**DEPARTMENT OF COMPUTER SCIENCE & INFORMATION TECHNOLOGY**

**BACHELORS OF SCIENCE IN COMPUTER SCIENCE**

**Course Title and Course Code: Object Oriented Programming (CT-260)**

**Course Learning Outcome:**

**CLO 2:** Comprehend the objects & their relationships to build an object-oriented solution.

**Complex Problem solving Attributes (CPA): (NCEAC Manual 2021** [**https://www.seoulaccord.org/document.php?id=79**](https://www.seoulaccord.org/document.php?id=79)**)**

* **CPA2 Depth of analysis required:** Has no obvious solution, and requires conceptual thinking and innovative analysis to formulate suitable abstract models
* **CP3 Depth of knowledge required:** A solution requires the use of in-depth computing or domain knowledge and an analytical approach that is based on well-founded principles.
* **CPA-9 Requirement identification:** Identification of a requirement or the cause of a problem is ill defined or unknown.

**Problem Statement:**

**DESIGN** and **IMPLEMENT** best design for the given case by adding appropriate functionalities. You may add your own assumptions to complete this case.

**Problem Description:**

Order management consists of several critical business processes, including order, shipment, and invoice processing. These processes spawn important business metrics, such as sales volume and invoice revenue, that are key performance indicators for any organization that sells products or services to others.

ABC company manages order management of Watches and Jewelry. The company manages to take orders in their shops and also offer customized products with preferable features; such as colors of straps and chains of watches, and addition/removal in jewelry designs. This company now aims to shift their store/shop business to online system. This online system will have display of products for these two categories. In addition to that, customer can add products in shopping cart and can make payment using three modes; Credit card, EasyPaisa, Cash on Delivery.

**Instructions:**

* Students may work in group of 3 at maximum.
* Your assignment will be graded according to the rubrics (provided with the assignment).
* Submit your assignment on Google Classroom.

**Deliverables:**

1. Object-oriented design using UML Class diagram with complete notations with proper naming conventions.
2. Implementation of the object-oriented design of the given problem.
3. Clearly drafted assumptions (if any)

**Complex Computing Problem Assessment Rubrics**

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| **Criteria and Scales** |
| **Excellent****(8-6)** | **Good****(5-4)** | **Average****(3-2)** | **Poor****(1-0)** |
| **Criterion 1:**  **Understanding the Problem:** How well the problem statement is understood by the student**(CP9: *Requirement Identification*)** |
| Understands the problem clearly and clearly identifies the underlying issues. | Adequately understands the problem and identifies the underlying issues. | Inadequately defines the problem and identifies the underlying issues. | Fails to define the problem adequately and does not identify the underlying issues. |
| **Criterion 2:**  **Research**: The amount of research that is used in solving the problem**(CP3: *Depth of Knowledge Required*)** |
| Contains all the information needed for solving the problem | Good research, leading to a successful solution | Mediocre research which may or may not lead to an adequate solution | No apparent research |
| **Criterion 3:**  **Class Diagram:** The completeness of the class diagram**(CP2: *Depth of Analysis Required*)** |
| Class diagram with complete notations | Class diagram with incomplete notations | Class diagram with improper naming convention and notations | No Class diagram |
| **Criterion 4:**  **Code:** How complete and accurate the code is along with the assumption**(CP3: *Depth of Knowledge Required*)** |
| Complete Code according to the class diagram of the given case with clear assumptions | Incomplete Code according to the class diagram of the given case with clear assumptions | Incomplete Code according to the class diagram of the given case with unclear assumptions | Wrong code and naming conventions |
| **Criterion 5:**  **Report**: How thorough and well organized is the solution**(CP2: *Depth of Analysis Required*)** |
| All the necessary information clearly organized for easy use in solving the problem | Good information organized well that could lead to a good solution | Mediocre information which may or may not lead to a solution | No report provided |

Course Code and Title: \_\_\_\_\_\_\_\_\_\_\_\_\_\_

 Total marks: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 Teacher’s signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_