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

Q1. Take 2 integers input and print the greatest of them

Ans .

```cpp
#include<iostream>
using namespace std;
int main()
{
    cout<<"Enter the first number : ";
    int a;
    cin>>a;

    cout<<"Enter the second number : ";
    int b;
    cin>>b;

    if(a>b)
    {
        cout<<"First number "<<a<<" is the greatest number.";
    }
    else
    {
        cout<<"Second number "<<b<<" is the greatest number.";
    }
    return 0;
}
```

Q2. Given the radius of the circle, predict whether numerically the area of this circle is larger than the circumference or not.

Ans.

```cpp
#include <iostream>
using namespace std;
int main()
{
    cout << "Enter the radius of the circle : ";
    int radius;
```

```
    cin >> radius;

    int area = 3.145 * radius * radius;
    int circumference = 2 * 3.145 * radius;

    if (area > circumference)
    {
        cout << "Area of the circle is greater than Circumference";
    }

    else
    {
        cout << "Area of the circle is not greater than Circumference";
    }
}
```

Q3. 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)

Ans.

```
#include<iostream>
using namespace std;
int main()
{
    cout<<"Enter the year : ";
    int year;
    cin>>year;

    if(year%4==0)
    {
        cout<<year<<" is the leap year.";
    }

    else
    {
        cout<<year<<" is not a leap year.";
    }
}
```

Q4. 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.

Ans.

```
#include <iostream>
using namespace std;
int main()
{
    cout<<"Enter the length of the rectangle : ";
    int a;
    cin>>a;

    cout<<"Enter the breadth of the rectangle : ";
    int b;
    cin>>b;

    int area = a*b;
    int perimeter = a + b;

    if(area>perimeter)
    {
        cout<<"Area of rectangle is greater than Perimeter of the
rectangle.";
    }

    else
    {
        cout<<"Area of rectangle is not greater than perimeter of the
rectangle.";
    }
}
```

Q5. Write a program to input sides of a triangle and check whether a triangle is equilateral, scalene or isosceles triangle**.**

Ans.

```
#include<iostream>
using namespace std;
int main()
{
    cout<<"Enter the sides of the triangle : "<<endl;
    int a,b,c;
    cout<<"First side : ";
    cin>>a;
    cout<<"Second side : ";
    cin>>b;
```

```
    cout<<"Third side : ";
    cin>>c;

    if(a==b && b==c && c==a)
    {
        cout<<"Triangle is a equilateral triangle";
    }
    else if(a==b || b==c || c==a)
    {
        cout<<"Triangle is isosceles triangle";
    }
    else
    {
        cout<<"Triangle is a scalene triangle";
    }
}
```

Q6. If the marks of A, B and C are input through the keyboard, write a program to determine the student scoring the least marks.

Ans.

```
#include<iostream>
using namespace std;
int main()
{
    cout<<"Enter marks of student A : ";
    int a;
    cin>>a;

    cout<<"Enter marks of student B : ";
    int b;
    cin>>b;

    cout<<"Enter marks of student C : ";
    int c;
    cin>>c;

    if(a<b)
    {
        if(a<c)
        {
            cout<<"Student A has least marks";
        }
```

```
        else
        {
            cout<<"Student C has least marks";
        }
    }

    else
    {
        if(b<c)
        {
            cout<<"Student B has least marks";
        }
        else
        {
            cout<<"Student C has least marks";
        }
    }

}
```

Q7. 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).

Ans.

```
#include<iostream>
using namespace std;
int main()
{
    cout<<"Enter the x coordinate : ";
    int x;
    cin>>x;

    cout<<"Enter the y coordinate : ";
    int y;
    cin>>y;

    if(x==0 && y!=0)
    {
        cout<<"Point lies on the y axis";
    }
    else if(y==0 && x!=0)
    {
        cout<<"Point lies on the x axis";
```

```
    }
    else if(x==0 && y==0)
    {
        cout<<"point is origin";
    }
    else
    {
        cout<<"Point is in x-y plane";
    }
}
```

Q8. 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.

Ans.

```
#include<iostream>
using namespace std;
int main()
{   int x1,y1;
    cout<<"Enter the first coordinate A:"<<endl;
    cin>>x1>>y1;

    int x2,y2;
    cout<<"Enter the second coordinate B:"<<endl;
    cin>>x2>>y2;

    int x3,y3;
    cout<<"Enter the third coordinate C:"<<endl;
    cin>>x3>>y3;

   float slope1 = (y2 - y1)/(x2 - x1);
   float slope2 = (y3 - y2)/(x3 - x2);

   if(slope1==slope2)
   {
    cout<<"All points are in a straight line";
   }
   else
   {
    cout<<"All points are not in a straight line";
   }
}
```

Q9. Write a C++ program to input any character and check whether it is the alphabet, digit or special character.

Ans.

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

    int ascii = (int)ch;

    if(ascii>=65 && ascii<=90 || ascii>=97 && ascii<=122)
    {
        cout<<"Character is an alphabet";
    }
    else if(ascii>=48 && ascii<=57)
    {
        cout<<"Character is a digit";
    }
    else
    {
        cout<<"Character is a special character";
    }

}
```

Q10. 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;
}
```

Ans. The output of the below code is :

Value of b and c are respectively 300 and 200