Academy of Computer Science and Software Engineering

Informatics 1B

Team Practical

Due: ~~4 October 2019, 09:00~~ 18 October 2019

This project must be completed in a team

Marks:

Marks will be allocated as follows:

- Your project will be assessed by two assistants (or lecturers)
- Your team will be given a mark
- This is the GROUP mark
- The GROUP mark will then be adjusted based on each team member's perceived contribution towards the project (as a result, your individual mark may go up or down) – this is determined by each team member's peer review (this is why you MUST complete the peer review)
- This INDIVIDUAL mark will count as one of your practical assignment marks towards your practical mark (it WILL be counted and is not subject to any "top x practical marks" that we may apply at the end of the semester.
- In addition, a second peer review will be asked of team members – this peer review assesses each student based on team working skills. This mark will ALSO count towards the student's practical mark.

Rubric:

Due to the nature of the project (the same problem can have very different outputs), the follow generic rubric is provided:

Design (includes logical structuring of system)	20
Presentation (includes look and feel of the system)	20
System's Features (what your solution actually does)	30
Meeting Client's Needs (does your system suitably address client's problems?)	30
Bonus: Any use of additional programming features not taught in module	**25**
Total	**100**

Presentation Tips:

Do not present the system as a "it can do this. And this. And this." Tell a story. Show how a user can use this system. E.g. We have a customer who orders an item of the menu. The waiter inputs this information on their smart phone which then sends the order request to

the kitchen staff on the screen in the kitchen. When the order is ready, the kitchen staff presses a button to indicate that the meal is ready and the waiter is alerted…

This project has multiple deliverables.

Deliverable 1: (Due 30 August 2019)

Leaders should be able to log in on Eve by next week latest.

- Decide on a Team Name (nothing rude and do not violate copyright – hence, no **Black Panther, Justice League**, or **Mickey Mouse Club** – we fear the mighty wrath of lawyers)
- Decide on a Team Leader in your team
- The Team Leader assumes the responsibility of uploading the project on Eve
- The Team Leader must login with their UJ student email and complete the Team Registration form at: https://forms.gle/4sRQmUxTrcKfV6Vz7
- NO OTHER TEAM MEMBER MUST COMPLETE THIS FORM – DUPLICATE ENTRIES WILL NOT BE ENTERTAINED!!!
- Make sure the student numbers entered are correct – incorrectly completed details will lead to these students not receiving marks for their participation in the project

Deliverable 2: (Due ~~4 October 2019~~ **18 October 2019**)

- Complete a design
- The UML Class diagram may be completed electronically using any tool of the team's choosing
- This UML class diagram must be presented for marking

Deliverable 3: (Due ~~4 October 2019~~ **18 October 2019**)

- The project must be zipped up and uploaded by the Team Leader before the cut-off time (09:00 on 18 October 2019)
- Failure by the Team Leader will result in the entire team forfeiting their marks
- Present the working system to your assistants for marking
- The presentation should demonstrate the various features of how the system functions to fulfill the requirements as specified by the client
- All members of the team must be present for the demonstration
- All members of the team are expected to participate in the presentation

Deliverable 4: (Due ~~11 October 2019~~ **25 October 2019**)

- Each member of the team must complete the Peer Evaluation Review
- This Review is used to determine the individual marks on each team member based on the team's overall perception of each member's contribution to the project.

The team project MAY be developed in any programming language – however, the team must ensure that the project will successfully run on the lab computers. Be aware that working in a certain program language other than Visual Basic may prevent other team members from contributing meaningfully. **The purpose of this team project is to focus on developing team working skills.**

Using the various programming techniques you are learning about, design and develop a working solution that will help to address problems faced by the following (enormously problematic) client.

Note that the client is merely telling you about their operations (along with all their many varied problems) and it is up to your team to identify what and how your system is able to help make their lives easier.

It is expected that each team's project WILL be different, despite working on a solution for the same client.

Client Brief

Sacred Health Hospital (SHH) is a not-for-profit hospital group that operates several clinics across the country. SHH's primary objective is to provide basic health facilities in rural areas where government hospitals are under resourced and unable to serve the local community. Typically, they will set up temporary operations in a test location and monitor patient numbers for three months. If the daily patient turnover is over 40, SHH will make the operation more permanent by settling in. If 60% or higher of the daily patient numbers exceed 40 over this period, the temporary clinic will operate another month and take this last month into consideration to decide on whether to stay or go.

Patients who visit must be recorded. Sometimes, patients are turned away because the doctor (a general physician) is not able to help everyone on the day. Perhaps a booking system would help to alleviate the issue. Perhaps better reporting with the necessary supporting figures will be able to convince SHH Headquarters to employ and send an additional doctor to assist with numbers at the overwhelmed clinics.

Patients who are admitted to seek medical attention at the clinic on the day must first pay R35 to secure their place in the queue (clinics are able to see a maximum of 45 patients a day). To prevent fraud, the nurse who takes in the R35 must issue the patient with a receipt. When the patient is seen, the doctor must sign the receipt to show that the patient has been attended to. Sometimes, the doctor and/or nurse forget to sign the receipts, allowing patients to claim they were not seen. A better system must be in place to take pressure off the nurse and doctor who may simply be too busy to always remember to sign off these receipts on paper.

Typically, each SHH clinic has a head nursing sister, at least one doctor, and two other nurses. These clinics also hire a local community member to help with the maintenance of the clinic, serving as the gardener cum handyman. While the head nursing sister is paid a fixed monthly fee, the doctor is paid a basic salary of R1100 for six hours of work a day. Any additional hours worked above this is remunerated at R200.00 an hour. Other nurses are paid R400 a day while the maintenance person is paid R300 a day. Once a month, a specialist visits the clinic for three days at a cost of R2500 a day. If patients requiring specialist consultation can be organized to visit, it is possible that the clinic does not have to pay for the specialist for all three days.

The head nursing sister is responsible for keeping track of the hours that the doctor works, and the days on which nurses and maintenance person comes. However, she is also juggling with ensuring that patients remember to keep their appointments, making her job very difficult.

Patients at SHH clinics are mostly HIV and TB patients. Such patients are required to follow certain medical regimen and visit their assigned SHH clinic to fetch the necessary HIV and TB medication. This medication is only effective if the patients remember to take it regularly and come back to ensure that they do not run out. For example, if the nursing sister dispenses 30 tablets to be taken once daily, the patient must remember to come back in 29 days to fetch the next batch. To be safe, SHH clinics attempt to call the patients to remind them so it is probably helpful if the patients have access to some

system which reminds them of when to take their medication, how much medication they have remaining, and when to go get more.

At the same time, the SHH clinics must know what their supply levels of medication look like so they can order more of the relevant medication when necessary. If they order in bulk, the pharmaceutical companies tend to offer SHH clinics a discount. Bulk orders are 1000 tablets or more at a time.