EXPERIMENT NO. 2

Oues 1 :- Write a program to take check if the triangle is valid or not. If the validity is established, do check if the triangle is isosceles, equilateral, right angle, or scalene. Take sides of the triangle as input from a user.

```
#include <stdio.h>

int main()

{

	int side1, side2, side3;

	printf("Enter three sides of a triangle :\n");

	scanf("%d%d%d", &side1, &side2, &side3);

	if (side1 == side2 && side2 == side3)

		printf("Triangle is equilateral triangle");

	else if (side1 == side2 || side2 == side3 || side3 == side1)

		printf("Triangle is isoceles");

	else

		printf("triangle is scalene");

}
```

Output of the Program :-

```
Enter three sides of a triangle :
4
5
6
triangle is scalene
PS D:\College Work\C programming\Lab 2 Program>
```

Ques 2 :- WAP to compute the BMI Index of the person and print the BMI values as per the following ranges. You can use the following formula to compute BMI= weight(kgs)/Height(Mts)*Height(Mts).

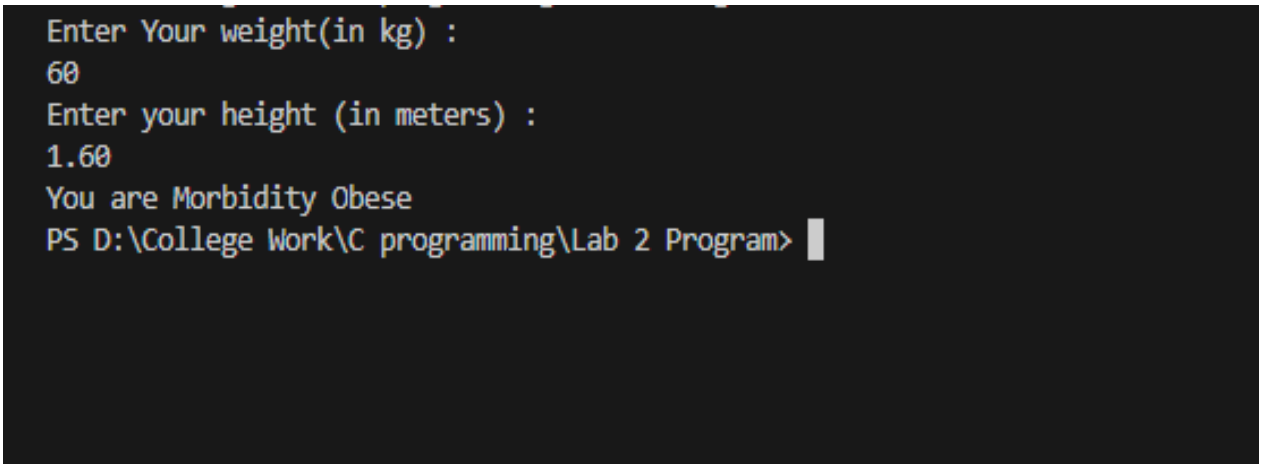
	BMI
Starvation	<15
Anorexic	15.1 to 17.5
Underweight	17.6 to 18.5
Ideal	18.6 to 24.9
Overweight	25 to 25.9
Obese	30 to 39.9
Morbidity Obese	40.0 above

```
#include <stdio.h>
```

```
int main()
{
   int weight, height, bmi;
   printf("Enter Your weight(in kg) :\n");
   scanf("%d", &weight);
   if (weight <= 0)
   {
      printf("Weight is not valid");
   }
   else
   {
      printf("Enter your height (in meters) :\n");
      scanf("%d", &height);
      if (height <= 0)
      {
         printf("Height is not valid");
      }
      else
      {
```

```
        bmi = weight / height * height;
        if (bmi < 15)
           printf("You are Starvation\n");
        else if (bmi < 17.5)
           printf("You are Anorexic\n");
        else if (bmi < 18.5)
           printf("You are Underweight\n");
        else if (bmi < 24.9)
           printf("You are Ideal\n");
        else if (bmi < 25.9)
           printf("You are Overweight\n");
        else if (bmi < 39.9)
           printf("You are Obese\n");
        else
           printf("You are Morbidity Obese\n");
     }
  }
}
```

Output of the Program :-



Ques 3 :- Write a program to check if three points (x1,y1), (x2,y2) and (x3,y3) are collinear or not.

```
#include <stdio.h>

int main()
{
   float x1, y1, x2, y2, x3, y3, r, s;
   printf("Enter points (x1,y1) :\n");
   scanf("%f%f", &x1, &y1);
   printf("Enter points (x2,y2) :\n");
   scanf("%f%f", &x2, &y2);
   printf("Enter points (x3,y3) :\n");
   scanf("%f%f", &x3, &y3);
```

```
    r = (y2 - y1) / (x2 - x1);
    s = (y3 - y2) / (x3 - x2);
    if (r == s)
    {
        printf("All three points lie on a line");
    }
    else
    {
        printf("All three points not lie on a same line");
    }
}
```

Output of the Program :-

```
Enter points (x1,y1) :
2
4
Enter points (x2,y2) :
4
8
Enter points (x3,y3) :
6
12
All three points lie on a line
PS D:\College Work\C programming\Lab 2 Program>
```

Ques 4 :- According to the gregorian calendar, it was Monday on the date 01/01/01. If Any year is input through the keyboard write a program to find out what is the day on 1st January of this year.

```
#include <stdio.h>

int main()

{

   int year, zeller_number, temp;

   printf("Enter a year to find out its weekday on 1st January of the year :\n");

   scanf("%d", &year);

   year = year - 1;

   zeller_number = 1 + 2 * 13 + (3 * 14) / 5 + year + year / 4 - year / 100 + year / 400 + 2;

   temp = zeller_number % 7;

   switch (temp)

   {

   case (0):

      printf("Saturday");

      break;

   case (1):

      printf("Sunday");
```

```
        break;
    case (2):
        printf("Monday");
        break;
    case (3):
        printf("Tuesday");
        break;
    case (4):
        printf("Wednesday");
        break;
    case (5):
        printf("Thursday");
        break;
    case (6):
        printf("Friday");
        break;
    }
}
```

Output of the Program :-

```
Enter a year to find out its weekday on 1st January of the year :
2001
Monday
PS D:\College Work\C programming\Lab 2 Program>
```

Ques 5 :- WAP using ternary operator, the user should input the length and breadth of a rectangle, one has to find out which rectangle has the highest perimeter. The minimum number of rectangles should be three.

```
#include <stdio.h>

int main()

{

   int l1, b1, l2, b2, l3, b3, p1, p2, p3, max;

   printf("Enter the length & breadth of first Rectangle :\n");

   if (l1 <= 0 && b1 <= 0)

   {
```

```
    printf("Enter the valid length & breadth of the rectangle");
  }
  else
  {
    scanf("%d %d", &l1, &b1);
    printf("Enter the length & breadth of Second Rectangle :\n");
    if (l2 <= 0 && b2 <= 0)
    {
      printf("Enter the valid length & breadth of the rectangle");
    }
    else
    {
      scanf("%d %d", &l2, &b2);
      printf("Enter the length & breadth of Third Rectangle :\n");
      if (l3 <= 0 && b3 <= 0)
      {
        printf("Enter the valid length & breadth of the rectangle");
      }
      else
```

```
        {
            scanf("%d %d", &l3, &b3);
            p1 = 2 * (l1 + b1);
            p2 = 2 * (l2 + b2);
            p3 = 2 * (l3 + b3);
            max = (p1 > p2) ? (p1 > p3 ? p1 : p3) : (p2 > p3 ? p2 : p3);
            printf("Largest perimeter among three rectangle is %d,%d
and %d is %d", p1, p2, p3, max);
        }
    }
  }
}
```

Output of the Program :-

```
Enter the length & breadth of first Rectangle :
2
4
Enter the length & breadth of Second Rectangle :
4
6
Enter the length & breadth of Third Rectangle :
6
8
Largest perimeter among three rectangle is 12,20 and 28 is 28
PS D:\College Work\C programming\Lab 2 Program>
```