

Introduction:

Welcome to assignment 2, where you will build a single C console application to demonstrate your understanding of essential control structures: if-else statements, for and while loops, break and continue statements, and switch-case. These control structures are fundamental in programming and will empower you to develop efficient solutions to various problems within a single application.

Assignment Instructions:

Control Structure Menu (10 points)

Create a C console application with a menu that allows the user to select one of the following operations:

1. Check if a number is even or odd.
2. Display the multiplication table for a number.
3. Calculate the factorial of a positive integer.
4. Print the first n prime numbers.
5. Convert a month number (1 to 12) to its name.

Part II: if-else Statement (15 points)

When the user selects option 1, your program should:

1. Prompt the user to enter an integer.
2. Use an if-else statement to check if the integer is even or odd.
3. Display a message indicating whether the input is even or odd.

Part III: for Loop (20 points)

For option 2, your program should:

1. Prompt the user to enter an integer.
2. Use a for loop to display the multiplication table for that integer from 1 to 10.

Part IV: while Loop (20 points)

For option 3, your program should:

1. Prompt the user to enter a positive integer.
2. Use a while loop to calculate and display the factorial of the input.

Part V: break and continue (15 points)

When the user selects option 4, your program should:

1. Prompt the user to enter an integer n.
2. Use a loop (for, while, or do-while) to print the first n prime numbers.

3. Implement break to exit the loop if n prime numbers are found.
4. Implement continue to skip numbers that are not prime.

Part VI: switch-case (20 points)

For option 5, your program should:

1. Prompt the user to enter a month number (1 to 12).
2. Use a switch-case statement to display the name of the corresponding month.
3. Handle an invalid input with an error message.

Submission Requirements:

- You are required to submit a well-commented, single C source code file named solution.c that contains the entire interactive console application.
- Your program should minimally reproduce the output shown bellow.