National University of Computer and Emerging Sciences

Programming Fundamentals
Functions

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Exercise 1:

Write a calculator program that allows the user to perform addition, subtraction, multiplication, division, modulus, exponentiation and quit operations.

Here is the illustration of the program:

Welcome to the Calculator!
Enter
+ for addition operation
- for subtraction operation
* for multiplication operation
/ for division operation
% for modulus operation
^ for exponentiation operation
q to quit

--> **/**
Enter the first operand: 5
Enter the second operand: 8

The result is 0.625

--> **^**
Enter the first operand: 3
Enter the second operand: 4
The result is 81

--> **q**
(Quit the menu)

Exercise 2:

Write a function **isPalindrome(int N)** that returns true or false.
If the number in palindrome it should return true and false otherwise.
Palindrome: A palindrome is a word, number, phrase, or other sequence of characters which reads the same backward as forward, such as madam or racecar or the number 10201 For **example:**
11211 is palindrome
1222 is not a palindrome.
4444 is a palindrome.

Exercise 3:

Write a C++ program that calculates the area of a circle.

Take **π** as constant variable.
 # define pi 3.14159;
double area(double radius);

area= pi*r2
Write main and call your function that prints the area of the circle.

Exercise 4:

Write a function name **CalculateGPA()**, that returns the gpa achieved by a student, take grades for five courses and their respective credit hours, apply the following formula to calculate gpa :

Gpa = (GradeWeight*CreditHours)/Total CreditHours

Grades	Grade Point Equivalent
A	4.00
A-	3.67
B+	3.33
B	3.00
B-	2.67
C+	2.33
C	2.00
D	1.00
F	0.00

Use the above-mentioned table to get grade weights. Limit your functionality for grades A, B, C, D and F only. Return a double value from the function.

Exercise 5:

Write a function FindMinMax which keeps taking integers from user until user enters -1 (-1 is not a part of input data it is just stopping criteria). On receiving -1 your function should return Minimum and Maximum value entered. How will you return two values from FindMinMax?