American International University-Bangladesh

Course Title:	Advanced Programming with Java			Section:	A
Semester:	Spring 2024-25	Term:	Mid	Date:	06 April 2025
Type:	Lab - 1	Duration:	1H30M	Total Marks:	10
Student Name:				Student Id:	

Part-A

Design & implement the following scenario:

A reputable shipping company decided to make their office paperless. To achieve this, they created an IT (Information Technology) department and hired you to develop an application.

Your first task is to include all employees who joined in the current year (2025) and their leave information. There are 2 types of employees in this company.

1. Officer 2. Staff

There are also two types of leaves.

1. Vacation 2. Sick

Below is the leave distribution chart for each type of employee:

Employee Type	Vacation	Sick
Officer	15	10
Staff	10	7

Now based on the joining date calculate the leave of an employee.

$$\text{Leave Days} = \frac{((\text{End date of the year} - \text{Joining date}) + 1) * \text{Total leave days (Vacation or Sick)}}{\text{Total number of days in a year}}$$

For example, if a staff's joining date, is 01 January 2025. Then he/she will get 10 Vacation and 7 Sick Leaves. Again, if a staff's joining date, is 12 December 2025. Then he/she will get 1 Vacation and 0 Sick Leave.

$$\text{Vacation Leave} = \frac{((31/12/2025 - 12/12/2023) + 1) * 10}{365} = (20*10) / 365 = 0.54794520547 > 0.5 = 1$$

$$\text{Sick Leave} = \frac{((31/12/2025 - 12/12/2025) + 1) * 7}{365} = (20*7) / 365 = 0.38356164383 < 0.5 = 0$$

if an officer's joining date is 01 January 2025. Then he/she will get 15 Vacation and 10 Sick Leaves. Again, if an officer's joining date, is 12 December 2025. Then he/she will get 1 Vacation and 1 Sick Leave.

$$\text{Vacation Leave} = \frac{((31/12/2025 - 12/12/2025) + 1) * 15}{365} = (20*15) / 365 = 0.82191780821 > 0.5 = 1$$

$$\text{Sick Leave} = \frac{((31/12/2025 - 12/12/2025) + 1) * 10}{365} = (20*10) / 365 = 0.54794520547 < 0.5 = 1$$

Note: If the calculation result is below < 0.5 then use floor else use ceiling. Also, if the year is a leap year, then use 366 days instead of 365 days.

***All the inputs are console input. First, ask the user to provide employee's id, name, date_of_birth, email and joining_date. Then show all the details including his/her system-calculated leave details. Take at least 3 employees' information altogether.