Lab 6

For all of the exercises below save your code on the learning management system (LMS) and give the screen shot of the output you get on the console in the space provided after every exercise

Exercise 6: (10 points)

Using the above example as guideline please define a class named Bike, with four data members: brand, model, price and topspeed. Write a program that includes the following:

a.Default constructor.

b. Parameterized constructor. c. Copy constructor. d. Destructor. e. Accessor/Mutator function for every data member. f. A general member function that displays all the data members. g. Write a main function that: a. Create a Bike object and call its various member functions using that object. b. Create a Bike pointer and calls its various member functions using the pointer. h. Write a non-member function that takes as parameter the Bike variable declared in above steps and displays its data members.

Please give the screenshot of the output that you get after running your program.

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

class bike{
private:
    string brand;
    string model;
    double price;
    int topSpeed;

public:
    bike();
    bike(string,string,double, int);
    bike(bike&);

    string getbrand();
    void setbrand(string);

    string getmodel();
    void setmodel(string);

    double getprice();
    void setprice(double);

    int gettopSpeed();
```

```
    void settopSpeed(int);

    void display();
    ~bike();
};

bike::bike()
{
    cout << "\nDefault Constructor" << endl;
    brand = " ";
    model = " ";
    price = 0;
    topSpeed = 0;
}
bike::bike(string a,string c,double d, int b) {
    cout << "\nParametreized constructors" << endl;
    brand = a;
    model = c;
    price = d;
    topSpeed = b;
}
bike::bike(bike & a) {
    cout << "\nCopy Constructor" << endl;
    this->brand = a.brand;
    this->model = a.model;
    this->price = a.price;
    this->topSpeed = a.topSpeed;

}

bike::~bike()
{
    cout << "\nDestructor Called for" << endl;
    cout << " TOP SPEED " << topSpeed << endl;
}
 // Accessor/Mutator function for every data member
void bike::setbrand(string a) {
    brand = a;
}
string bike::getbrand() {
    return brand;
}

void bike::setmodel(string b) {
    model = b;
```

```
}
string bike::getmodel() {
    return model;
}

void bike::setprice(double a) {
    price = a;
}
double bike::getprice() {
    return price;
}

void bike::settopSpeed(int a) {
     topSpeed = a;
}
int bike::gettopSpeed() {
    return topSpeed;
}

// Non-member function to display Bike data members
void bike :: display() {
    cout << "\n";
    cout << "Brand: " << brand << endl;
    cout << "Model: " << model << endl;
    cout << "Price: $" << price << endl;
    cout << "Top Speed: " << topSpeed << " kph" << endl;
}

int main() {

    bike myBike;
    myBike.setbrand("Honda");
    myBike.setmodel("CBR1000RR");
    myBike.setprice(15000);
    myBike.settopSpeed(120);
    myBike.display();

    // Creating Bike pointer and calling member functions using the pointer
    bike* ptrBike = new bike("Yamaha", "YZF-R1", 17000, 180);
    ptrBike->display();


    delete ptrBike;

    // Using non-member function to display Bike data members
```

```
    bike anotherBike("Kawasaki", "Ninja ZX-10R", 16000,350);
    anotherBike.display();

    return 0;
}
```

Output: