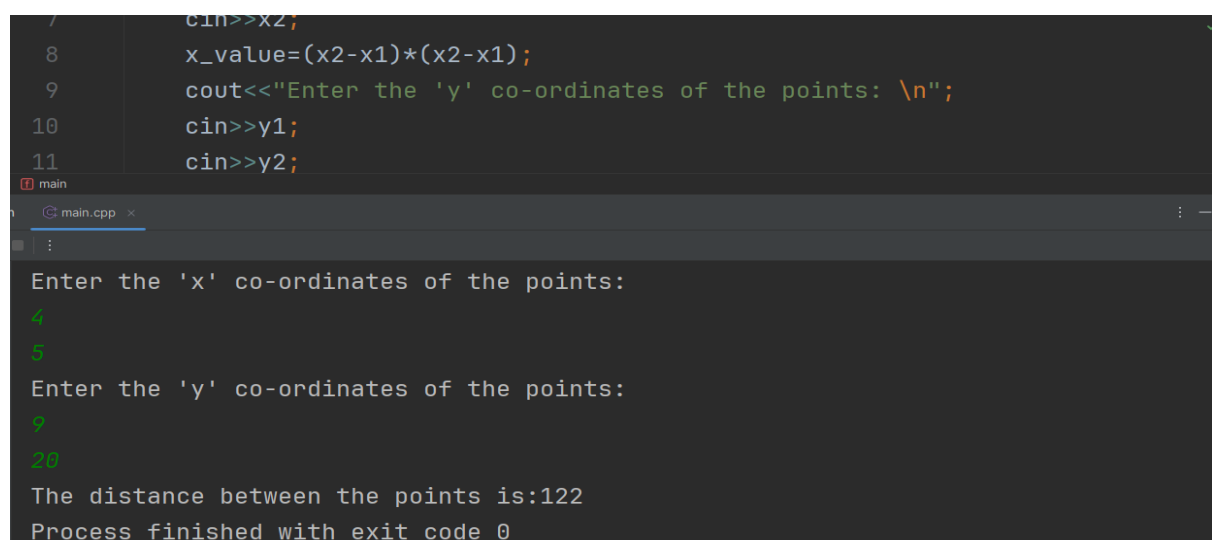


LAB MANUAL 1 (HOME TASK #1)

```
#include <iostream>
using namespace std;
int main() {
    int x1, x2, y1, y2, x_value,
    y_value, result;
    cout<<"Enter the 'x' co-ordinates
of the points: \n";
    cin>>x1;
    cin>>x2;
    x_value=(x2-x1)*(x2-x1);
    cout<<"Enter the 'y' co-ordinates
of the points: \n";
    cin>>y1;
    cin>>y2;
    y_value=(y2-y1)*(y2-y1);
    result=x_value+y_value;
    cout<<"The distance between the
points is:"<<result;
    return 0;
}
```



The screenshot shows a code editor with the following code snippets:

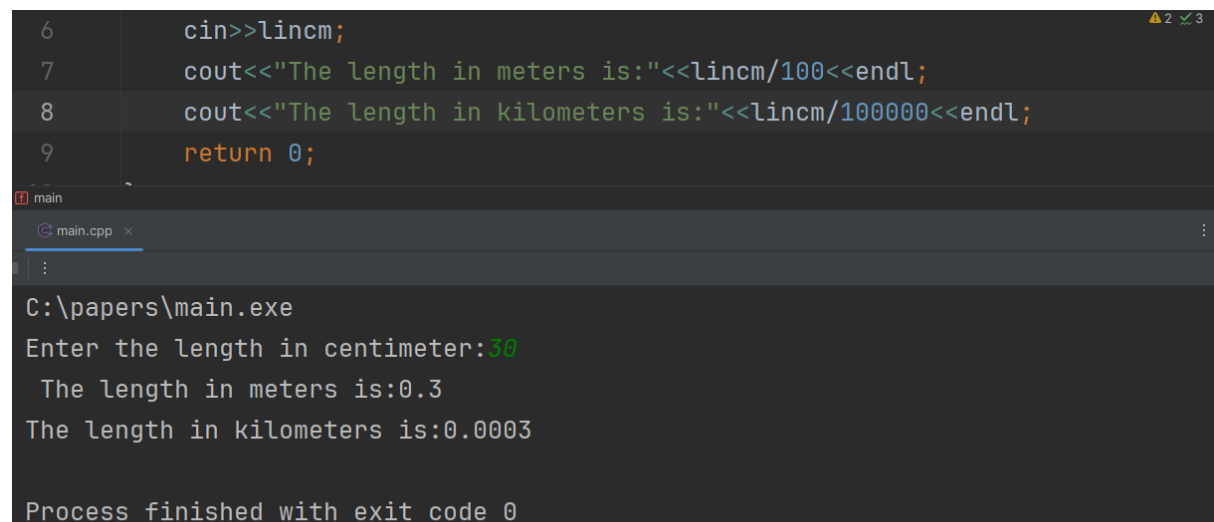
```
7      cin>>x2;
8      x_value=(x2-x1)*(x2-x1);
9      cout<<"Enter the 'y' co-ordinates of the points: \n";
10     cin>>y1;
11     cin>>y2;
```

Below the code editor, a terminal window titled "main" shows the program's execution:

```
Enter the 'x' co-ordinates of the points:
4
5
Enter the 'y' co-ordinates of the points:
9
20
The distance between the points is:122
Process finished with exit code 0
```

LAB MANUAL 1 (HOME TASK #2)

```
#include <iostream>
using namespace std;
int main() {
    float lincm, linm, linkm;
    cout<<"Enter the length in
centimeter: ";
    cin>>lincm;
    cout<<"The length in meters
is:"<<lincm/100<<endl;
    cout<<"The length in kilometers
is:"<<lincm/100000<<endl;
    return 0;
}
```



```
6      cin>>lincm;
7      cout<<"The length in meters is:"<<lincm/100<<endl;
8      cout<<"The length in kilometers is:"<<lincm/100000<<endl;
9      return 0;
```

main

main.cpp x

C:\papers\main.exe

Enter the length in centimeter:30

The length in meters is:0.3

The length in kilometers is:0.0003

Process finished with exit code 0

LAB MANUAL 1 (HOME TASK #3)

```
#include <iostream>
using namespace std;
int main() {
    int a, b, result;
    cout<<"Enter the numbers 'a' and 'b': ";
    cin>>a;
    cin>>b;
    result=(a*a)+(2*a*b)+(b*b);
    cout<<"The answer is: "<<result;
    return 0;
}
```

```
1 int a, b, result;
```

```
5 cout<<"Enter the numbers 'a' and 'b': ";
```

```
6 cin>>a;
```

```
7 cin>>b;
```

```
8 result=(a*a)+(2*a*b)+(b*b);
```

main.cpp x

C:\papers\main.exe

Enter the numbers 'a' and 'b': 5

7

The answer is: 144

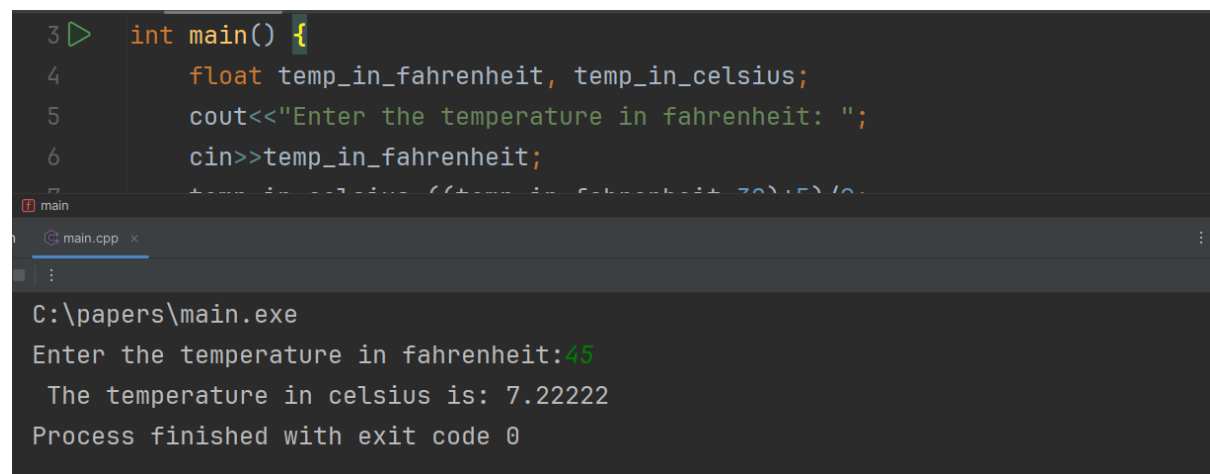
Process finished with exit code 0

|

LAB MANUAL 1 (HOME TASK #4)

```
#include <iostream>
using namespace std;
int main() {
    float temp_in_fahrenheit,
temp_in_celsius;
    cout<<"Enter the temperature in
fahrenheit: ";
    cin>>temp_in_fahrenheit;

temp_in_celsius=((temp_in_fahrenheit-
32)*5)/9;
    cout<<"The temperature in celsius
is: "<<temp_in_celsius;
    return 0;
}
```



The screenshot shows a C++ IDE with a code editor and a console window. The code in the editor is a temperature conversion program. The console window shows the output of the program, including the prompt to enter a temperature in Fahrenheit, the user input of 45, the calculated temperature in Celsius (7.22222), and the message that the process finished with exit code 0.

```
3 int main() {
4     float temp_in_fahrenheit, temp_in_celsius;
5     cout<<"Enter the temperature in fahrenheit: ";
6     cin>>temp_in_fahrenheit;
7     temp_in_celsius=((temp_in_fahrenheit-32)*5)/9;
8     cout<<"The temperature in celsius is: "<<temp_in_celsius;
9     return 0;
10 }
```

main

main.cpp

C:\papers\main.exe

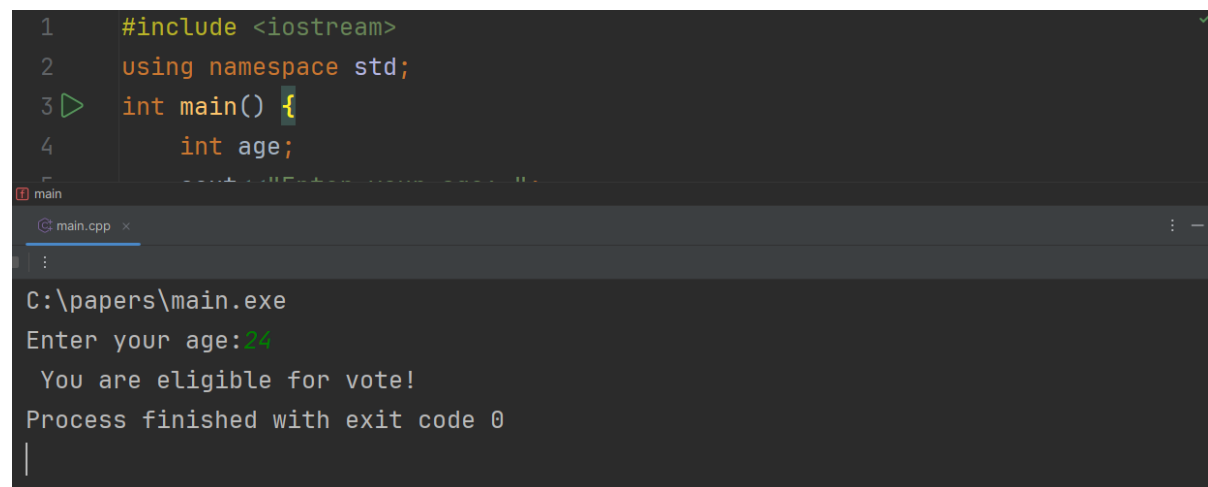
Enter the temperature in fahrenheit:45

The temperature in celsius is: 7.22222

Process finished with exit code 0

LAB MANUAL 2 (LAB TASK #1)

```
#include <iostream>
using namespace std;
int main() {
    int age;
    cout<<"Enter your age: ";
    cin>>age;
    if (age<18){
        cout<<"You are not eligible for
vote!";
    }
    else{
        cout<<"You are eligible for
vote!";
    }
    return 0;
}
```

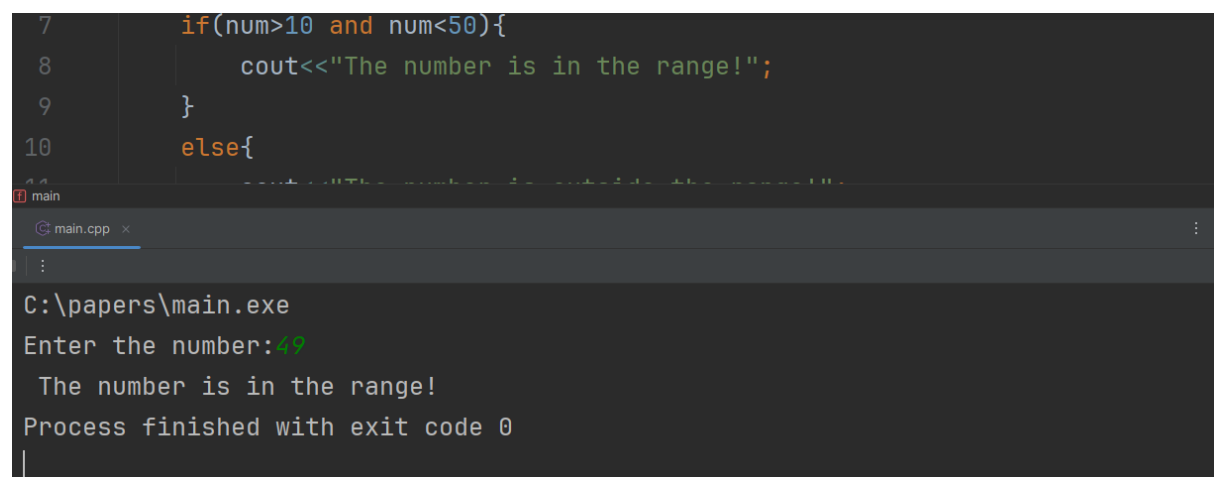


```
1  #include <iostream>
2  using namespace std;
3  int main() {
4      int age;
5      cout<<"Enter your age: ";
6      cin>>age;
7      if (age<18){
8          cout<<"You are not eligible for
vote!";
9      }
10     else{
11         cout<<"You are eligible for
vote!";
12     }
13     return 0;
14 }
```

C:\papers\main.exe
Enter your age: 24
You are eligible for vote!
Process finished with exit code 0

LAB MANUAL 2 (LAB TASK #2)

```
#include <iostream>
using namespace std;
int main() {
    int num;
    cout<<"Enter the number: ";
    cin>>num;
    if(num>10 and num<50){
        cout<<"The number is in the
range!";
    }
    else{
        cout<<"The number is outside
the range!";
    }
    return 0;
}
```



```
7      if(num>10 and num<50){
8          cout<<"The number is in the range!";
9      }
10     else{
11         cout<<"The number is outside the range!";
12     }
13     return 0;
14 }
```

main

main.cpp

C:\papers\main.exe

Enter the number: 49

The number is in the range!

Process finished with exit code 0

LAB MANUAL 2 (LAB TASK #3)

```
#include <iostream>
using namespace std;
int main() {
    int num1, num2, larger;
    cout<<"Enter 2 numbers: ";
    cin>>num1;
    cin>>num2;
    if (num1>num2) {
        cout<<"The greater number is:
"<<num1;
    } else{
        cout<<"The greater number is:
"<<num2;
    }
    return 0;
}
```

```
7      cin>>num2;
8      if (num1>num2){
9          cout<<"The greater number is: "<<num1;
10     } else{
11         cout<<"The greater number is: "<<num2;
```

main

main.cpp x

:

C:\papers\main.exe

Enter 2 numbers: 19

34

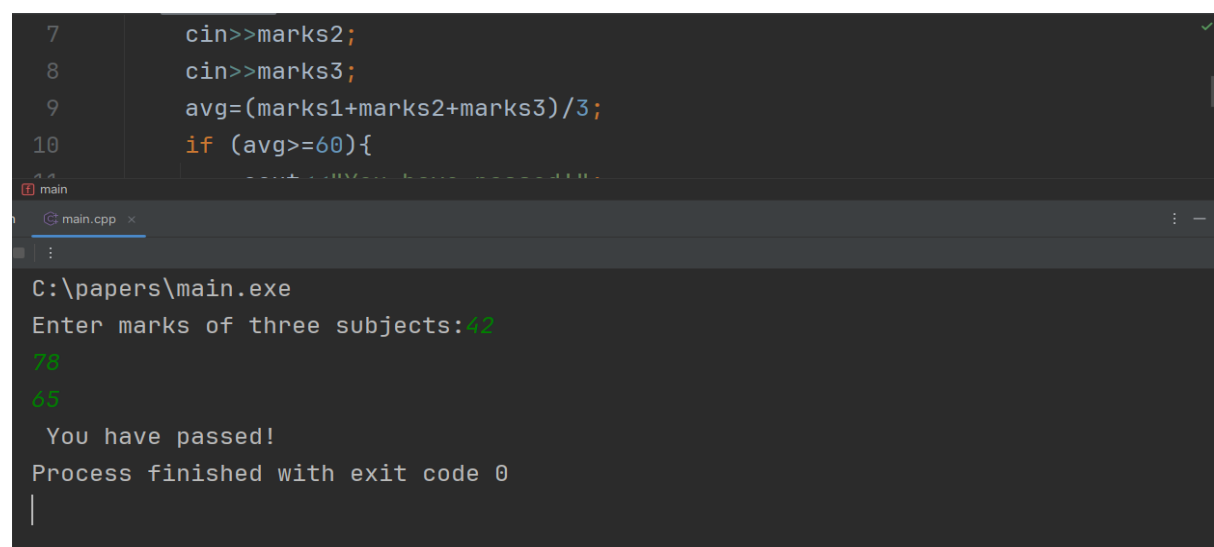
The greater number is: 34

Process finished with exit code 0

|

LAB MANUAL 2 (LAB TASK #4)

```
#include <iostream>
using namespace std;
int main() {
    int marks1, marks2, marks3, avg;
    cout<<"Enter marks of three
subjects: ";
    cin>>marks1;
    cin>>marks2;
    cin>>marks3;
    avg=(marks1+marks2+marks3)/3;
    if (avg>=60){
        cout<<"You have passed!";
    }
    else{
        cout<<"You have failed!";
    }
    return 0;
}
```



```
7      cin>>marks2;
8      cin>>marks3;
9      avg=(marks1+marks2+marks3)/3;
10     if (avg>=60){
11         cout<<"You have passed!";
12     }
13     else{
14         cout<<"You have failed!";
15     }
16     return 0;
17 }
```

main

main.cpp

C:\papers\main.exe

Enter marks of three subjects: 42

78


65

You have passed!

Process finished with exit code 0

LAB MANUAL 2 (HOME TASK #1)

```
#include <iostream>
using namespace std;
int main() {
    int marks;
    cout<<"Enter your marks: ";
    cin>>marks;
    if (marks>90 and marks<=100){
        cout<<"A grade!";
    }
    else if (marks>75 and marks<=90) {
        cout<<"B grade!";
    }
    else if (marks>60 and marks<=75) {
        cout << "C grade!";
    }
    else if (marks>45 and marks<=60) {
        cout << "D grade!";
    }
    else if (marks>=0 and marks<=45) {
        cout << "F grade!";
    }
    return 0;
}
```



```
7      if (marks>90 and marks<=100){
8          cout<<"A grade!";
9      }
10     else if (marks>75 and marks<=90) {
11         cout<<"B grade!";
12     }
13     else if (marks>60 and marks<=75) {
14         cout<<"C grade!";
15     }
16     else if (marks>45 and marks<=60) {
17         cout<<"D grade!";
18     }
19     else if (marks>=0 and marks<=45) {
20         cout<<"F grade!";
21     }
22     return 0;
23 }
```

main

main.cpp x

C:\papers\main.exe

Enter your marks:80

B grade!

Process finished with exit code 0

LAB MANUAL 2 (HOME TASK #2)

```
#include <iostream>
using namespace std;
int main() {
    int num;
    cout<<"Enter a number: ";
    cin>>num;
    if (num%2==0 and num%5==0){
        cout<<"This number is valid";
    } else{
        cout<<"This number is not
valid";
    }
    return 0;
}
```

```
7      if (num%2==0 and num%5==0){
8          cout<<"This number is valid";
9      } else{
10         cout<<"This number is not valid";
11     }
```

main.cpp x

C:\papers\main.exe

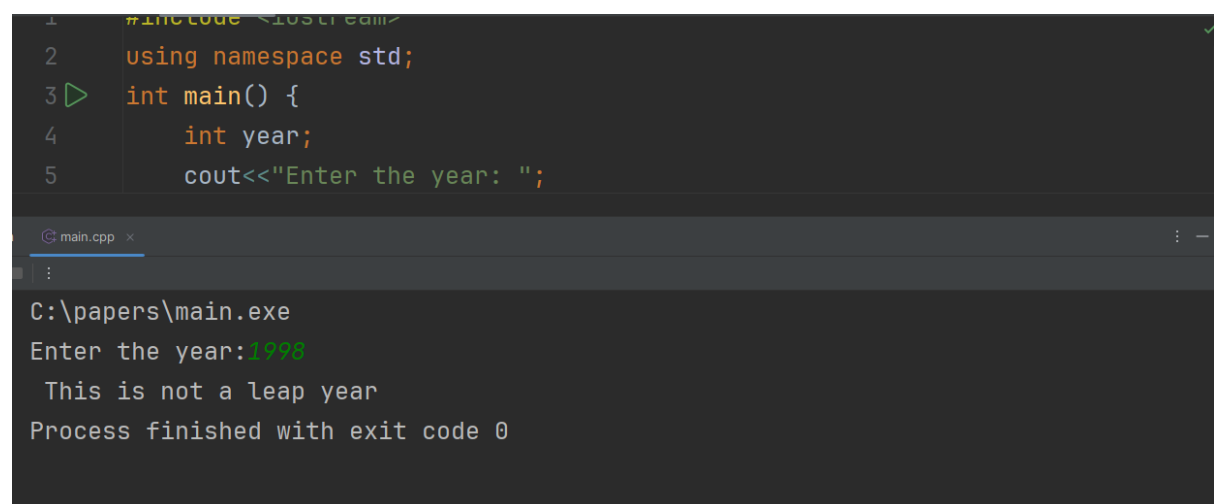
Enter a number: 25

This number is not valid

Process finished with exit code 0

LAB MANUAL 2 (HOME TASK #3)

```
#include <iostream>
using namespace std;
int main() {
    int year;
    cout<<"Enter the year: ";
    cin>>year;
    if (year%4==0) {
        cout<<"This is a leap year!";
    } else{
        cout<<"This is not a leap
year";
    }
    return 0;
}
```



The screenshot shows a C++ IDE with a code editor and a console window. The code editor displays the same C++ program as the first block. The console window shows the output of the program when executed. The user entered '1998' for the year, and the program correctly identified it as not a leap year.

```
1 #include <iostream>
2 using namespace std;
3 int main() {
4     int year;
5     cout<<"Enter the year: ";
6
7 C:\papers\main.exe
8 Enter the year:1998
9     This is not a leap year
10 Process finished with exit code 0
```

LAB MANUAL 2 (HOME TASK #4)

```
#include <iostream>
using namespace std;
int main() {
    float attendance, gpa;
    cout<<"Enter your GPA and
attendance respectively: ";
    cin>>gpa;
    cin>>attendance;
    if(gpa>=3.5 and attendance>=80){
        cout<<"You are eligible for
scholarship!";
    } else{
        cout<<"You are not eligible for
scholarship!";
    }
    return 0;
}
```

```
1  #include <iostream>
2  using namespace std;
3  int main() {
4      float attendance, gpa;
5      cout<<"Enter your GPA and attendance respectively: ";
6      cin>>gpa;
7      cin>>attendance;
8      if(gpa>=3.5 and attendance>=80){
9          cout<<"You are eligible for scholarship!";
10     } else{
11         cout<<"You are not eligible for scholarship!";
12     }
13     return 0;
14 }
```

main.cpp x

C:\papers\main.exe

Enter your GPA and attendance respectively:3.5

89

You are eligible for scholarship!

Process finished with exit code 0

|

LAB MANUAL 2 (HOME TASK #5)

```
#include <iostream>
using namespace std;
int main() {
    char letter;
    cout<<"Enter a letter: ";
    cin>>letter;
    if (letter=='a' or letter=='e' or
letter=='i' or letter=='o' or
letter=='u') {
        cout<<"The letter is a vowel";
    } else{
        cout<<"The letter is not a
vowel";
    }
    return 0;
}
```

```
6      cin>>letter;
7      if (letter=='a' or letter=='e' or letter=='i' or letter=='o' or letter=='u') {
8          cout<<"The letter is a vowel";
9      } else{
10         cout<<"The letter is not a vowel";
11     }
12     return 0;
13 }
```

main

main.cpp x

C:\papers\main.exe

Enter a letter:i

The letter is a vowel

Process finished with exit code 0