

## Lab Sheet – 4

1.  $5+10+15+\dots+100$

2.  $1 + 2 + 4 + \dots + 1024$

3.  $1 + 4 + 9 + 16 + \dots + n^2$

4.  $1^3 + 2^3 + 3^3 + 4^3 + \dots + n^3$

5.  $1^3 + 3^3 + 5^3 + 7^3 + \dots + n^3$

6.  $1 + 2^2 + 3^3 + 4^4 + \dots + n^n$

**Problem 1: 5+10+15+-----+100**

**Code:**

```
#include <stdio.h>

int main(){

int n = 100, sum = 0;

for (int i = 5; i <= n; i += 5){

sum += i;

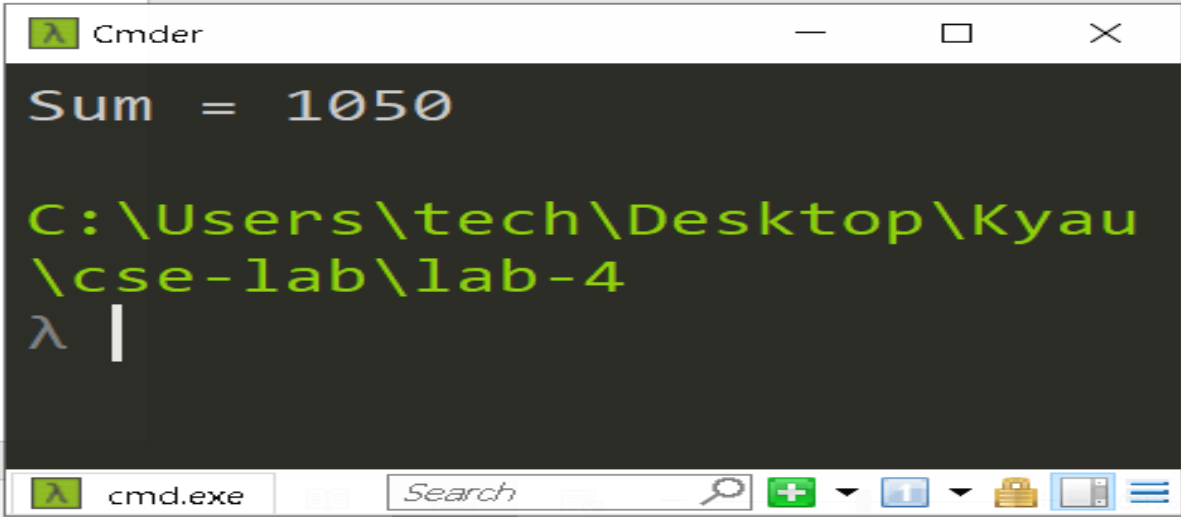
}

printf("Sum = %d\n", sum);

return 0;

}
```

**Output:**



The screenshot shows a Windows Command Prompt window titled "Cmder". The window has a black background with white and green text. The output of the program is displayed as "Sum = 1050" in white. Below this, the current directory is shown in green: "C:\Users\tech\Desktop\Kyau\cse-lab\lab-4". A blue prompt character "λ" is followed by a white vertical bar, indicating the command line is ready for input. The taskbar at the bottom shows the "cmd.exe" process, a search bar, and system icons including a battery level indicator, Wi-Fi signal, and speaker icon. The system clock displays "8:07 PM" and the date "4/6/2023".

```
Sum = 1050

C:\Users\tech\Desktop\Kyau\cse-lab\lab-4
λ |
```

## **Problem 2:** $1 + 2 + 4 + \dots + 1024$

### **Code:**

```
#include <stdio.h>

int main(){

    int n = 1024, sum = 0;

    for (int i = 1; i <= n; i *= 2){

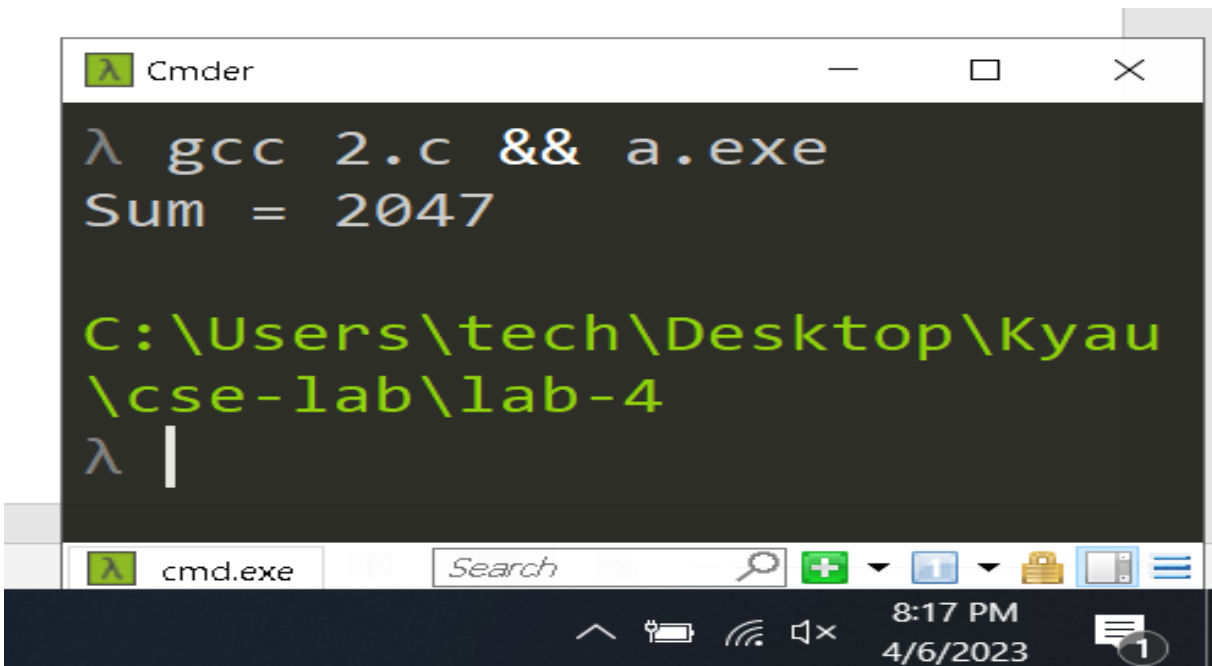
        sum += i;

    } printf("Sum = %d\n", sum);

    return 0;

}
```

### **Output:**



The screenshot shows a Windows Command Prompt window titled "Cmder". The command entered is `gcc 2.c && a.exe`, and the output is `Sum = 2047`. The current directory is `C:\Users\tech\Desktop\Kyau\cse-lab\lab-4`. The taskbar at the bottom shows the time as 8:17 PM on 4/6/2023 and a notification icon with the number 1.

```
λ gcc 2.c && a.exe
Sum = 2047

C:\Users\tech\Desktop\Kyau\cse-lab\lab-4
λ
```

### Problem 3: $1 + 4 + 9 + 16 + \dots + n^2$

#### Code:

```
#include <stdio.h>

#include <math.h>

int main(){

    int n, sum = 0;

    printf("Enter a number: ");

    scanf("%d", &n);

    for (int i = 1; i <= n; i++){

        sum += pow(i, 2);

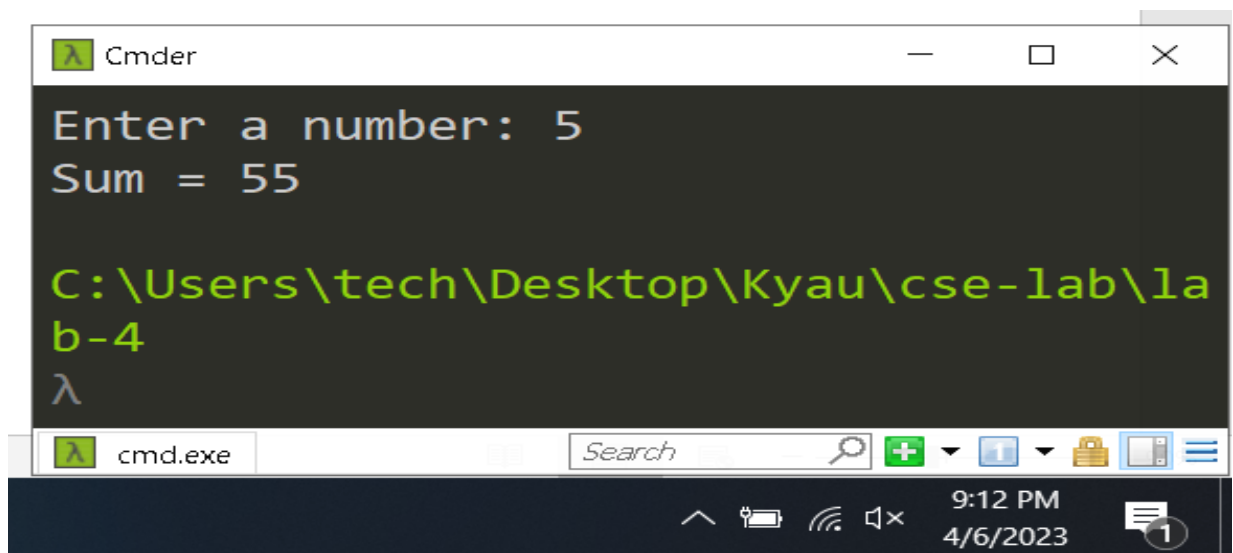
    }

    printf("Sum = %d\n", sum);

    return 0;

}
```

#### Output:



```
Cmder

Enter a number: 5
Sum = 55

C:\Users\tech\Desktop\Kyau\cse-lab\lab-4
λ
```

cmd.exe Search 9:12 PM 4/6/2023

**Problem 4:**  $1^3 + 2^3 + 3^3 + 4^3 + \dots + n^3$

**Code:**

```
#include <stdio.h>

int main(){

    int n, sum = 0;

    printf("Enter a number: ");

    scanf("%d", &n);

    for (int i = 1; i <= n; i++){

        sum += i * i * i;

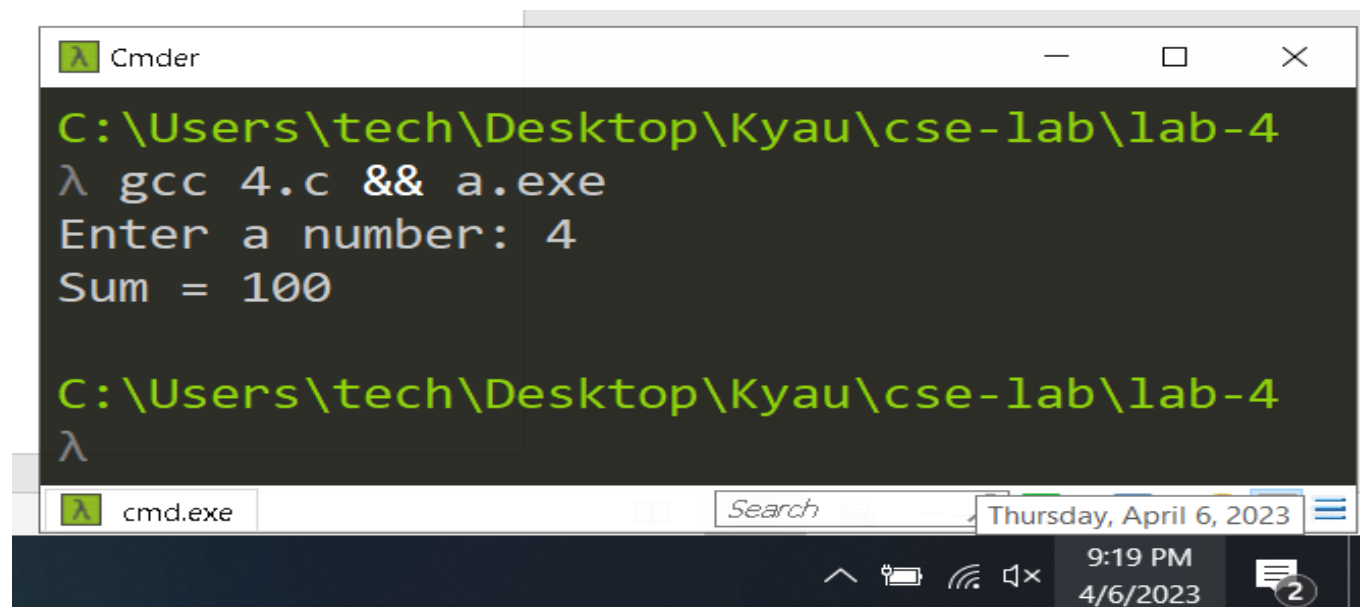
    }

    printf("Sum = %d\n", sum);

    return 0;

}
```

**Output:**



```
C:\Users\tech\Desktop\Kyau\cse-lab\lab-4
λ gcc 4.c && a.exe
Enter a number: 4
Sum = 100

C:\Users\tech\Desktop\Kyau\cse-lab\lab-4
λ
```

The screenshot shows a Windows Command Prompt window titled 'Cmder'. The current directory is 'C:\Users\tech\Desktop\Kyau\cse-lab\lab-4'. The user has entered the command 'gcc 4.c && a.exe', which has been executed. The program then prompts 'Enter a number: 4', and the user has entered '4'. The program outputs 'Sum = 100'. The taskbar at the bottom shows the date and time as 'Thursday, April 6, 2023 9:19 PM 4/6/2023'.

**Problem 5:**  $1^3 + 3^3 + 5^3 + 7^3 + \dots + n^3$

**Code:**

```
#include <stdio.h>

int main(){

    int n, sum = 0;

    printf("Enter a number: ");

    scanf("%d", &n);

    for (int i = 1; i <= n; i++){

        if (i % 2 != 0)

            sum += i * i * i;

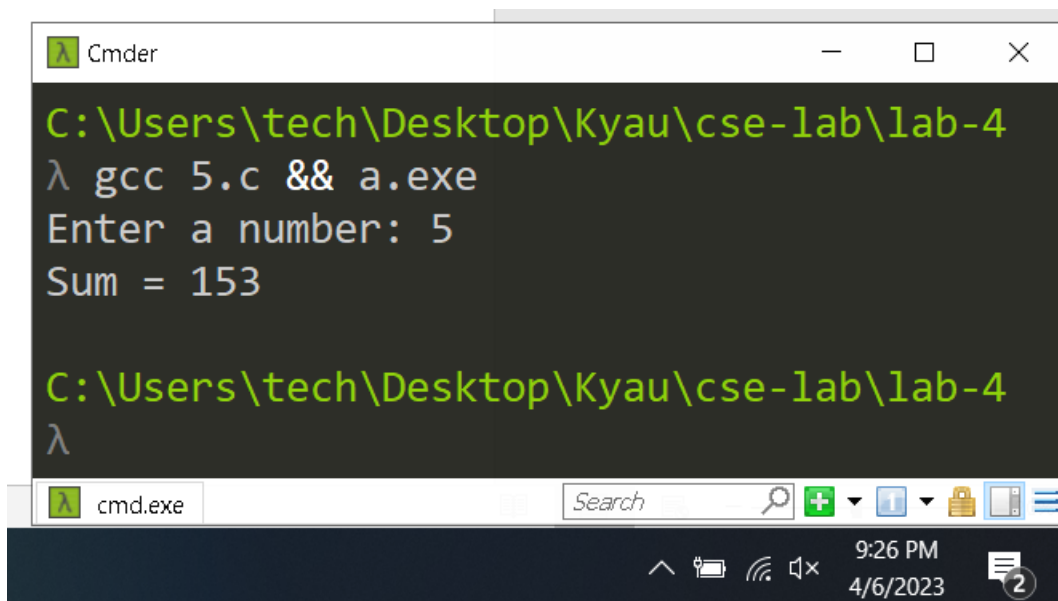
    }

    printf("Sum = %d\n", sum);

    return 0;

}
```

**Output:**



```
C:\Users\tech\Desktop\Kyau\cse-lab\lab-4
λ gcc 5.c && a.exe
Enter a number: 5
Sum = 153

C:\Users\tech\Desktop\Kyau\cse-lab\lab-4
λ
```

### Problem 6: $1 + 2^2 + 3^3 + 4^4 + \dots + n^n$

#### Code:

```
#include <stdio.h>

#include <math.h>

int main(){

    int n;

    long long int sum = 0;

    printf("Enter a number: ");

    scanf("%d", &n);

    for (int i = 1; i <= n; i++){

        sum += pow(i, i);

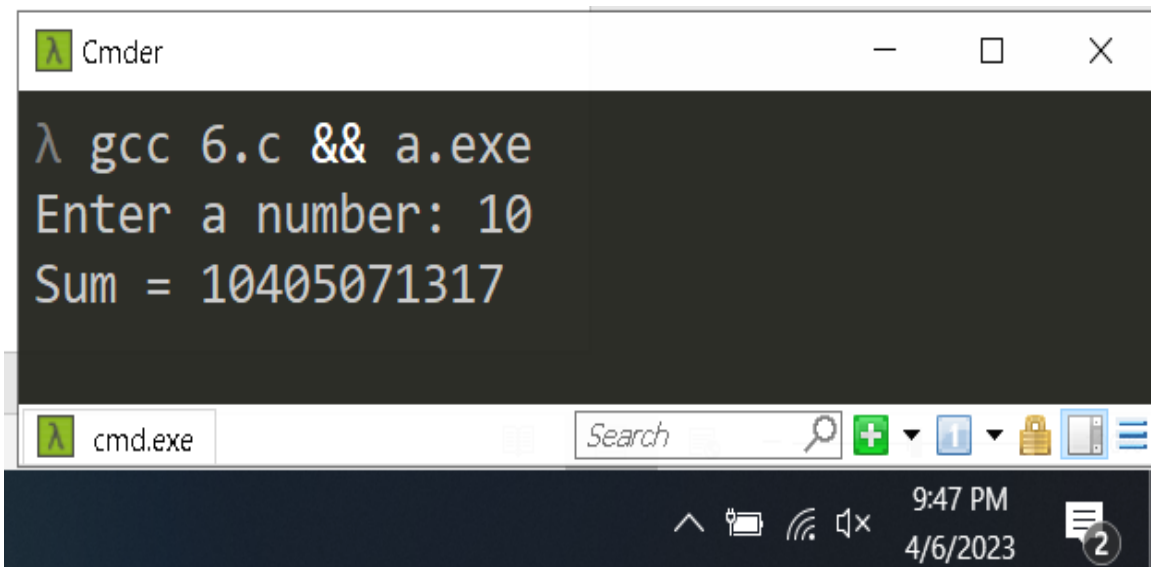
    }

    printf("Sum = %lld\n", sum);

    return 0;

}
```

#### Output:



```
λ gcc 6.c && a.exe
Enter a number: 10
Sum = 10405071317
```

The screenshot shows a Windows Command Prompt window titled "Cmder". The command prompt displays the execution of a C program. The user enters the number 10, and the program outputs the sum 10405071317. The taskbar at the bottom shows the time as 9:47 PM on 4/6/2023, along with various system icons and a notification badge with the number 2.

