```c
// Program to illustrate a function with no arguments and no return type.

#include <stdio.h>

// Function prototype
void sum();

int main()
{
    // Call the function
    sum();
    printf("\nIt is a function with no arguments and no return value.");
    return 0;
}

// Function definition
void sum()
{
    int a, b, s;
    printf("Enter two numbers: ");
    scanf("%d%d", &a, &b);
    s = a + b;
    printf("Sum = %d", s);
}
```

```
manish@fedora: ~/vs-code/bca-programming-repo/C/assignment18 main!
$ ./question1
Enter two numbers: 34 43
Sum = 77
It is a function with no arguments and no return value.%
```

```c
// Program to illustrate a function with arguments but no return type.

#include <stdio.h>

// Function prototype
void sum(int, int);

int main()
{
    int a, b;

    // Input
    printf("\nEnter two numbers: ");
    scanf("%d%d", &a, &b);

    // Call the function
    sum(a, b);

    // Output a message about the function
    printf("\nIt is a function with arguments and no return value.");

    return 0;
}

// Function definition
void sum(int a, int b)
{
    int s = a + b;

    // Output the sum
    printf("The sum is %d.", s);
}
```

```c
// Program to illustrate functions with arguments and return values.
#include <stdio.h>

// Function prototype
int addition(int, int);

int main()
{
    int a, b, sum;
    // Input
    printf("Enter two numbers: ");
    scanf("%d%d", &a, &b);
    // Function call and receive the result
    sum = addition(a, b);
    // Output the result
    printf("\nThe sum is %d.", sum);
    return 0;
}

// Function definition
int addition(int a, int b)
{
    int s = a + b;
    // Return the result
    return s;
}
```

```
manish@fedora: ~/vs-code/bca-programming-repo/C/assignment18 main!
$ ./question3
Enter two numbers: 34 43

The sum is 77.
```

```c
// Program using function value and no arguments.
#include <stdio.h>
int sum();

int main()
{
    int r = sum();
    printf("Sum = %d", r);
    printf("\nIt is a function with no arguments and return value.");
    return 0;
}

int sum()
{
    int s, a, b;
    printf("Enter two numbers: ");
    scanf("%d%d", &a, &b);
    s = a + b;
    return s;
}
```

```
manish@fedora: ~/vs-code/bca-programming-repo/C/assignment18 main!
$ ./question4
Enter two numbers: 43 34
Sum = 77
It is a function with no arguments and return value.
```

```c
/* Write a function to add, subtract, multiply & divide two complex
numbers (x + i*y) and (a + i*b) */

#include <stdio.h>

// Function to add two complex numbers
void add(int x, int y, int a, int b) {
    printf("\nThe addition of the complex numbers is: %d + i%d", x + a, y + b);
}

// Function to subtract two complex numbers
void subtract(int x, int y, int a, int b) {
    printf("\nThe subtraction of the complex numbers is: %d + i%d", x - a, y - b);
}

// Function to multiply two complex numbers
void multiply(int x, int y, int a, int b) {
    int real, img;
    real = (a * x - b * y);
    img = (a * y + b * x);
    printf("\nThe multiplication of the complex numbers is: %d + i%d", real, img);
}

int main() {
    int x, y, a, b;

    // Input
    printf("\nEnter the first complex number in the form (x + iy): ");
    scanf("%d+i%d", &x, &y);

    printf("Enter the second complex number in the form (a + ib): ");
    scanf("%d+i%d", &a, &b);

    // Function calls
    add(x, y, a, b);
    subtract(x, y, a, b);
    multiply(x, y, a, b);

    return 0;
}
```

```
manish@fedora: ~/vs-code/bca-programming-repo/C/assignment18 main!
$ ./question5

Enter Ist complex number of the form (x+iy): 2+i3

Enter 2nd complex number of the form (a+ib): 5+i7

The addition of the complex numbers is: 7 + i10
The subtraction of the complex numbers is: -3+i-4
The multiplication of the complex numbers is: -11+i29
```

```c
/*
    Write a function to solve a quadratic equation ax^2 + bx + c = 0.
    The inputs to the function are the values a, b, and c, and the outputs of
    the function should be stored in variable names p and q appropriately declared.
*/

#include <stdio.h>
#include <math.h>

// Function to solve a quadratic equation
void quad(float, float, float);

int main()
{
    float a, b, c;

    // Input coefficients of the quadratic equation
    printf("\nEnter values a, b, and c of the quadratic equation: ");
    scanf("%f %f %f", &a, &b, &c);

    // Call the quadratic equation solver function
    quad(a, b, c);
    return 0;
}

void quad(float a, float b, float c)
{
    float p, q, d;

    // Calculate the discriminant
    d = b * b - 4 * a * c;

    if (d < 0)
    {
        // Complex roots
        printf("\nImaginary Roots.");
        d = sqrt(fabs(d)); // Compute the absolute value of the discriminant
        p = -b / (2 * a);
        q = d / (2 * a);
        printf("\nRoot1 = %.2f + i %.2f", p, q);
        printf("\nRoot2 = %.2f - i %.2f", p, q);
    }
    else
    {
        // Real roots
        printf("\nRoots are real.");
        d = sqrt(d);
        p = (-b + d) / (2 * a);
        q = (-b - d) / (2 * a);
        printf("\nRoot1 = %.2f \t Root2 = %.2f", p, q);
    }
}
```

```
manish@fedora: ~/vs-code/bca-programming-repo/C/assignment18 main!
$ ./question6

Enter values a, b, and c of the quadratic equation: 3 8 4

Roots are real.
Root1 = -0.67    Root2 = -2.00%

manish@fedora: ~/vs-code/bca-programming-repo/C/assignment18 main!
$
```