School of Computing and Information Systems

BSC COMPUTER SYSTEMS ENGINEERING

CET102-Introduction to Programming with JAVA Year 1 Semester 2

Title: Bookstore Management System

Issue Date: 08 March 2024
Submission Date: 13 May 2024
Total Marks: 100

Instructions to candidates

1. Candidates must attempt **ALL** questions.
2. You are to make your submission on turn-it-in. You may consult with your tutor/lecturer on how this will be done.
3. Ensure that you have an account on turn-it-in by going to **www.turnitin.com**. Use the credentials provided for accessing this system. If you do not have them, get hold of the tutor/lecturer as soon as possible.
4. Any work with plagiarism level above **30 % will not be marked.** It your responsibility to make sure that your plagiarism level is within this level. Monitor it on regular bases. If your share your solution with others, chances of the plagiarism rising above this level are high.
5. It is your responsibility to ensure that you have **Introduction to Programming with Java** module in turn-it-in before submission date and you do not drop the module. Consult with your tutor/lecturer if this is not the case.

This question paper consists of FIVE (5) printed pages including this page

The assignment scenario

You have been newly hired as a junior programmer at Bookworm Haven, an emerging bookstore. The company has experienced rapid growth in the wake of the digital age, and with an increasing number of customers and books, managing the inventory and transactions has become challenging. Bookworm Haven is seeking an effective solution to streamline its operations. Your task is to develop a Bookstore Management System to handle inventory, sales, and customer information efficiently.

The records data will be added in a text file.

Requirements:

a. GUI Design [10 marks]

i. Plan, design, and create a user-friendly GUI for the Bookstore Management System.

b. System Features [50 marks]

i. A menu to select operations, including adding new books, managing inventory, and processing sales.
ii. Ability to add new books to the inventory with details such as ISBN, title, author, genre, price, and quantity.
iii. Ability to display the entire book inventory with relevant details.
iv. iv. Implement a search functionality allowing users to find books based on author, genre, or title.
v. Provide a feature to process book sales, updating inventory and generating sales reports.
vi. Implement a customer management system with the ability to add new customers and view their purchase history.
vii. Include a feature to calculate and display the total revenue generated by the bookstore.
viii. Allow users to view a list of top-selling books.

c. OOP Practices: [15 marks]

i. Modularize the program through the separation of classes.
ii. Apply principles of inheritance, polymorphism, and interfaces where appropriate.

d. System Report **[25 marks]**

Write a comprehensive report about your system, covering:

i. Introduction: Provide an overview of the Bookstore Management System.
ii. Classes Used and Methods: Explain the classes, their relationships, and the implemented methods.
iii. Testing: Describe the testing process, including test cases and outcomes.
iv. Challenges: Discuss any challenges faced during development.
v. Future Improvements: Propose potential enhancements for the system.

Total Marks [100]

Guidelines

i. Implement your program with a GUI
ii. Your programming method should be Object Oriented i.e. good programming practices such as separation of classes.
iii. Apply OO principles such as abstraction, inheritance, polymorphism and encapsulation.
iv. Provide test cases for your program and show sample input/output outcome.
v. Students must use their own datasets.

End of Paper

Marking Template

Marks (%)

A)	**GUI Design:** Clear and user-friendly GUI design. Proper use of JavaFX components (buttons, labels, text fields). Effective layout and spacing for readability. 4 marks 3 marks 3 marks	10 marks
B)	**Menu Operations:** Implementation of a functional menu for various operations.	5 marks
C)	**Add New Books:** Ability to add new books with relevant details.	10 marks
D)	**Display Book Inventory:** Proper display of the entire book inventory.	10 marks
E)	**Search Functionality:** Effective search feature for books based on author, genre, or title.	5 marks
F)	**Customer Management:** Proper addition of new customers and viewing purchase history.	10 marks
G)	**Total Revenue Calculation:** Accurate calculation and display of total revenue.	10 marks
H)	**OOP Practices:** Modularization of the program through the separation of classes.	15 marks

	Proper application of inheritance, polymorphism, and interfaces where applicable.	
I)	**System Report:** A brief report on your system including the following; Introduction: Clear overview of the Online Bookstore Management System. 2 marks Classes Used and Methods: Well-explained classes, relationships, and implemented methods. 10 marks Testing: Detailed description of the testing process with test cases and outcomes. 5 marks Challenges: Comprehensive discussion of challenges faced during development. 5 marks Future Improvements: Thoughtful suggestions for future enhancements. 3 marks	25 marks
	Total	100 marks