|  |  |  |  |
| --- | --- | --- | --- |
|  | **Assignment No. 01 (Graded) Semester: Spring 2025**  **CS304- Object Oriented Programming** | | **Total Marks: 20**  **Due Date: 02/05/2025** |
| **Objective:**  The objective of this assignment is to enable students learn identification of objects, attributes, functions and relationships from real world scenario and construct a comprehensive class diagram.  **Learning Outcome:**  After completing this assignment, students will be able to:   * Develop a UML class diagram.   **Submission Instructions:**   * Your assignment should be in .doc or .docx file format (Any other formats like scan images, PDF, zip, doc, rar and bmp etc. will not be accepted). * You can use any drawing tool such as MS Paint, MS Visio for drawing class diagram. However, solution file must be in MS word format.   **Rules for Marking:**  It should be clear that your assignment will not get any credit if:   * The assignment is submitted after the due date. * The submitted assignment does not open, or execute or the file is corrupted. * Your assignment is copied from the internet, handouts, or any other student. (Strict disciplinary action will be taken in this case).   **Lectures Covered:** This assignment covers lectures 1-6. | | | |
| **Assignment No. 1** | |  | |
| **Scenario:**  A tech startup is developing a streamlined Autonomous Drone Delivery System to handle urban deliveries efficiently. The system operates with a fleet of smart drones that fall under two categories: delivery drones (used to carry packages) and surveillance drones (used for airspace monitoring and route validation).  Clients request deliveries and provide package details. When a client creates a delivery request, the system creates a delivery instance that includes important information such as dispatch time, ETA, and status. Each delivery is composed of one package, a flight path, and a drone. A package contains key data like weight and destination. Every Flight path has a pathID, startPoint, endPoint, waypoints and status.  Drones, once assigned a delivery, may return to a Charging Station when their battery levels fall below a threshold. Charging stations track all drones they serve and manage drone availability.  You have to perform the following tasks in this assignment:   1. Extract the main objects (entities) of above system. 2. Find the necessary attributes and functions that need to be associated with each object. 3. Identify the relationships among identified objects. 4. Construct a final comprehensive Class diagram showing all objects and their relationships along with their attributes and functions.   **Note:** Submit a complete and well-labeled Class Diagram as described in Task 4. The diagram should clearly reflect the results of Tasks 1 to 3, so a separate explanation for those tasks is not required.  **Best of luck!**  **NOTE:** Do not put any query on MDB about this assignment, if you have any query then email at [cs304@vu.edu.pk](mailto:cs304@vu.edu.pk). Furthermore, if any student is found cheating by any other student or from online forums then he/she will be awarded ZERO right away and strict disciplinary action will be taken against the student. | | | |
| **Deadline: Your assignment must be uploaded/submitted on or before 02 May 2025.** | | | |