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| **Object Oriented Programming Lab 05** | | | |
| **Course Code:** | COMP-112L | **Class** | CS (B) |
| **Lab Engineer** | Laiba Khalid | **Semester** | 2nd |
| **Lab Title** | C++ Classes | **Section** | - |
| **Name** |  | **Reg no.** |  |
| **Content Covered** | Copy constructors & it’s types | | |
| **Instructions:**  • Submit the file with your names following your registration numbers like AI001\_Name.  • Submit soft copy of the report before deadline. Marks will be deducted for late submissions. | | | |

**Lab Tasks**

### **Scenario: 🏥 Hospital Patient Management System**

Imagine a **Hospital Patient Management System** where the hospital stores patient records, including:

* Patient Name
* Age
* Medical History (stored dynamically as a list of diseases or treatments)
* Room Number

1. Create a class **Book** with attributes, **title** (string) and **price** (float):

* Implement a **user-defined copy constructor** to initialize a new Book object by copying the values from another Book object.
* Print the values of both original and copied objects.

1. Define a **Person** class where name is allocated dynamically in the constructor. Implement a **copy constructor** for deep copying and ensure proper memory deallocation in the destructor.
2. Create a class **Product** with attributes id (int) and price (float):

* Define a function **createProduct**() that **returns a Product object**.
* Call this function and store the returned object in a new variable to observe the copy constructor in action.