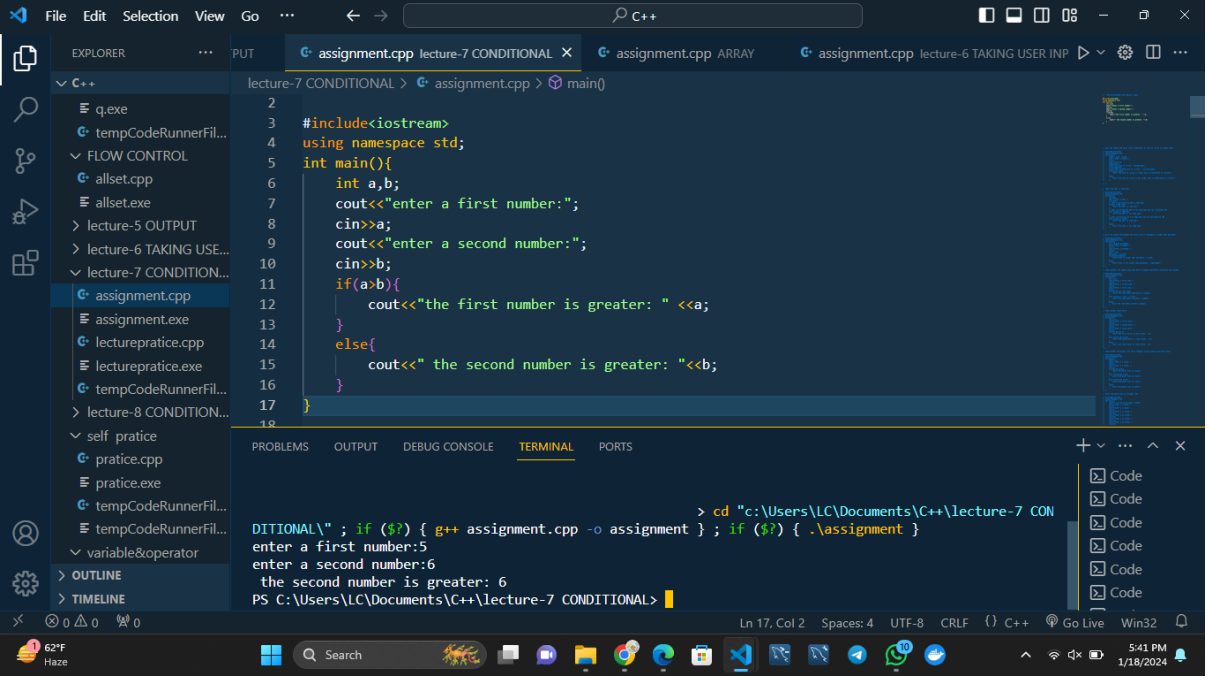


# Assignment : L3(Solutions)

## If-Else

Ques:1 Take 2 integers input and print the greatest of them.

Answer:



The screenshot shows a C++ IDE with a file explorer on the left, a code editor in the center, and a terminal at the bottom. The code in `assignment.cpp` is as follows:

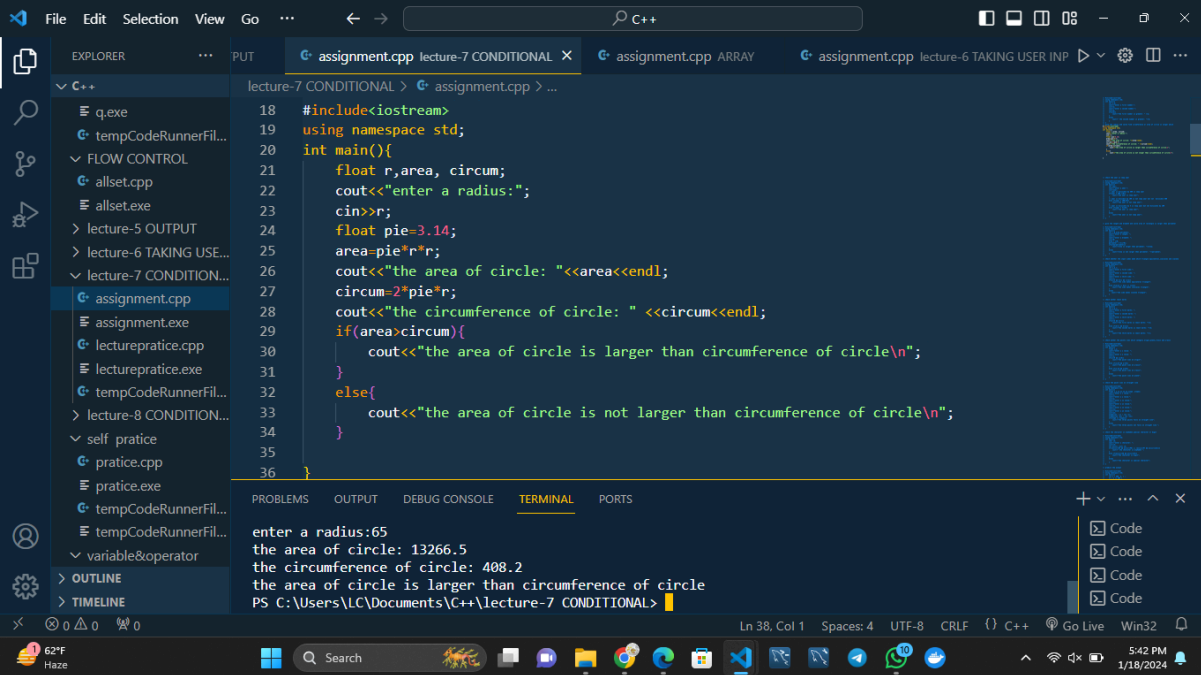
```
1 2
2 3 #include<iostream>
3 4 using namespace std;
4 5 int main(){
5 6     int a,b;
6 7     cout<<"enter a first number:";
7 8     cin>>a;
8 9     cout<<"enter a second number:";
9 10    cin>>b;
10 11    if(a>b){
11 12        cout<<"the first number is greater: " <<a;
12 13    }
13 14    else{
14 15        cout<<" the second number is greater: "<<b;
15 16    }
16 17 }
17 18
```

The terminal output shows the execution of the program:

```
> cd "C:\Users\LC\Documents\C++\lecture-7 CON
CONDITIONAL" ; if ($?) { g++ assignment.cpp -o assignment } ; if ($?) { .\assignment }
enter a first number:5
enter a second number:6
the second number is greater: 6
PS C:\Users\LC\Documents\C++\lecture-7 CONDITIONAL>
```

Ques:2 Given the radius of the circle predict whether numerically area of this circle is larger than the circumference or not.

Answer:



The screenshot shows a C++ program in Visual Studio Code. The program prompts the user to enter a radius, calculates the area and circumference, and then compares them. The output shows that for a radius of 65, the area is larger than the circumference.

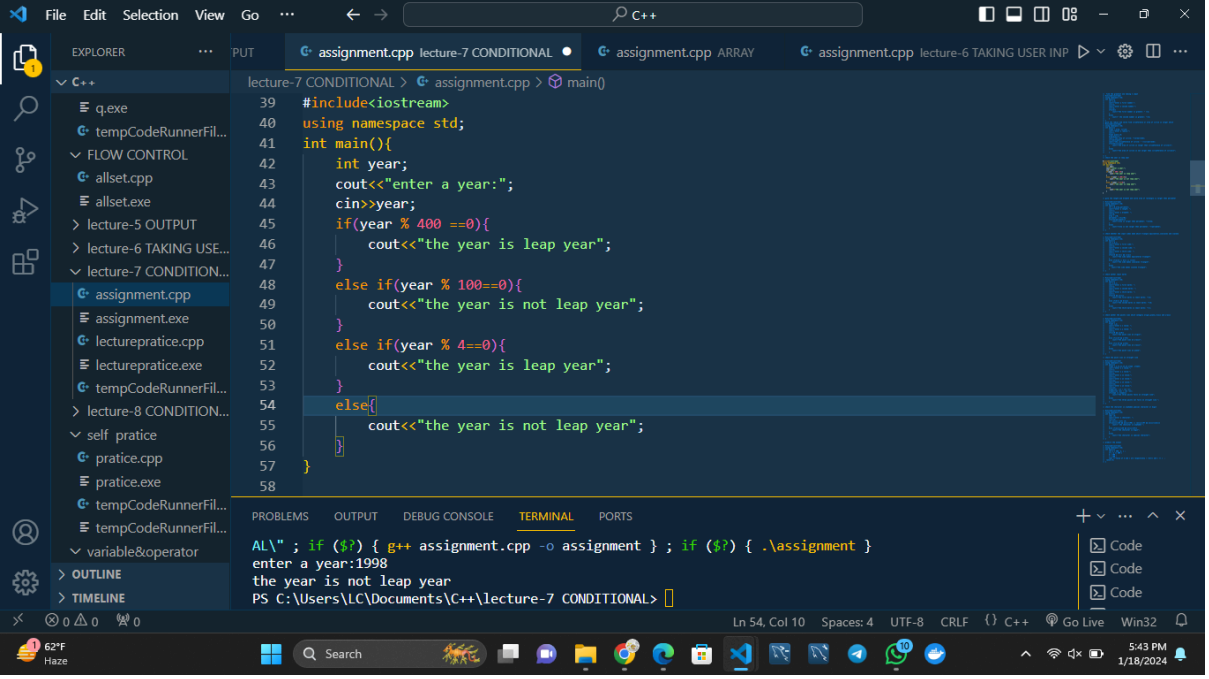
```
18 #include<iostream>
19 using namespace std;
20 int main(){
21     float r,area, circum;
22     cout<<"enter a radius:";
23     cin>>r;
24     float pie=3.14;
25     area=pie*r*r;
26     cout<<"the area of circle: "<<area<<endl;
27     circum=2*pie*r;
28     cout<<"the circumference of circle: "<<circum<<endl;
29     if(area>circum){
30         cout<<"the area of circle is larger than circumference of circle\n";
31     }
32     else{
33         cout<<"the area of circle is not larger than circumference of circle\n";
34     }
35 }
36 }
```

Terminal Output:

```
enter a radius:65
the area of circle: 13266.5
the circumference of circle: 408.2
the area of circle is larger than circumference of circle
PS C:\Users\LC\Documents\C++\lecture-7 CONDITIONAL>
```

Ques:3 Any year is input through the keyboard. Write a program to determine whether the year is a leap year or not. (Considering leap year occurs after every 4 years)

Answer:



The screenshot shows a Visual Studio Code editor with a C++ program. The program is titled 'assignment.cpp' and is located in the 'lecture-7 CONDITIONAL' folder. The code is as follows:

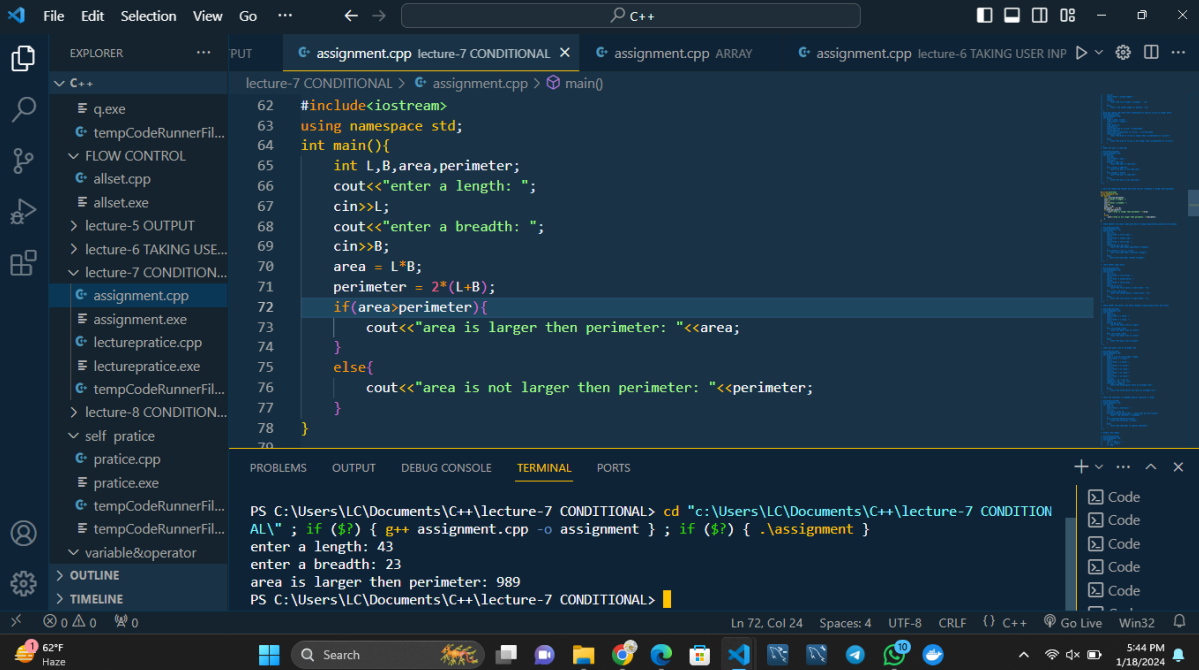
```
39 #include<iostream>
40 using namespace std;
41 int main(){
42     int year;
43     cout<<"enter a year:";
44     cin>>year;
45     if(year % 400 ==0){
46         cout<<"the year is leap year";
47     }
48     else if(year % 100==0){
49         cout<<"the year is not leap year";
50     }
51     else if(year % 4==0){
52         cout<<"the year is leap year";
53     }
54     else{
55         cout<<"the year is not leap year";
56     }
57 }
58
```

The terminal output shows the program being executed. The user enters '1998' and the program outputs 'the year is not leap year'.

```
AL\ " ; if ($?) { g++ assignment.cpp -o assignment } ; if ($?) { .\assignment }
enter a year:1998
the year is not leap year
PS C:\Users\LC\Documents\C++\lecture-7 CONDITIONAL>
```

Ques :4 Given the length and breadth of a rectangle, write a program to find whether numerically the area of the rectangle is greater than its perimeter.

Answer:



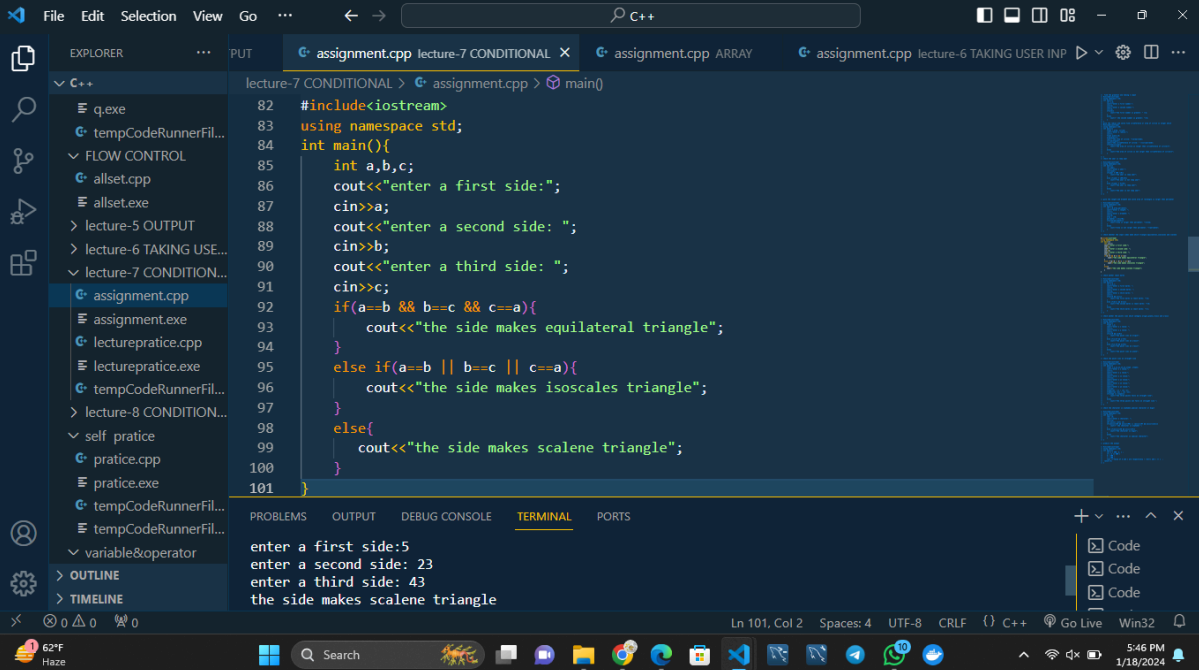
The screenshot shows a Visual Studio IDE with a C++ project. The Explorer pane on the left shows a file named 'assignment.cpp' under the 'lecture-7 CONDITIONAL' folder. The main editor displays the code for 'assignment.cpp', which includes `<iostream>` and uses the `std` namespace. The `main()` function declares variables `L`, `B`, `area`, and `perimeter`. It prompts the user to enter length and breadth, calculates the area (`L*B`) and perimeter (`2*(L+B)`), and then uses an `if` statement to check if the area is greater than the perimeter. If true, it prints 'area is larger then perimeter: ' followed by the area value. Otherwise, it prints 'area is not larger then perimeter: ' followed by the perimeter value. The bottom pane shows the terminal output, which includes the command to compile the program and the execution results for length 43 and breadth 23, showing that the area (989) is indeed larger than the perimeter (98).

```
#include<iostream>
using namespace std;
int main(){
    int L,B,area,perimeter;
    cout<<"enter a length: ";
    cin>>L;
    cout<<"enter a breadth: ";
    cin>>B;
    area = L*B;
    perimeter = 2*(L+B);
    if(area>perimeter){
        cout<<"area is larger then perimeter: "<<area;
    }
    else{
        cout<<"area is not larger then perimeter: "<<perimeter;
    }
}
```

PS C:\Users\LC\Documents\C++\lecture-7 CONDITIONAL> cd "c:\Users\LC\Documents\C++\lecture-7 CONDITIONAL" & if (\$?) { g++ assignment.cpp -o assignment } ; if (\$?) { .\assignment }  
enter a length: 43  
enter a breadth: 23  
area is larger then perimeter: 989  
PS C:\Users\LC\Documents\C++\lecture-7 CONDITIONAL>

Ques :5 Write a program to input sides of a triangle and check whether a triangle is equilateral, scalene or isosceles triangle.

Answer:

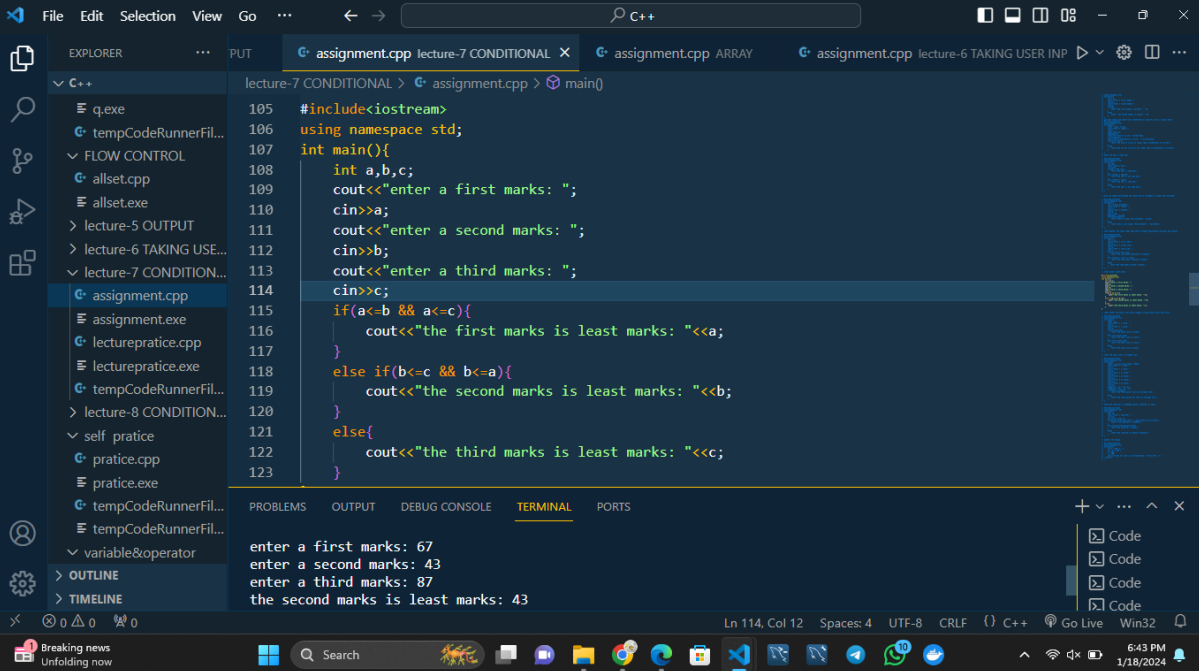


```
82 #include<iostream>
83 using namespace std;
84 int main(){
85     int a,b,c;
86     cout<<"enter a first side:";
87     cin>>a;
88     cout<<"enter a second side: ";
89     cin>>b;
90     cout<<"enter a third side: ";
91     cin>>c;
92     if(a==b && b==c && c==a){
93         cout<<"the side makes equilateral triangle";
94     }
95     else if(a==b || b==c || c==a){
96         cout<<"the side makes isoscales triangle";
97     }
98     else{
99         cout<<"the side makes scalene triangle";
100     }
101 }
```

enter a first side:5  
enter a second side: 23  
enter a third side: 43  
the side makes scalene triangle

Ques :6 If the marks of A, B and C are input through the keyboard, write a program to determine the student scoring least marks.

Answer:



The screenshot shows a Visual Studio Code editor with a C++ program. The Explorer pane on the left shows a project structure with files like `q.exe`, `tempCodeRunnerFil...`, `FLOW CONTROL`, `allset.cpp`, `allset.exe`, `lecture-5 OUTPUT`, `lecture-6 TAKING USE...`, `lecture-7 CONDITION...`, `assignment.cpp`, `assignment.exe`, `lecturepractice.cpp`, `lecturepractice.exe`, `tempCodeRunnerFil...`, `lecture-8 CONDITION...`, `self prctice`, `practice.cpp`, `practice.exe`, `tempCodeRunnerFil...`, `tempCodeRunnerFil...`, `variable&operator`, `OUTLINE`, and `TIMELINE`. The main editor shows the code for `assignment.cpp` in the `lecture-7 CONDITIONAL` tab. The code is as follows:

```
105 #include<iostream>
106 using namespace std;
107 int main(){
108     int a,b,c;
109     cout<<"enter a first marks: ";
110     cin>>a;
111     cout<<"enter a second marks: ";
112     cin>>b;
113     cout<<"enter a third marks: ";
114     cin>>c;
115     if(a<=b && a<=c){
116         cout<<"the first marks is least marks: "<<a;
117     }
118     else if(b<=c && b<=a){
119         cout<<"the second marks is least marks: "<<b;
120     }
121     else{
122         cout<<"the third marks is least marks: "<<c;
123     }
```

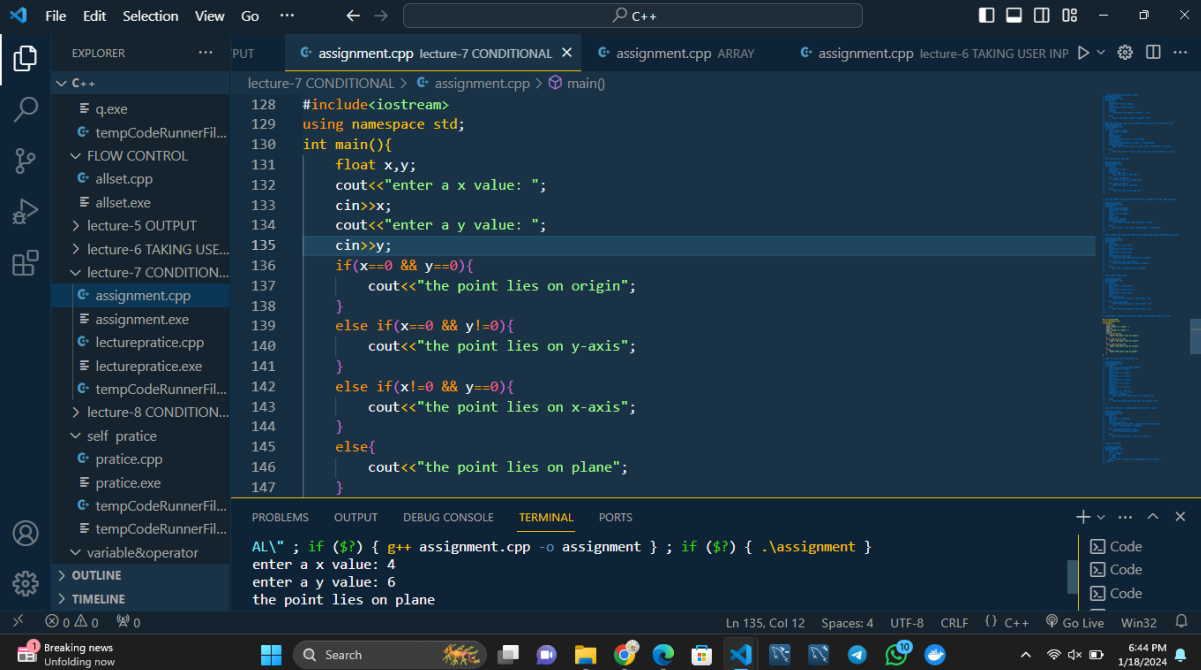
The TERMINAL pane at the bottom shows the output of the program:

```
enter a first marks: 67
enter a second marks: 43
enter a third marks: 87
the second marks is least marks: 43
```

The status bar at the bottom indicates the current line is 114, column 12, with 4 spaces, UTF-8 encoding, CRLF line endings, and C++ language. The system tray shows the time as 6:43 PM on 1/18/2024.

Ques :7 Given a point (x, y), write a program to find out if it lies on the x-axis, y-axis or at the origin, viz. (0, 0).

Answer:



```
128 #include<iostream>
129 using namespace std;
130 int main(){
131     float x,y;
132     cout<<"enter a x value: ";
133     cin>>x;
134     cout<<"enter a y value: ";
135     cin>>y;
136     if(x==0 && y==0){
137         cout<<"the point lies on origin";
138     }
139     else if(x==0 && y!=0){
140         cout<<"the point lies on y-axis";
141     }
142     else if(x!=0 && y==0){
143         cout<<"the point lies on x-axis";
144     }
145     else{
146         cout<<"the point lies on plane";
147     }
148 }
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

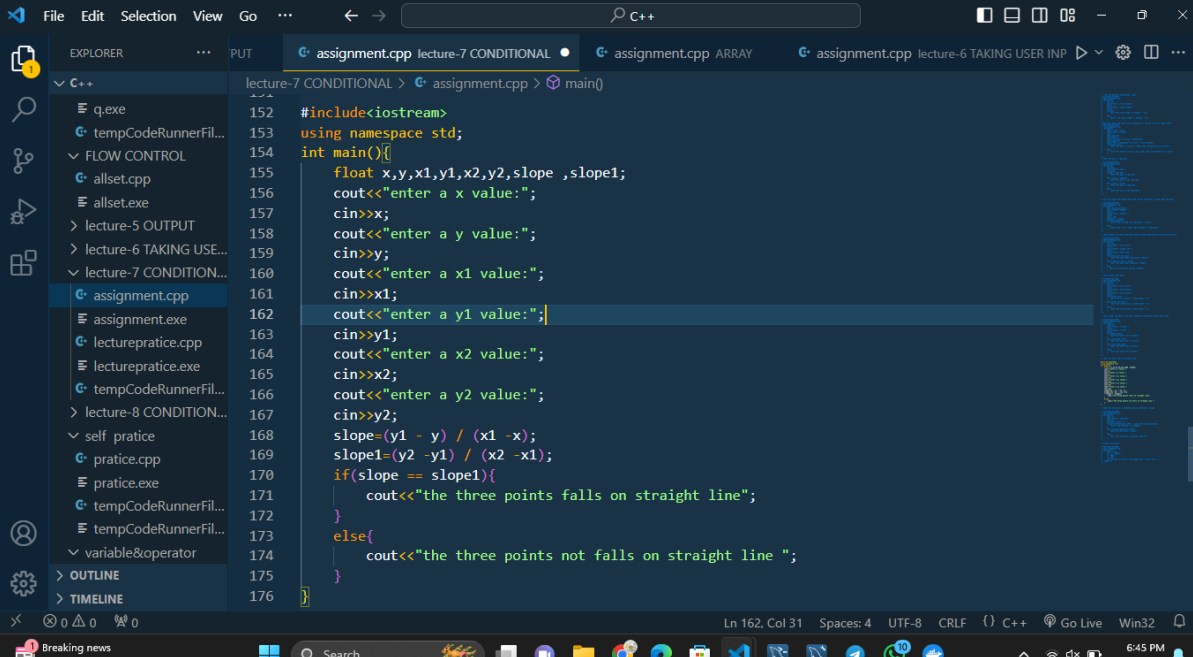
```
AL\" ; if ($?) { g++ assignment.cpp -o assignment } ; if ($?) { .\assignment }
enter a x value: 4
enter a y value: 6
the point lies on plane
```

Ln 135, Col 12 Spaces: 4 UTF-8 CRLF C++ Go Live Win32

6:44 PM 1/18/2024

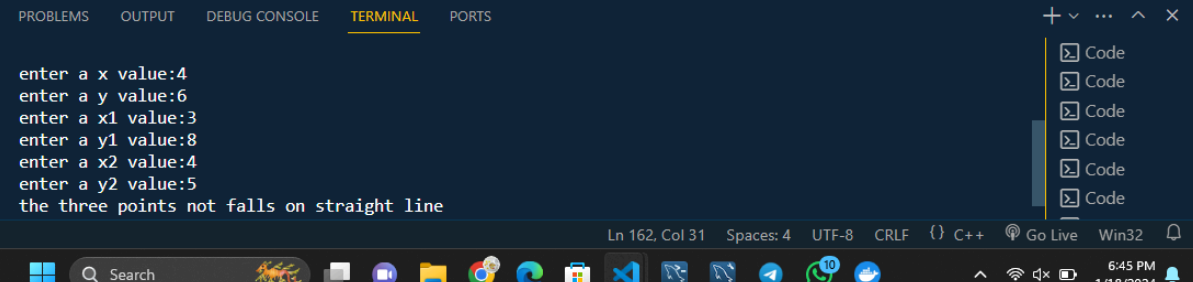
Ques :8 Given three points (x1, y1), (x2, y2) and (x3, y3), write a program to check if all the three points fall on one straight line.

Answer:



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

```
152 #include<iostream>
153 using namespace std;
154 int main(){
155     float x,y,x1,y1,x2,y2,slope ,slope1;
156     cout<<"enter a x value:";
157     cin>>x;
158     cout<<"enter a y value:";
159     cin>>y;
160     cout<<"enter a x1 value:";
161     cin>>x1;
162     cout<<"enter a y1 value:";
163     cin>>y1;
164     cout<<"enter a x2 value:";
165     cin>>x2;
166     cout<<"enter a y2 value:";
167     cin>>y2;
168     slope=(y1 - y) / (x1 -x);
169     slope1=(y2 -y1) / (x2 -x1);
170     if(slope == slope1){
171         cout<<"the three points falls on straight line";
172     }
173     else{
174         cout<<"the three points not falls on straight line ";
175     }
176 }
```



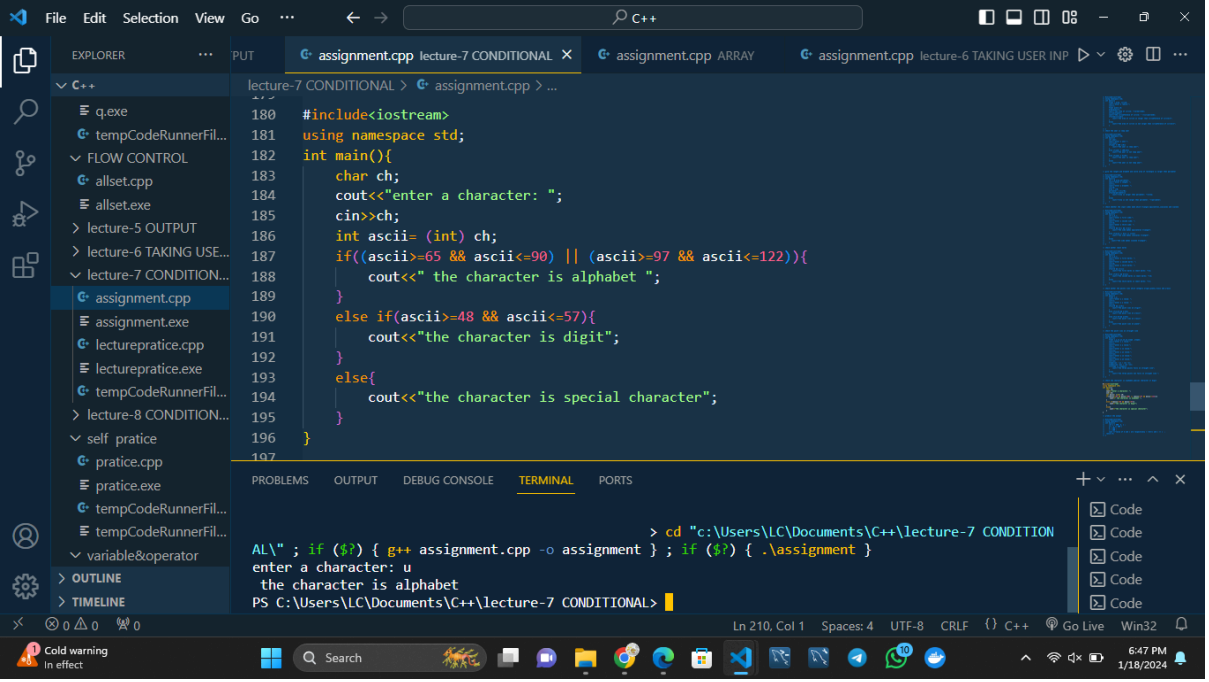
The screenshot shows the Visual Studio Code terminal window with the following output:

```
enter a x value:4
enter a y value:6
enter a x1 value:3
enter a y1 value:8
enter a x2 value:4
enter a y2 value:5
the three points not falls on straight line
```



Ques :9 Write a C++ program to input any character and check whether it is the alphabet, digit or special character.

Answer:



```
File Edit Selection View Go ... C++
EXPLORER
C++
  q.exe
  tempCodeRunnerFil...
  FLOW CONTROL
    allset.cpp
    allset.exe
  lecture-5 OUTPUT
  lecture-6 TAKING USE...
  lecture-7 CONDITIONAL
    assignment.cpp
    assignment.exe
    lecturepractice.cpp
    lecturepractice.exe
    tempCodeRunnerFil...
  lecture-8 CONDITION...
  self practice
    practice.cpp
    practice.exe
    tempCodeRunnerFil...
    tempCodeRunnerFil...
  variable&operator
  OUTLINE
  TIMELINE

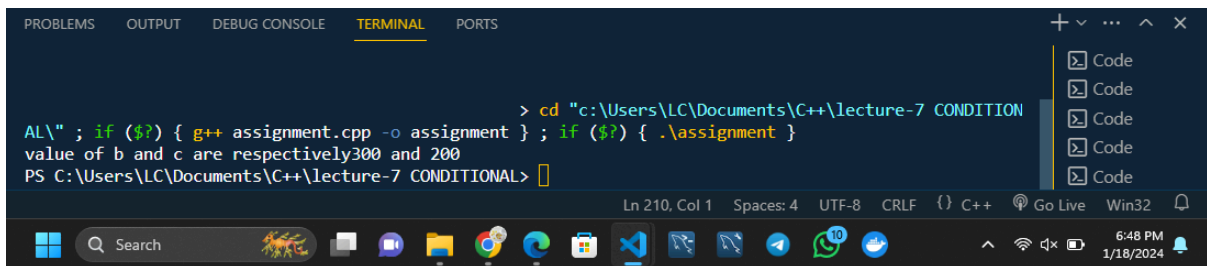
lecture-7 CONDITIONAL > assignment.cpp > ...
180 #include<iostream>
181 using namespace std;
182 int main(){
183     char ch;
184     cout<<"enter a character: ";
185     cin>>ch;
186     int ascii= (int) ch;
187     if((ascii>=65 && ascii<=90) || (ascii>=97 && ascii<=122)){
188         cout<<" the character is alphabet ";
189     }
190     else if(ascii>=48 && ascii<=57){
191         cout<<"the character is digit";
192     }
193     else{
194         cout<<"the character is special character";
195     }
196 }
197

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
AL\" ; if ($?) { g++ assignment.cpp -o assignment } ; if ($?) { .\assignment }
enter a character: u
the character is alphabet
PS C:\Users\LC\Documents\C++\lecture-7 CONDITIONAL>
```

Ques: 10 Predict the Output

```
int main() {  
    int a = 500, b, c ;  
    if ( a >= 400 )  
        b = 300 ;  
        c = 200 ;  
    cout << "value of b and c are respectively “ <<b<<” and ” << c ;  
        return 0;  
}
```

Answer:



```
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS  
AL\" ; if ($?) { g++ assignment.cpp -o assignment } ; if ($?) { .\assignment }  
value of b and c are respectively300 and 200  
PS C:\Users\LC\Documents\C++\lecture-7 CONDITIONAL>  
Ln 210, Col 1 Spaces: 4 UTF-8 CRLF {} C++ Go Live Win32  
6:48 PM 1/18/2024
```