Maximum points: 10 Due: 1:00 pm on March 10th, 2025

Assignment 3: Orange Inc.

Problem Description:

Orange Inc. is a popular electronics company which sells 5 different products: oComputer, oTablet, oCall, oStream, and oClock. Table 1 displays the information about these products. In that table, the first column displays the name of the product, the second column displays the per-unit price of the corresponding product, the third column represents the sales (number of units sold) of that particular product in the year 2024, and the fourth column represents the annual growth rate of sales. Thus, the unit price of the product oCall is 880; there were 530 units sold in 2024 and the sales are expected to increase annually by 2.5%.

Product name	Per-unit price	Sales in 2024	Sales growth rate (annual)
oComputer	1825	320	2.25%
oTablet	670	140	3.5%
oCall	880	530	2.5%
oStream	1910	45	4.3%
oClock	485	160	0.8%

Table 1: Information about Orange Inc. products

As a star Business Analyst at Oracle Inc., you are often consulted for analyzing different business strategies. You have the following task to perform:

Task: Compute the revenue to Orange Inc. in the year 2024 from the above products. Next, using the annual growth rate for each product, compute the projected sales in the year 2035. Assuming the per-unit price remains the same in all the years, compute the projected revenue in the year 2035.

Hint for Task: Create three arrays of appropriate data-type: (i) productPrice, (ii) productSales, and (iii) productRevenue. You already know the elements in productPrice and productSales. Using a for-loop, compute the revenue for each product and store it in the productRevenue array. Sum the elements in productRevenue to calculate total revenue.

To calculate the revenue in 2035, you will first need to compute the projected sales of each product in 2035. Create a method ProjSales that takes three parameters as input: the base sales, the growth rate, and the number of years. The method then returns the projected sales using the following formula:

$$ProjectedSales = BaseSales\left(1 + \frac{growth\ rate}{100}\right)^{number\ of\ years}$$

For example, if the sales in 2024 are 1000, the growth rate is 10.5%, then the projected sales after 3 years is simply: 1000(1+ 10.5/100)^3. Use Math.pow(a, b) function to compute a^b.

Once you create the method ProjSales, then you can compute the projected sales for each product in the year 2035 and store it in a new array, say productSales2035. Using the product prices from the productPrice array, compute the projected revenue for the year 2035.

Deliverables:

Your .java file including:

- The total revenue in 2024 (as a comment on top of your code)
- The projected revenue in 2035 (as a comment on top of your code)

Grading:

1. Define arrays productPrice, productSales2024, growthRate, productRevenue2024. (1 points)
2. Define a loop that calculates productRevenue2024 and totalRevenue2024. (2 points)
3. Display the total revenue in 2024. (0.5 points)
4. Define a method ProjSales that takes 3 inputs, productSales2024, growthRate, numberOfYears; calculates the projected sales in 2035 within a loop, and returns an output, productSales2035. (3 points)
5. Define a variable productSales2035 in the main method, and invoke a method ProjSales that sets the values of productSales2035. (1 points)
6. Define a loop that calculates productRevenue2035 and totalRevenue2035 (2 points)
7. Display the total projected revenue in 2035. (0.5 points)