❖ Write Program to demonstrate use of Arrays

```
#include <iostream>

using namespace std;


int main()

{

 int arr[5]={10, 0, 20, 0, 30};  //creating and initializing array

        //traversing array

        for (int i = 0; i < 5; i++)

        {

            cout<<arr[i]<<"\n";

        }

}
```

❖ Write Program to demonstrate use of string

```
#include <iostream>

using namespace std;

int main( ) {

    string s1 = "Hello";

        char ch[ ] = { 'C', '+', '+'};

        string s2 = string(ch);

        cout<<s1<<endl;

        cout<<s2<<endl;
}
```

Write Program to demonstrate use of Pointer

```
#include <iostream>
using namespace std;
int main()
{
int number=30;
int ∗   p;
p=&number;//stores the address of number variable
cout<<"Address of number variable is:"<<&number<<endl;
cout<<"Address of p variable is:"<<p<<endl;
cout<<"Value of p variable is:"<<*p<<endl;
  return 0;
}
```

Write a program to demonstrate constant

```
#include <iostream>
#include <conio.h>
using namespace std;
int main ()
{
// declare variables
const int x = 10;
const int y = 25;
int z;
// add the value of x and y
z = x + y;
cout << " The sum of the x and y is: " << z << endl;
return 0;
}
```

- **write a program to demonstrate References in cpp**

```
#include <iostream>
using namespace std;
int main()
{
int a=10;
int &value=a;
cout << value <<endl;
return 0;
}
```

- **write a program to demonstrate References in class and object**

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

```
class Student
{
int rno=101;
char name[50]="Ram";
double fee=24500;
public:
void display()
{
cout<<"The Roll Number Of Student ="<<rno<<endl;
cout<<"The Name Of Student ="<<name<<endl;
cout<<"The Fee Of Student ="<<fee<<endl;
}
};
int main()
{
Student s1;
s1.display();
return 0;
}
```

Write a program to demonstrate use constructor

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

```
{
int rno;
char name[50];
double fee;
public:
Student()
{
cout<<"Enter the RollNo:";
cin>>rno;
cout<<"Enter the Name:";
cin>>name;
cout<<"Enter the Fee:";
cin>>fee;
}
void display()
{
cout<<"The Roll Number Of Student ="<<rno<<endl;
cout<<"The Name Of Student ="<<name<<endl;
cout<<"The Fee Of Student ="<<fee<<endl;
}
};
int main()
{
Student s;
s.display();
return 0;
}
```

Write a program to demonstrate use DESTRUCTOR

```
#include<iostream>
using namespace std;
class Demo
{
private:
int num1,num2;
public:
Demo(int n1,int n2)
{
num1 = n1;
num2 = n2;
}
void display()
{
cout<<"num1 = "<< num1 <<endl;
cout<<"num2 = "<< num2 <<endl;
}
~Demo()
{
cout<<"Destroyed ";
}
};
int main()
{
Demo obj1(10, 20);
obj1.display();
}
```

- **Write a program to demonstrate use constructor overloading**

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

class Person {
  private:
   int age;

  public:
   // 1. Constructor with no arguments
   Person() {
      age = 20;
   }

   // 2. Constructor with an argument
   Person(int a) {
        age = a;
    }

    int getAge() {
        return age;
    }
};

int main() {
    Person person1, person2(45);

    cout << "Person1 Age = " << person1.getAge() << endl;
    cout << "Person2 Age = " << person2.getAge() << endl;

    return 0;
}
```

❖ Demonstrate Standard String Functions using CPP

1) strlen()

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

int main() {
  // initialize C-string
  char song[] = "Student";

  // print the length of the song string
  cout << strlen(song);

  return 0;
}
```

2) strcpy()

```
#include <cstring>
#include <iostream>

using namespace std;

int main() {
  char src[] = "Hello Programmers.";

  // large enough to store content of src
  char dest[20];

  // copy the contents of src to dest
  strcpy(dest,src);

  cout << dest;
  return 0;
}
```

3)strcat()

```
#include <cstring>
#include <iostream>

using namespace std;

int main()
{
    char dest[50] = "hello";
    char src[50] = " MCA Student";

    strcat(dest, src);

    cout << dest ;

    return 0;

}
```

4)strcmp()

```
#include <cstring>
#include <iostream>
```

```
using namespace std;
int main() {
  char str1[] = "ABC";
  char str2[] = "XYZ";
  int result = strcmp(str1, str2);
  cout << result;
  return 0;
}
```

5)strrev()

```
#include <algorithm>
#include<iostream>
#include<string>
using namespace std;
int main()
{
    string str = "ABCD";
    reverse(str.begin(), str.end());
          cout<<"\n"<<str;
    return 0;
}
```

Write a program to demonstrate use of friend function

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

```
class demo
{
int x=5;
friend class ABC;
};
class ABC
{
public:
void display(demo &a)
{
cout<<"value of x is : "<<a.x;
}
};
int main()
{
demo a;
ABC b;
b.display(a);
return 0;
}
```

Write a program/s to demonstrate use of Inheritance.

1 Write a program to demonstrate use of single Inheritance.

```
#include<iostream>

using namespace std;

class Vehicle

{

public:

Vehicle()

{

cout << "This is a Vehicle\n";

}

};

class Car : public Vehicle

{

};

int main()

{

Car obj;

return 0;

}
```

2 Write a program to demonstrate use of multi-level Inheritance.

```
#include <iostream>

using namespace std;

class Vehicle
```

```
{
public:
Vehicle()
{
cout << "This is a Vehicle\n";
}
};
class fourWheeler : public Vehicle
{
public:
fourWheeler()
{
cout << "Objects with 4 wheels are vehicles\n";
}
};
class Car : public fourWheeler {
public:
Car() { cout << "Car has 4 Wheels\n"; }
};
int main()
{
Car obj;
return 0;
}
```