C-DAC Mumbai
OOPJ Lab Assignment

Instructions:

1. Read each scenario carefully.
2. Write a Java program to solve it using concepts like if-else, switch-case, ternary operator, and loops.
3. Provide proper input prompts and output formatting.
4. Relate the program to the scenario.

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1. Greatest of Two Test Scores
Scenario: Your friend took two mock tests. Write a program to take the two test scores as input and print which test the friend scored higher in.
Input:
Enter score for Test 1: 78
Enter score for Test 2: 85

Output:
Test 2 has higher score.

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2. Highest Salary Among Three Offers
Scenario: You have three job offers. Take the offered salaries as input and print which company is offering the highest salary.

Input:
Enter salary for Company 1: 45000
Enter salary for Company 2: 52000
Enter salary for Company 3: 50000

Output:
Company 2 offers the highest salary.

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3. Bank Transaction Check
Scenario: You check your bank account and see a transaction amount. Print whether the transaction is a deposit (positive) or a withdrawal (negative).

Input:
Enter transaction amount: -2500

Output:
Withdrawal transaction.

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4. Even or Odd Locker Number
Scenario: Your school assigns lockers with numbers. Take locker number as input and print whether it is even or odd.

Input:
Enter locker number: 17

Output:
Odd locker number

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5. Square or Rectangle Garden
Scenario: You are designing a small garden. Take its length and breadth as input and check whether it is a square garden or rectangular.

Input:
Enter length: 12
Enter breadth: 12

Output:
Square garden

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6. Leap Year Check for a Birthday
Scenario: You want to celebrate your friend's birthday on Feb 29 if it's a leap year. Take the year as input and check if it's a leap year.

Input:
Enter year: 2024

Output:
2024 is a leap year.

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7. Exam Pass or Fail
Scenario: A student gives an exam. Take marks (0–100) as input and print whether the student has passed (>=35) or failed.

Input:
Enter marks: 42

Output:
Student has passed.

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8. Shop Discount Calculation
Scenario: A shop offers 10% discount if the purchase amount exceeds 1000. Take total purchase amount as input and calculate final cost.

Input:
Enter total purchase amount: 1200

Output:
Final cost after discount: 1080

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9. Employee Bonus Eligibility
Scenario: A company gives a 5% bonus to employees with more than 5 years of service. Take salary and years of service as input and print bonus amount.

Input:
Enter salary: 50000
Enter years of service: 6

Output:
Bonus amount: 2500

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10. Exam Attendance Eligibility
Scenario: A student can sit in exams only if attendance >=75%. Take total classes held and attended as input, print allowance.

Input:
Enter total classes held: 100
Enter classes attended: 78

Output:
Student is allowed to sit for the exam.

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11. Grade Based on Percentage
Scenario: Your friend got exam marks. Take percentage marks as input and print the grade:

- 90+ → A+
- 76–89 → A
- 66–75 → B+
- 51–65 → B
- 36–50 → C
- Below 35 → Fail

Input:
Enter percentage marks: 82

Output:
Grade: A

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12. Oldest and Youngest Among Three Friends
Scenario: You and two friends want to know who is oldest and youngest. Take ages as input and print the oldest and youngest.

Input:
Enter age of Friend 1: 22
Enter age of Friend 2: 25
Enter age of Friend 3: 20

Output:
Oldest: Friend 2
Youngest: Friend 3

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13. Exam Eligibility with Medical Cause
Scenario: A student's attendance is low but may have medical cause. Take classes held, attended, and medical cause (Y/N) as input and decide if the student can sit in exam.

Input:
Classes held: 100
Classes attended: 60
Medical cause (Y/N): Y

Output:
Student is allowed to sit for the exam.

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14. Reverse a 4-Digit Number
Scenario: Take a 4-digit number and print its reverse.

Input:
Enter 4-digit number: 1234

Output:
Reversed number: 4321

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15. Lucky Number Check
Scenario: A 4-digit number ABCD is lucky if A+B = C+D. Check if a number is lucky.

Input:
Enter 4-digit number: 3521

Output:
Not a lucky number

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16. Vowel or Consonant Checker
Scenario: Take a character input and print whether it is a vowel or consonant. Print error for invalid input.

Input:
Enter a character: e

Output:
Vowel

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17. Divisibility Check
Scenario: Check if a number is divisible by 2, 3, and 5 using nested if-else.

Input:
Enter number: 30

Output:
Divisible by 2
Divisible by 3
Divisible by 5

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18. Day of the Week
Scenario: Take day number (1–7) and print the day name.

Input:
Enter day number: 4

Output:
Day is Thursday

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19. Days in a Month
Scenario: Take month number (1–12) and print number of days in that month.

Input:
Enter month number: 2

Output:
28 or 29 days

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20. Basic Calculator Using If-Else
Scenario: Create a calculator that takes two numbers and an operator (+, -, *, /) and prints result using nested if-else.

Input:
Enter first number: 10
Enter second number: 5
Enter operator: *

Output:
Result: 50

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21. Day of the Week (Ternary)
Scenario: Take an int (1–7) and print the corresponding day of the week using ternary operators.

Input:
Enter day number: 3

Output:
Day is Wednesday

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22. Month Name from Number
Scenario: Take month number (1–12) and print the month name using ternary operators or if-else.

Input:
Enter month number: 8

Output:
Month is August

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23. Basic Calculator Using Switch-Case
Scenario: Create a calculator that uses switch-case for operators (+, -, *, /) and prints result.

Input:
Enter first number: 15
Enter second number: 3
Enter operator: /

Output:
Result: 5

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24. Grade Using Switch (Ranges)
Scenario: Take marks (0–100) and print grade using switch-case grouping:

- 0–24 → F
- 25–44 → E
- 45–54 → D
- 55–69 → C
- 70–84 → B
- 85–100 → A

Input:
Enter marks: 78

Output:
Grade: B

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25. Message Based on Number (1–5)
Scenario: Take a number (1–5) and print a message according to the case. Useful for simple menu selection.

Input:
Enter a number: 3

Output:
You selected option 3.

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26. Season Based on Month
Scenario: Print season based on month number:

- Dec–Feb → Winter
- Mar–May → Summer
- Jun–Aug → Monsoon
- Sep–Nov → Autumn

Input:
Enter month number: 12

Output:
Season is Winter

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27. Print Message Based on Character (A–E)
Scenario: Take a character (A–E) and print a specific message using switch-case.

Input:
Enter a character: B

Output:
You selected option B.

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28. Traffic Signal Instruction
Scenario: Take traffic signal color as input (Red, Green, Yellow) and print appropriate instruction.

Input:
Enter traffic light color: Green

Output:
Go

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29. Day Type Selection
Scenario: Take user input for day type (1–Workday, 2–Weekend) and print working status.

Input:
Enter day type (1–Workday, 2–Weekend): 2

Output:
It's weekend. No work today.

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30. Menu-Based Simple Arithmetic Operations
Scenario: Implement a menu-based program that asks user to select operation (Addition, Subtraction, Multiplication, Division) and prints result.

Input:
Select operation (1-Addition, 2-Subtraction): 1
Enter first number: 20
Enter second number: 30

Output:
Result: 50

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31. Greatest of Two Numbers (Ternary)
Scenario: You want to quickly compare two numbers. Take two numbers as input and print the greatest using a ternary operator.

Input:
Enter first number: 45
Enter second number: 30

Output:
Greatest number: 45

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32. Positive, Negative, or Zero (Ternary)
Scenario: Take a number and determine if it is positive, negative, or zero using ternary operator.

Input:
Enter a number: -12

Output:
Number is Negative

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33. Even or Odd (Ternary)
Scenario: Take a number and check if it is even or odd using ternary operator.

Input:
Enter a number: 17

Output:
Number is Odd

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34. Voting Eligibility (Ternary)
Scenario: Ask user age and print “Eligible” or “Not Eligible” to vote using ternary operator.

Input:
Enter age: 20

Output:
Eligible to vote

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35. Pass/Fail Check (Ternary)
Scenario: Take marks as input and print Pass or Fail using ternary operator (Pass if >=35).

Input:
Enter marks: 28

Output:
Fail

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36. Smallest of Three Numbers (Nested Ternary)
Scenario: Take three numbers as input and print the smallest using nested ternary operator.

Input:
Enter numbers: 12, 8, 19

Output:
Smallest number: 8

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37. Leap Year Check (Ternary)
Scenario: Take a year as input and check if it is a leap year using ternary operator.

Input:
Enter year: 2024

Output:
Leap Year

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38. Vowel or Consonant (Ternary)
Scenario: Take a character and check if it is a vowel or consonant using ternary operator.

Input:
Enter character: i

Output:
Vowel

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39. Bonus Eligibility (Ternary)
Scenario: A company gives 5% bonus if years of service > 5. Take salary and years of service, print bonus eligibility using ternary.

Input:
Enter salary: 50000
Enter years of service: 6

Output:
Bonus: 2500

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40. Discount on Purchase (Ternary)
Scenario: A shop gives 10% discount if purchase amount > 1000. Take purchase amount and print total cost using ternary.

Input:
Enter purchase amount: 1200

Output:
Total cost after discount: 1080

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41. Check Armstrong Number (3-Digit)
Scenario: Take a 3-digit number and check if it is an Armstrong number (sum of cubes of digits = number).

Input:
Enter number: 153

Output:
153 is an Armstrong number

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42. Armstrong Numbers Between 100–500
Scenario: Print all Armstrong numbers between 100 and 500. Output:
153
370
371
407

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43. Sum of Digits of a Number
Scenario: Take a number as input and print the sum of its digits.

Input:
Enter number: 482

Output:
Sum of digits: 14

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44. Reverse 4-Digit Number and Palindrome Check
Scenario: Take a 4-digit number, reverse it, and check if it is a palindrome.

Input:
Enter 4-digit number: 1221

Output:
Reversed number: 1221
Palindrome: Yes

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45. Sort Three Numbers in Ascending Order
Scenario: Take three numbers and print them in ascending order.

Input:
Enter numbers: 45, 12, 78

Output:
Ascending order: 12, 45, 78

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46. Character Type Checker
Scenario: Take a character as input and print whether it is an alphabet, digit, or special character.

Input:
Enter character: %

Output:
Special Character

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47. Even/Odd Status of Two Numbers
Scenario: Take two numbers and print if both are even, both odd, or mixed.

Input:
Enter first number: 12
Enter second number: 17

Output:
Numbers are mixed (one even, one odd)

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48. Grade with Plus/Minus
Scenario: Take marks and print grade with plus/minus (e.g., 85 → A, 78 → A−).

Input:
Enter marks: 78

Output:
Grade: A−

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49. Days in Month Considering Leap Year
Scenario: Take a year and month number, print days in that month considering leap years.

Input:
Enter year: 2024
Enter month number: 2

Output:
29 days

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50. Divisibility by 2, 3, 5 with Custom Messages
Scenario: Take a number and check divisibility by 2, 3, and 5, printing custom messages for each.

Input:
Enter number: 30

Output:
Divisible by 2
Divisible by 3
Divisible by 5