School of System and Technology

Department of Computer Science

Program: BS (CS)

Lab Manual 5

Topics covered:

Copy Constructors, Shallow and Deep Copy

Problem Statement 1:

Implement a copy constructor for a class that represents a customer. The Customer class has two member variables: "name", which is a dynamically allocated string, and "address", which is a statically allocated char array. Test your implementation by creating two instances of the Customer class and using the copy constructor to create a deep copy of one of them.

Problem Statement 2:

Implement a shallow copy constructor for a class that represents a playlist. The Playlist class contains an array of songs which has a name and a duration. Test your implementation by creating two instances of the Playlist class and using the copy constructor to create a shallow copy of one of them.

Problem Statement 3:

Implement a deep copy constructor for a class that represents a calendar. The Calendar class contains an array of Event, each of event has id, name, start time, and end time. Demonstrate the concept of shallow copy and Deep copy by taking event id as a pointer. Test your implementation by creating two instances of the Calendar class and using the copy constructor to create a deep copy of one of them.

Problem Statement 4:

Implement a deep copy constructor for a class that represents a school. The School class contains a pointers to Student objects say school id pointer, which represent the students enrolled in the school. Each Student object has a dynamically allocated array of Course objects, which represent the courses that the student is taking. Test your implementation by creating two instances of the School class and using the copy constructor to create a deep copy of one of them.