

# PA01 - Hospital Bill Calculator

CSE 1342 - Programming Concepts - Summer 2019 (SMU in Weimar)

Due: Monday May 27 11:00pm Weimar time, compressed and sent to Fontenot & Derek via Slack

## Overview

You've been hired by a hospital to write a piece of software that will be used by its employees to create bills/invoices for hospital patients. A hospital bill consists of charges for the following types of services:

- Room Charges: A patient's entire stay will be one of following:
  - Private Room: 525.00/day
  - Semi-Private Room: 412.00/day
  - ICU: 877.00/day*(Note: For days after the 6th day, patients get a 12% reduction in the room charge base fee.)*
- Lab Tests: A patient can have multiple tests, each test falling into one of the Levels below. Example: a patient could have 2 Level-1 tests, and 1 Level-3 test.
  - Level 1 Lab Test: 125.00/test
  - Level 2 Lab Test: 250.00/test
  - Level 3 Lab Test: 550.00/test
- Medicine Costs: This would be one single amount that will be entered covering the entire stay. If their room charge subtotal is greater than 4000.00, the patient will get a 5% discount on medicine costs.

## Who's your Audience?

Assume that the user of the program would be a nurse or other medical practitioner. The user would be presented with appropriate prompts indicating what information they should enter and what the valid ranges are based on the above bullet points (room charges, etc.). You should also ask for the patient ID number, an integer.

Once the data has been entered for a single patient, the system should generate "invoices" for each patient. The invoice should include:

- The Patient's ID number
- A subtotal for the room charges
- A subtotal for any lab tests
- A subtotal for any medicine costs
- The grand total for that patient

Format the patient invoices nicely.

Once the invoices for individual patients have been printed, print a day summary for the hospital administrators, which should include:

- Grand sub total for all room charges
- Grand sub total for all lab tests
- Grand sub total for all medicine costs
- Grand total, sum of the above three values

The user should be able to calculate hospital bills for more than one patient (not to exceed 100).

## Requirements

- Error check values input by the user. Don't allow them to enter a number outside valid and appropriate ranges. However, don't have to account for the user entering incorrect data types (e.g. a letter when you ask for a number)
- Remember to make the interface **user-friendly**. Take care to make your prompts readable and understandable.
- You must have **at least 4 functions in addition to main** and use pass by value, pass by reference, and return values from functions.
- Comment your code smartly
- Format your source code smartly

## Code Formatting:

Proper/consistent code formatting makes your code more readable. I will end up reading a ton of code. Use consistent code formatting - I don't particularly care what model you use.

## How to submit:

1. Zip your project (just the source folder) directory. The name of the zip file should be your last name followed by the project number. Example: **fontenot01.zip**
2. Send to Fontenot via Slack by the due date listed on the top of the first page.

**Due Date:** Monday May 27 at 11:00 p.m Weimar Time.

## Grading Rubric:

- 25 points for User Interface
- 50 points for proper functional decomposition and full implementation
- 25 point for proper source code formatting and commenting