॥वसुधैव कुटुम्बकम॥

SYMBIOSIS INSTITUTE OF TECHNOLOGY, PUNE

Constituent of Symbiosis International (Deemed University), Pune

Assignment No.: 04	
Course Name	Programming in C Lab
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Branch	CSE
Class	C-1
Academic Year & Semester	2023-2024 & Semester 2
Date of Performance	09/02/2024
Assignment Title (Full):	Write a C program to find whether (using switch case) (a) A given number is prime or composite. (b) A given number is even or odd.

Theory: (Note: According to the assignment title, please write the background information as an introduction, then write the steps/logic/process/algorithm of the C program in the Journal Notebook, and add its screenshot in the below theory response.)

Theory Response:

1. Prompt the user to choose between checking if a number is prime/composite or even/odd.
2. Accept user input for the choice (n) and the number (num).
3. Use a nested switch statement based on the user's choice (n):
    - Case 1: Check if the number is prime or composite.
    - Case 2: Check if the number is even or odd.
    - Default: Print an error message for an invalid choice.
4. For prime or composite:
    - Handle special cases (0, 1, 2).
    - Use a loop to check divisibility and determine if the number is prime or composite.
5. For even or odd:
    - Use the modulo operator to check parity and print the result.

Output: (Note: Execute the C program as per the assignment title, take an input code and output result screenshot with the date and time from your computer, and add its screenshot in the below output response.)

Output Response:

```c
#include <stdio.h>

int main() {
    int num,n;
    int isPrime = 1;
    printf("\nEnter accordingly:\n1. Prime or Composite\n2. Even or Odd\n");
    scanf("%d",&n);
    printf("\nEnter a number: ");
    scanf("%d", &num);

    switch (n) {
        case 1:
            switch (num) {
            case 0:
            case 1:
                printf("%d is neither prime nor composite.\n", num);
                break;
            case 2:
                printf("%d is a prime number.\n", num);
                break;
            default:
                for (int i = 2; i < num; i++) {
                    if (num % i == 0) {
                        isPrime = 0;
                        break;
                    }
                }
                if (isPrime) {
                    printf("%d is a prime number.\n", num);
                } else {
                    printf("%d is a composite number.\n", num);
                }
                break;
            }
            break;
        case 2:
            switch (num % 2) {
            case 0:
                printf("%d is an even number.\n", num);
                break;

            case 1:
                printf("%d is an odd number.\n", num);
                break;
            }
            break;
        default:
            printf("\nPlease enter a valid number.\n");
            break;
    }

    return 0;
}
```

```
Enter accordingly:
1. Prime or Composite
2. Even or Odd
1

Enter a number: 7
7 is a prime number.
(base) fahee@Faheems-MacBook-Pro Programming_in_C %

Enter accordingly:
1. Prime or Composite
2. Even or Odd
1

Enter a number: 8
8 is a composite number.
(base) fahee@Faheems-MacBook-Pro Programming_in_C %

Enter accordingly:
1. Prime or Composite
2. Even or Odd
2

Enter a number: 10
10 is an even number.
(base) fahee@Faheems-MacBook-Pro Programming_in_C %

Enter accordingly:
1. Prime or Composite
2. Even or Odd
2

Enter a number: 11
11 is an odd number.
(base) fahee@Faheems-MacBook-Pro Programming_in_C %
```

Conclusion: (Note: Write the key findings or outcome from this assignment, enlist their potential real-world applications in Journal Notebook, and add its screenshot in the below conclusion response.)

Conclusion Response:

The C code offers the user the choice to check whether a given number is prime or composite or if it is even or odd. It employs a switch statement to efficiently navigate between these options, incorporating loops and conditional checks for accurate results.

Please note that assignment content can be readable.

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