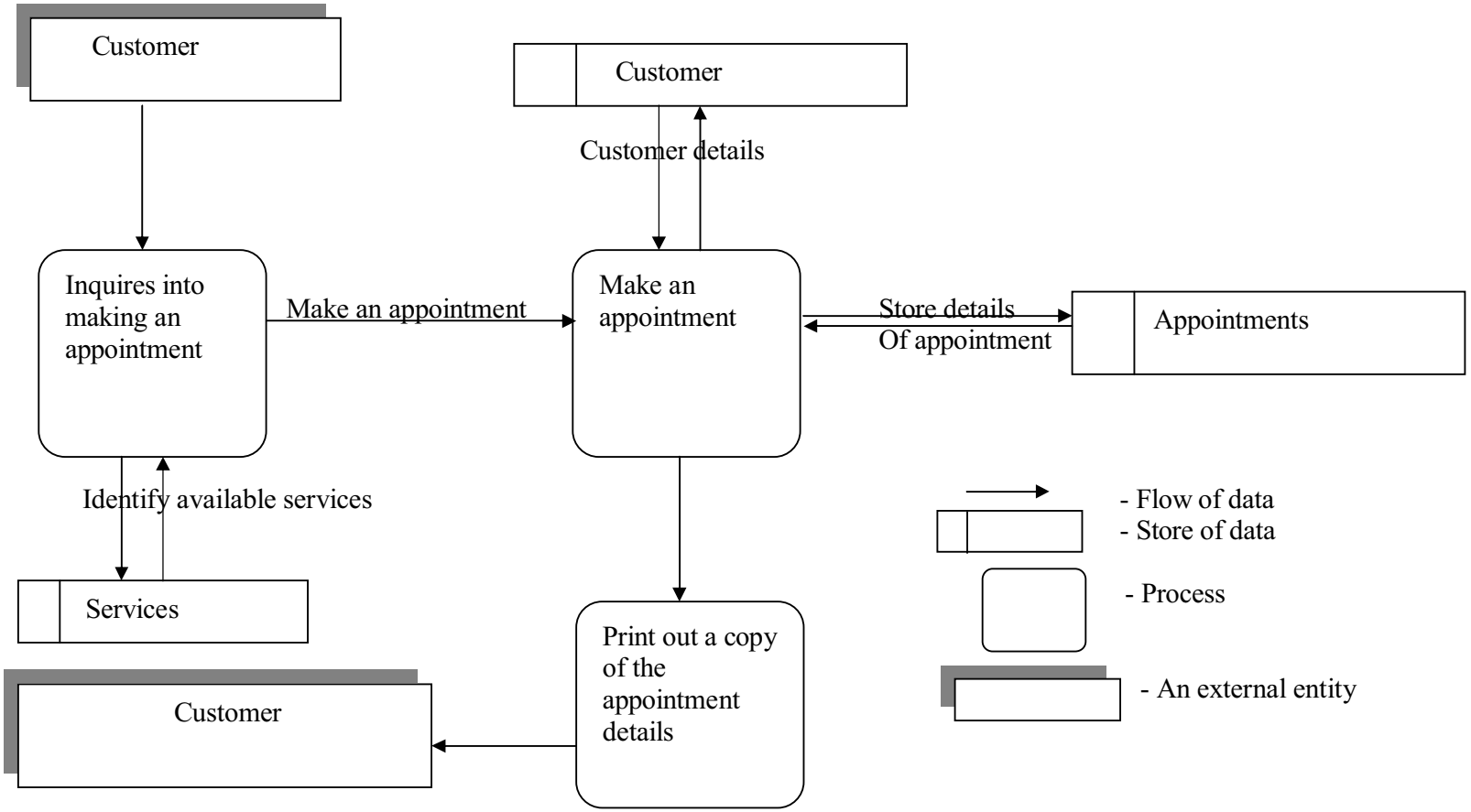
At home I have Windows XP with Microsoft office 2000. The college system uses Windows 2000, with office 2000 as well. Since I will be constructing most of the system in college, I will recommended that Mike purchase Windows 2000 with office 2000. In my analysis of the PC market I have found that prices range with different retailers. However, I have found that generally prices should range from £800 to £1,000.

HARDWARE

DATA FLOW DIAGRAM OF OLD SYSTEM
LEVEL 0



DATA FLOW DIAGRAM OF THE NEW SYSTEM
LEVEL 1



POSSIBLE SOLUTIONS

SOLUTION 1

The system could have been constructed using Microsoft Excel. This allows the utilisation of a number of features. For example different maybe constructed and linked together forming one book by using macros. Look up tables maybe used to help in finding different types of data and information quickly. Also can utilise the use of complex formulae to help with any calculations, which maybe encountered. Other features include dialogue boxes, pivot tables, visual basic customising, creating templates, can protect sheets, and also creating charts and graphs.

SOLUTION 2

The system could of also of been constructed using Microsoft Word. Today's word processors not only allow you to produce quality word-processed documents but may be tailored to provide highly specialised applications. Some of the basic functions of Microsoft word include spell checker, thesaurus, templates and mail merge. More advanced features include advanced templates which may include *field names* for user data entry, selective mail merge, editing menu bar to include special/restricted functions.

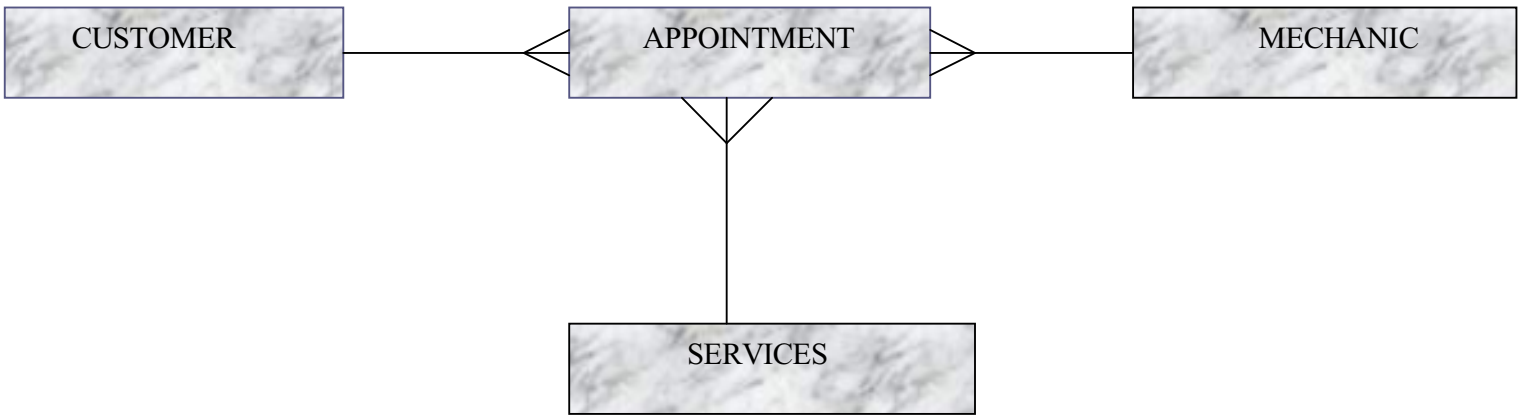
SOLUTION 3

The third solution was to construct the system on Microsoft Access. This is a database application, which allows you to construct databases. The basic features of access include relational tables with primary & secondary keys, creation of reports and data entry forms. However it also has some advanced features. These include complex queries based on multiple tables, validation checks, tables and figures imported from word processor and spreadsheet, summary reports, selection boxes on forms and field macros.

FINAL SOLUTION

Given all three options, I have selected option three. Microsoft Access will allow me to create a system, which will meet the requirements of the new system as well as a number of other objectives. The reports feature will allow me to construct reports regarding jobs, which require more time. The use of macros will allow me to make the system easy for the user to move around with in the system. The forms feature will allow the user to enter data into the system with the greatest of ease. The validation checks will also allow me to make the system easy for the user to use.

ENTITY RELATIONSHIP DIAGRAMS



END USER LITERACY

Mike has never been into computers. As a mechanic he never really came into contact with them. From the interview with him, he claims that he has never really used them. This will mean that the system that I will design and construct will have to be simple enough for him to use easily.