

Q16.

```
#include <iostream>

int main() {
    int number;

    std::cout << "Enter the number for the multiplication table: ";
    std::cin >> number;

    std::cout << "Multiplication table of " << number << ": ";
    for (int i = 1; i <= 10; ++i) {
        std::cout << number << " * " << i << " = ";
    }
    return 0;
}
```

Enter the number for the multiplication table: 8
Multiplication table of 8:
8 * 1 = 8
8 * 2 = 16
8 * 3 = 24
8 * 4 = 32
8 * 5 = 40
8 * 6 = 48
8 * 7 = 56
8 * 8 = 64
8 * 9 = 72
8 * 10 = 80

Process exited after 2.376 seconds with return value 0
Press any key to continue . . .

Compilation results...

- Errors: 0
- Warnings: 0
- Output Filename: C:\Users\sushma\Downloads\16.print multiplication using loop.cpp
- Output Size: 1.83246040344238 MiB
- Compilation Time: 1.06s

Q17.

The screenshot shows the Dev-C++ IDE with a C++ program for calculating the Fibonacci series. The program is named '17.fibonacci series using loop.cpp' and is located at 'C:\Users\sushma\Downloads\'. The code is as follows:

```
1 #include <iostream>
2 int main() {
3     int n;
4     std::cout << "Enter the number of terms for Fibonacci series: ";
5     std::cin >> n;
6     int first = 0, second = 1, next;
7     std::cout << "Fibonacci Series: ";
8     for (int i = 0; i < n; ++i) {
9         if (i <= 1) {
10             next = i;
11         } else {
12             next = first + second;
13             first = second;
14             second = next;
15         }
16         std::cout << next << " ";
17     }
18     return 0;
19 }
20
21 }
```

The execution output is shown in a separate window, displaying the input '8' and the resulting Fibonacci series '0 1 1 2 3 5 8 13'. The output also indicates that the process exited after 3.122 seconds with a return value of 0.

Compilation results:

```
-----
- Errors: 0
- Warnings: 0
- Output Filename: C:\Users\sushma\Downloads\17.fibonacci series using loop.cpp
- Output Size: 1.83245658874512 MiB
- Compilation Time: 1.11s
```

Q18.

The screenshot displays the Dev-C++ IDE interface. The main editor window shows a C++ program titled "18.prime numbers using for loop.cpp". The code defines a function `isPrime` that checks if a number is prime by testing divisibility from 2 to the number itself. The `main` function prompts the user to enter a range (start and end), prints the prime numbers in that range, and then exits.

```
1 #include <iostream>
2 bool isPrime(int number) {
3     if (number <= 1) {
4         return false;
5     }
6     for (int i = 2; i * i <= number; ++i) {
7         if (number % i == 0) {
8             return false;
9         }
10    }
11    return true;
12 }
13
14 int main() {
15     int start, end;
16
17     std::cout << "Enter the range to print prime numbers (start and end): ";
18     std::cin >> start >> end;
19
20     std::cout << "Prime numbers between " << start << " and " << end << " are: ";
21
22     for (int i = start; i <= end; ++i) {
23         if (isPrime(i)) {
24             std::cout << i << " ";
25         }
26     }
27     std::cout << "\n";
28
29     std::cout << "Process exited after 11.66 seconds with return value 0\n";
30     std::cout << "Press any key to continue . . . ";
31 }
```

The output window shows the program's execution. It prompts for the range, displays the prime numbers between 1 and 15, and then shows the process exit message.

```
Enter the range to print prime numbers (start and end): 1
15
Prime numbers between 1 and 15 are:
2 3 5 7 11 13

Process exited after 11.66 seconds with return value 0
Press any key to continue . . .
```

The status bar at the bottom indicates the current line is 7, column is 31, and the file length is 627 characters.

Q19.

The screenshot shows the Dev-C++ IDE with a project named "19.palindrome or not.cpp". The code in the editor is as follows:

```
1 #include <iostream>
2 #include <string>
3 #include <ctype>
4
```

The output window shows the following text:

```
Enter a string to check if it's a palindrome: 121
The string is a palindrome.

-----
Process exited after 5.012 seconds with return value 0
Press any key to continue . . .
```

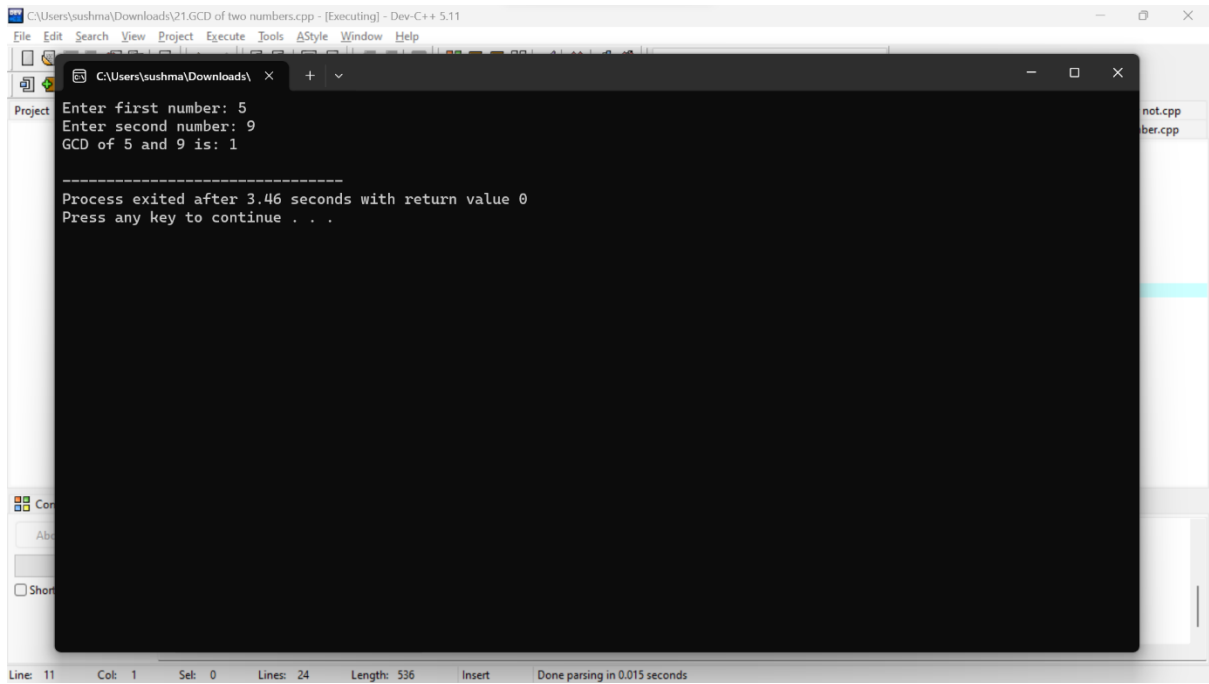
The status bar at the bottom indicates "Line: 3 Col: 18".

Q20.

The screenshot shows the Dev-C++ IDE interface. The main window displays the execution output of a C++ program. The program prompts the user to enter a number, and the user has entered 12345. The program then calculates the sum of the digits of 12345, which is 15. The output is displayed in a black console window with white text. The IDE's menu bar and toolbar are visible at the top, and the project explorer is on the left.

```
C:\Users\sushma\Downloads\20.sum of digits.cpp - [Executing] - Dev-C++ 5.11
File Edit Search View Project Execute Tools AStyle Window Help
(globals)
Project Classes Debug 21.GCD of two numbers.cpp 22.perfect number or not.cpp 23.armstrong number.cpp 24.harshad number.cpp Untitled6 25.happy number.cpp
C:\Users\sushma\Downloads\
Enter a number to find the sum of its digits: 12345
The sum of digits of 12345 is: 15
-----
Process exited after 2.111 seconds with return value 0
Press any key to continue . . .
```

Q21.



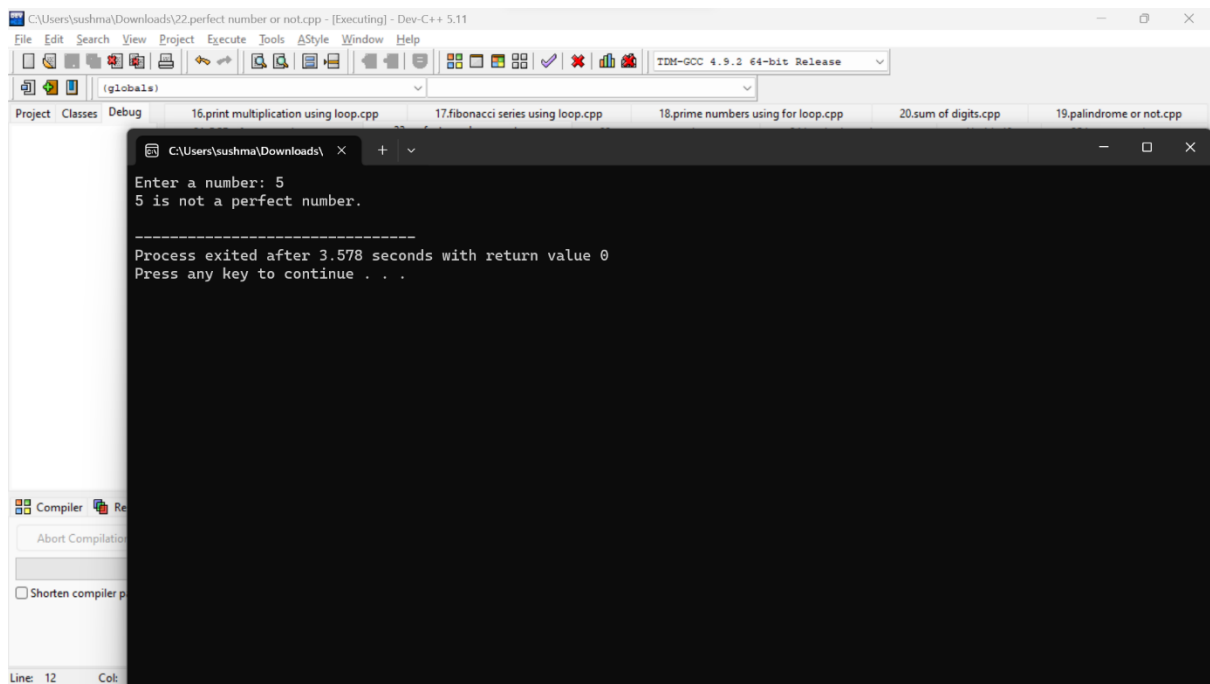
The screenshot shows the Dev-C++ IDE with a project named "GCD of two numbers.cpp" open. The IDE window displays the following output:

```
Enter first number: 5
Enter second number: 9
GCD of 5 and 9 is: 1

=====
Process exited after 3.46 seconds with return value 0
Press any key to continue . . .
```

The status bar at the bottom indicates the current line is 11, column 1, and the file has 24 lines and 536 characters.

Q22



The screenshot shows the Dev-C++ IDE interface. The main window displays the execution output of a C++ program. The program prompts the user to enter a number, and the user has entered 5. The output indicates that 5 is not a perfect number. The program has exited after 3.578 seconds with a return value of 0. The IDE's menu bar includes File, Edit, Search, View, Project, Execute, Tools, AStyle, Window, and Help. The toolbar contains various icons for file operations, execution, and debugging. The status bar at the bottom shows 'Line: 12' and 'Col: 1'.

```
C:\Users\sushma\Downloads\22.perfect number or not.cpp - [Executing] - Dev-C++ 5.11
File Edit Search View Project Execute Tools AStyle Window Help
(globals)
Project Classes Debug 16.print multiplication using loop.cpp 17.fibonacci series using loop.cpp 18.prime numbers using for loop.cpp 20.sum of digits.cpp 19.palindrome or not.cpp

C:\Users\sushma\Downloads\
Enter a number: 5
5 is not a perfect number.

-----
Process exited after 3.578 seconds with return value 0
Press any key to continue . . .
```

Q23.

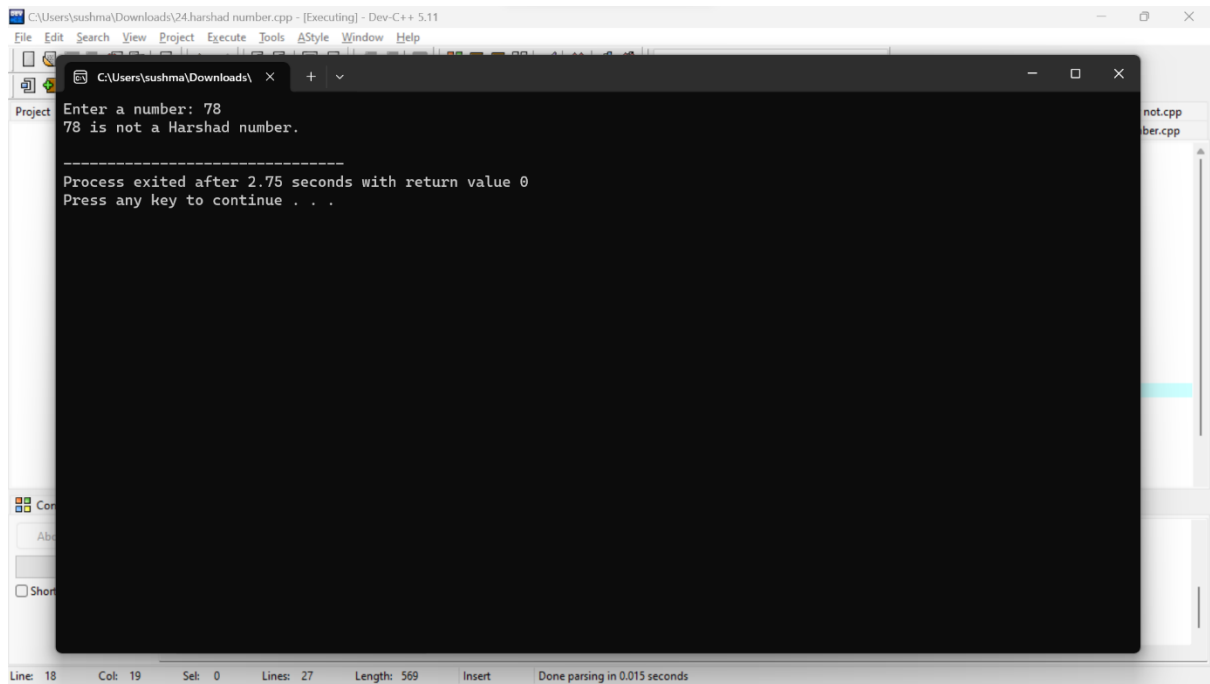
```
C:\Users\sushma\Downloads\23.armstrong number.cpp - [Executing] - Dev-C++ 5.11
File Edit Search View Project Execute Tools AStyle Window Help
IDM-GCC 4.9.2 64-bit Release

C:\Users\sushma\Downloads\ x + v
Enter a number: 8
8 is an Armstrong number.

-----
Process exited after 2.042 seconds with return value 0
Press any key to continue . . . |
```

Line: 30

Q24.



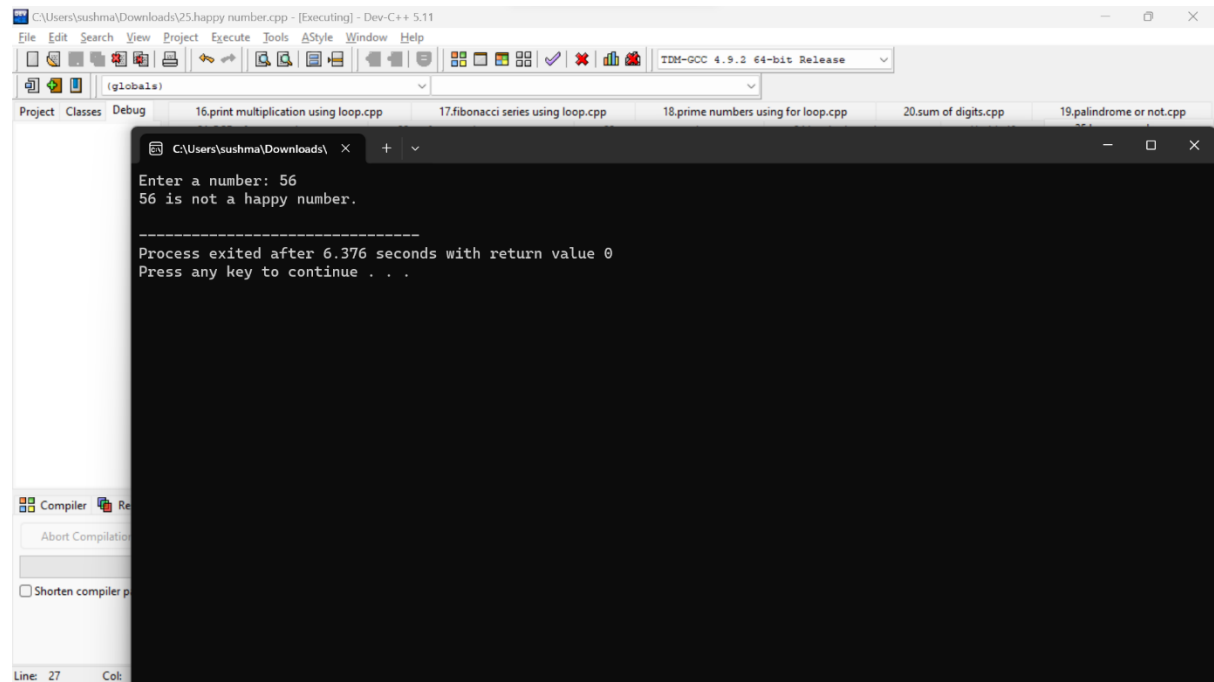
```
C:\Users\sushma\Downloads\24.harshad number.cpp - [Executing] - Dev-C++ 5.11
File Edit Search View Project Execute Tools AStyle Window Help
C:\Users\sushma\Downloads\  x + v
Project
Enter a number: 78
78 is not a Harshad number.

-----
Process exited after 2.75 seconds with return value 0
Press any key to continue . . .

not.cpp
ber.cpp

Line: 18 Col: 19 Sel: 0 Lines: 27 Length: 569 Insert Done parsing in 0.015 seconds
```

Q25.



```
C:\Users\sushma\Downloads\25.happy number.cpp - [Executing] - Dev-C++ 5.11
File Edit Search View Project Execute Tools AStyle Window Help
(globals)
Project Classes Debug 16.print multiplication using loop.cpp 17.fibonacci series using loop.cpp 18.prime numbers using for loop.cpp 20.sum of digits.cpp 19.palindrome or not.cpp
C:\Users\sushma\Downloads\ x + v
Enter a number: 56
56 is not a happy number.

-----
Process exited after 6.376 seconds with return value 0
Press any key to continue . . .

Compiler Re
Abort Compilation
Shorten compiler p
Line: 27 Col:
```