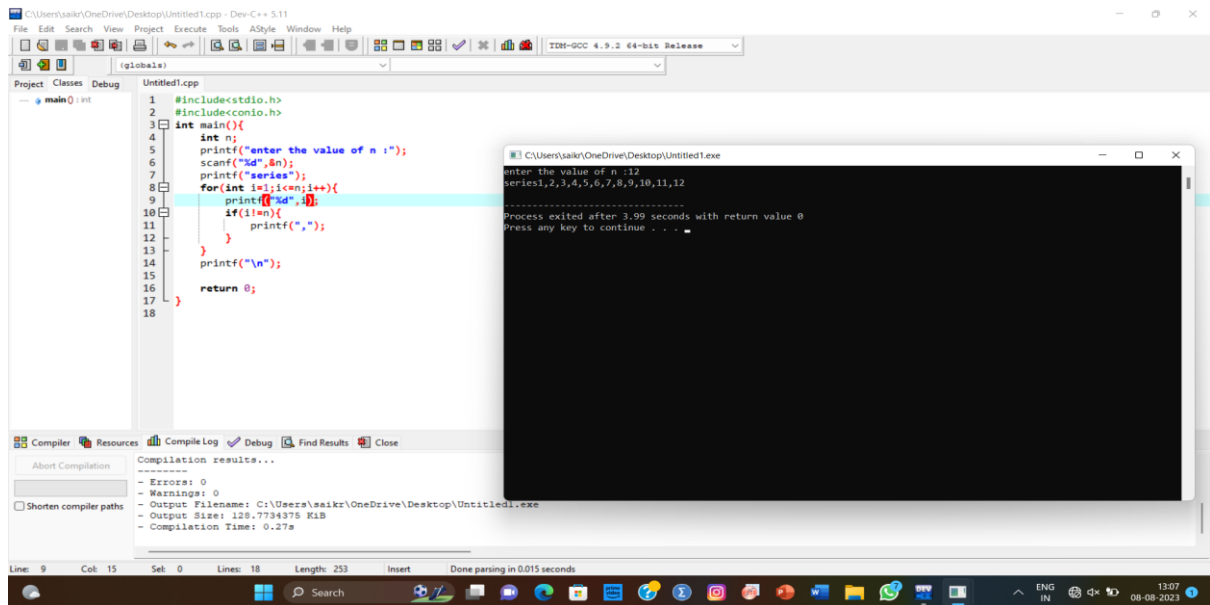


FOC LAB PRACTICALS DAY – 1

T. Sai krishna

192211870

1) Generation of number Series.



The screenshot shows a C++ IDE with a file named 'Untitled1.cpp'. The code is as follows:

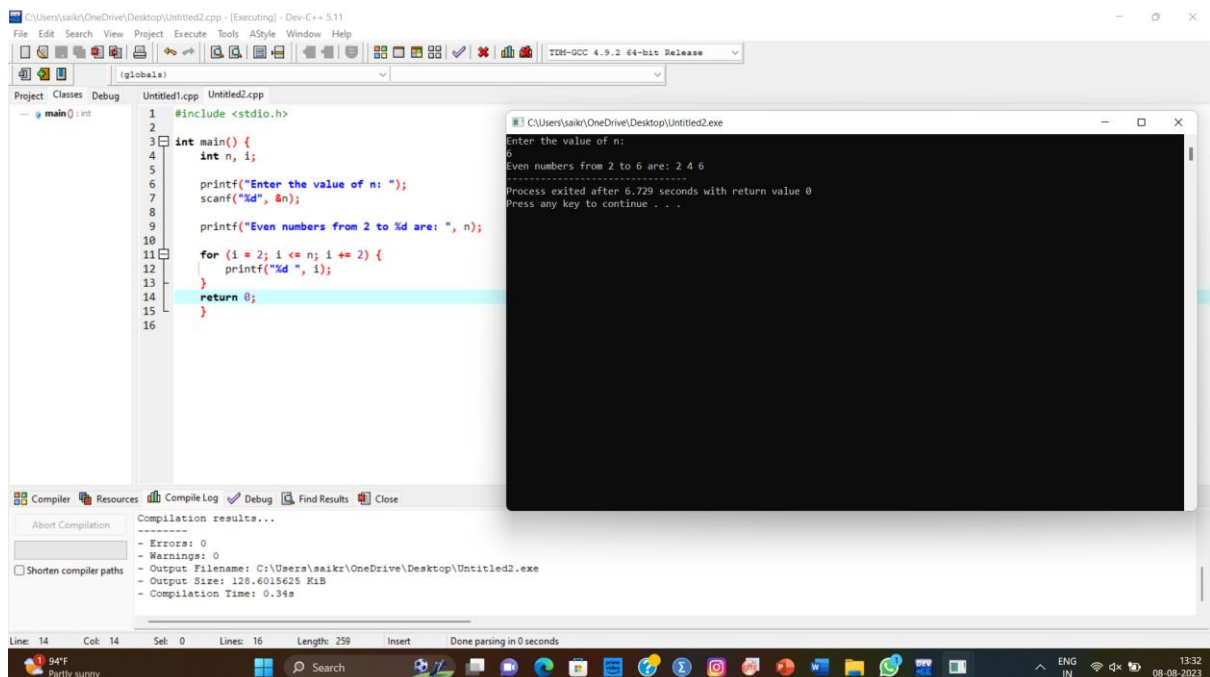
```
1 #include<stdio.h>
2 #include<conio.h>
3 int main()
4 {
5     int n;
6     printf("enter the value of n :");
7     scanf("%d",&n);
8     printf("series:");
9     for(int i=1;i<=n;i++){
10         printf("%d",i);
11         if(i!=n){
12             printf(",");
13         }
14     }
15     printf("\n");
16     return 0;
17 }
```

The output window shows the following text:

```
Enter the value of n :12
series:1,2,3,4,5,6,7,8,9,10,11,12
Process exited after 3.99 seconds with return value 0
Press any key to continue . . .
```

The compilation results show 0 errors and 0 warnings. The output file is 'C:\Users\saiKr\OneDrive\Desktop\Untitled1.exe'.

2) Generation of Even number series.



The screenshot shows a C++ IDE with a file named 'Untitled2.cpp'. The code is as follows:

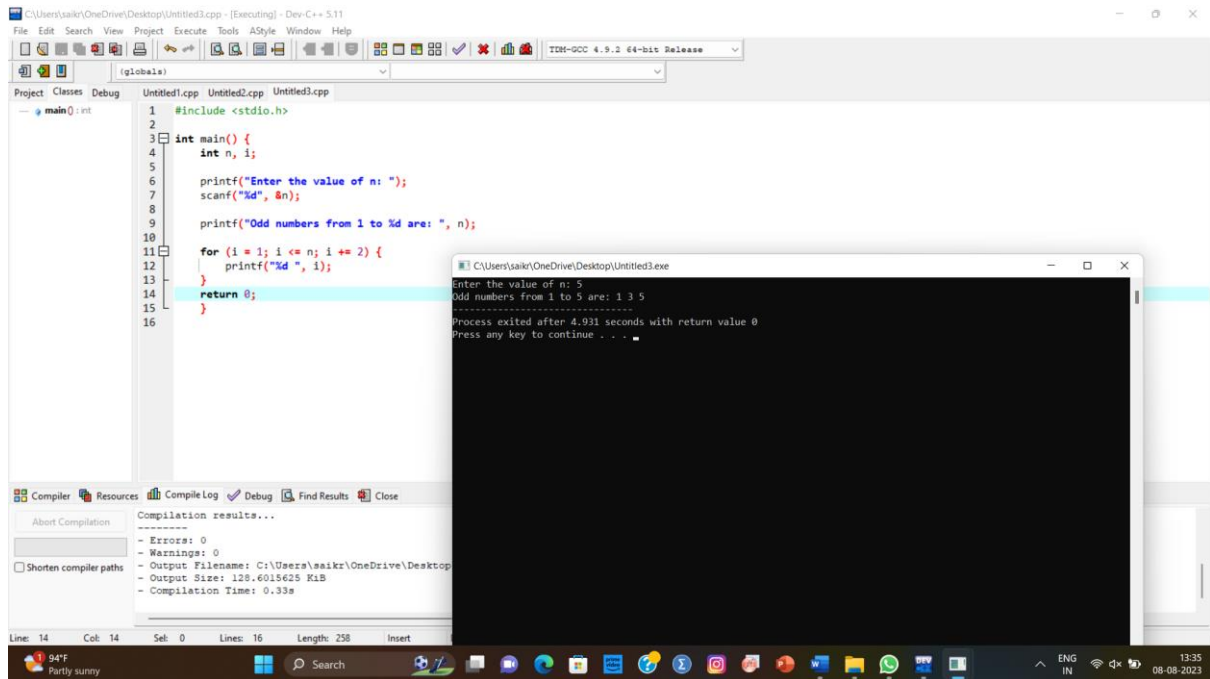
```
1 #include <stdio.h>
2
3 int main() {
4     int n, i;
5
6     printf("Enter the value of n: ");
7     scanf("%d", &n);
8
9     printf("Even numbers from 2 to %d are: ", n);
10
11     for (i = 2; i <= n; i += 2) {
12         printf("%d ", i);
13     }
14     return 0;
15 }
```

The output window shows the following text:

```
Enter the value of n:
6
Even numbers from 2 to 6 are: 2 4 6
Process exited after 6.729 seconds with return value 0
Press any key to continue . . .
```

The compilation results show 0 errors and 0 warnings. The output file is 'C:\Users\saiKr\OneDrive\Desktop\Untitled2.exe'.

3) Generation of Odd number series.



The screenshot shows a C++ IDE with the following code in `Untitled3.cpp`:

```
1 #include <stdio.h>
2
3 int main() {
4     int n, i;
5
6     printf("Enter the value of n: ");
7     scanf("%d", &n);
8
9     printf("Odd numbers from 1 to %d are: ", n);
10
11     for (i = 1; i <= n; i += 2) {
12         printf("%d ", i);
13     }
14     return 0;
15 }
```

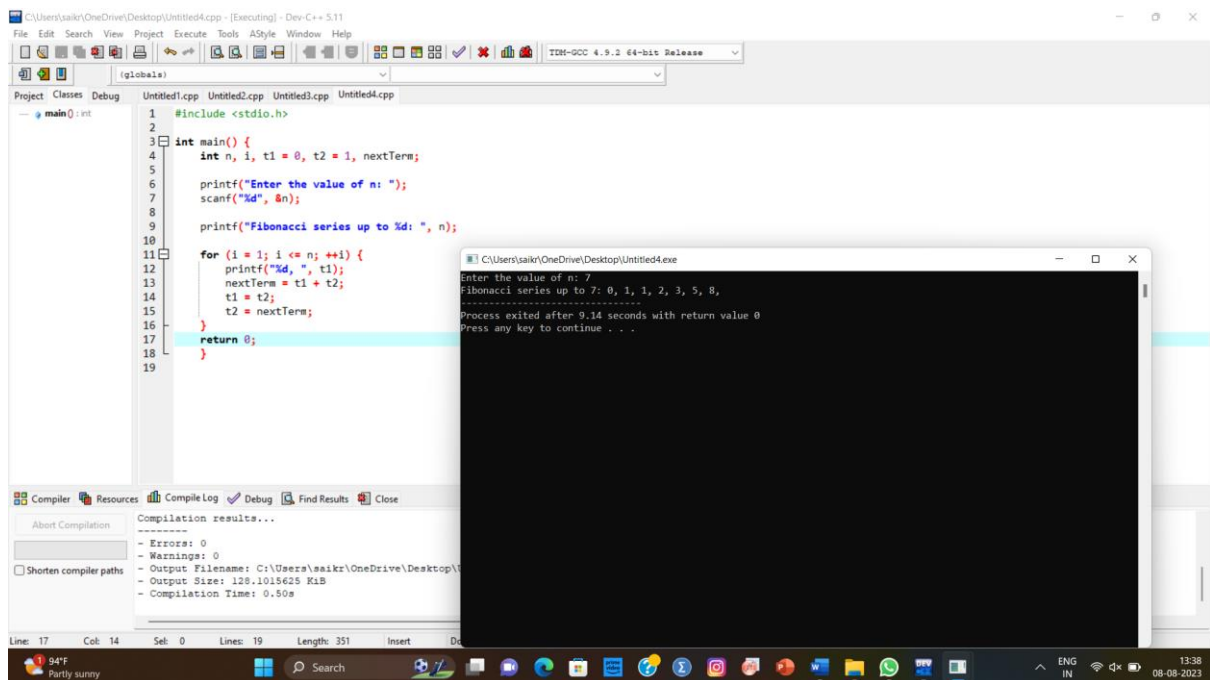
The output window shows the execution results for `Untitled3.exe`:

```
Enter the value of n: 5
Odd numbers from 1 to 5 are: 1 3 5
-----
Process exited after 4.921 seconds with return value 0
Press any key to continue . . .
```

The compiler window shows the following compilation results:

```
Compilation results...
-----
- Errors: 0
- Warnings: 0
- Output Filename: C:\Users\sakir\OneDrive\Desktop\
- Output Size: 128.6015625 Kib
- Compilation Time: 0.33s
```

4) Generation of Fibonacci series.



The screenshot shows a C++ IDE with the following code in `Untitled4.cpp`:

```
1 #include <stdio.h>
2
3 int main() {
4     int n, i, t1 = 0, t2 = 1, nextTerm;
5
6     printf("Enter the value of n: ");
7     scanf("%d", &n);
8
9     printf("Fibonacci series up to %d: ", n);
10
11     for (i = 1; i <= n; ++i) {
12         printf("%d ", t1);
13         nextTerm = t1 + t2;
14         t1 = t2;
15         t2 = nextTerm;
16     }
17     return 0;
18 }
```

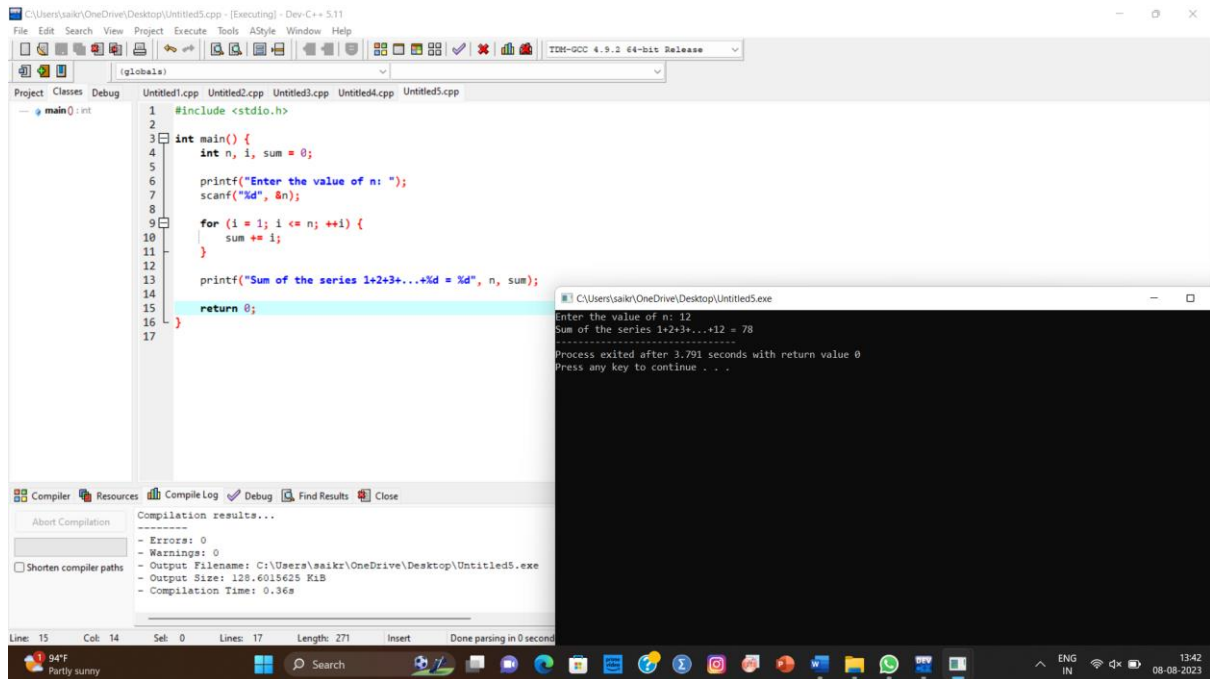
The output window shows the execution results for `Untitled4.exe`:

```
Enter the value of n: 7
Fibonacci series up to 7: 0 1 1 2 3 5 8
-----
Process exited after 9.14 seconds with return value 0
Press any key to continue . . .
```

The compiler window shows the following compilation results:

```
Compilation results...
-----
- Errors: 0
- Warnings: 0
- Output Filename: C:\Users\sakir\OneDrive\Desktop\
- Output Size: 128.1015625 Kib
- Compilation Time: 0.50s
```

5) Generation of Summing Up series.



The screenshot shows a C++ IDE with the following code in `Untitled5.cpp`:

```
1 #include <stdio.h>
2
3 int main() {
4     int n, i, sum = 0;
5
6     printf("Enter the value of n: ");
7     scanf("%d", &n);
8
9     for (i = 1; i <= n; ++i) {
10        sum += i;
11    }
12
13    printf("Sum of the series 1+2+3+...+%d = %d", n, sum);
14
15    return 0;
16 }
```

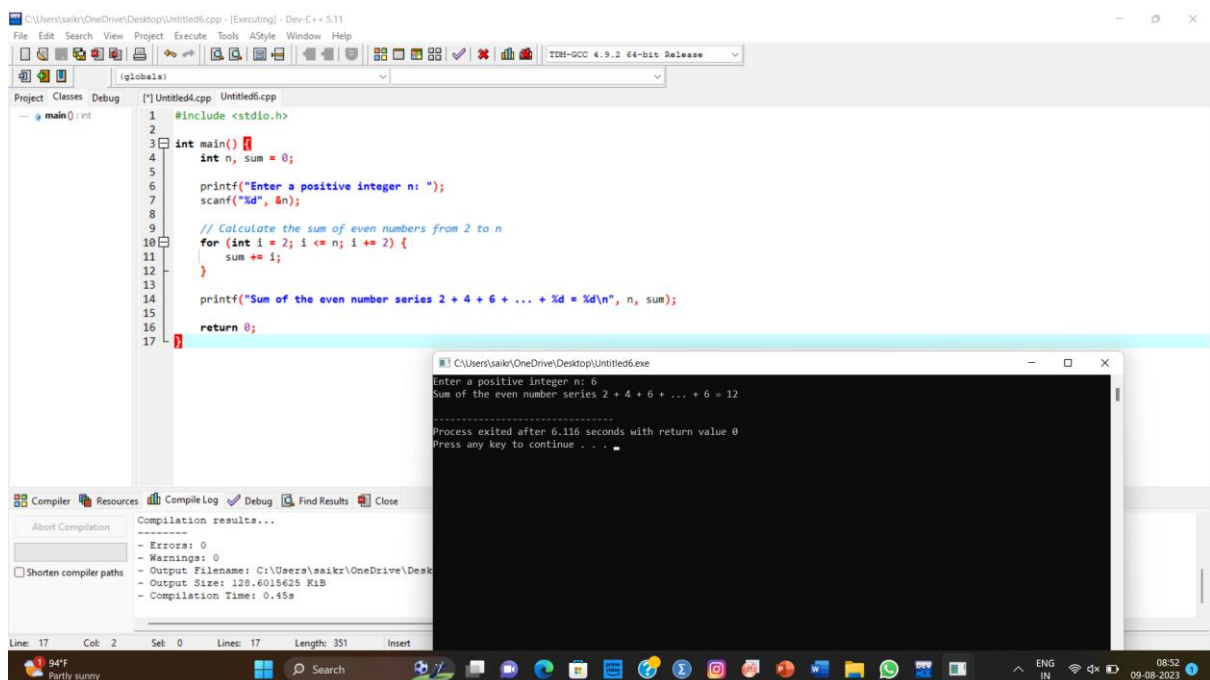
The output window shows the execution results:

```
Enter the value of n: 12
Sum of the series 1+2+3+...+12 = 78
.....
Process exited after 3.791 seconds with return value 0
Press any key to continue . . .
```

The compiler window shows the following compilation results:

```
Compilation results...
- Errors: 0
- Warnings: 0
- Output Filename: C:\Users\sakir\OneDrive\Desktop\Untitled5.exe
- Output Size: 128.6015625 Kib
- Compilation Time: 0.36s
```

6) Summing Up Even Series.



The screenshot shows a C++ IDE with the following code in `Untitled6.cpp`:

```
1 #include <stdio.h>
2
3 int main() {
4     int n, sum = 0;
5
6     printf("Enter a positive integer n: ");
7     scanf("%d", &n);
8
9     // Calculate the sum of even numbers from 2 to n
10    for (int i = 2; i <= n; i += 2) {
11        sum += i;
12    }
13
14    printf("Sum of the even number series 2 + 4 + 6 + ... + %d = %d\n", n, sum);
15
16    return 0;
17 }
```

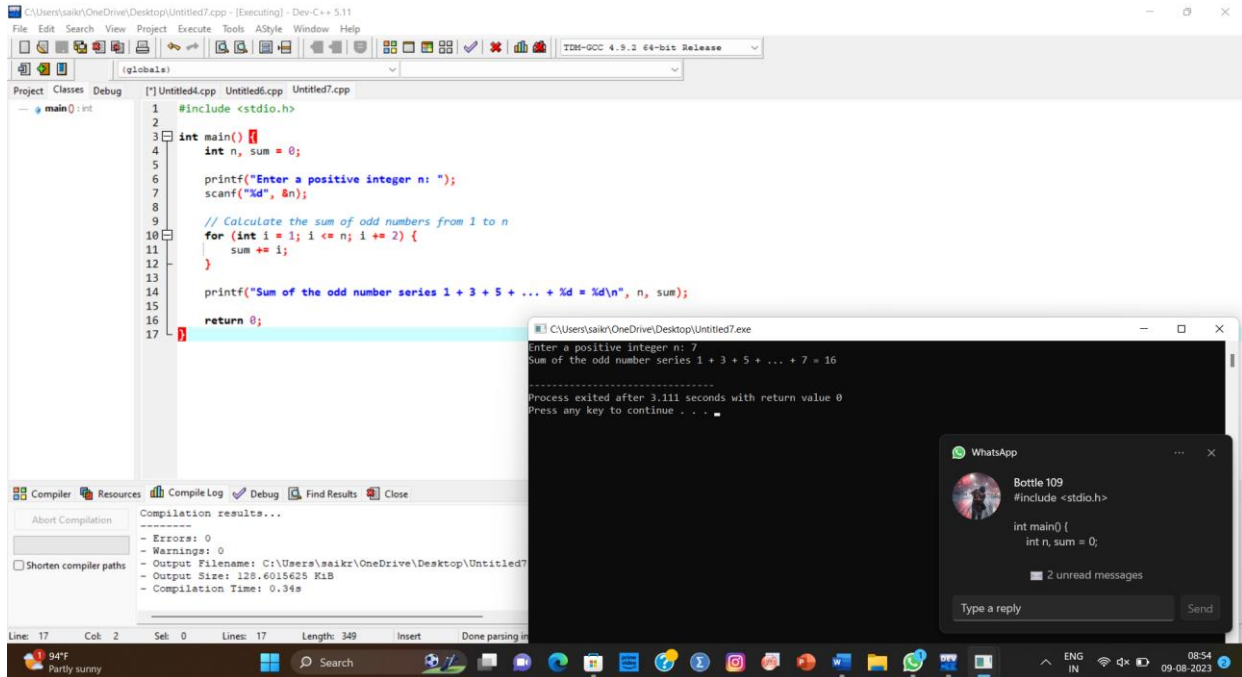
The output window shows the execution results:

```
Enter a positive integer n: 6
Sum of the even number series 2 + 4 + 6 + ... + 6 = 12
.....
Process exited after 6.116 seconds with return value 0
Press any key to continue . . .
```

The compiler window shows the following compilation results:

```
Compilation results...
- Errors: 0
- Warnings: 0
- Output Filename: C:\Users\sakir\OneDrive\Desktop\Untitled6.exe
- Output Size: 128.6015625 Kib
- Compilation Time: 0.45s
```

7) Summing Up Odd Series



The screenshot shows the Dev-C++ IDE with a C++ program that calculates the sum of odd numbers from 1 to n. The code is as follows:

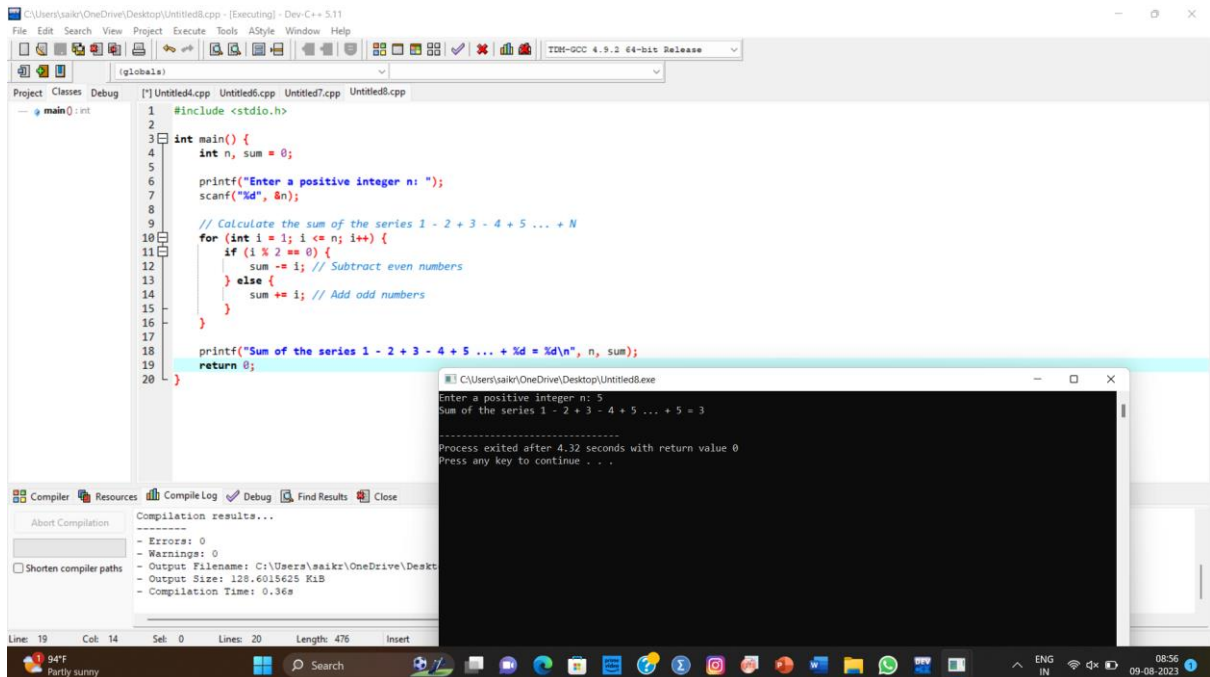
```
1 #include <stdio.h>
2
3 int main() {
4     int n, sum = 0;
5
6     printf("Enter a positive integer n: ");
7     scanf("%d", &n);
8
9     // Calculate the sum of odd numbers from 1 to n
10    for (int i = 1; i <= n; i += 2) {
11        sum += i;
12    }
13
14    printf("Sum of the odd number series 1 + 3 + 5 + ... + %d = %d\n", n, sum);
15
16    return 0;
17 }
```

The execution output shows that for n=7, the sum is 16. The program exited after 3.111 seconds with a return value of 0.

Compilation results:

- Errors: 0
- Warnings: 0
- Output Filename: C:\Users\sakr\OneDrive\Desktop\Untitled7.exe
- Output Size: 128.6015625 KkB
- Compilation Time: 0.34s

8) Summing Up 1-2+3-4+5...N



The screenshot shows the Dev-C++ IDE with a C++ program that calculates the sum of an alternating series: 1 - 2 + 3 - 4 + 5 ... + N. The code is as follows:

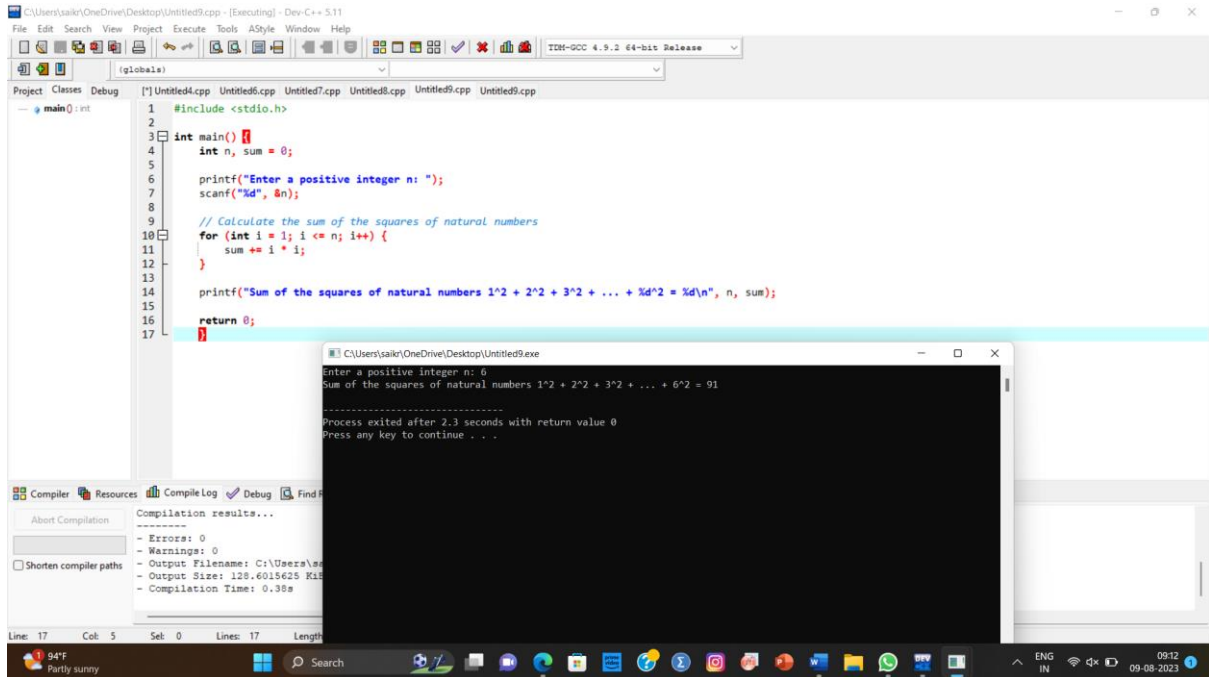
```
1 #include <stdio.h>
2
3 int main() {
4     int n, sum = 0;
5
6     printf("Enter a positive integer n: ");
7     scanf("%d", &n);
8
9     // Calculate the sum of the series 1 - 2 + 3 - 4 + 5 ... + N
10    for (int i = 1; i <= n; i++) {
11        if (i % 2 == 0) {
12            sum -= i; // Subtract even numbers
13        } else {
14            sum += i; // Add odd numbers
15        }
16    }
17
18    printf("Sum of the series 1 - 2 + 3 - 4 + 5 ... + %d = %d\n", n, sum);
19
20    return 0;
21 }
```

The execution output shows that for n=5, the sum is 3. The program exited after 4.32 seconds with a return value of 0.

Compilation results:

- Errors: 0
- Warnings: 0
- Output Filename: C:\Users\sakr\OneDrive\Desktop\Untitled8.exe
- Output Size: 128.6015625 KkB
- Compilation Time: 0.36s

9) Summing up $1^2 + 2^2 + 3^2 + 4^2 + \dots + n$



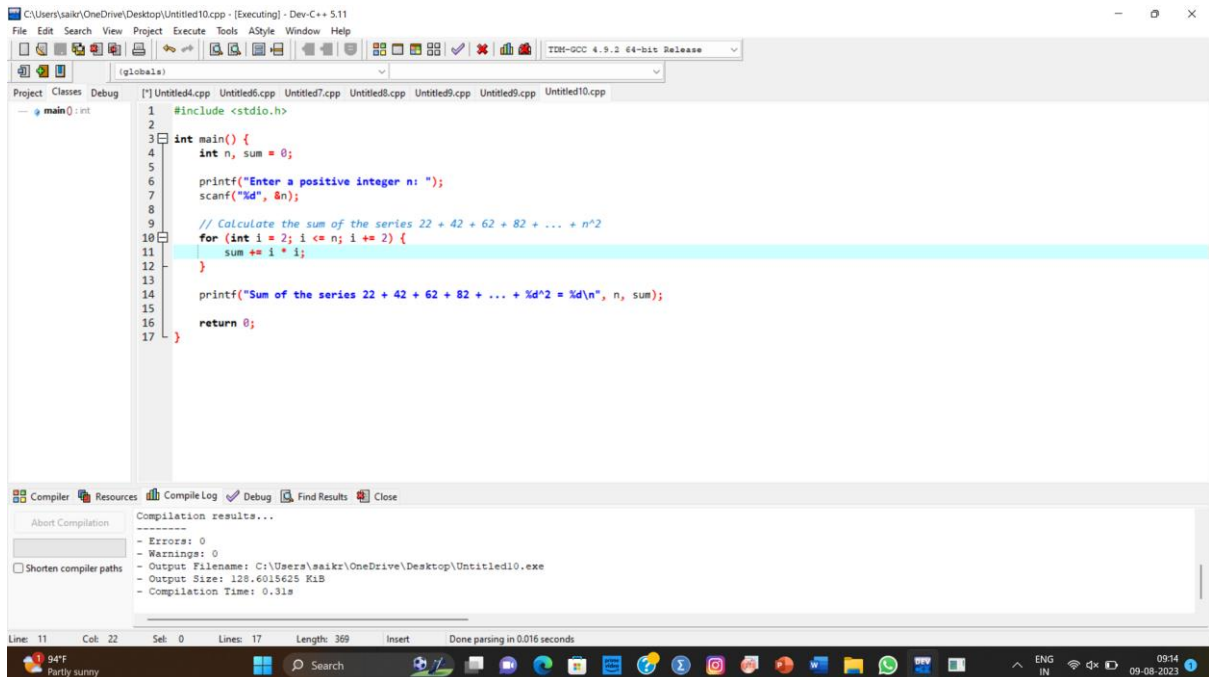
```
1 #include <stdio.h>
2
3 int main() {
4     int n, sum = 0;
5
6     printf("Enter a positive integer n: ");
7     scanf("%d", &n);
8
9     // Calculate the sum of the squares of natural numbers
10    for (int i = 1; i <= n; i++) {
11        sum += i * i;
12    }
13
14    printf("Sum of the squares of natural numbers 1^2 + 2^2 + 3^2 + ... + %d^2 = %d\n", n, sum);
15
16    return 0;
17 }
```

Compilation results...

- Errors: 0
- Warnings: 0
- Output Filename: C:\Users\sakr\OneDrive\Desktop\Untitled9.exe
- Output Size: 128.6015625 Kib
- Compilation Time: 0.38s

Enter a positive integer n: 6
Sum of the squares of natural numbers 1^2 + 2^2 + 3^2 + ... + 6^2 = 91
Process exited after 2.3 seconds with return value 0
Press any key to continue . . .

10) Summing up $2^2 + 4^2 + 6^2 + 8^2$



```
1 #include <stdio.h>
2
3 int main() {
4     int n, sum = 0;
5
6     printf("Enter a positive integer n: ");
7     scanf("%d", &n);
8
9     // Calculate the sum of the series 2^2 + 4^2 + 6^2 + 8^2 + ... + n^2
10    for (int i = 2; i <= n; i += 2) {
11        sum += i * i;
12    }
13
14    printf("Sum of the series 2^2 + 4^2 + 6^2 + 8^2 + ... + %d^2 = %d\n", n, sum);
15
16    return 0;
17 }
```

Compilation results...

- Errors: 0
- Warnings: 0
- Output Filename: C:\Users\sakr\OneDrive\Desktop\Untitled10.exe
- Output Size: 128.6015625 Kib
- Compilation Time: 0.31s