

National University Of Computer and Emerging Science
Lahore Campus
Programming Fundamental

Assignment # 1

Due Date: Wed, Oct 13th by 11:55pm..

Dear students we will be using auto-grading tools, so failure to submit according to the below format would result in zero marks in the relevant evaluation instrument.

1. For each question in your assignment, make a separate cpp file e.g. for question 1, you have to make `ROLL-NUM_SECTION_Q.cpp` (20i-0001_A_Q1.cpp) and so on. Each file that you submit must contain your name, student-id, and assignment on top of the file in comments.
2. Combine all your work in one folder. The folder must contain only .cpp files (no binaries, no exe files etc.).
3. Run and test your program on a lab machine before submission.
4. Rename the folder as `ROLL-NUM_SECTION` (e.g. 20i-0001_A) and compress the folder as a zip file. (e.g. 20i-0001_B.zip). do not submit .rar file.
5. Submit the .zip file on Google Classroom within the deadline.
6. Submission other than Google classroom (e.g. email etc.) will not be accepted.
7. The student is solely responsible to check the final zip files for issues like corrupt file, virus in the file, mistakenly exe sent. If we cannot download the file from Google classroom due to any reason it will lead to zero marks in the assignment.
8. Displayed output should be well mannered and well presented. Use appropriate comments and indentation in your source code. Five Bonus marks will be awarded to well commented/indented code (for all questions).
9. Total Marks: 60
10. If there is a syntax error in code, zero marks will be awarded in that part of assignment.
11. Your code must be generic

Problems

1 Simple Input/Output with Arithmetic Operations

Question: 1 (5 Marks)

Write a C++ program to calculate the given below formula. The value of i needs to be input by user while $u = 1.234$ and $p = 3.334$.

$$\frac{\sqrt{\mu(i)^{\frac{3}{2}}(i^2 - 1)}}{\sqrt{\rho(i) - 2} + \sqrt{\rho(i) - 1}}$$

Question: 2 (5 Marks)

Write a C++ program in which you declare variables that will hold an hourly wage, a number of hours worked, and a withholding tax (percentage deduction). Prompt the user to enter values for each of these fields. Compute and display net pay.

Example01:

Enter hourly wage: 900

Enter number of hours: 3

Enter withholding tax: 25

Net Pay:2025

Example02:

Enter hourly wage: 1600

Enter number of hours: 3

Enter withholding tax: 25

Net Pay:3600

Question: 3 (5 Marks)

Write a C++ program which accepts days as integer and display total number of years, months and days in it. Suppose Year =365days and month = 30 days.

For example: If user input as 856 days the output should be 2 years 4 months 6 days.

Question: 4 (5 Marks)

Write a program that converts inches to yards and feet. Prompt the user to enter an integer value i.e. the number of inches, and then make the conversion and output the result.

For example: If user input as 49 inches the output should be 1 yard 1 feet 1 inches.

Note: 1 ft = 12 inches 1 yard = 3ft

Question: 5 (5 Marks)

Write two different C++ programs to swap two values without using a third temporary value.

2 If-Else

Question: 6 (10 Marks)

A shop will give discount of 10% if the cost of purchased quantity is more than 1000.

- Ask user for quantity
- Suppose, one unit will cost 100.
- Judge and print total cost for user.

Question: 7 (15 Marks)

Write a menu driven program (Using if...else...if) that displays the following menu:
Geometry Calculator

1. Calculate the Area of a Circle
2. Calculate the Area of a Rectangle
3. Calculate the Area of a Triangle
4. Quit

Enter your choice (1-4):

1. If the user enters 1, the program should ask for the radius of the circle and then display its area. Use the following formula:

$$area = \pi r^2$$

Use 3.14159 for π and the radius of the circle for r.

2. If the user enters 2, the program should ask for the length and width of the rectangle and then display the rectangle's area. Use the following formula:

$$area = length * width$$

3. If the user enters 3 the program should ask for the length of the triangle's base and its height, and then display its area. Use the following formula:

$$area = base * height * 0.05$$

4. If the user enters 4, the program should end.

3 Type Casting

Question: 9 (10 Marks)

Write a C++ program which accepts a character as input and display its 3rd next character as output.

Example: Input: A

Output: D

Honor Policy

This task is a learning opportunity that will be evaluated based on your ability. **Plagiarized reports or code will get a zero.** If in doubt, ask the course instructor.