NAME: AMAN RAYCHAUDHURI

DIVISION: B2
ROLL NO.: 2401094 (B2-30)
BRANCH: AIDS
FE

Experiment No. 1

Aim: Write a program to find the area of a triangle Area=sqrt(S*(S-a)(S-b)(S-c)) S=a+b+c/2

a) Take a=10, b=12, c=14

b) Take input from user using scanf

c) Take multiple input through for loop

Theory:

1. Input: The program takes three sides of the triangle as input.

2. Semi-perimeter (S):
S = (a + b + c) / 2;

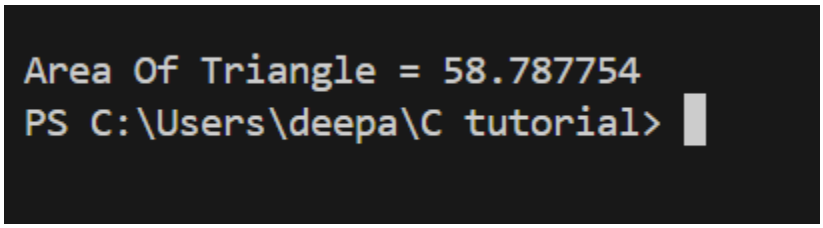
3. Heron's Formula:
Area = sqrt(S*(S-a)*(S-b)*(S-c))

4. Validation: The program checks if the area is valid (if the sides form a valid triangle).

Program:

```
// a) Take a=10, b=12, c=14

#include<stdio.h>
#include<math.h>
int main()
{
   double a=10, b=12, c=14, Area, S;
   S = (a + b + c) / 2;
   Area = sqrt(S*(S-a)*(S-b)*(S-c);
   printf("\nArea Of Triangle = %lf ", Area);
}
```



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Program

// b) Take input from user using scanf

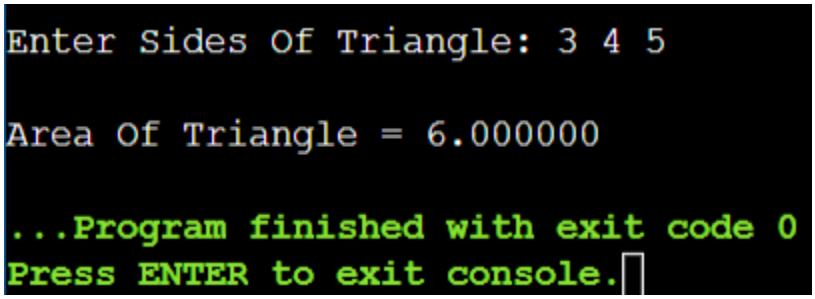
```
#include     <stdio.h>
#include     <math.h>
int main()
{
   double a, b, c, Area, S;
   printf("\nEnter Sides Of Triangle: ");
   scanf("%lf %lf %lf", &a, &b, &c);
   S = (a + b + c) / 2;
   Area = sqrt(S*(S-a)*(S-b)*(S-c));
   printf("\nArea Of Triangle = %lf ", Area);
}
```

Theory:

The user is prompted to enter the three sides of the triangle using scanf. The

area is calculated with the same formula.

Output:



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Program

```
// c) Take multiple input through for loop

#include <stdio.h>
#include <math.h>

  int main()
    {
    int n, i;
    double a, b, c, Area, S;
    printf("Enter the Number of Triangles: ");
    scanf("%d", &n);
    for (i = 1; i <= n; i++)
    {
       printf("\nEnter the Sides of triangle %d (a, b, c): ", i);
       scanf("%lf %lf %lf", &a, &b, &c);

       S = (a + b + c) / 2;
       Area = sqrt(S * (S - a) * (S - b) * (S - c));

       printf("The area of triangle %d is: %.2f\n", i, Area);
    }
    return 0;
  }
```

Theory:

The user specifies the number of triangles to process.

A for loop iterates through, allowing the user to input the sides for each triangle. The

program calculates and prints the area for each triangle.

Output:

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```
Enter the Number of Triangles:
2

Enter the Sides of triangle 1 (a, b, c): 3 4 5
The area of triangle 1 is: 6.00

Enter the Sides of triangle 2 (a, b, c): 10 12 14
The area of triangle 2 is: 58.79
PS C:\Users\deepa\C tutorial>
```

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Experiment No.2

Aim: Write a program to find the biggest of three integer

Theory:
1. The program prompts the user to input three integers.

2. It compares the numbers using ternary operator.

3. it compare first two number according to largest third number is checked.

3. Finally, the largest number is displayed.

Program:

```c
#include<stdio.h>
int main()
{
int a,b,c,max;
printf("enter any three number");
scanf("%d%d%d",&a,&b,&c);
max=(a>b)?((a>c)?a:c):((b>c)?b:c);
printf("the biggest %d,%d and %d is %d",a,b,c,max);

}
```

Output:

```
PS C:\Users\deepa\C tutorial> gcc addition.c
PS C:\Users\deepa\C tutorial> ./a.exe
enter any three number 3 5 4
the biggest 3,5 and 4is 5
```

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Experiment No. 3

Aim: Write a program to find the biggest of four integers

Theory:

1.The program starts by asking the user to input four integers.

2.It compares the number using ternary operator

3.it compares first two number then greatest is compare with third number and the greatest among then is compare with last number.

4.Finally, it displays the largest number.

Program:

```c
#include<stdio.h>
int main()
{
int a,b,c,d,max;
printf("enter any four number");
scanf("%d%d%d%d",&a,&b,&c,&d);
max=(a>b)?((a>c)?((a>d)?a:d):(c>d)?c:d):((b>c)?((b>d)?b:d):(c>d)?c:d);
printf("the biggest %d,%d,%d and %d is %d",a,b,c,d,max);
}
```

Output:

```
enter any four number 3 4 5 1
the biggest 3,4,5 and 1 is 5
PS C:\Users\deepa\C tutorial>
```