Sample A-Level Project – Smiley's Snooker Club

Definition - Nature of the problem

My project is based on a snooker club called Smiley's Snooker. It is a private club with 20 snooker tables and about 400 members. 300 of these are seniors (over 18 years of age) and 100 are juniors. The club is open from 10.00 am to 10.00 pm each day. There is no booking system at present. Members just turn up and ask to play. The part of the business that Smiley's has asked me to computerise is handling the allocation of tables and to keep a record of the membership of the club. These aspects will now be looked at in more detail in the Analysis stage which follows.

My initial findings

On my first visit to Smiley's I gathered a range of details about how the club works and which part of it I need to computerise. The following is a summary of my findings.

It was mentioned above that Smiley's has 20 snooker tables and that there is no booking system at present. They do not wish to have a booking system and want my computerised solution to simply make the allocation of tables and calculating the cost of games much easier than it is at present.

A member may bring along one guest to play snooker. At present the charge to play is 4p a minute if a senior member is playing with a guest or another member (senior or junior) and 3p a minute if two juniors or a junior plus guest are playing. If two members playa game then one of them is responsible for the payment. If a member plays with a guest then this member is responsible for the payment. If a senior and junior member play then details of the senior member should be recorded as payment is based on this category of membership. When members come to play they should show their membership card. However, sometimes they forget so the system should be able to retrieve a particular membership number by the member's name.

Smiley's wants to be able to see on screen at any time which tables are free and which have games going on. For those tables with games going on, the times that the games started should be displayed. When a new game starts the system should display the membership number, the table number and the time the game started for the receptionist. When a game finishes the table number, membership number, category of membership, finish time, the length of playing time in hours and minutes and the cost should be displayed. A record of each completed game, containing the table number, details of how long the game took and the cost, should be kept. At the end of each day Smiley's wants a printed report showing the usage of each table. It should show the total length of time each table has been used that day, how many games have been played on it and the amount of income it has made. The overall income for the day is also required.

Smiley's wants to keep a record of all its members and so be able to add new members and delete others. The club requires, at any time, a printed list of their members. This should list the names alphabetically, the category of membership, the total number of senior and junior members and the overall total number of members.

Membership numbers have the format LLDDDD where L is an upper case letter and D a numeric digit from 0 to 9. The two upper case letters represent the member's first name

and surname. No-one seems to know why there are four digits but Smiley's wishes to keep this format. Tables are numbered from 1 to 20.

Investigation and Analysis

Reflections

1. *The costs per minute should be stored in a file, so when they inevitably go up will Smiley's know how to change them if they are stored in a text file?*

The alternative to storing the costs per minute in a file is to code them into my program. But when the costs change Smiley's would require a programmer to change them. This would be good for me since they would need to pay me, but it would be more reasonable to allow Smiley's to change the prices themselves without getting involved in code. If the costs are stored in a text file Smiley's can change them in a simple text file editor, such as Notepad or WordPad that comes with Windows, or I can let this to be done through one of the forms in my program.

2. *Smiley's has said that it wants a printed report at the end of each day showing details of the usage of each table. Will Smiley's want to produce this report at other times of the day, sometimes at the end of the morning for example?*

If Smiley's only wants to produce the report at the end of the day then I can delete the file that stores the data for this report immediately after the report is printed. The next day the file should start afresh again with no data in it. However if Smiley's wish to produce the report more than once in a day then I must not delete its contents.

3. *Smiley's closes at 10.00 pm. Is this likely to be extended in the future so that games could finish after midnight?*

I need to know this because even at this early stage I am thinking about how to calculate the cost of a game. It will be calculated by multiplying the number of minutes the game lasts by the rate per minute, and in turn the number of minutes will be calculated by doing some arithmetic on the start and finish times of the game. If games finish after midnight this will probably affect the way this arithmetic is done.

Second visit

The answers to the questions have been cleared up.
1. Smiley's does not want to change the contents of the file directly. You know their fears are exaggerated, but they are rather afraid of doing something wrong. They would prefer your program to handle this.
2. Yes, on reflection they would like to produce the daily usage report at any time during the day.
3. No, it is most unlikely that the closing time will be extended.