Faculty Name: IT
Certificate: Information Technology: Software Development
Programme Name: Software Development
Formative Assessment 2 Paper

CTU
training solutions

Private
Tertiary
Education

Table of Contents

Formative Assessment 2 Paper

Faculty Name:	Information Technology
Qualification Name:	FET Certificate: Information Technology: Database Development
Progarmme Name:	Software Development
Module Name:	Advanced Java Semester 2
Module Code:	JD522
Hand Out:	23 – 08 – 2024
Hand In:	06 - 09 – 2024
Time:	23:30
Total Marks:	100
Examiner:	Thabang Mashile
Resources Required:	None

Scenario Question(s)	100

This Formative Assessment 2 (FA2) contributes 33% towards the final mark.

Instruction(s) to Students

1. All assessments are due at 23:30 (local time) on the specified date.

2. Copying from any source, including other students' work, is strictly prohibited. Plagiarism will result in disciplinary action.

3. Before submitting your assessment, download the "Declaration of Authenticity" form provided from Campus Online. Sign the form and include it as part of your submission.

4. Late submissions will be accepted within a three-day grace period after the closing date. However, there will be a deduction in marks:

5. On the first day, a 5% deduction will be applied, From the second day onwards, the deduction will be 1% per day, up to a maximum deduction of 15%.

6. If you need to submit your assessment during the grace period, you must inform your facilitator.

   It is your responsibility to ensure that you have access to a reliable internet connection and the necessary resources to complete and submit your assessment on time.

Project Question(s)   100 Marks

Question 1

This Formative Assessment 2 covers learning Unit 5 to 8

Problem: Task Manager Application

You are tasked with creating a Java GUI-based Task Manager application that allows users to manage their tasks, categorize them, and store the information in a SQLite database. The application should provide features such as adding tasks, marking tasks as completed, and viewing tasks based on categories.

Unit 5: I/O and NIO (25 marks)

- Implement a GUI to list tasks from the SQLite database. (5 marks)
- Allow users to save tasks to a text file using OutputStream. (5 marks)
- Implement a mechanism to read tasks from the text file using InputStream. (5 marks)
- Display file properties like size and creation date using NIO. (5 marks)
- Provide an option to export task data to a CSV file using NIO. (5 marks)

Unit 6: Generics and Collections (20 marks)

- Design a task class that uses Generics to store task information. (5 marks)
- Use ArrayList to manage the list of tasks. (5 marks)
- Implement a filter mechanism to search for tasks based on user-defined criteria. (5 marks)
- Categorize tasks using HashMap to organize them based on user-defined categories. (5 marks)

Unit 7: Inner Classes (15 marks)

- Create an inner class to handle GUI components for task entry. (5 marks)
- Design an inner class to manage task categories and their corresponding actions. (5 marks)
- Implement a nested panel structure using inner panels for better organization. (5 marks)

Unit 8: JDBC (20 marks)

- Integrate a SQLite database with the application using JDBC. (5 marks)
- Design a database schema to store task information, including task name, description, completion status, and category. (5 marks)
- Implement functionalities to insert, update, and retrieve task data from the database. (5 marks)
- Display tasks in the GUI retrieved from the database. (5 marks)

Overall Design and Usability (20 marks)

- Design an intuitive and user-friendly GUI for the Task Manager application. (5 marks)
- Provide appropriate labels, buttons, and input fields for adding, viewing, and managing tasks. (5 marks)
- Implement error handling for input validation and database operations. (5 marks)
- Ensure a smooth and responsive user experience. (5 marks)

Submission Requirements

- **Add your source code in a word document and convert to PDF, adding screenshoots of your GUI, Outputs.**
- **Submit your enture project in a zipped folder**

Grand Total: 100

_____

End of Formative Assessment 2