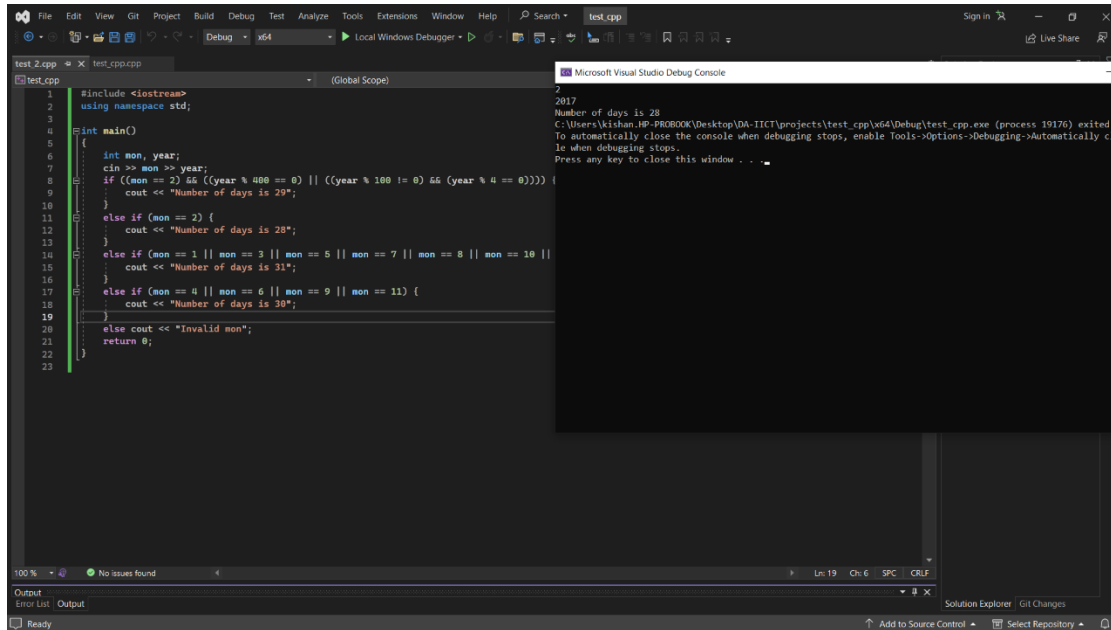


Name :- Vaghamashi Kishan Rajeshbhai

Student ID :- 202312014

1)



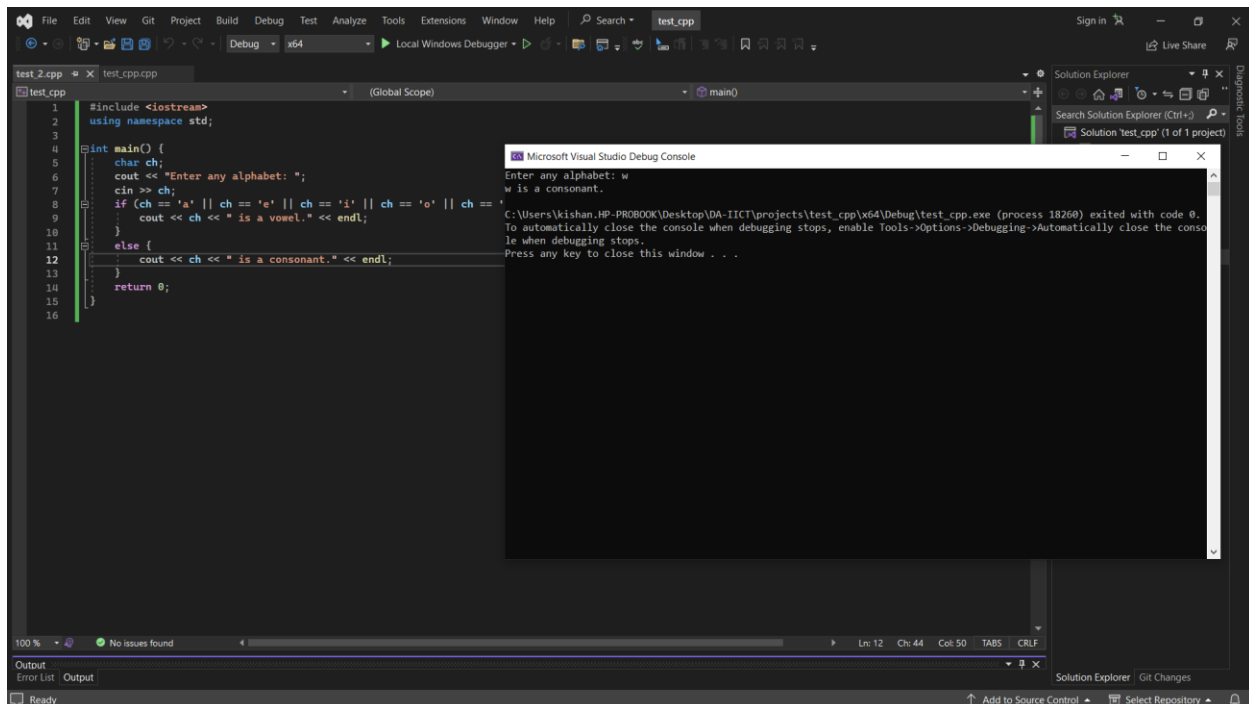
The screenshot shows the Visual Studio IDE with a C++ file named `test.cpp` open. The code is as follows:

```
1 #include <iostream>
2 using namespace std;
3
4 int main()
5 {
6     int mon, year;
7     cin >> mon >> year;
8     if ((mon == 2) && ((year % 400 == 0) || ((year % 100 != 0) && (year % 4 == 0)))) {
9         cout << "Number of days is 29";
10    }
11    else if (mon == 2) {
12        cout << "Number of days is 28";
13    }
14    else if (mon == 1 || mon == 3 || mon == 5 || mon == 7 || mon == 8 || mon == 10 || mon == 12) {
15        cout << "Number of days is 31";
16    }
17    else if (mon == 4 || mon == 6 || mon == 9 || mon == 11) {
18        cout << "Number of days is 30";
19    }
20    else cout << "Invalid mon";
21    return 0;
22 }
```

The Microsoft Visual Studio Debug Console shows the output:

```
2017
Number of days is 28
C:\Users\kishan.HP-PROBOOK\Desktop\DA-IICT\projects\test_cpp\x64\Debug\test_cpp.exe (process 19176) exited with code 0.
To automatically close the console when debugging stops, enable Tools->Options->Debugging->Automatically close the console when debugging stops.
Press any key to close this window . . .
```

2)



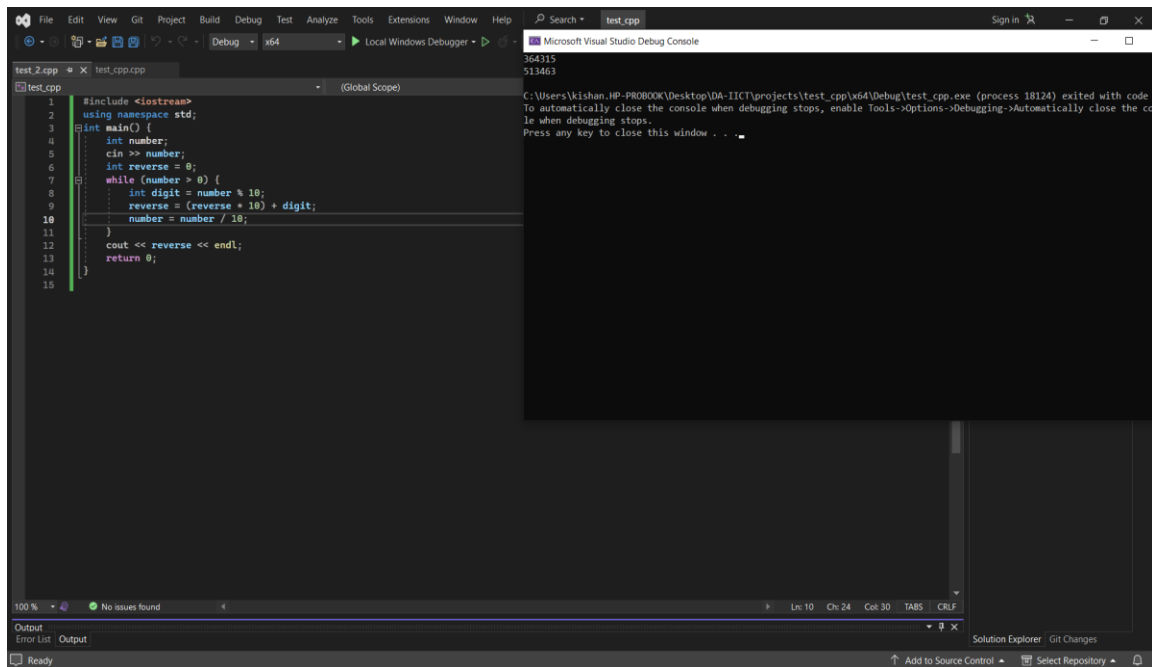
The screenshot shows the Visual Studio IDE with a C++ file named `test.cpp` open. The code is as follows:

```
1 #include <iostream>
2 using namespace std;
3
4 int main() {
5     char ch;
6     cout << "Enter any alphabet: ";
7     cin >> ch;
8     if (ch == 'a' || ch == 'e' || ch == 'i' || ch == 'o' || ch == 'u') {
9         cout << ch << " is a vowel." << endl;
10    }
11    else {
12        cout << ch << " is a consonant." << endl;
13    }
14    return 0;
15 }
```

The Microsoft Visual Studio Debug Console shows the output:

```
Enter any alphabet: w
w is a consonant.
C:\Users\kishan.HP-PROBOOK\Desktop\DA-IICT\projects\test_cpp\x64\Debug\test_cpp.exe (process 18260) exited with code 0.
To automatically close the console when debugging stops, enable Tools->Options->Debugging->Automatically close the console when debugging stops.
Press any key to close this window . . .
```

3)



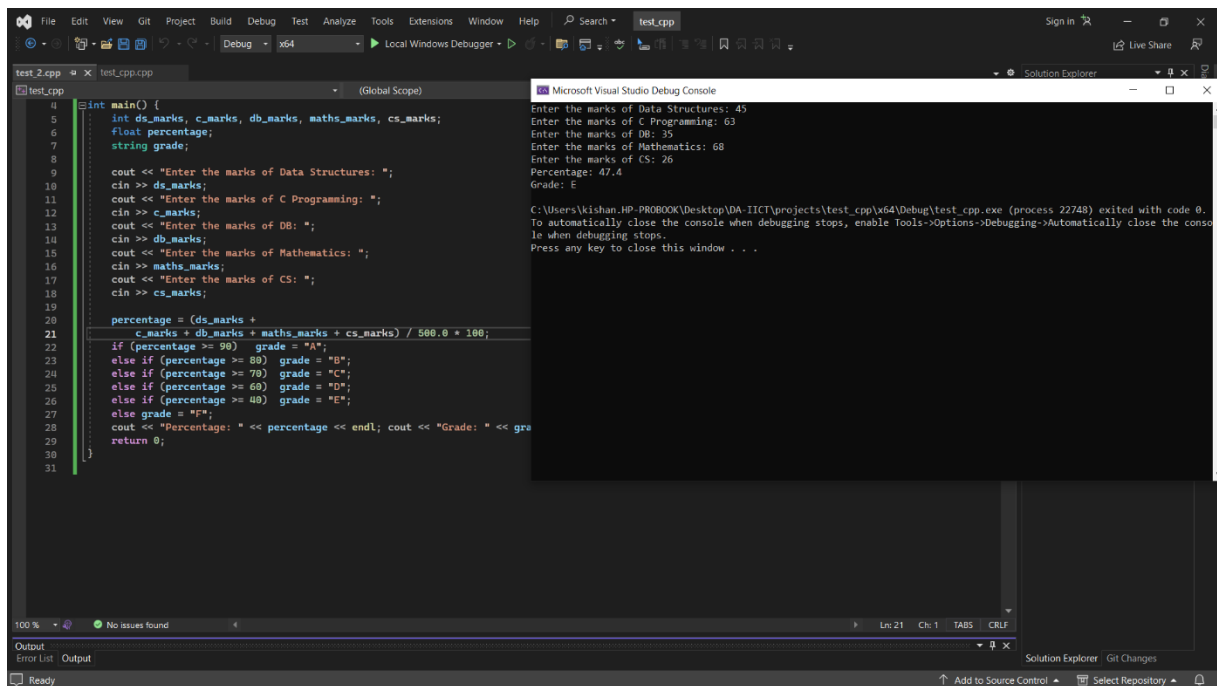
The screenshot shows the Visual Studio IDE with a C++ project named 'test.cpp'. The code in the editor is as follows:

```
1 #include <iostream>
2 using namespace std;
3 int main() {
4     int number;
5     cin >> number;
6     int reverse = 0;
7     while (number > 0) {
8         int digit = number % 10;
9         reverse = (reverse * 10) + digit;
10        number = number / 10;
11    }
12    cout << reverse << endl;
13    return 0;
14 }
15
```

The Microsoft Visual Studio Debug Console shows the following output:

```
C:\Users\kishan.HP-PROBOOK\Desktop\DA-IICT\projects\test_cpp\x64\Debug\test_cpp.exe (process 18124) exited with code 0.
To automatically close the console when debugging stops, enable Tools->Options->Debugging->Automatically close the console when debugging stops.
Press any key to close this window . . .
```

4)



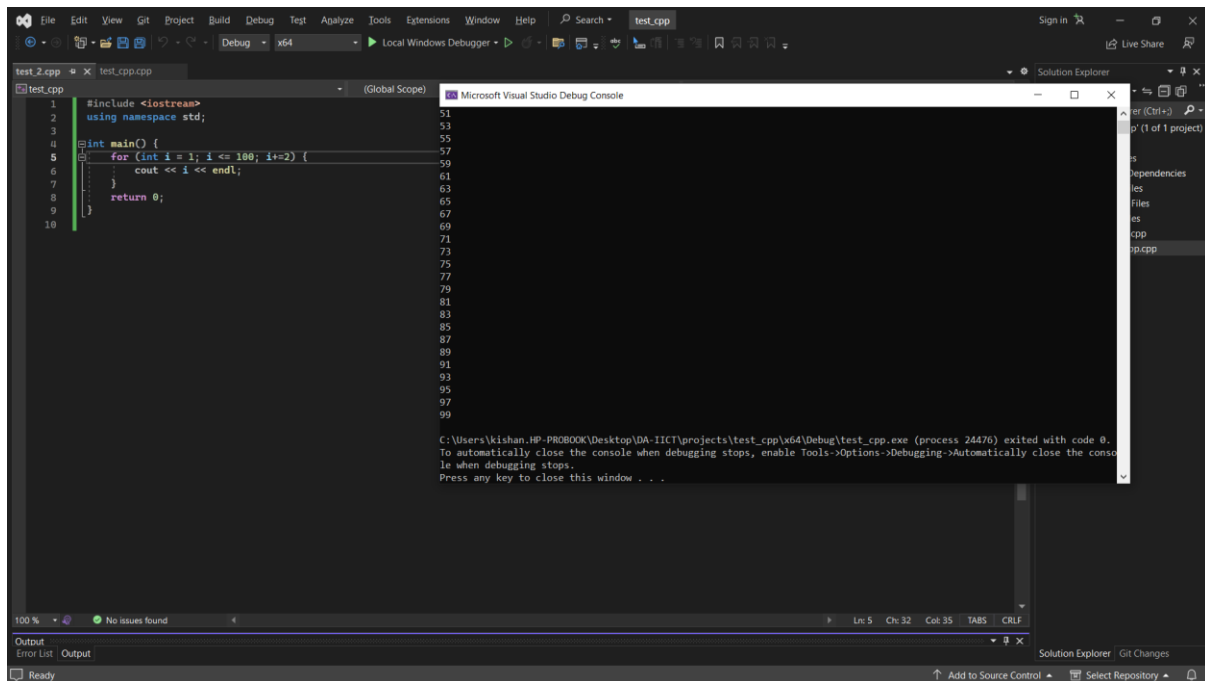
The screenshot shows the Visual Studio IDE with a C++ project named 'test.cpp'. The code in the editor is as follows:

```
4 int main() {
5     int ds_marks, c_marks, db_marks, maths_marks, cs_marks;
6     float percentage;
7     string grade;
8
9     cout << "Enter the marks of Data Structures: ";
10    cin >> ds_marks;
11    cout << "Enter the marks of C Programming: ";
12    cin >> c_marks;
13    cout << "Enter the marks of DB: ";
14    cin >> db_marks;
15    cout << "Enter the marks of Mathematics: ";
16    cin >> maths_marks;
17    cout << "Enter the marks of CS: ";
18    cin >> cs_marks;
19
20    percentage = (ds_marks +
21    c_marks + db_marks + maths_marks + cs_marks) / 500.0 * 100;
22    if (percentage >= 90) grade = "A";
23    else if (percentage >= 80) grade = "B";
24    else if (percentage >= 70) grade = "C";
25    else if (percentage >= 60) grade = "D";
26    else if (percentage >= 40) grade = "E";
27    else grade = "F";
28    cout << "Percentage: " << percentage << endl; cout << "Grade: " << grade << endl;
29    return 0;
30 }
31
```

The Microsoft Visual Studio Debug Console shows the following output:

```
Enter the marks of Data Structures: 45
Enter the marks of C Programming: 63
Enter the marks of DB: 35
Enter the marks of Mathematics: 68
Enter the marks of CS: 26
Percentage: 47.4
Grade: E
C:\Users\kishan.HP-PROBOOK\Desktop\DA-IICT\projects\test_cpp\x64\Debug\test_cpp.exe (process 22748) exited with code 0.
To automatically close the console when debugging stops, enable Tools->Options->Debugging->Automatically close the console when debugging stops.
Press any key to close this window . . .
```

5)

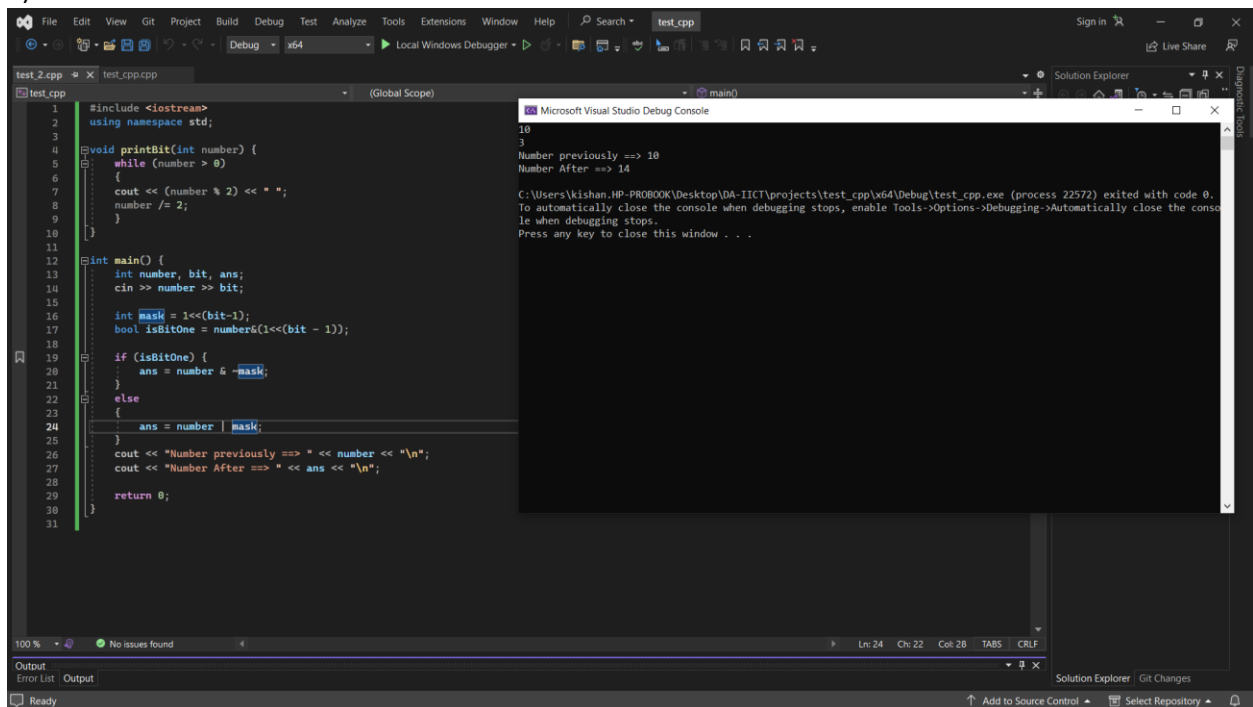


The screenshot shows the Visual Studio IDE with a C++ project named 'test_cpp'. The code in 'test.cpp' is as follows:

```
1 #include <iostream>
2 using namespace std;
3
4 int main() {
5     for (int i = 1; i <= 100; i++) {
6         cout << i << endl;
7     }
8     return 0;
9 }
```

The program is running, and the 'Microsoft Visual Studio Debug Console' window shows the output of the program, displaying numbers from 51 to 99. The status bar at the bottom indicates 'No issues found'.

6)



The screenshot shows the Visual Studio IDE with a C++ project named 'test_cpp'. The code in 'test.cpp' is as follows:

```
1 #include <iostream>
2 using namespace std;
3
4 void printBit(int number) {
5     while (number > 0) {
6         cout << (number % 2) << " ";
7         number /= 2;
8     }
9 }
10
11 int main() {
12     int number, bit, ans;
13     cin >> number >> bit;
14
15     int mask = 1 << (bit - 1);
16     bool isBitOne = number & (1 << (bit - 1));
17
18     if (isBitOne) {
19         ans = number & ~mask;
20     }
21     else {
22         ans = number | mask;
23     }
24
25     cout << "Number previously ==> " << number << "\n";
26     cout << "Number After ==> " << ans << "\n";
27
28     return 0;
29 }
```

The program is running, and the 'Microsoft Visual Studio Debug Console' window shows the output of the program, displaying the results of the bit manipulation algorithm. The status bar at the bottom indicates 'No issues found'.

7)

The screenshot shows the Visual Studio IDE with a C++ file named `test.cpp`. The code is as follows:

```
1 #include <iostream>
2 using namespace std;
3
4 int main() {
5     int number;
6     cout << "Enter a number: ";
7     cin >> number;
8
9     int count = 0;
10    while (number > 0) {
11        number = number / 10;
12        count++;
13    }
14    cout << "Total digits : " << count << endl;
15    return 0;
16 }
```

The Microsoft Visual Studio Debug Console shows the output: "Enter a number: 1234569" followed by "Total digits : 7". The console also displays the exit message: "C:\Users\kishan.HP-PROBOOK\Desktop\DA-IICT\projects\test_cpp\x64\Debug\test_cpp.exe (process 22792) exited with code 0. To automatically close the console when debugging stops, enable Tools->Options->Debugging->Automatically close the console when debugging stops. Press any key to close this window . . .".

8)

The screenshot shows the Visual Studio IDE with a C++ file named `test.cpp`. The code is as follows:

```
1 #include <iostream>
2 using namespace std;
3
4 int main() {
5     int number;
6     cout << "Enter a number: ";
7     cin >> number;
8
9     for (int i = 1; i <= 10; i++) {
10        cout << number << " x " << i << " = " << number * i << endl;
11    }
12    return 0;
13 }
```

The Microsoft Visual Studio Debug Console shows the output: "Enter a number: 13" followed by the multiplication table for 13:

```
13 x 1 = 13
13 x 2 = 26
13 x 3 = 39
13 x 4 = 52
13 x 5 = 65
13 x 6 = 78
13 x 7 = 91
13 x 8 = 104
13 x 9 = 117
13 x 10 = 130
```

The console also displays the exit message: "C:\Users\kishan.HP-PROBOOK\Desktop\DA-IICT\projects\test_cpp\x64\Debug\test_cpp.exe (process 14640) exited with code 0. To automatically close the console when debugging stops, enable Tools->Options->Debugging->Automatically close the console when debugging stops. Press any key to close this window . . .".

9)

The screenshot shows the Visual Studio IDE with a C++ file named `test.cpp` open. The code is in the Global Scope and implements a program to count words and vowels in a string. The code is as follows:

```
6  string str;
7  getline(cin, str);
8
9  int word_count = 0;
10 int vowel_count = 0;
11
12 bool isWordStarted = true;
13 if (str[0] != ' ') word_count++;
14 for (size_t i = 0; i < str.size(); i++)
15 {
16     if (str[i] == ' ') {
17         isWordStarted = false;
18         continue;
19     }
20     else {
21         if (!isWordStarted) {
22             word_count++;
23             isWordStarted = true;
24         }
25         char ch = str[i];
26         if (ch == 'a' || ch == 'e' || ch == 'i' || ch == 'o' || ch == 'u') {
27             vowel_count++;
28         }
29     }
30 }
31
32 cout << "Words are ==> " << word_count;
33 cout << "\nVowels are ==> " << vowel_count;
34
35 return 0;
36
37
```

The Microsoft Visual Studio Debug Console is open, showing the output of the program:

```
I am inevitable.
Words are ==> 3
Vowels are ==> 7
C:\Users\Kishan.HP-PROBOOK\Desktop\DA-IICT\projects\test_cpp\x64\Debug\test_cpp.exe (process 20728) exited with code 0.
To automatically close the console when debugging stops, enable Tools->Options->Debugging->Automatically close the console when debugging stops.
Press any key to close this window . . .
```

10)

The screenshot shows the Visual Studio IDE with a C++ file named `test.cpp` open. The code is in the Global Scope and implements a program to calculate the percentage of marks for three students. The code is as follows:

```
1  #include <iostream>
2  #include <string>
3  using namespace std;
4
5  int main() {
6      string name1, name2, name3;
7      int marks1[0], marks2[0], marks3[0];
8
9      cout << "Enter the name of student 1: ";
10     cin >> name1;
11     cout << "Enter the marks obtained by " << name1 << " (out of 500): ";
12     cin >> marks1;
13
14     cout << "Enter the name of student 2: ";
15     cin >> name2;
16     cout << "Enter the marks obtained by " << name2 << " (out of 500): ";
17     cin >> marks2;
18
19     cout << "Enter the name of student 3: ";
20     cin >> name3;
21     cout << "Enter the marks obtained by " << name3 << " (out of 500): ";
22     cin >> marks3;
23
24     float percentage1 = (static_cast<float>(marks1) / 500) * 100;
25     float percentage2 = (static_cast<float>(marks2) / 500) * 100;
26     float percentage3 = (static_cast<float>(marks3) / 500) * 100;
27
28     cout << name1 << " scored " << percentage1 << "%\n"; cout << name2 << " scored " << percentage2 << "%\n"; cout << name3 << " scored " << percentage3 << "%\n";
29
30     return 0;
31 }
```

The Microsoft Visual Studio Debug Console is open, showing the output of the program:

```
Enter the name of student 1: Kishan
Enter the marks obtained by Kishan (out of 500): 332
Enter the name of student 2: Jay
Enter the marks obtained by Jay (out of 500): 457
Enter the name of student 3: Parth
Enter the marks obtained by Parth (out of 500): 450
Kishan scored 66.4%
Jay scored 91.4%
Parth scored 90%
C:\Users\Kishan.HP-PROBOOK\Desktop\DA-IICT\projects\test_cpp\x64\Debug\test_cpp.exe (process 13196) exited with code 0.
To automatically close the console when debugging stops, enable Tools->Options->Debugging->Automatically close the console when debugging stops.
Press any key to close this window . . .
```

11)

The screenshot shows the Visual Studio IDE with a C++ file named `test.cpp`. The code is as follows:

```
1 #include <iostream>
2 using namespace std;
3
4 int main() {
5     cout << "This is the share for lecture slides: \\10.100.56.21\\Lecture\\Lavneet Singh\\IT603" << endl;
6     return 0;
7 }
```

The program is being debugged, and the Microsoft Visual Studio Debug Console shows the output:

```
This is the share for lecture slides: \\10.100.56.21\\Lecture\\Lavneet Singh\\IT603
C:\Users\kishan.HP-PROBOOK\Desktop\DA-IICT\projects\test_cpp\x64\Debug\test_cpp.exe (process 22736) exited with code 0.
To automatically close the console when debugging stops, enable Tools->Options->Debugging->Automatically close the console when debugging stops.
Press any key to close this window . . .
```

12)

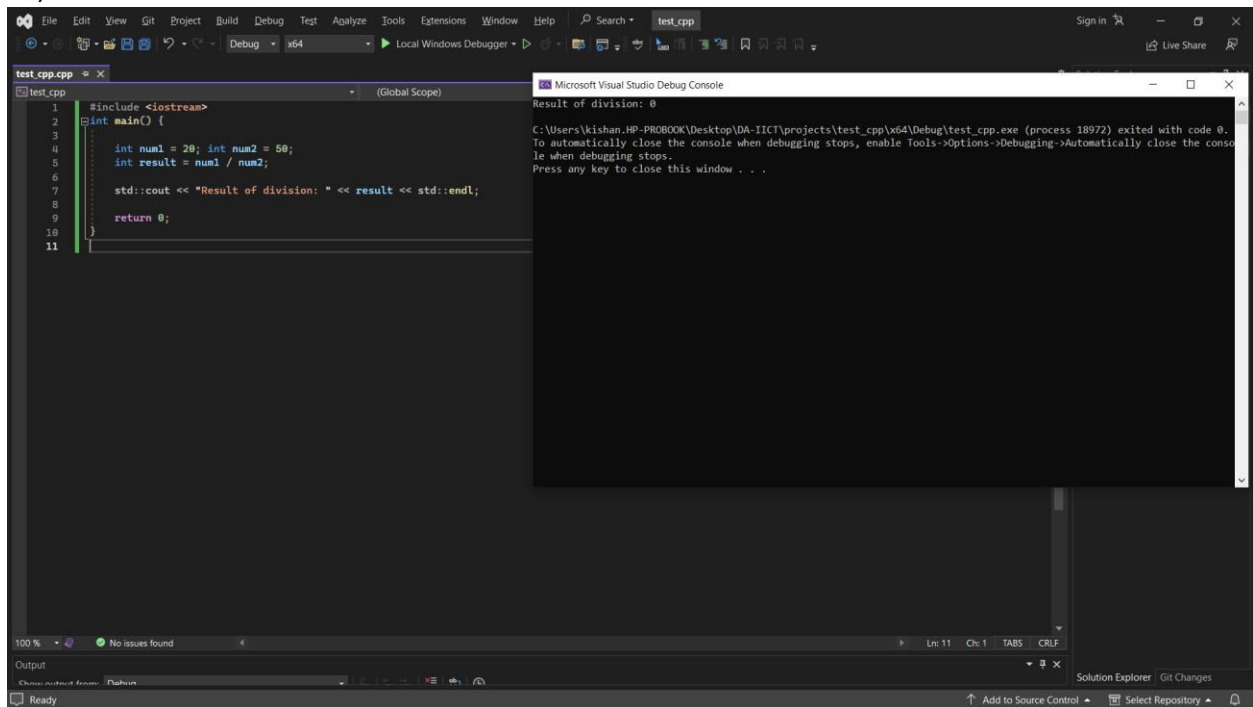
The screenshot shows the Visual Studio IDE with a C++ file named `test.cpp`. The code is as follows:

```
1 #include <iostream>
2 using namespace std;
3
4 int main() {
5     cout << "Aristotle said, \"Well begun is half done.\"** << endl;
6     return 0;
7 }
```

The program is being debugged, and the Microsoft Visual Studio Debug Console shows the output:

```
Aristotle said, "Well begun is half done."
C:\Users\kishan.HP-PROBOOK\Desktop\DA-IICT\projects\test_cpp\x64\Debug\test_cpp.exe (process 2464) exited with code 0.
To automatically close the console when debugging stops, enable Tools->Options->Debugging->Automatically close the console when debugging stops.
Press any key to close this window . . .
```

13)



The screenshot shows the Visual Studio IDE with a C++ file named `test.cpp` open. The code defines a `main` function that includes `<iostream>`, declares two integers `num1` and `num2` with values 20 and 50 respectively, calculates their division into `result`, and prints the result using `std::cout`. The program is being debugged using the Local Windows Debugger. The Microsoft Visual Studio Debug Console is open, showing the output "Result of division: 0" and a message indicating the program exited with code 0.

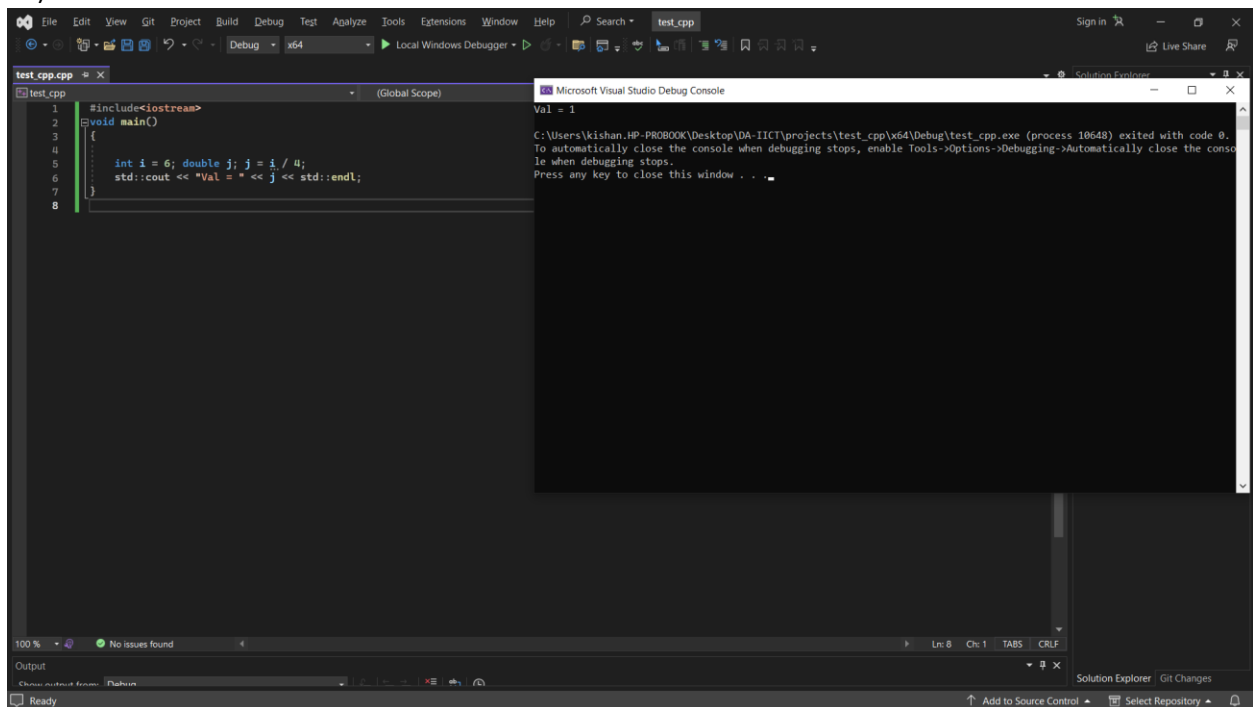
```
1 #include <iostream>
2 int main() {
3
4     int num1 = 20; int num2 = 50;
5     int result = num1 / num2;
6
7     std::cout << "Result of division: " << result << std::endl;
8
9     return 0;
10 }
11
```

Microsoft Visual Studio Debug Console

Result of division: 0

C:\Users\kishan.HP-PROBOOK\Desktop\DA-IICT\projects\test_cpp\x64\Debug\test_cpp.exe (process 18972) exited with code 0. To automatically close the console when debugging stops, enable Tools->Options->Debugging->Automatically close the console when debugging stops. Press any key to close this window . . .

14)



The screenshot shows the Visual Studio IDE with a C++ file named `test.cpp` open. The code defines a `main` function that includes `<iostream>`, declares an integer `i` with value 6 and a double `j` calculated as `i / 4`, and prints the value of `j` using `std::cout`. The program is being debugged using the Local Windows Debugger. The Microsoft Visual Studio Debug Console is open, showing the output "Val = 1" and a message indicating the program exited with code 0.

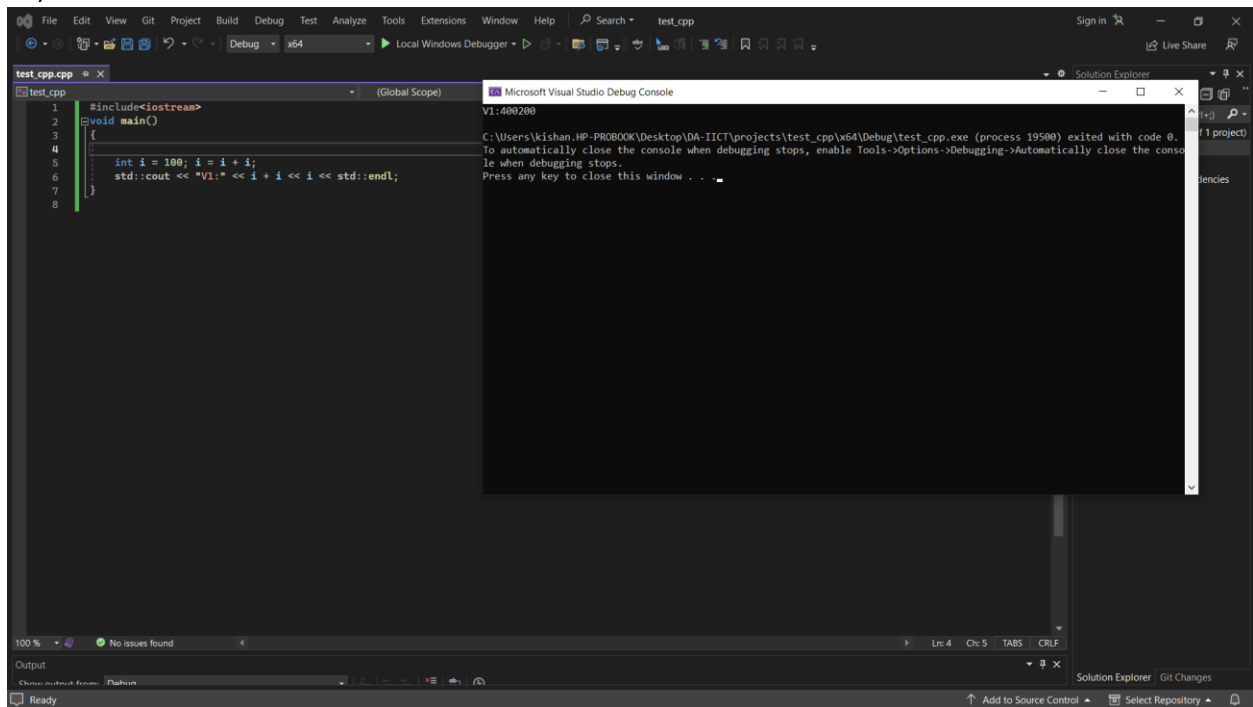
```
1 #include <iostream>
2 void main()
3 {
4     int i = 6; double j; j = i / 4;
5     std::cout << "Val = " << j << std::endl;
6 }
7
8
```

Microsoft Visual Studio Debug Console

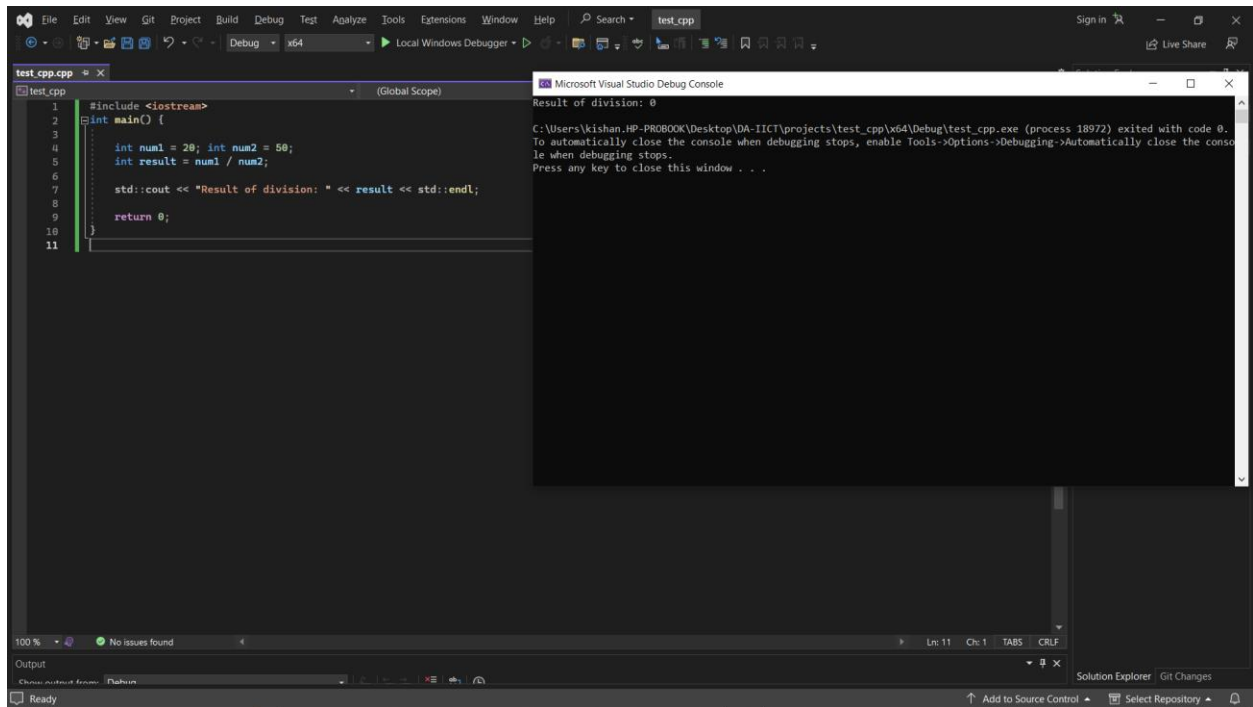
Val = 1

C:\Users\kishan.HP-PROBOOK\Desktop\DA-IICT\projects\test_cpp\x64\Debug\test_cpp.exe (process 10648) exited with code 0. To automatically close the console when debugging stops, enable Tools->Options->Debugging->Automatically close the console when debugging stops. Press any key to close this window . . .

15)



16)



17)

The screenshot shows the Visual Studio IDE with a C++ project named 'test_cpp'. The source file 'test.cpp' is open, displaying the following code:

```
1 #include <iostream>
2 using namespace std;
3
4 bool isValidTriangle(double a, double b, double c) {
5     return (a + b > c) && (b + c > a) && (c + a > b);
6 }
7
8 int main() {
9     double side1, side2, side3;
10    cout << "length of side 1: ";
11    cin >> side1;
12    cout << "length of side 2: ";
13    cin >> side2;
14    cout << "length of side 3: ";
15    cin >> side3;
16
17    if (isValidTriangle(side1, side2, side3)) {
18        cout << "The triangle is valid." << endl;
19    }
20    else {
21        cout << "The triangle is not valid." << endl;
22    }
23
24    return 0;
25 }
26
27
```

The Microsoft Visual Studio Debug Console is open, showing the program's output:

```
length of side 1: 14.2
length of side 2: 35.1
length of side 3: 6.9
The triangle is not valid.

C:\Users\kishan.HP-PROBOOK\Desktop\DA-IICT\projects\test_cpp\x64\Debug\test_cpp.exe (process 22836) exited with code 0
To automatically close the console when debugging stops, enable Tools->Options->Debugging->Automatically close the console when debugging stops.
Press any key to close this window . . .
```

The bottom status bar indicates '100 %' zoom, 'No issues found', and the 'Output' window is active.