

File Handling All in one.
class Student 2



VIT

Vellore Institute of Technology
(Deemed to be University under section 3 of UGC Act, 1956)

REG.NO.: 22B050159

SCHOOL OF COMPUTER SCIENCE & ENGINEERING
CONTINUOUS ASSESSMENT TEST - II
FALL SEMESTER 2024-2025

SLOT: A2+TA2

Programme Name & Branch : B.Tech CSE in Business Systems
Course Code and Course Name : Java Programming (CSE1007)
Faculty Name(s) : Dr. Goutam Majumder and Dr. Arun Kumar G
Class Number(s) : VL2024250103178, 3172
Date of Examination : 13/10/2024
Exam Duration : 90 minutes Maximum Marks: 50

Answer All Questions

Q. No	Question	M
1.	You are tasked with managing a bank account that can be accessed by multiple users at the same time. Each user can either deposit or withdraw money from the account. Since multiple users may access the account concurrently, it is crucial to ensure the balance is updated correctly using thread synchronization. Write a Java program where: - There is a shared BankAccount class that maintains the balance and multiple threads perform deposit and withdrawal operations simultaneously. - Use thread synchronization to ensure that the balance is updated accurately when multiple threads are trying to modify it at the same time. Start with initial balance of ₹10000. Conditions needed to be satisfies: - The BankAccount class should have methods to deposit and withdraw money. The balance should never go negative. If a thread attempts to withdraw more than the available balance, the withdrawal should not happen, and the thread should print a message indicating insufficient funds. - Synchronize the methods to ensure correct balance updates. - Create at least 3 threads, each performing a series of deposit and withdrawal operations.	10
2.	You are required to design a function called Scoreboard to help a statistician to record the performance of players in an ODI cricket match. The statistician will input the scores of up to 11 players, where each player's stats include the number of 1s, 2s, 3s, 4s, and 6s they hit in the match. Input Format: Sachin 12 8 5 10 3 You need to store the players' names and their respective stats using HashMap and do the followings: - The system can retrieve the stats for any player by their name. - At the end, the program should display the total runs for each player and identify the player who scored the highest.	10



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3	You are required to design a student record management system for a school. The system should allow a user to create, and search for student records. The records should be stored in a file, and the system should be able to read from and write to this file as necessary. Each student's record will contain the information like: Student ID (unique identifier), Name, Age, Grade, Contact Number. The system should have the following functionalities: a) Add a new student record to a file, b) Search for a student record using ID from a file. System Requirements: • While adding a record to the file you need to search the file to check record exists or not. If present then display "Student Record Exist", Else, add the record to the file and also preserve the previous entries and display "Record Added Successfully" • Design another function to search student record using ID and display the record as name, age, grade, and contact number.	10
4.	You are given a list of product prices from an online store, and you need to perform two tasks using lambda expressions: a) Filter the prices: Remove all products that are priced below a certain threshold value (e.g., \$50). Take the list of price and threshold as input b) Apply a discount: For the remaining products, apply a discount (e.g., 10%) and return the final list of discounted prices. You are free to take the percentage of discount as input.	5
5	You are tasked with developing an Employee Management System using JDBC to store and retrieve employee information from a database. The system should allow for the following functionalities: • Add a new employee to the database. • Retrieve employee details by their Employee ID. • Update the salary of an existing employee. For each functionalities listed above needed to be done through separate functions as per requirement.	10

