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|  | **CS304- Object Oriented Programming**  **Lab 8** |  |
| **Instructions:**  **Please read the following instructions carefully before submitting assignment:**  **It should be clear that your assignment will not get any credit if:**   * **The assignment is submitted after due date.** * **The assignment is submitted via email.** * **The assignment is copied from Internet or from any other student.** * **The submitted assignment does not open or file is corrupt.** * **It is in some format other than** **.cpp.**   **Note: You are supposed to submit your assignment in .cpp format. Any other formats like scan images, PDF, zip, doc, rar and bmp etc will not be accepted.** **All types of plagiarism are strictly prohibited.**  ***Objective***  The objective of this assignment is:   * To give you the idea of practical implementation of Inheritance in CPP**.**   **Problem Statement:**  Suppose METRO Cash & Carry Pakistan has given you a task to develop an automatic checkout system in C++. All items are identifiable by means of a merchandise computer code (barcode) and the item name. Groceries are either sold in packs or by weight. Packed items have fixed prices. The price of groceries sold by weight is calculated by multiplying the weight by the current price per kilogram. As a software developer your task is to develop the classes needed to represent the products first and organize them hierarchically according to the UML diagram given on next page.    **Items**  **Properties:**  Bar code  Item Name  **Methods:**  setbarCode()  getbarCode()  ...  scanner()  printer()  **PackedFood** **FreshFood**  **Properties:**  Price per piece  **Methods:**  getPrice()  setPrice()  ...  scanner()  printer()  **Properties:**  Weight  Price per rupee  **Methods:**  setWght()  getWght()  ...  scanner()  printer()  **Figure: UML for METRO Cash & Carry Pakistan**  **Tasks for you:**   1. Make a base class named **Item** then define its private and public members. Define a constructor with parameters for both data members (Barcode, Item Name). You should add default values for the parameters to provide a default constructor for the class. In addition to the access methods setCode() and getCode(), you are also required to define the methods scanner() and printer(). These methods will simply output item data on screen or read the data of an item from the keyboard. 2. Define two derived classes **PackedFood** and **FreshFood**. In addition to the Item class data, the PackedFood class should contain the unit price. The FreshFood class should contain a weight and a price per kilogram as data members. You are required to define a constructor with parameters providing default-values for all data members in both classes. Also define the access methods needed for the new data members. 3. Make the main() function then test the classes in it, that creates two objects each of the types **Item**, **PackedFood** and **FreshFood**. One object of each type should be fully initialized in the object definition. You can use the default constructor to create the other object. The get() and set() methods and the scanner() method should be well written and the printer() method should display the items on screen.   **GOOD LUCK!** | | |