Bangladesh University of Business & Technology

Department of Computer Science and Engineering

Object Oriented Programming (CSE 111)

Fall 2024, Assignment 01

Intake 53 Marks: 20

Question 1: 5

Create a class named Product with the following three private attributes: productName (string), price (float), and quantity (int). In the main() function, create a 2D array of Product objects representing a 2x2 grid in a shop (2 shelves with 2 products each). Initialize all Product objects with values. Then, write a method to display the details of each product in the 2D array. Make sure the display output is formatted neatly.

Question 2: 5

Create a class named Book with private attributes: title (string), author (string), and pages (int). Write a function assignBook() that assigns values to a Book object. Also, write another function displayBook() to display its details. Next, create a function named

compareBooks(), **outside the class,** that takes two Book objects as pointers and returns the one with more pages.

- Use assignBook() to initialize two Book objects.
- Use compareBooks() to find and **display the book** with the higher page count.

Hint: Focus on using object pointers when passing the objects to the functions. (Here, 'pages' is a private member , then what do you need to access it from outside the class?)

Question 3: 5

Design two classes, Rectangle and Square. Both classes should have private data members for their dimensions (length and width for Rectangle, side for Square).

1. Create a friend function named printArea() that takes both a Rectangle object and a Square object and prints their areas.
2. Create another friend function named increaseSide() that is a member function of Square and a friend of Rectangle. This function should increase the side length of the Square object by the value of the Rectangle's length.

- In the main() function, create objects for both Rectangle and Square, initialize them, and demonstrate the use of both friend functions.

Question 4: 5

Write the basic differences and similarities between **class, structure and union**.