DAY4(4/7/2025):

Q1. Design a class Person with attributes name and age.

Add a method isAdult() that returns true if age>=18

Create 2 person objects and print whether each is adult.

Q2. Design a class Staff and define attributes/parameters like name, department, city , designations, and also add a method isExEmployee? Or not that gives you the status of the current emoployment .

Q3. Design a class Employee with the following:

• employee id (int)

• employee name (String)

• employee salary (double)

• department name (String

The class should have:

• A constructor to initialize all fields

• A method calculateAnnual Salary() which returns the salary \* 12

• Another method applyBonus (double bonusPercent) which increases the salary by bonusPercent (for example if bonusPercent is 10, then salary becomes salary + salary\*0.10)

• In your main, create an array of 5 employees and print their annual salary after applying a 10% bonus.

• Why is this advanced?

• uses array of objects

Advanced part of the question:  
Now we will extend the employee class problem after creating multiple employees and applying a 10% bonus sort the employees by annual salary in d/o and print the top 3 earners with their details.

Basic steps:

1. Parameterized constructor
2. Method for annual salary calculation
3. Method for bonus calculation
4. Display method
5. Main method:
6. Array of objects
7. Traverse the array and call display method iteratively.

Advanced:

Collections.sort(studentmarks, new Comparator<Student>(){public int compare Student s1,Employee s2)}

Algorithm for top 3:

1. Parameterized constructor
2. Method for annual salary calculation
3. Method for bonus calculation
4. Display method
5. Main method:
6. ArrayList of objects
7. Now we use .add() method to add the records in the ArrayList
8. Then we are sorting the ArrayList contents based upon their salary in descending order, using a custom comparator, which is already a predefined method which compares the value of two subjects.
9. Running a for loop till i<3 and the size of the ArrayList and printing using get() method. Same loop is used for printing.

Q3. Design a class City, and based on the literacy rate, population and number of engineering colleges print the top 2 cities among 10.

Leetcode:

Arr[]={4,6,8,10};

Target = 14, Hence 1,2