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Date	Dec 13 2024	Assignment	2

Topic : C Programming -Functions - Solutions

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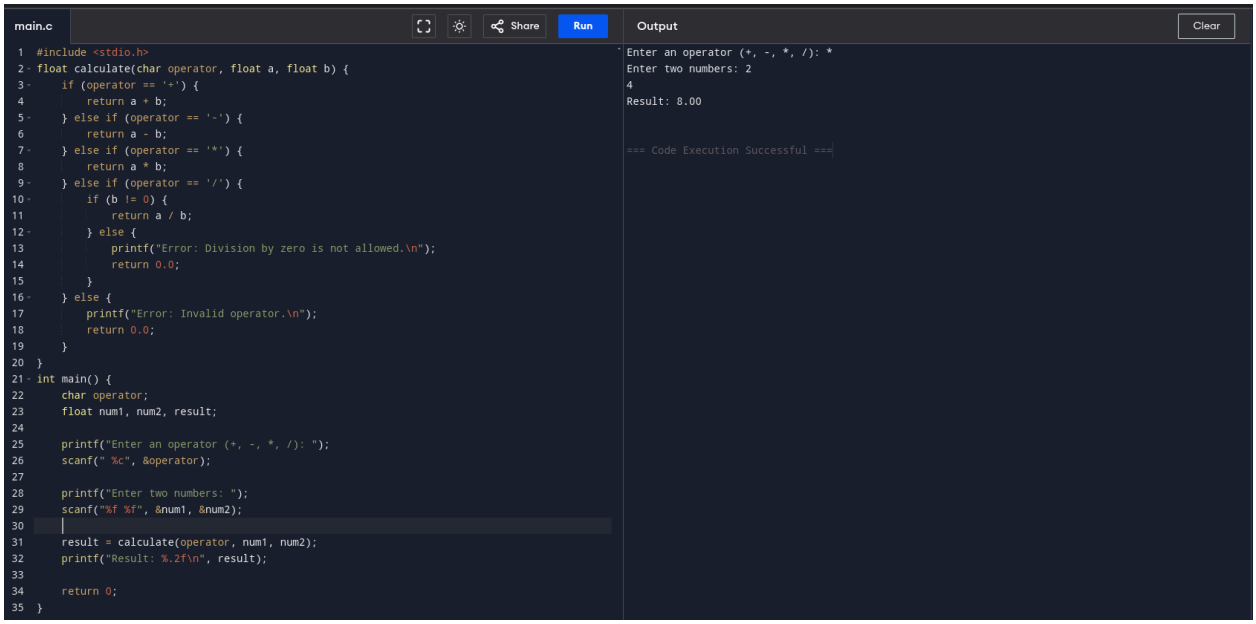
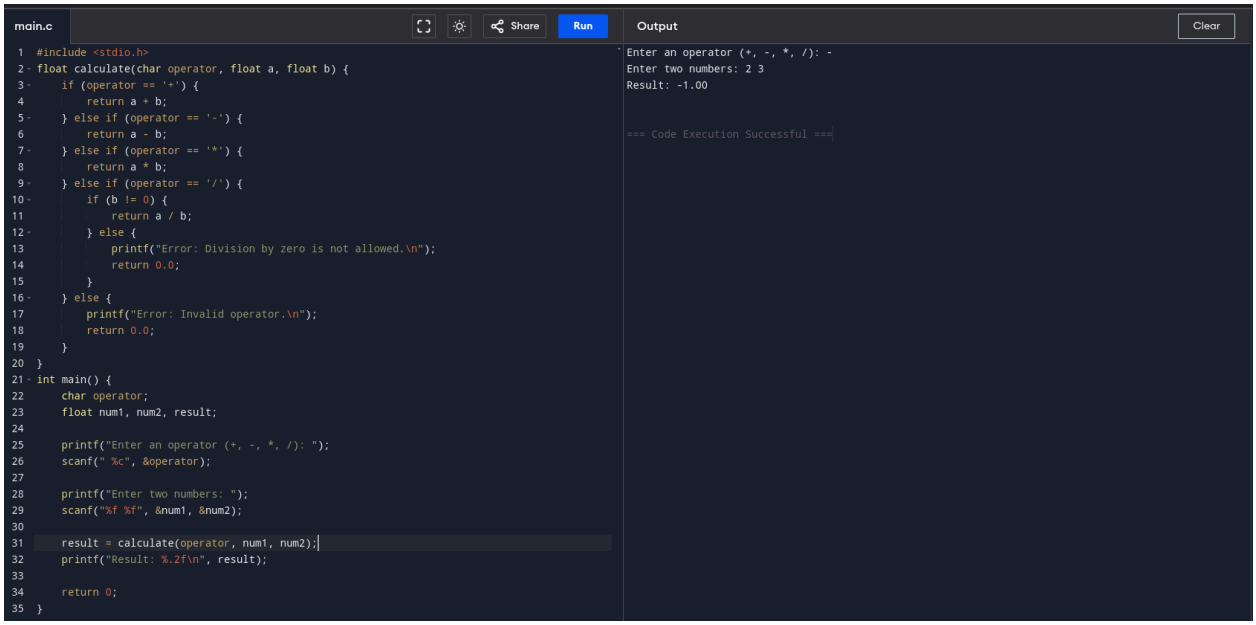
1. Write a function `int add(int a, int b)` that takes two integers as input and returns their sum. Call this function from `main()` and print the result.
2. Write a function `void checkEvenOdd(int num)` that takes an integer as input and prints whether the number is even or odd.
3. Write a function `int max(int a, int b)` that takes two integers and returns the larger of the two.

```c
#include <stdio.h>

// Function to add two integers
int add(int a, int b) {
    return a + b;
}

// Function to check if a number is even or odd
void checkEvenOdd(int num) {
    if (num % 2 == 0) {
        printf("%d is even.\n", num);
    } else {
        printf("%d is odd.\n", num);
    }
}

// Function to find the maximum of two integers
int max(int a, int b) {
    return (a > b) ? a : b;
}

// Main function
int main() {
    int num1, num2, result;

    // Testing the add function
    printf("Enter two numbers to add: ");
    scanf("%d %d", &num1, &num2);
    result = add(num1, num2);
    printf("Sum: %d\n", result);

    // Testing the checkEvenOdd function
    printf("Enter a number to check even or odd: ");
    scanf("%d", &num1);
    checkEvenOdd(num1);

    // Testing the max function
    printf("Enter two numbers to find the maximum: ");
    scanf("%d %d", &num1, &num2);
    result = max(num1, num2);
    printf("Maximum: %d\n", result);

    return 0;
}

```

4. Write a function `float calculate(char operator, float a, float b)` that performs addition, subtraction, multiplication, or division based on the operator provided. Return the result and print it in the `main()` function.





5. Write a function `int factorial(int n)` that calculates and returns the factorial of a number. Use this function in `main()` to compute the factorial of a user-input number.
6. Write a function `int power(int base, int exp)` that calculates the result of raising a base to an exponent using a loop. Use this function to calculate 2^5.
7. Write a function `void greet()` that takes no arguments and prints a greeting message like "Hello, welcome to C programming!".
8. Write a function `int isPrime(int n)` that checks if a number is prime. It should return `1` if the number is prime and `0` otherwise.

9. Write a function `int sumOfDigits(int num)` that takes an integer as input and returns the sum of its digits. For example, if the input is `123`, the output should be `6`.
10. Write a function `int square(int n)` that takes an integer as input and returns its square. Use this function in `main()` to calculate and print the square of a user-input number.

Solutions 5-10

```c
#include <stdio.h>

// Function to calculate the factorial of a number
int factorial(int n) {
    int fact = 1;
    for (int i = 1; i <= n; i++) {
        fact *= i;
    }
    return fact;
}

// Function to calculate power using a loop
int power(int base, int exp) {
    int result = 1;
    for (int i = 0; i < exp; i++) {
        result *= base;
    }
    return result;
}

// Function to print a greeting message
void greet() {
    printf("Hello, welcome to C programming!\n");
}

// Function to check if a number is prime
int isPrime(int n) {
    if (n <= 1) return 0;
    for (int i = 2; i * i <= n; i++) {
        if (n % i == 0) return 0;
    }
    return 1;
}

// Function to calculate the sum of digits of a number
int sumOfDigits(int num) {
    int sum = 0;
    while (num != 0) {
        sum += num % 10;
        num /= 10;
    }
    return sum;
}

// Function to calculate the square of a number
int square(int n) {
    return n * n;
}

```

```c

// Main function
int main() {
    int num, result;

    // Testing the factorial function
    printf("Enter a number to calculate its factorial: ");
    scanf("%d", &num);
    result = factorial(num);
    printf("Factorial: %d\n", result);

    // Testing the power function
    printf("2^5 = %d\n", power(2, 5));

    // Testing the greet function
    greet();

    // Testing the isPrime function
    printf("Enter a number to check if it's prime: ");
    scanf("%d", &num);
    if (isPrime(num)) {
        printf("%d is a prime number.\n", num);
    } else {
        printf("%d is not a prime number.\n", num);
    }

    // Testing the sumOfDigits function
    printf("Enter a number to calculate the sum of its digits: ");
    scanf("%d", &num);
    printf("Sum of digits: %d\n", sumOfDigits(num));

    // Testing the square function
    printf("Enter a number to calculate its square: ");
    scanf("%d", &num);
    printf("Square: %d\n", square(num));

    return 0;
}

```

END