Object Oriented Programming Lab

Lab 04 **Marks 05**

Instructions

- Work in this lab individually.
- You can use your books, notes, handouts etc. but you are not allowed to borrow anything from your peer student.
- Make sure to follow the best coding practices.
- Include comments to explain the logic where necessary.
- Test your program thoroughly with various inputs to ensure proper functionality and error handling.
- Show your work to the instructor before leaving the lab to get some or full credit.

ADT: Bus

Write a class named **Bus** that has the following:

1. The class should have the following three private data members.

- A string named **busNumber** that holds the bus' license plate number.
- A string named **owner** that holds the owner's name of the bus.
- An integer named **capacity** that holds the bus' passenger capacity.

2. Provide the implementation of following constructors and a destructor**.**

- The constructor should accept the bus **license-number** and **owner** as arguments. These values should be assigned to the object's **busNumber** and **owner** member variables. The constructor should also assign **0** to the **capacity** member variables.
- A copy constructor initializes a bus object with an already existing object.
- A destructor that does nothing except displaying a simple message "Destructor executed…" on the screen.

3. Provide the implementation of appropriate accessor functions to get the values stored in an object's **busNumber**, **owner**, and **capacity** member variables.

4. Provide the implementation of appropriate mutator functions to set the values of object's **busNumber**, **owner**, and **capacity** member variables.

5. Provide the implementation of the following member functions.

- **setBus** method accepts **busNumber**, **owner**, and **capacity** as arguments and assigns them to the appropriate member variables.
- **getBus** method to initialize the data of a bus taken from the user through the console.
- **putBus** method to display the information of a particular bus on the console.
- **book** should add 1 (one) to the **capacity** member variable each time it is called.
- **cancel** should subtract 1 (one) from the **capacity** member variable each time it is called.

6. Test the functionality of **Bus** class by creating its **five objects** to hold the following data in **main** function,

Bus Number	Owner	Capacity
LHR 3216	Lahore Transport Company	40
LHR 3317	Faisal Movers	45
KHI 9876	Road Master	80
ISD 5467	Daewoo	60
KPK 4532	Sania Express	55

The program should store this data in the five objects and then display the data for each bus on the screen in the appropriate format.