**OBJECT ORIENTED PROGRAMMING WITH JAVA**

**COURSEWORK**

**QUESTION ONE [INHERITANCE, METHOD OVERRIDING, METHOD OVERLOADING AND POLYMORPHISM]**

You have been hired to design a simple Zoo Management System using Java. The system should manage different types of animals and their behaviours.

**Required**

1. Create a Java class called Animal.
2. In the Animal class, define the appropriate fields “name (String), age (int)” and methods “public void makeSound(), and public void eat()”
3. Created preferred overloaded Methods in the main class Animal “public void makeSound(int times), and public void eat(String foodType)”.
4. Create subclasses Lion, Elephant, and Monkey that inherit from Animal and override “makeSound() and eat()” methods defined in (b) above
5. Lion: makeSound() should print "Roar" and eat() should print "Eating meat".
6. Elephant: makeSound() should print "Trumpet" and eat() should print "Eating grass".
7. Monkey: makeSound() should print "Chatter" and eat() should print "Eating bananas".
8. Create a Zoo class with a main method to execute the functioning project.
9. Use the overloaded methods in (c) above to show polymorphism.
10. Save all your work in a folder created on the desktop, screenshot all your program codes and output, and upload the code to a GitHub repository called **ZooManagementSystem**. Create your GitHub Account from <https://github.com/>
11. Attach the screenshot of your final output on the answer sheet and the link to your repository.
12. Use Sceenpal <https://screenpal.com> to record the code and the final output, while explaining how you reached to them, the recorded video should not exceed 15mins.

**QUESTION TWO [JAVA GUI APPLICATION DEVELOPMENT AND JDBC FOR DATABASE CONNECTIVITY]**

You have been hired to design a simple Java GUI application that manages a library's book inventory at Victoria University. The system should allow the user to add, view, and delete books from an MS Access database.

**Required**

1. Create a Java GUI application with the following functionalities;-
2. A form to add new books to the database. The form should have fields for Book ID, Title, Author, and Year.
3. A table to display the list of books currently in the database.
4. Buttons to add a new book, delete a selected book, and refresh the book list.
5. Connect the application to an MS Access database using JDBC. The database should have a table named Books with the columns BookID, Title, Author, and Year.
6. Implement the following functionalities
7. Add Book: Insert a new book record into the database.
8. Delete Book: Delete the selected book record from the database.
9. View Books: Retrieve and display all book records in the table.
10. Save all your work in a folder created on the desktop, screenshot all your program codes and output, and upload the code to a GitHub repository called **LibrarySystem**. Create your GitHub Account from <https://github.com/>
11. Attach the screenshot of your final output in one document and include the link of your repository
12. Use Sceenpal <https://screenpal.com> to record the code and the final output, while explaining how you reached to them, the recorded video should not exceed 15mins.

**GENERAL INSTRUCTION ON SUBMISSION**

1. Implement all the projects in the questions and submit a 15 minute video presentation of each Java Project to YouTube and provide video link, submit your Project Codes via a GitHub link
2. The documents should be submitted on Vclass book later than 4th June 2024. Failure to submit before deadline will not be considered.
3. Similar codes having similar comments will be treated as copied and all those found in that malpractice will be awarded zero (0) marks.

**END**