C++ Assignments | Fundamentals of Programming -1 | Week2

1.Take 2 integers input and print the greatest of them
Input 1: a = 5 b = 7
Output 1: second number 7 is the largest.
Input 2: a = 12 b = 1
Output 2 : first number 12 is the largest.
Note : It is ensured that the two numbers will be different.

```
#include <iostream>
using namespace std;
int main(){
    int a,b;
    cout<<"enter value a: ";
    cin>>a;
    cout<<"enter value b: ";
    cin>>b;
    if(a>b) cout<<"greatest value is: "<<a;
    else cout<<"greatest value is: "<<b;
}
```

2.Given the radius of the circle, predict whether numerically the area of this circle is larger than the
circumference or not.
Input 1: radius = 4
Output 1: Area is greater than circumference.
Explanation: area = 3.14 * 4 * 4 = 50.24 unit2
Perimeter = 2 * 3.14 * 4 = 25.12 unit
Therefore area > perimeter.

```
#include <iostream>
using namespace std;
int main(){
int r;
cout<<"enter value of radius: ";
cin>>r;
int area,circumference;
area=3.14*r*r;
circumference=2*3.14*r;
if(area>circumference) cout<<"area is greater than circumference";
else cout<<"circumference is greater than area";
}
```

.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)
Input 1: 1976
Output: yes
Input 2: 2003
Output: no

```
#include <iostream>
using namespace std;
int main(){
    int year;
    cout<<"enter year: ";
    cin>>year;
    if(year%4==0) cout<<year<<" "<<"it is a leap year";
    else cout<<year<<" "<<"it is not a leap year";
     if(year%400==0) cout<<year<<" "<<"it is a leap year";
    else if (year%100==0)  cout<<year<<" "<<"it is not a leap year";
}
```

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.

```
#include <iostream>
using namespace std;
int main(){
int l;
cout<<"enter value of length: ";
cin>>l;
int b;
cout<<"enter value of breath: ";
cin>>b;

int area,circumference;
area=l*b;
circumference=2*(l+b);
if(area>circumference) cout<<"area is greater than circumference";
else cout<<"circumference is greater than area";
}
```

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

isosceles triangle.
Input : side1 = 5 ,side2 = 4 ,side3 = 4
Output: This is an Isosceles triangle.

```
#include <iostream>
using namespace std;
int main(){
    int a,b,c;
    cout<<"enter side of triangle : ";
    cin>>a>>b>>c;

    if(a==b && b==c)  cout<<"it is a equilateral triangle";
    else if( a==b || b==c  || c==a )  cout<<"it is a isocelles
triangle";
    else cout<<"it is a simple trisngle";

}
```

6.If the marks of A, B and C are input through the keyboard, write a program to determine the student
scoring the least marks.
Input 1: A = 23 , B = 34 , C = 71
Output : 'A' has the least marks.

```
#include <iostream>
using namespace std;
int main(){
    int a,b,c;
    cout<<"enter value a: ";
    cin>>a;
    cout<<"enter value b: ";
    cin>>b;
    cout<<"enter value c: ";
    cin>>c;
    if( a<b && a<c ) cout<<"least value is: "<<a;
    else if ( b<a && b<c ) cout<<"least value is: "<<b;
    else  cout<<"least value is: "<<c;
}
```

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).
Input 1: 2 0
Output 1: the point lies on the x - axis.

```
#include<iostream>
using namespace std;
int main() {
float x, y;
printf("Enter the x-y coordinates of the point : ");
cin >> x >> y;

if (x == 0 && y == 0) cout << "The point is on the origin.";
if (x == 0 && y != 0) cout << "The point lie on the y-axis.";
if (x != 0 && y == 0) cout << "The points lie on the x-axis.";
if (x != 0 && y != 0) cout << "The points lie on the plane.";

}
```

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.
Input 1: x1 = 1 , y1 = 2 , x2 = 2 , y2 = 3 , x3 = 3 , y3 = 4
Output 1: All 3 points lie on the same line.

```
#include <iostream>
using namespace std;
int main() {
float x1, y1, x2, y2, x3, y3, slope1, slope2;
cout << "Enter points (x1, y1)" << endl;
cin >> x1 >> y1;
cout << "Enter points (x2, y2)" << endl;
cin >> x2 >> y2;
cout << "Enter points (x3, y3)" << endl;
cin >> x3 >> y3;
slope1 = (y2 - y1) / (x2 - x1);
slope2 = (y3 - y2) / (x3 - x2);

if (slope1 == slope2)   cout << "All 3 points lie on the same line";
else  cout << "All 3 points do not lie on the same line";

}
```

Write a C++ program to input any character and check whether it is the alphabet, digit or special
character.
Input 1: ch = ‘9’

Output 1: digit

```
using namespace std;
int main() {
char ch;
cout << "Enter any character : ";
cin >> ch;

if ((ch >= 'a' && ch <= 'z') || (ch >= 'A' && ch <= 'Z'))  cout << ch
<< " is an Alphabet";
else if (ch >= '0' && ch <= '9')    cout << ch << " is a Digit";
else    cout << ch << " is a Special Character";

}
```

Predict the output of the below code:

#include<iostream>
using namespace std;
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;

Output:
value of b and c are respectively 300 and 200