PUSAT PENGAJIAN SAINS KOMPUTER
UNIVERSITI SAINS MALAYSIA
Semester 1 Session 2021/2022

CPT111 – Principles of Programming
Assignment - Hackathon 3

Hospital Billing System

Your group are assigned to help a small private hospital and oversee the hospital billing system for their patients. This requires a development of a C++ program that computes a patient's bill for the hospital using user-defined functions. Your program should have the following features:

- Patient bill that will calculate the total of patient's charges which includes hospital stay, surgery charges, pharmacy charges and other services charges.
- Hospital stay that keep track of the number of days spent in the hospital. The group will decide on the hospital's daily rate base on room types and may include food charges as well.
- Surgery charges for at least five (5) types of surgery. The group will decide on types of surgery performed and their respective rates.
- Pharmacy charges for at least five (5) types of medication. The group will decide on types of medication and their respective prices.
- Service charges, for example, X-ray/radiology, laboratory test, physiotherapy. The group will decide on the types, duration/frequency, and their respective prices.
- Design a menu that allows the hospital admin to enter type of surgery, type of medication and type of services and then check the patient out of the hospital. When the patient checks out, the total charges should be displayed.

You program must have the following features:

i. Interactive, easy navigation, informative menu and user friendly for users
ii. Meaningful comments in the source codes

Your documentation needs to have:

i. The details of the report in the cover:

Course:	**CPT111**
Assignment:	**Hackathon 3**
Session:	**Sem 1 2021/2022**
Date:	**31 December 2021**
Group Number:	**<Your group number – refer to existing spreadsheet>**
Member List :	**<Members full name (Matric Number)>**
Lecturer's Name:	**Pn Maziani Sabudin**

ii. Table of Content
iii. Description of the question requirements
    a. Analysis of the problem
    b. Identify the specification of the requirements
    c. Design of the program in pseudocode
    d. Make sure you include inputs, outputs, process, and your own constraints and assumptions

iv. The code

v. Sample of cases tested on your program (use print screen with clear print)

Restriction for this Hackathon 2 Part A:

- You **must not** use arrays and pointers or any other topics which is not covered in this course.
- You **must not** use global variable except for constant.
- You **must not** use vector, list, queue, or any possible data structure provided by the built-in C++ library.
- You **must not** use <vector>, <stdio>, <list>, <linkedlist>, <queue>, <stack> and any other preprocessor never used before during your lab session. **You may use all the directives** in your programme's pre-processor which you have been exposed to during your class and lab sessions.

How to Submit:

i. You need to compress/zipped all documents into one file. Make sure you have:
   a. The code in .cpp file
   b. Your report in .pdf file
   c. List of the team member in .txt file **with the link for your video**

ii. **Short video presentation** (must not exceed 15 mins) describing the flow of why and how you implement the program using the functions (not describing your flowcharts) and showing the system running with interactive I/O test samples.

iii. Upload your file in the submission link provided in the e-Learning.

iv. Name the folder containing the files in the form of **<Group Number>** only.

v. There is not specific writing font to use. If you need a relative or comparable size, you may use **Times New Roman** or **Calibri** with **size 11 or 12** for the main content. You may use other font size for sub-title / sub-heading. Please do it in Ms Word or Open Office or Google Doc or any comparable document type and convert to pdf. **Do not write your report in Ms Powerpoint.**

Hackathon Duration

i. This question is released at 12:05am on Thursday 30 December 2021 and is due to be submitted any time before *New Year* at 11:59pm on Friday 31 December 2021.

ii. Submission outside e-Learning platform will not be accepted. Failure to submit using the platform will render you not getting any marks.

iii. Late submission via the system will be penalised.

Additional Notes

i. **The team allowing their program or report to be copied** by another team will also get '**F**' **together with the group they shared their program or report** with.

ii. Please refer to rubric to know more about penalties deduction.

<u>Course Policy:</u>

- All assignments MUST be submitted before/on the given date. Late submissions without prior approval from the lecturer will not be accepted. One grade will be deducted for each day, for students with approval.
- Plagiarism/pirating and copying are serious academic offence. Students that are found to plagiarize/or copying will get an F for the assignment/report or for the whole coursework grade and will be barred from taking the final examination. Please read your undergraduate Programme Handbook.

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