ASSIGNMENT

By

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2023A1R126

1ST Semester

COMPUTER SCIENCE AND ENGINEERING

Model Institute of Engineering & Technology (Autonomous)

(Permanently Affiliated to the University of Jammu, Accredited by NAAC with "A" Grade)

Jammu, India

2023

ASSIGNMENT

Subject Code: COM- 111   **Subject Name: C Programming**

Due Date: 09/01/2024

Question Number	Course Outcomes	Blooms' Level	Maximum Marks	Marks Obtained
Q1	CO 4	3-6	10	
Q2	CO 5	3-6	10	
Total Marks			20	
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Assignment Objectives:

1. Apply fundamental concepts (variables, loops, functions).
2. Solve problems through efficient algorithm design.
3. Demonstrate debugging skills.
4. Write well-documented and optimized code.

Assignment Instructions:

1. Group Size: Assignments will be completed in groups of 4-6 students.

2. Assessment Rubrics:

3. Submission Method: Students should submit their completedassignment on Camu under Assignment-

1 Chapter.

Guidelines for Each Question:

Q1. a) The program uses a do-while loop to repeatedly display the menu and prompt the user   for input until they choose to exit.
   b) The if-else structure is used to determine the operation based on the user's input.

Q2. a) The program defines a function is Prime that takes an integer as an argument and returns a boolean value indicating whether the number is prime.
   b) The is Prime function checks for divisibility from 2 up to the square root of the number,   as any factor larger than the square root would have a corresponding factor smaller than the square root

Q. No.	Question	BL	CO	Marks	Total Marks
1	Write the program for calculator using elseif and do while.			10	10
2	Write a C program to check whether a number is prime or not.			10	10

Model Institute of Engineering and Technology (Autonomous), Jammu

ANSWER 1

```c
#include <stdio.h>

int main() {
    char operator;
    double num1, num2, result;

    do {
      printf("Enter operator (+, -, *, /) or 'q' to quit: ");
        if (scanf(" %c", &operator) != 1) {
             printf("Error: Invalid input. Please enter a valid operator or 'q'.\n");
            while (getchar() != '\n');
            continue;
        }

        if (operator == 'q' || operator == 'Q') {
            break;
        }
        printf("Enter two numbers: ");
        if (scanf("%lf %lf", &num1, &num2) != 2) {
            printf("Error: Invalid input. Please enter two valid numbers.\n");
            while (getchar() != '\n');
            continue;
        }
        if (operator == '+') {
            result = num1 + num2;
        } else if (operator == '-') {
            result = num1 - num2;
        } else if (operator == '*') {
            result = num1 * num2;
        } else if (operator == '/') {

            if (num2 != 0) {
                result = num1 / num2;
            } else {
                printf("Error: Division by zero\n");
                continue;
            }
        } else {
            printf("Error: Invalid operator\n");
            continue;
        }
        printf("Result: %.2lf %c %.2lf = %.2lf\n", num1, operator, num2, result);

    } while (1);

    printf("Calculator program terminated.\n");

    return 0;
}
```

OUTPUT

```
PS C:\Users\DELL\Desktop\DESKTOP\code\Arush Sharma>
Enter operator (+, -, *, /) or 'q' to quit: +
Enter two numbers: 23
45
Result: 23.00 + 45.00 = 68.00
Enter operator (+, -, *, /) or 'q' to quit: ▌
```

ANSWER 2

```c
#include <stdio.h>

int main() {
    int num, i, isPrime = 1;
    printf("Enter a number: ");
    scanf("%d", &num);
    if (num < 2) {
        printf("Not a prime number.\n");
    } else {
        for (i = 2; i * i <= num; ++i) {
            if (num % i == 0) {
                isPrime = 0;
                break;
            }
        }
        if (isPrime) {
            printf("%d is a prime number.\n", num);
        } else {
            printf("%d is not a prime number.\n", num);
        }
    }

    return 0;
}
```

OUTPUT

```
PS C:\Users\DELL\Desktop\DESKTOP\code\Assignment>
Enter a number: 4
4 is not a prime number.
PS C:\Users\DELL\Desktop\DESKTOP\code\Assignment>
```