1. Analysis

1.1 Introduction

1.1.1 Background

H&M's Trims is a barbershop that has been running for over 8 years. It has had many previous owners but now belongs to the two barbers, Adam and Shazzie. Both these barbers are very experienced and Adam is taking part in a haircutting course to certify the barbershop at the end which will allow more first-time customers to trust this barbershop and start to get haircuts from here. The customers who come to this barbershop also like to refer to it as 'A-Town' as this nickname first came when Adam started to cut hair in this barbershop. I am going to create a booking system which will allow customers to book their haircuts online and allow the staff to also view and keep track of the appointments made.

1.1.2 Problem Definition

They currently do not have a formal booking system. Customers usually call before they would like a haircut and Adam would allocate them a time to come later that day. Most customers also just walk in and wait in line to receive a haircut. This tends to make the shop very busy and the services very slow so some customers tend to spend 1-2 hours inside the shop. On occasions such as Eid (Religious Celebration), bookings are usually made to ease out the service and not crowd the shop too much.

1.1.3 The User

Shazzie and Adam are the two barbers that work in H&M's Trims. They both deal with walk-ins and appointments but most customers tend to go to Adam as they book haircuts with him. The customers will book their appointments online and it will store their information on a database linked to the website. The barbers will be the main users of the booking system and both can operate the system as they have a basic level of expertise in IT. The system will be designed so that it is easy to set up and navigate through appointments.

1.2 Investigation of User Needs

1.2.1 The Current System Analysis

1.2.1.1 Initial Interview

I am going to interview Adam who is the main barber and ask him questions about how the current system works.

What is the current system that you use?:
Customers usually call me before they would like a haircut and I allocate them a time to come or they will walk in and wait in a queue until their turn comes.

What are the problems with the current system?:
Some customers will usually call and I will allocate them a time which is like a booking but sometimes, I can not tell them to come that same day or the time they would want to come as the queue is too long with customers who just walk-in without a booking. This can leave some customers already unsatisfied before they even receive their haircuts. This could also make customers go to a different barbershop and pay more money for the same services which makes our shop lose customers and money. I also tend to forget some of the bookings made as they are in my book or I do not write them down so I sometimes get the appointments mixed up or I do not even expect a certain customer to come as I have forgotten about their booking.

What are the solutions to the problems outlined?:
The best solution would be a booking system which I can quickly access and keep an eye on all of my bookings that have been made which will allow me to handle the situation better with the people who walk-in so I can balance the appointments and walk-ins at the same time.

How many customers do you have per week?:
I never really keep count but we always have many customers who come in when they are free, especially on the weekends and in the holidays as these are the times available for teenagers to come and also the adults who are on holidays and have days off work.

How are appointments usually made?:
Most of the time, people call me and some people call Shazzie so we allocate them a time. We also have bookings that people make through Instagram if they do not have my number.

How often do customers change or cancel their appointments?:
Very rarely do they cancel or change their appointments as they usually call a few hours before they want their haircut so they are certain most of the time with the timings they have booked for.

How do customers change or cancel their appointments?:
They just phone or message that they are not coming or they ask for a different time. Some customers do not even turn up.
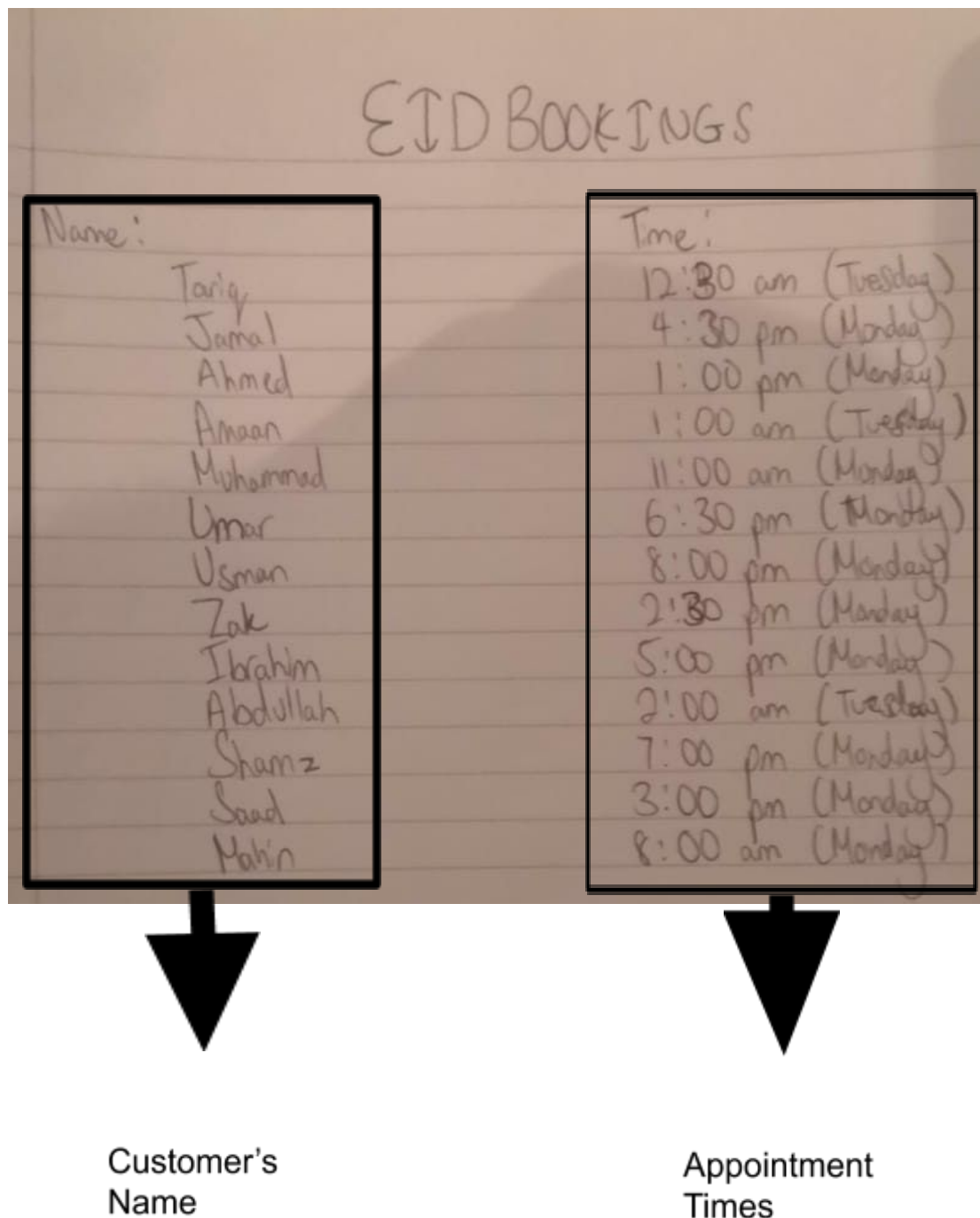
How many barbers work here?:
Maximum is 2 as there are only 2 chairs.

1.2.1.2 Observation

1. Adam and Shazzie receive a call on their private phone. The customer asks if they can come on the day and what time they should come.
2. If they are cutting a person's hair, they still answer the call or they ask someone else to answer the call for them.
3. The customer comes to the shop and sits on the chair. He then requests for the services he requires and the barbers will do their best to provide him with these.
4. The customer will then pay after his treatment is done and will then leave.

1.2.1.3 Investigation Of Input Forms

EID BOOKINGS

Name:
Tariq
Jamal
Ahmed
Amaan
Muhammad
Umar
Usman
Zak
Ibrahim
Abdullah
Shamz
Saad
Makin

Time:
12:30 am (Tuesday)
4:30 pm (Monday)
1:00 pm (Monday)
1:00 am (Tuesday)
11:00 am (Monday)
6:30 pm (Monday)
8:00 pm (Monday)
2:30 pm (Monday)
5:00 pm (Monday)
2:00 am (Tuesday)
7:00 pm (Monday)
3:00 pm (Monday)
8:00 am (Monday)

Customer's Name

Appointment Times

This is the list that was made for the Eid bookings. These customers were only Adam's customers. The list includes the names of the customers and the appointment times. There were not many bookings on paper as customers were still phoning Adam on the day to ask what time to come for haircuts. He would usually suggest a time on Monday night after 11 pm to 4 am on Tuesday morning.

1.2.2 DFD Of The Current System (Level 0 & Level 1)
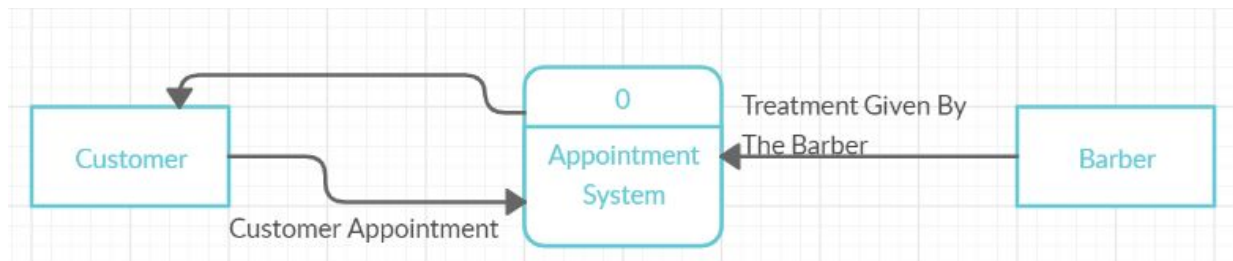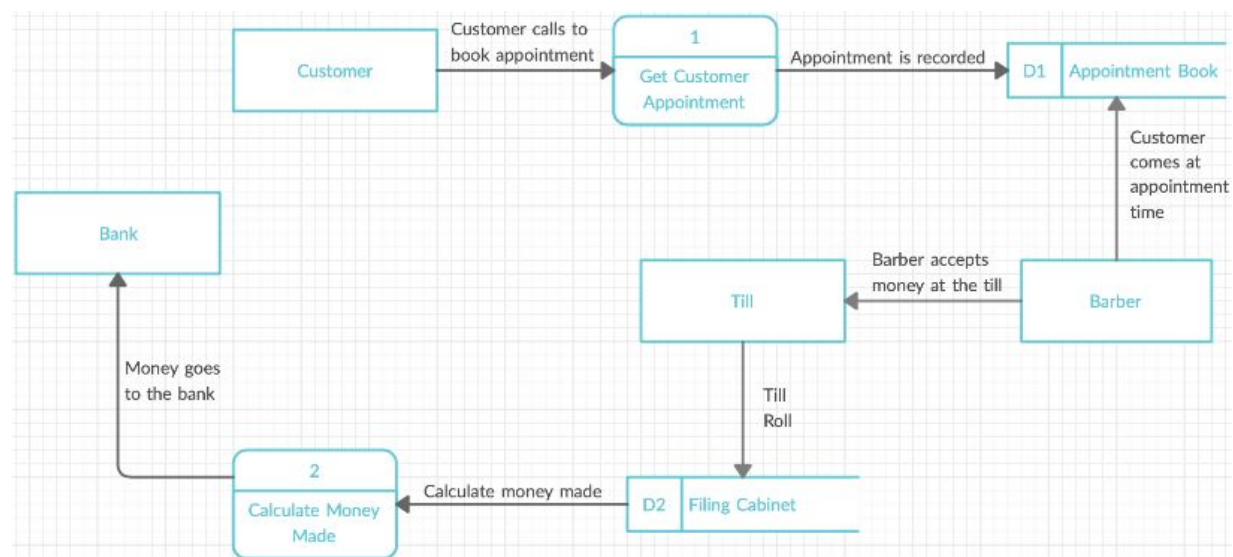
Level 0

Level 1

1. Adam and Shazzie receive a call on their private phone. The customer asks if they can come on the day and what time they should come.
2. If they are cutting a person's hair, they still answer the call or they ask someone else to answer the call for them.
3. The customer comes to the shop and sits on the chair. He then requests for the services he requires and the barbers will do their best to provide him with these.
4. The customer will then pay after his treatment is done and will then leave.
5. The till roll goes into the filing cabinet.
6. The money made from the week is calculated.
7. The calculated money goes to the bank.

1.2.3 Data Sources And Destinations

Data	Explanation	Source	Destination
Appointment Details	The barber takes down the name and time that the customer has booked for and stores this.	Customer	Appointment Book

1.2.4 Entity-Relationship Diagram And Entity Descriptions Of Current System

The current system does not use a database as the data is stored in a hard-copy book.

1.2.5 Problems With The Current System

1. The appointment book can be misplaced so they will not remember the appointments they have today or in the next few days.
2. They could forget to write the appointment details in the book so they could forget they have an appointment with a specific customer.
3. They may make errors with how much money they have made in the week as it is calculated by hand.

1.2.6 The Proposed New System Analysis

1.2.6.1 The Second Interview

I am going to interview Adam who is the main barber and ask him questions about what he wants in the new system.

What are the main functions you would like for the new system?:
I would like the system to allow customers to book their appointments online without having to phone the shop directly. It would be good if they enter their first name and last name as well as the date and time they would like their haircut. It's preferable that they also leave their mobile number incase of any cancellations. The system should also allow them to edit their appointments. An option could be used where customers can select which barber they would like to do their haircut.

Is there anything else you would like that is NOT related to the booking system?:
I would like a page where pictures of different services can be shown to the customers so they could easily tell the barber which kind of service they require. This page should promote the barbershop so that new customers can also start to get haircuts from here and the existing customers know what is new in the shop.

How would you like the website to look?:
Anything simple where the customers can easily book their appointments with confidence..

Would you like the barbers to have their own accounts?:
Yes. The barbers should have their own logins so they can see which customers they have today and the times the appointments are scheduled for.

1.2.6.2 User Needs

Using the information provided from the second interview, it is now easier to understand what the user wants in his new system. This is a list of features he would like:
- The customer should be able to book their appointments online
    - Collect information such as customer's name, appointment date, appointment time and mobile number
    - Allow them to also edit the details of the appointment if they want to change the date or time
- The customer should be able to select which barber they would like to cut their hair
- The barbers should have their own logins to check the appointments they have for the day
- A page where the business is promoted using different haircut/service pictures
- A simple website design making it easy for the customers and barbers to navigate around the system

1.2.7 DFD Of Proposed New System (Level 0 & Level 1)
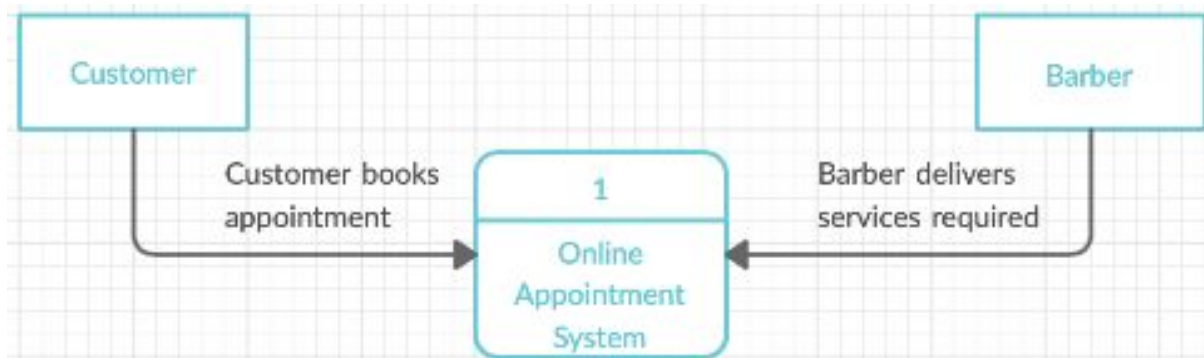
Level 0

Level 1
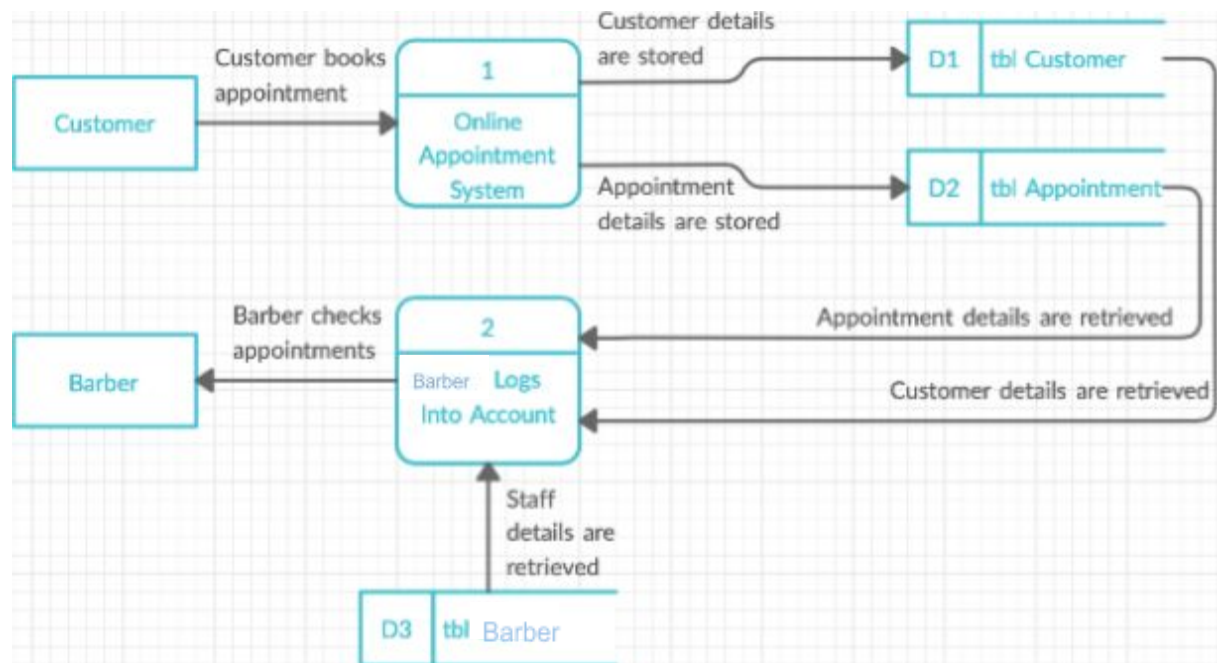
1. Customer books appointment online.
2. Customer details are stored in the 'Customer' table.
3. Appointment details are stored in the 'Appointment' table.
4. Barber logs into account.
5. Details to help log in are retrieved from the 'Barber' table.
6. Appointment details are retrieved.
7. Customer details are retrieved.
8. Barber checks the appointments for the day.

1.2.8 Data Sources And Destinations

Data	Explanation	Source	Destination
Customer Details	Customer's full name and mobile number	Customer	tbl Customer
Appointment Details	Appointment date and time	Customer	tbl Customer
Barber	Barber available for the appointment	Barbers	tbl Staff
Finance	Money made from the appointments during the week	Sales Made	Bank

1.2.9 Entity Relationship Diagram
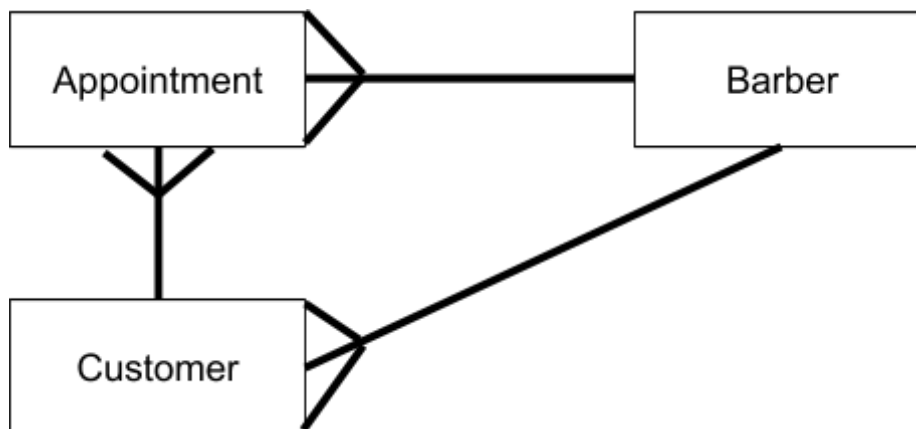
Appointment ---> Barber = One To Many
Customer ---> Barber = One To Many
Customer ---> Appointment = One To Many

Appointment (AppointmentID, **CustomerID**, **StaffID,** AppDate, AppTime,Services)
Customer (CustomerID, FirstName, Surname, MobileNumber,Email,Password)
Staff (StaffID, FirstName, Surname, Email, Password)

1.2.10 Analysis Data Dictionary

The current system is pen and paper. Here is an example of the information stored using a table form:

Name	James
Appointment Date	11/08/2019
Appointment Time	15:00 PM
Mobile Number	01234567891

1.2.11 Data Volumes

From the information provided by the barbershop, I have found:
- There are an average of 8 appointments during the weekdays
- There are an average of 14 appointments during the weekends
- There are an average of 3 new customers every month
- There are only 2 barbers currently and this is the maximum there will ever be

There will be 2 logins on the new system, one for each barber. This will allow them to separately check their appointments and customers for the day.

The system will hold 25 available appointments for the week and more during the holidays.

1.3 Constraints

1.3.1 Hardware Constraints

The new system will only require the minimum hardware specifications such as:
- Intel i5 Processor
- 4GB RAM or more
- Mouse/Touchpad (Depending on the PC/Laptop)
- Monitor (1366x768 resolution or higher)

1.3.2 Software Constraints

These are the preferred software that should be available on the PC/Laptop:
- Windows 7 Ultimate or higher
- Internet Browser:
    - Google Chrome 78.0 or higher
    - Safari 12.0 or higher
- Microsoft Access
- SQL

1.3.3 Time Constraints

The deadline for the project is. The analysis, documented design, technical solution, testing and evaluation should all be finished before this date so that the barbershop can use the system.

1.3.4 User's Knowledge Of IT

Both Shazzie and Adam have basic computer skills. They can both complete tasks using the basic skills and knowledge such as using the internet and creating documents. The system does not require any advanced knowledge as it will be created as basic as possible. The barbers and customers will easily learn and adapt to the new system and will find it is not much different to the older system.

1.3.5 Who Will Be Allowed To Use Various Parts Of The System

The barbers will have full access to the website as they will be able to log into their staff accounts and view, modify and delete all appointments that have been made and appointments that are available. The customers will only be allowed to view and modify appointments as these are the only parts of the website they need to use. This also helps protect the information of other customers if the customers are limited to the various parts of the website they can use.

1.4 Objectives

1.4.1 General Objectives

The new system will make it easier for customers to book their appointments and for staff to keep track of all appointments. It will be designed so it is very basic for both parties to use and navigate around the website.

1.4.2 Specific Objectives

- The system should allow customers to book appointments.
    - The user should be able to select the appointment date.
    - The user should be able to select the appointment time.
    - The user should be able to input their mobile number.
    - The user should be able to select the barber they would like.
- The system should allow the user to edit the appointment details such as the appointment date, appointment time and barber they have selected to cut their hair.
- The system should allow the user to delete their appointment.
- The system should allow the barbers to log into their accounts with their staff log in.
- The system should display the appointments the barber has for the day and all other appointments that have been made for the rest of the week/month.
- The system should allow the user to see pictures of different haircuts/hairstyles.
- The system should allow the user to contact the barbershop.
- The system should allow the user to direct themselves to the barbershop with the location provided.
- The system should allow the user to see the opening times of the barbershop.