**1. The Task of part 2 of the Coursework**

This part of your *Coursework* is to create a portfolio*.* The diagrams are to be prepared by using appropriate software.

#### 2. Task Description

Your software team is specialized in Web Application Development in your Company. Your company has taken a project from the “Digital Vision” which is a part of the ERP system development of mid-size software products.

Your company is needed to develop a customizable “online stock management and payment management system” for Digital Vision Online Store. (See the scenario in your Part 1 of the coursework).

In this Part, you are playing **the role** **of the senior Software Engineer** and do some research for appropriate OOP concepts and design patterns for your software project. You shall do the following:

1. Write Standard Report (Plan) Information.
   1. *OOP concepts*
   2. *Design Patterns*

can be used for the implementation and the reason for selection.

1. Design a detailed UML class diagram for the Digital Vision Online Store. Your solution should demonstrate all three inter-class relationships (**Association**, **Inheritance** and **Aggregation/composition**.) The classes should include attributes and methods.
2. Consider the scenario above and identify the design pattern which is most directly addresses the problem described. Briefly explain your reasoning.
3. The head office has to allocate vehicles to transfer the phone accessories to different branches. If there is any shortage of items in a branch, the branch manager can request the items from head office. The vehicle allocation will be done through In a First in First out queue. There are some already developed queue containers are available in the software library and it will provide the standard que operations to enque and deque data. However, you must develop some specific operations to search vehicles and to list the vehicle in the queue. Which design pattern would be suitable to obtain the additional functionality required by the queue? justify the answer with a suitable UML class diagram.

The Criteria (Marking Scheme)

|  |  |
| --- | --- |
| ***Component*** | **Marks** |
| ***1. Contents of this Report Body:*** | **(90%)** |
| **1)** Write Standard Report (Plan) Information.  a) OOP concepts b) Design Patterns | **20%** |
| ***2) UML class diagram for the Digital vision system.***   1. Should contain Association, Inheritance and Aggregation/composition. 2. Attributes and Methods 3. Complete UML diagram | **30%** |
| ***3) Selection of the Design pattern***   1. Explanation of the reason | **20%** |
| **4) First in First out queue**   1. Design pattern selection 2. Justification 3. UML class diagram | **5%**  **5%**  **10%** |
| ***2. Correspondence to SE documentation template:***  Cover page, Table of contents, Introduction, Format of references, Format of glossary, Format of illustrations, Format of body text, Structure of the document, Page format | **10%** |
| **Total** | **100%** |