Java1 Midterm Project

Phase I
-Upload the following files:

1. (50 points) j1mp_summary.docx
   a. **Summarize** each question to gain a clear understanding of the underlying issue.
   b. Specify the **input data type** and provide provisional **sample inputs** & **outputs** for comprehension and problem identification.
2. (50 points) j1mp_docu.docx
   Write documentation.

Phase II
-After receiving **approval**, proceed to upload the following files:

3. (100 points) j1mp_1.java, j1mp_2.java, j1mp_3.java
   Error-free code for each part
4. (50 points) j1mp_1.png, j1mp_2.png, j1mp_3.png
   Output screenshots clearly demonstrating your algorithm
5. (50 points) j1mp_docu_updated.docx
   Keep updating while coding to ensure clarity and a well-structured presentation of your algorithm.
6. (100 points) YouTube link(s)
   Algorithm presentation for all three parts.

Note:
*You can collaborate with your team **exclusively** on task **#1**.
*Ensure that both your **documentation** and **code** demonstrate your individual originality.

Part 1 – Calculating Sales

An online retailer sells five products whose retail prices are as follows: Product 1, $2.98; product 2, $4.50; product 3, $9.98; product 4, $4.49 and product 5, $6.87.
Write an application that reads a series of pairs of numbers as follows:

a) product number
b) quantity sold

Your program should use a switch statement to determine the retail price for each product. It should calculate and display the total retail value of all products sold. Use a sentinel-controlled loop to determine when the program should stop looping and display the final results.

Part 2 – Account Saving Checking

A bank in your town updates its customers' accounts at the end of each month. The bank offers two types of accounts: savings and checking. Every customer must maintain a minimum balance. If a customer's balance falls below the minimum balance, there is a service charge of $10.00 for savings accounts and $25.00 for checking accounts. If the balance at the end of the month is at least the minimum balance, the account receives interest as follows:

a) Savings accounts receive 4% interest.
b) Checking accounts with balances of up to $5000 more than the mini- mum balance receive 3% interest; otherwise, the interest is 5%.

Write a program that reads a customer's account number (**int** type), account type (**char** type; s or S for savings, c or C for checking), minimum balance that the account should maintain, and current balance. The program should then output the account number, account type, current balance, and new balance or an appropriate error message. Test your program by running it five times, by using proper the following data:

46728 S 1000 2700
87324 C 1500 7689
873 S 1000 800
89832 C 2000 3000
98322 C 1000 750

Part 3– Parking Charges

A parking garage charges a $2.00 minimum fee to park for up to three hours. The garage charges an additional $0.50 per hour for each hour or part thereof in excess of three hours. The maximum charge for any given 24-hour period is $10.00. Assume that no car parks for longer than 24 hours at a time. Write an application that calculates and displays the parking charges for each customer who parked in the garage yesterday. You should enter the hours parked for each customer. The program should display the charge for the current customer and should calculate and display the running total of yesterday's receipts.