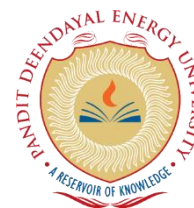


Assignment 1



Subject: Computer Programming with C

Course Code: 20CP101T

Marks: 30

Deadline: September 15, 2023

Instructions: Solve these programs and upload the solutions as a single file with program and the screen shot of the output window. The program should have a default print statement indicating your name and roll number. The file to be uploaded in assignment submission link on your Google Classroom account. Feel free to ask any queries related to the assignment.

Q1) You are a cashier at a grocery store and you need to write a C program [5] CO1 that calculates and prints the total bill for a customer. The program should declare and initialize four variables of different data types: int, float, char, and double. The int variable should store the number of items purchased by the customer, the float variable should store the tax rate, the char variable should store the currency symbol, and the double variable should store the subtotal amount before tax. The program should also calculate and print the total amount after tax using the appropriate format specifiers in the printf() function. For example, %d for int, %f for float, %c for char, and %lf for double.

Hint:- Assume that the number of items is 5, the tax rate is 0.07, the currency symbol is '\$', and the subtotal amount is 23.45 are the inputs taken from user. The output will be as shown below: -

```
Number of items: 5
Tax rate: 0.07
Subtotal: $23.45
Total: $25.09
```

Q2) Write a C program that declares and initializes six variables of different [5] CO2 data types: int, float, char, double, long, short, unsigned, and signed. The int variable should store the age of a person in years, the float variable should store the height of a person in meters, the char variable should store the first letter of the person's name, the double variable should store the weight of a person in kilograms, the long variable should store the phone number of the person, the short variable should store the zip code of the person's address, the unsigned variable should store the number of pets owned by the person, and the signed variable should store the difference between the person's income and expenses in dollars. The program should also print the values of these variables using the appropriate format specifiers in the printf() function. For example, %d for int, %f for float, %c for char, %lf for double, %ld for long, %hd for short, %u for unsigned, and %d for signed.

Hint: - Assume that the age is 25, the height is 1.75, the first letter of the name is 'R', the weight is 65.5, the phone number is 9876543210, the zip code is

12345, the number of pets is 2, and the difference between income and expenses is -500 are the inputs taken from user.

The output will be as shown below: -

```
The age of the person is 25 years
The height of the person is 1.75 meters
The initial of the person's name is R
The weight of the person is 65.5 kilograms
The phone number of the person is 9876543210
The zip code of the person's address is 12345
The number of pets owned by the person is 2
The difference between income and expenses of the person is
$-500
```

Q3. A five-digit number is entered through the keyboard. Write a program to obtain the reversed number and to determine whether the original and reversed numbers are equal or not. [5] CO4

Q4. Write a program to check whether a triangle is valid or not, when the three angles of the triangle are entered through the keyboard. A triangle is valid if the sum of all the three angles is equal to 180 degrees. [5] CO4

Q5. Check whether a given character is a lowercase character or upper-case character and also print whether it is a vowel or a consonant. [5] CO4

Q6. John was fascinated by geometric shapes. He drew a large equilateral triangle on a piece of paper and divided it into 9 smaller congruent equilateral triangles. If each small triangle had a side length of 2 inches, what was the perimeter of the large triangle? Write a C program for the given problem. [5] CO3