CSC107 2.0 Computer Programming - Laboratory I
Lab sheet 14

Note: Use **functions** appropriately.

1. Complete the below increment program.

```
//Declare  Function increment
……...;

int main() {
   int x = 1;
   printf("Before the call, x is %d\n", x);
   ……;
   printf("After the call, x is %d\n", x);
   return 0;
}

// Definition of increment function
void increment(.....) {
   ……;
   printf("n inside the method is %d\n", n);
}
```

2. Write a function named greet that prints "Hello, welcome to the world of C programming!". Write a main function to call this function.

3. Your task is to rewrite this program by converting it into a simpler form using functions..

```
#include <stdio.h>

int main() {
   int sum = 0;

   // Sum from 1 to 10
   for (int i = 1; i <= 10; i++) {
      sum += i;
   }
   printf("Sum from 1 to 10 is %d\n", sum);

   sum = 0;
```

```
    // Sum from 20 to 37
    for (int i = 20; i <= 37; i++) {
        sum += i;
    }
    printf("Sum from 20 to 37 is %d\n", sum);

    sum = 0;

    // Sum from 35 to 49
    for (int i = 35; i <= 49; i++) {
        sum += i;
    }
    printf("Sum from 35 to 49 is %d\n", sum);

    return 0;
}
```

4. Write a function that takes two integers, base and exponent, and returns the base raised to the power of the exponent using a loop. Test this function in main

5. Write a function that takes an array of integers and its size as parameters, and reverses the elements of the array in place. Test this function in main.

6. Implement separate functions to calculate the area and perimeter of different geometric shapes (rectangle, square, circle, triangle). Use a switch statement in main to allow the user to choose a shape and input the required parameters, then display the calculated area and perimeter.

7. Write a C program to simulate a single-player version of the craps game. In this game, the player rolls two six-sided dice and determines the outcome based on the sum of the dice. The game follows specific rules to decide whether the player wins or loses.

Game Rules

Initial Roll:

Roll two dice and calculate their sum.
If the sum is 2, 3, or 12 (known as "craps"), the player loses.
If the sum is 7 or 11 (known as "natural"), the player wins.
If the sum is any other value (i.e., 4, 5, 6, 8, 9, or 10), a "point" is established.

Point Phase:

If a point is established, continue rolling the dice.

The player wins if they roll the same point value again before rolling a 7.
The player loses if they roll a 7 before matching the point value.

Sample output:

```
You rolled: 7
Natural! You win.

You rolled: 6
Point is 6. Rolling to match the point...
You rolled: 4
You rolled: 7
You rolled a 7. You lose.
```