Program 1

Write a program that prints a text of 4 lines consisting of characters, integer values and floating point value using printf statement.

```
#include<iostream>

using namespace std;


int main()

{

	string line1 = "HelloWorld";

	int line2 = 12344;

	char line3 = 'c';

	float line4 = 8.324;


	cout<<line1<<endl;

	cout<<line2<<endl;

	cout<<line3<<endl;

	cout<<line4<<endl;

}
```

Program 2

Write a program that inputs name, age and address from the user and display it on the screen.

```
#include<iostream>

using namespace std;
```

```
int main()
{
	string name;
	cout<<"Enter your name:";
	cin>>name;

	int age;
	cout<<"Enter your age:";
	cin>>age;

	string address;
	cout<<"Enter your address:";
	cin>>address;

	cout<<"Your Name is "<<name<<endl;
	cout<<"Your Age is "<<age<<endl;
	cout<<"Your Address is "<<address<<endl;

	return 0;
}
```

Program 3

Write a program that inputs base height from the user and calculates area of a triangle by using the formula Area = ½ * Base *Height.

```
#include<iostream>

using namespace std;


int main()

{

	int base,height;

	cout<<"Enter base:";

	cin>>base;

	cout<<"Enter height:";

	cin>>height;


	int area = 0.5 * base * height;


	cout<<"The area of a triangle is "<<area;

}
```

Program 4

Write a program that inputs temperature from the using Celsius and converts it into Fahrenheit using the formula F = 9/5 * C + 32.

```
#include<iostream>

using namespace std;


int main()

{

	float celcius;
```

```
    cout<<"Enter temperature in celcius :";
    cin>>celcius;

    float farenheit = (1.8) * celcius + 32;
    cout<<"The temperature in farenheit is "<<farenheit;
}
```

Program 5

Write a program that inputs 4 numbers and calculates the sum, average, and product of all the numbers

```
#include<iostream>
using namespace std;

int main()
{
    float number1,number2,number3,number4;
    cout<<"Enter 4 numbers:";
    cin>>number1>>number2>>number3>>number4;

    float sum = number1 + number2 + number3 + number4;

    float product = number1 * number2 * number3 * num4;

    float average = sum / 4;
```

```
    cout<<"The sum of the 4 numbers is "<<sum<<endl;
    cout<<"The product of the 4 numbers is "<<product<<endl;
    cout<<"The average of the 4 numbers is "<<average<<endl;

}
```

Program 6

write a program that converts a person's height from inches to centimeters using the formula 2.54 * height.

```
#include<iostream>
using namespace std;

int main()
{
    int height;
    cout<<"Enter height in inches";
    cin>>height;

    int cm = 2.54 * height;

    cout<<"The height in centimeter is "<<cm;
}
```

Program 7

Write a program that inputs radius from the user and calculates area and circumference of circle using formula Area = πr^2.

```
#include<iostream>

using namespace std;

#define PI 3.1416


int main()

{

	float radius;

	cout<<"Enter radius:";

	cin>>radius;


	float area = PI * radius * radius;

	float circum = 2 * PI * radius;


	cout<<"The area of the circle is "<<area<<endl;

	cout<<"The circumference of the circle is "<<circum<<endl;

}
```

Program 8

Write a program that inputs two numbers and exchange their values the program should display the values before and after exchange.

```
#include<iostream>
```

```
using namespace std;


int main()
{
	int num1,num2;
	cout<<"Enter 2 numbers:";
	cin>>num1>>num2;


	cout<<"1st number is "<<num1<<endl;
	cout<<"2nd number is "<<num2<<endl;


	int a = num1;
	num1 = num2;
	num2 = a;


	cout<<"1st number after exchanging numbers is "<<num1<<endl;
	cout<<"2nd number after exchanging numbers is "<<num2<<endl;
}
```

Program 9

Write a program that inputs radius from the user and calculates area and circumference of cube using formula Area = $4\pi r^2$ Circumference = $4/3\pi r^3$.

```
#include<iostream>
using namespace std;
```

```
int main()
{
	const float pi = 3.1416;
	int radius;
	cout<<"Enter radius :";
	cin>>radius;

	int area = 4 * pi * radius * radius;
	int circum = 4 / 3 * pi * radius * radius * radius;

	cout<<"The area of a cube is "<<area<<endl;
	cout<<"The circumference is "<<circum<<endl;
}
```

Program 10

Write a program that inputs a three digit number from the user and displays it in reverse order. For example if the user enter 123, it displays 321.

```
#include<iostream>
using namespace std;
void reverse(int num)
{while(num>0)
	{
		int lastdigit = num%10;
		num = num / 10;
		cout<<lastdigit;
```

```
        }}
int main()
{
        int num1, num2 , num3;
        cout<<"Enter three numbers:";
        cin>>num1>>num2>>num3;
        cout<<"The reverse of the First number is ";
        reverse(num1);
        cout<<endl;
        cout<<"The reverse of the Second number is ";
        reverse(num2);
        cout<<endl;
        cout<<"The reverse of the Third number is ";
        reverse(num3);
        cout<<endl;
}
```

Program 11

Write a program that inputs miles from the user and converts miles into kilometers. One mile is equal to 1.609km.

```
#include<iostream>
using namespace std;

int main()
{
        int miles;
```

```
    cout<<"Enter miles:";
    cin>>miles;

    float km = miles / 1.609;
    cout<<"Kilometers is "<<km;
}
```

Program 12

Write a program that finds area of triangle when three sides a, b and c of the triangle are given. It inputs values of a, b and c. Formula for the area of triangle is Area = $\sqrt{s(s-a)(s-b0(s-c)}$ where s = (a + b + c)/2.

```
#include<iostream>
#include<cmath>
using namespace std;

int main()
{
    float a,b,c;
    cout<<"Enter three side of the triangle:";
    cin>>a>>b>>c;

    float s = (a + b + c)/2;

    float area;
    area = pow(s*(s-a)*(s-b)*(s-c),0.5);
```

```
	cout<<"The area of the triangle is "<<area;
}
```

Program 13

Write a program that inputs temperature in Fahrenheit and convert it into Celsius.

```
#include<iostream>
using namespace std;

int main()
{
	float farenheit;
	cout<<"Enter the temperature in farenheit:";
	cin>>farenheit;

	float celcius = (farenheit-32) * (0.56);
	cout<<"The temperature in Celcius is "<<celcius;
}
```

Program 14

Write a program that inputs a number and finds whether it is even or odd using if-else structure.

```
#include<iostream>

using namespace std;


int main()

{

	int number;

	cout<<"Enter a number:";

	cin>>number;


	if(number%2==0)

	{

		cout<<"Even";

	}

	else

	{

		cout<<"Odd";

	}

}
```

Program 15

Write a program that inputs salary and grade. It adds 50% bonus if grade is greater than 15. It adds 25% bonus if grade is 15 or less and then displays the salary.

```
#include<iostream>

using namespace std;


int main()

{

	int salary;

	cout<<"Enter your salary:";

	cin>>salary;


	int grade;

	cout<<"Enter your grade:";

	cin>>grade;


	if(grade>15)

	{

		salary += (salary/2);

	}

	else if(grade<=15)

	{

		salary += (salary/4);

	}
```

```
	cout<<"Salary after adding bonus is "<<salary;
}
```

Program 16

Write a program that inputs salary. If salary is 20000 or more, it deducts 7% of salary. If salary is 10000 or more or more but less than 20000, it deducts 1000. If salary is less than 10000, it deducts nothing and then displays net salary.

```
#include<iostream>
using namespace std;

int percentage(float salary,int i)
{
	return (salary * i)/100;
}

int main()
{
	float salary;
	cout<<"Enter salary:";
	cin>>salary;

	if(salary>=20000)
	{
		salary = salary - ((salary * 7)/100);
		cout<<"Salary after deduction is "<<salary<<endl;
	}
```

```
        else if(salary >= 10000)
        {
                salary = salary - 1000;
                cout<<"Salary after deduction is "<<salary<<endl;
        }
        else
        {
                cout<<"Salary is "<<salary;
        }


}
```

Program 17

Write a program that inputs from user and determines whether it is positive, negative or zero.

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

```
        if(number==0)
        {
                cout<<"Number is equal to zero!";
        }
        else if(number<0)
        {
                cout<<"Number is negative!";
        }
        else if(number>0)
        {
                cout<<"Number is positive!";
        }
}
```

Program 18

Write a program that inputs test score of a student and displays his grade on the following scale

Test Score	Grade
>=90	A
80-90	B
70-79	C
60-69	D
Below 50	F

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

	char grade;

	if(score>=90)
	{
		grade = 'A';
	}
	else if(score>=80)
	{
		grade = 'B';
	}
	else if(score>=70)
	{
		grade = 'C';
	}
	else if(score>=60)
	{
		grade = 'D';
```

```
	}
	else
	{
		grade = 'F';
	}

	cout<<"Grade is "<<grade;
}
```

Program 19

Write a program that inputs radius. It calculates area of circle if user enters1 as choice. It calculates circumference if the user enters 2 as choice. It displays error message in case of any other choice.

```
#include<iostream>
#define PI 3.1416
using namespace std;

int main()
{
	float radius;
	cout<<"Enter the radius:";
	cin>>radius;

	float area = PI * radius * radius;
	float circum = 2 * PI * radius;
```

```
    int choice;
    cout<<"Press 1 to find area & 2 for circumference:";
    cin>>choice;
    if(choice==1)
    {
        cout<<"The area of circle is "<<area;
    }
    else if(choice==2)
    {
        cout<<"The circumference of the circle is "<<circum;
    }
    else
    {
        cout<<"Invalid input!";
    }
}
```

Program 20

Write a program that inputs temperature and displays a message according to following table:

Temperature	Message
Greater than 35	Hot Day
Between 25 and 25	Pleasant Day
Less than 25	Cool Day

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

	if(temperature>=35)
	{
		cout<<"Hot day";
	}
	else if(temperature>=25)
	{
		cout<<"Pleasant day";
	}
	else
	{
		cout<<"Cool day";
	}
}
```

Program 21

Write a program that inputs three numbers and displays the smallest number by using nested if condition.

```
#include<iostream>
using namespace std;

int main()
{
	int a,b,c;
	cout<<"Enter 3 numbers:";
	cin>>a>>b>>c;

	if(a<b)
	{
		if(a<c)
		{
			cout<<"1st is smaller!";
		}
		else
		{
			cout<<"3rd is smaller";
		}
	}
	else
	{
		if(b>c)
		{
			cout<<"3rd is smaller";
```

```
		}
		else
		{
			cout<<"2nd is smaller";
		}
	}
}
```

Program 22

Write a program that inputs three numbers and displays the maximum number by using logical operators.

```
#include<iostream>
using namespace std;

int main()
{
	int a,b,c;
	cout<<"Enter 3 numbers:";
	cin>>a>>b>>c;

	if(a>b && a>c)
	{
		cout<<"1st is greater!";
	}
```

```
	else if(b>a && b>c)
	{
		cout<<"2nd is greater!";
	}
	else
	{
		cout<<"3rd is greater!";
	}
}
```

Program 23

Write a program that inputs a character and displays whether it is vowel or consonant using switch statement.

```
#include<iostream>
using namespace std;

int main()
{
	char ch;
	cout<<"Enter a character:";
	cin>>ch;

	switch(ch)
	{
		case 'a':
```

```
                cout<<"Vowel!";
                break;
        case 'e':
                cout<<"Vowel!";
                break;
        case 'i':
                cout<<"Vowel!";
                break;
        case 'o':
                cout<<"Vowel!";
                break;
        case 'u':
                cout<<"Vowel!";
                break;
        default:
                cout<<"Consonant!";
    }
}
```

Program 24

Write a program that inputs two numbers and one arithmetic operator. It applies arithmetic operation on two numbers on the basis of operator entered by user using switch statement.

```
#include<iostream>
using namespace std;
```

```
int main()
{
	float a,b;
	cout<<"Enter 2 numbers:";
	cin>>a>>b;

	char op;
	cout<<"Enter arithmetic operator:";
	cin>>op;

	switch(op)
	{
		case '+':
			cout<<a+b;
			break;
		case '-':
			cout<<a-b;
			break;
		case '*':
			cout<<a*b;
			break;
		case '/':
			cout<<a/b;
			break;
		default:
```

```
                cout<<"Invalid operation!";
        }
}
```

Program 25

Write a program that displays counting from 1 to 10 using while loop.

```
#include<iostream>
using namespace std;
int main()
{
        int i=1;
        while(i<=10)
        {
                cout<<i++<<endl;
        }
}
```

Program 26

Write a program that displays first five numbers and their sum using while loop.

```
#include<iostream>
using namespace std;
int main()
{
```

```
	int i=1;
	int result=0;
	while(i<=5)
	{
		result += i;
		cout<<i++<<endl;
	}
	cout<<"The sum of 1st 5 numbers is "<<result;
}
```

Program 27

Write a program that displays first five numbers with their squares using while loop.

```
#include<iostream>
using namespace std;
int main()
{
	int i=1;
	int result=0;
	while(i<=5)
	{
		cout<<i++<<"  "<<i*i<<endl;
	}
}
```

Program 28

Write a program that inputs two numbers and exchange their values the program should display the values of variables before and after exchange.

```
#include<iostream>

using namespace std;


void swapNo(int &a,int &b)

{

	int temp = a;

	a = b;

	b = temp;

}

int main()

{

	int num1,num2;

	cout<<"Enter 2 numbers:";

	cin>>num1>>num2;


	cout<<"The values before exchanging are "<<num1<<" & "<<num2<<endl;


	swapNo(num1,num2);

	cout<<"The values after exchanging are "<<num1<<" & "<<num2<<endl;



}
```

Program 29

Write a program that inputs a number from the user and displays a table of that number using while loop.

```
#include<iostream>

using namespace std;


int main()

{

	int number;

	cout<<"Enter a number:";

	cin>>number;


	int i=1;

	while(i<=10)

	{

		cout<<number<<" x "<<i<<" = "<<number*i<<endl;

		i++;

	}

}
```

Program 30

Write a program that inputs a number from the user and displays the factorial of that number using while loop.

```
#include<iostream>
```

```
using namespace std;


int factorial(int a)
{
	int result = 1;
	while(a>0)
	{
		result *= a;
		a--;
	}
	return result;
}


int main()
{
	int number;
	cout<<"Enter a number:";
	cin>>number;


	cout<<factorial(number);
}
```

Program 31

Write a program that displays the sum of following series using while loop.

1 + 1 / 2 + 1 / 4 + 1 / 6 + ... + 1 / 100.

```
#include<iostream>
using namespace std;


int main()
{
	float result = 1;
	float i=2;
	while(i<=100)
	{
		result += (1/i);
		i = i+2;
	}
	cout<<result;
	return 0;
}
```

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```
	#include<iostream>
using namespace std;
int main()
{
	int start,end;
	cout<<"Enter start limit:";
	cin>>start;
	cout<<"Enter End limit:";
	cin>>end;

		int i = start;
	do
	{
		if(i%2)
		{
			cout<<i<<endl;
		}
		i++;
	}
	while(i<=end);
}
```

34

```
#include<iostream>
using namespace std;

int power(int number,int power)
{
	int i = 0;
	int result = 1;
	if(power == 0)
	{
		return 1;
	}
	do
	{
		result *= number;
		i++;
	}
	while(i<power);
	return result;
}

int main()
{
	int number,pow;
```

```
        cout<<"Enter the number:";
        cin>>number;

        cout<<"Enter power:";
        cin>>pow;

        cout<<power(number,pow);
}
```

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```
#include<iostream>

using namespace std;



int power(int number,int power)

{

	int i = 0;

	int result = 1;

	if(power == 0)

	{

		return 1;

	}

	do

	{

		result *= number;

		i++;

	}

	while(i<power);

	return result;

}



int main()
```

```
{
        for(int i=0;i<=6;i++)
        cout<<i<<" "<<power(2,i)<<endl;
}
```

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```
#include<iostream>
using namespace std;

int factorial(int a)
{
	int result = 1;
	do
	{
		result *= a;
		a--;
	}
	while(a>0);
	return result;
}

int main()
{
	int number;
	cout<<"Enter a number:";
	cin>>number;

	cout<<factorial(number);
}
```

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```
#include<iostream>
using namespace std;
int main()
{
	char ch = 'A';
	for(int i=0;i<26;i++)
	{
		cout<<ch++<<endl;
	}
}
```

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```
#include<iostream>
using namespace std;
int main()
{
	int result = 1;
	for(int i=1;i<=10;i++)
	{
		result *= i;
	}
	cout<<result;
}
```

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```
#include<iostream>
using namespace std;

int factorial(int a)
{
	int result = 1;
	for(a;a>0;a--)
	{
		result *= a;
	}
	return result;
}

int main()
{
	int number;
	cout<<"Enter a number:";
	cin>>number;

	cout<<factorial(number);
}
```

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```
#include<iostream>
using namespace std;
int main()
{
	int number;
	int end;
	cout<<"Enter a number :";
	cin>>number;
	cout<<"Enter End limit of table:";
	cin>>end;

	for(int i=1;i<=end;i++)
	{
		cout<<number<<" x "<<i<<" = "<<number*i<<endl;
	}
}
```

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```
#include<iostream>
using namespace std;
int reverse(int n)
{
	int reverse = 0;

	int lastdigit = 0;
	while(n>0)
	{
		lastdigit = n%10;
		reverse = reverse*10 + lastdigit;

		n = n/10;
	}
	return reverse;
}
int main()
{
	int n;
	cin>>n;

	cout<<"Reverse is "<<reverse(n);
}
```

43

```
#include<iostream>

using namespace std;


int main()

{

	int length;

	cout<<"Enter the length of the series:";

	cin>>length;


	int result = 0;

	for(int i=1;i<=length;i++)

	{

		result += i*i;

	}

	cout<<"The sum of integers from 1 to "<<length<<" is "<<result;

}
```

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```
#include<iostream>
using namespace std;

int factorial(int a)
{
	int result = 1;
	while(a>0)
	{
		result *= a;
		a--;
	}
	return result;
}

int main()
{
	int result = 0;
	for(int i=1;i<=5;i++)
	{
		result += factorial(i);
	}
	cout<<"The sum of factorial of first 5 digits is "<<result;
}
```

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```
#include<iostream>
using namespace std;


int main()
{
	float i;


	float result = 0;
	for(i=1;i<=99;i++)
	{
		result = result + (i/(i+1));
//	cout<<i/(i+1);
	}
	cout<<"The result of the following series is "<<result;
}
```

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```
#include<iostream>
using namespace std;

int square(int i)
{
	return i*i;
}

int cube(int i)
{
	return i*i*i;
}

int main()
{
	int num[5];
	cout<<"Enter 5 numbers:";
	for(int i=0;i<5;i++)
	{
		cin>>num[i];
	}
```

```
	cout<<"Number\tSquare\tCube"<<endl;
	for(int i=0;i<5;i++)
	{
		cout<<num[i]<<"\t"<<square(num[i])<<"\t"<<cube(num[i])<<endl;
	}


}
```

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```
#include<iostream>
using namespace std;

int main()
{
	int num1,num2;
	cout<<"Enter 2 numbers:";
	cin>>num1>>num2;

	int gcd=1;
	for(int i=1;i<=num2;i++)
	{
		if( (num2%i==0) && (num1%i==0))
		{
			gcd = i;
			continue;
		}

	}
	cout<<"The greatest common divisor is "<<gcd;
}
```

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```
#include<iostream>
using namespace std;
int main()
{
	for(int i=0;i<=7;i++)
	{
		int j=i;
		while(j<=7)
		{
			cout<<"*";
			j++;
		}
		cout<<endl;
	}
}
```

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```
#include<iostream>
using namespace std;
int main()
{
	for(int i=1;i<=5;i++)
	{
		for(int j=1;j<=5;j++)
		{
			cout<<"*";
		}
		cout<<endl;
	}
}
```

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```
#include<iostream>
using namespace std;
int main()
{
	for(int i=1;i<=5;i++)
	{
		for(int j=1;j<=5;j++)
		{
			if(i==1 || j==1 || j==5 || i==5 )
			{
				cout<<"*";
			}
			else
			{
				cout<<" ";
			}
		}
		cout<<endl;
	}
}
```

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```
#include<iostream>
using namespace std;
int main()
{
	for(int i=4;i>=1;i--)
	{
		for(int j=1;j<=i;j++)
		{
			cout<<i<<"\t";
		}
		cout<<endl<<endl;
	}
}
```

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```
#include<iostream>
using namespace std;
int main()
{
	for(int i=0;i<5;i++)
	{
		for(int j=0;j<=i;j++)
		{
			cout<<"*";
		}
		cout<<endl;
	}
}
```

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```
	#include<iostream>
using namespace std;
int main()
{
	for(int i=0;i<5;i++)
	{
		for(int j=0;j<=i;j++)
		{
			cout<<j;
		}
		cout<<endl;
	}
}
```

56

```
#include<iostream>
using namespace std;
int main()
{
	for(int i=0;i<5;i++)
	{
		for(int j=0;j<i;j++)
		{
			cout<<" ";
		}
		for(int x=5;x>i;x--)
		{
			cout<<"*";
		}
		cout<<endl;
	}
}
```

57

```
#include<iostream>
using namespace std;
int main()
{
	for(int i=0;i<5;i++)
	{
		for(int j=0;j<=i;j++)
		{
			cout<<"*";
		}
		cout<<endl;
	}
}
```

58

```
#include<iostream>
using namespace std;
int main()
{
	for(int i=1;i<=5;i++)
	{
		for(int j=5;j>=i;j--)
		{
			cout<<" ";
		}
		for(int x=1;x<=i;x++)
		{
			cout<<x;
		}
		cout<<endl;
	}
}
```

59

```
#include<iostream>
using namespace std;
int main()
{
	for(int i=5;i>0;i--)
	{
		for(int j=1;j<=i;j++)
		{
			cout<<j<<" ";
		}
		cout<<endl;
	}
}
```

60

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

	if(!(number%2==0))
	{
		cout<<"Prime!!";
	}
	else
	{
		cout<<"Non-Prime";
	}
	return 0;
}
```

61

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



	for(int i=1;i<=limit;i++)
	{
		if(!(i%2==0))
		{
			cout<<i<<endl;
		}

	}
	return 0;
}
```