

# Fall 2022-Programming Assignment 3

**Due Date: 11/07/2022**

## User-Defined functions

### Objectives:

- Write a program that uses conditional statements and I/O.
- Write user-defined functions
- Use actual, formal parameters and a value-returning in user-defined function
- Use function prototypes
- Display output in a tabular format
- Write program using mathematical equation
- Compile, test, and debug your program.

### Tasks:

1. Create a source code file, using Template 1 (main only).
2. Write a program that prompts the user to enter the hourly rate, the total consulting time, and whether the person has low income.
3. The program should output the billing amount.
4. Write a function that takes as input the hourly rate, the total consulting time, and a value indicating whether the person has low income.
5. Your program may prompt the user to enter the consulting time in minutes
6. The function should return the billing amount.

### Inputs required from keyboard are during execution

- Yearly Income
- Hourly Rate
- Consulting Time

Enter yearly income :20000

Enter the hourly rate :100

Enter consulting time in minutes :300

### Question statement

During the tax season, every Friday, the **Tom CPA accounting** firm provides assistance to people who prepare their own tax returns. Their charges are as follows:

- A. If a person has low income ( $< = 25,000$ ) and the consulting time is less than or equal to 30 minutes, there are no charges; otherwise, the service charges are 40% of the regular hourly rate for the time over 30 minutes.
- B. For others, if the consulting time is less than or equal to 20 minutes, there are no service charges; otherwise, service charges are 70% of the regular hourly rate for

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the time over 20 minutes.

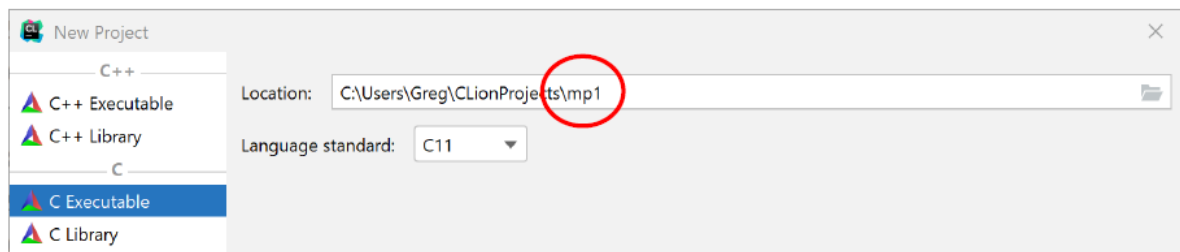
(For example, suppose that a person has low income and spent 1 hour and 15 minutes, and the hourly rate is **\$70.00**. Then the billing amount is

$$70.00 * 40 * (45 / 60) = \$21.00$$

Write a program that prompts the user to enter the hourly rate, the total consulting time, and whether the person has low income. The program should output the billing amount. Your program must contain a function that takes as input the hourly rate, the total consulting time, and a value indicating whether the person has low income. The function should return the billing amount. Your program may prompt the user to enter the consulting time in minutes

## Task 1: Create a C Source Code File

In CLion, create a New Project (under the File menu). The type is “C Executable” and the Language Standard is “C11”. Replace the "untitled" in the project name with a name of your choosing, such as **PS3**. The project name is the directory (folder) where all of your project files will be stored. It will be easier to locate the files later if you give your projects meaningful names.



**Note:** Pay attention to the full pathname of your project. This tells you where the project files are located, which will be needed later when you submit files.

CLion will automatically create a file named main.c, and will put a “Hello, World!” print statement in the main function. If this is your first time using CLion, build and run the project to make sure your environment is set up properly. (Click on the green triangle at the top right of the window.) You should see “Hello, World!” printed in the output area.

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**Note:** Add a comment at the top of your file that includes your name. Ideally, this program header would also contain information about what the program does and how to run it, but for problem sessions, just your name will be enough.

**Hint:** If you submit this file as is, you'll get 50 points!!

## Template:

```
#include <stdio.h>
#include <stdbool.h>

double billingAmount(double hRate, double consTime, bool lowInc);
int main()
{
    double hourlyRate;
    double consultingTime;
    bool lowIncome;
    double yearlyIncome;
    double BillingAmountDue;

    printf("Enter yearly income :");
    scanf("%lf", &yearlyIncome);

    /*
        Enter your code here
    */

    * /
    return 0;
}

double billingAmount(double hRate, double consTime, bool lowInc)
{
    /*
        Enter your code here
    */

    * /

    }
    return amountDue;
}
```

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## Sample run 1: (50 point)

```
Enter yearly income :20000
This is Low Yearly Income:
Enter the hourly rate :100
Enter consulting time in minutes :300
The Billing amount = 180.00 in dollars
```

```
Enter yearly income :20000
This is Low Yearly Income:
Enter the hourly rate :100
Enter consulting time in minutes :300
The Billing amount = 180.00 in dollars
```

## Sample run 2: (50 point)

```
Enter yearly income :30000
This is not Low Yearly Income
Enter the hourly rate :100
Enter consulting time in minutes :100
The Billing amount = 93.33 in dollars
```

```
Enter yearly income :30000
This is not Low Yearly Income
Enter the hourly rate :100
Enter consulting time in minutes :100
The Billing amount = 93.33 in dollars
Process finished with exit code 0
```