**FACULTY OF ENGINEERING, DESIGN AND TECHNOLOGY**

DEPARTMENT OF COMPUTING AND TECHNOLOGY

ADVENT 2024 SEMESTER **EXAMINATION**

PROGRAM: BSCS, BSDS

YEAR: 2 SEMESTER: 1

COURSE CODE: CSC2105

COURSE NAME: OBJECT-ORIENTED PROGRAMMING

EXAMINATION TYPE: COURSEWORK PROJECT

PROJECT DURATION: OCT 28th - NOV 13th 2024

TIME ALLOWED: 2 weeks

**Examination Instructions**

1. The general Uganda Christian University examination guidelines and academic & financial policies apply to this project. Violating any of the policies by the student automatically makes this project attempt void, even if you have completed and submitted the project.
2. This project must be executed in **two weeks**.
   1. Assessment of the project shall be based on five milestones, evaluated during the duration of the project. Each milestone shall be evaluated out of 20 marks.
3. Every student has a responsibility to prove their contribution towards every milestone, and marks may be awarded to every student individually.
4. Every student submit an individual copy of the same group project to moodle. This will include the presentation ppt, the complete python code, .py files, and the report documentation (template provided).
5. Presentations can begin on the 11th of November 2024. All documentation must be submitted by 13th November, 11:59pm.
6. Random Assignment: The specific area each member presents about will be randomly assigned during the presentation.

**PART A:**

### Project Overview

This project is designed to provide a comprehensive, hands-on experience with Object-Oriented Programming (OOP) principles in Python. Working in groups, you will develop a Python application that incorporates essential OOP concepts, including encapsulation, abstraction, inheritance, and polymorphism. Your project should demonstrate a thoughtful and creative approach to applying OOP principles, culminating in a functional, well-documented, and engaging application.

### Group Responsibilities

* **Full Understanding**: Each member must have a complete understanding of the entire project, including implementation details for each section.
* **Randomized Presentation Assignment**: During the presentation, group members will be assigned specific sections of the project to present at random. Each member must be prepared to explain any part of the project.
* **Collaborative Effort**: Although each member may focus on particular areas, collaboration is key. Ensure everyone in the group is prepared to discuss and explain all aspects of the project.

### Project Deliverables

1. **Python Code**:
   * Develop well-structured and fully functional Python code for your project.
   * Ensure your code demonstrates correct and effective use of OOP concepts.
   * Document the code with clear comments and follow best practices for readability.
2. **Presentation**:
   * Prepare a short presentation to showcase your project.
   * Highlight how you applied OOP principles within the application.
   * Ensure the presentation is engaging and clearly explains your design choices.
3. **Project Report**:
   * Write a concise report that describes the project, design choices, and OOP principles used.
   * Include sections on challenges faced and lessons learned.
   * Provide an executive summary for a high-level overview.

**PART B:** Project-based assessment guidelines

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| **S/N** | **Milestone Description** | **Maximum Marks** |
| **1** | **MILESTONE ONE: Conceptualization and Design** Students should develop a clear project concept, outline key objectives, and design an initial structure of their OOP-based application. This milestone examines the creative planning and the logical application of OOP design principles. | **20%** |
| **2** | **MILESTONE TWO: Core Implementation (OOP Principles)** Students should implement the fundamental OOP principles—encapsulation, abstraction, inheritance, and polymorphism—within their code. This milestone assesses their ability to apply OOP concepts effectively in developing a functional codebase. | **20%** |
| **3** | **MILESTONE THREE: Feature Integration and Testing** Students should expand on their initial implementation by adding features that enhance functionality, and perform testing to validate that each feature works correctly. This milestone assesses code reliability and the ability to integrate enhancements based on previous achievements. | **20%** |
| **4** | **MILESTONE FOUR: Presentation and Demonstration** Students present and demonstrate their project, explaining how OOP concepts are implemented and discussing the challenges encountered. This milestone evaluates their ability to communicate and defend their project through a structured, engaging presentation. | **20%** |
| **5** | **MILESTONE FIVE: Documentation and Reflection** Students should submit a well-organized report, documenting the design process, challenges, solutions, and overall experience. This milestone examines the clarity and thoroughness of documentation, including an executive summary and reflection on lessons learned. | **20%** |
|  | **TOTAL MARKS** | **100%** |

**~END OF EXAM GUIDELINES~**