National Institute of Technology Calicut
Department of Computer Science and Engineering
B. Tech. (CSE) – First Semester
CS1091E: Programming Laboratory
Problem Set – 4

Submission deadline (on or before):

- 19/09/23, 5:00 PM

Policies for Submission and Evaluation:

- You must submit your programs in the moodle (Eduserver) course page, on or before the submission deadline. Also, ensure that your programs compile and execute without errors in the linux platform. During evaluation, failure to execute programs without compilation errors may lead to zero marks for that program. Detection of ANY malpractice can lead to awarding an F grade in the course.

Naming Conventions for Individual Program

- $PS < PROBLEM\_SET\_NUMBER > \_ < ROLLNO > \_ < FIRST - NAME > \_ < PROGRAM - NUMBER > . < extension >$ (For example: $PS04\_BxxyyyyCS\_LAXMAN\_1.c$). Please make sure that you follow the naming conventions correctly.

Naming Conventions for Submission

- Submit a single ZIP (.zip) file (do not submit in any other archived formats like .rar, .tar, .gz) containing the source code (.c file) for the five programs. The name of this file must be $PS < PROBLEM\_SET\_NUMBER > \_ < ROLLNO > \_ < FIRST - NAME > .zip$ (For example: $PS04\_BxxyyyyCS\_LAXMAN.zip$). DO NOT add any other files (like temporary files, input files, etc.) except your source code, into the zip archive.

Standard of Conduct

- Violations of academic integrity will be severely penalized. Each student is expected to adhere to high standards of ethical conduct, especially those related to cheating and plagiarism. Any submitted work MUST BE an individual effort. Any academic dishonesty will result in zero marks in the corresponding exam or evaluation and will be reported to the department council for record keeping and for permission to assign F grade in the course.

General Instructions

- Programs should be written in C language and compiled using C compiler in Linux platform. Sample inputs are just indicative. **Submit the solutions to questions 1, 2, 3, 4 and 5 as a single .zip file through the submission link in Eduserver**.

QUESTIONS

1. Write a C program that reads the marks**(float)** scored by a student in a course (maximum marks is 100) and assigns grade **(char)** as follows:

   80 -100 : A

   60-79 : B

   50-59 : P

   0-49 : F

   The program should use 'if' statements (with nesting if required) alone without using logical operators. Use **float** variable for marks and **char** for grade. If the mark entered is not in the range 0-100, the program should stop with an appropriate message. Do not use if-else anywhere in the program.

2. Solve the problem in question1, using 'if' statements and logical operators.

3. Solve the problem in question1, using 'if-else' statements and logical operators.

   Input and output format (Common for above 3 questions):

   - Input:
     Marks=...
   - Output:
     Grade=...

   Sample input and output:

   - Input:
     Marks=68.410000
   - Output:
     Grade=B

4. Write a program to compute the weekly salary**(float)** of an employee, given the number of hours of work per week **(int)** and the hourly rate**(float)**. For the first 40 hours of work, full pay is given and for each extra hour, half pay is given.

   Input and output format:

   - Input:
     Number of hrs per week=...
     Hourly rate=...

If no extra hours display Salary alone in the format
Weekly Salary=...

If extra hours, display Salary and number of extra hours in the format as follows
Weekly Salary=... extra hours=....hrs

Sample input and output:

- Input:
  Numbers of hrs per week = 45
  Hourly Rate = 6.500000
- Output:
  Weekly Salary = 276.250000 extra hours= 5 hrs

5. Write a program to compute the total price**(float)** of a product sold, given the product code**(int)** and the quantity **(float)** sold. The price per unit is to be determined using a switch statement based on the following table:

Product code	Unit price
1	10
2	15
3	5
4	3
5	12

Input and output format:

- Input:
  Product Code = ...
  Quantity = ...
- Output:
  Total Price = ...

Sample input and output:

- Input:
  Product Code = 2
  Quantity = 11.700000
- Output:
  Total Price = 175.500000