Problem 1: Leap Year Checker Problem Statement: Given a year, check whether it's a leap year or not. Input: An integer year $(1900 \le \text{year} \le 3000)$ Output: Print "Leap Year" if it's a leap year, else print "Not a Leap Year". Sample Input 1: 2000 Sample Output 1: Leap Year Sample Input 2: 1900 Sample Output 2: Not a Leap Year Problem 2: Grade with Remarks Problem Statement: Given a student's marks (0–100), print the grade and an appropriate remark: Marks Grade Remark 90-100 Α Excellent 80–89 B Very Good 70-79 C Good 60-69 D Satisfactory Below 60 F **Needs Improvement** Input: An integer representing the marks. Output: Print grade and remark in the format: Grade: <grade> Remark: <remark> Sample Input: 85 Sample Output: Grade: B

Remark: Very Good

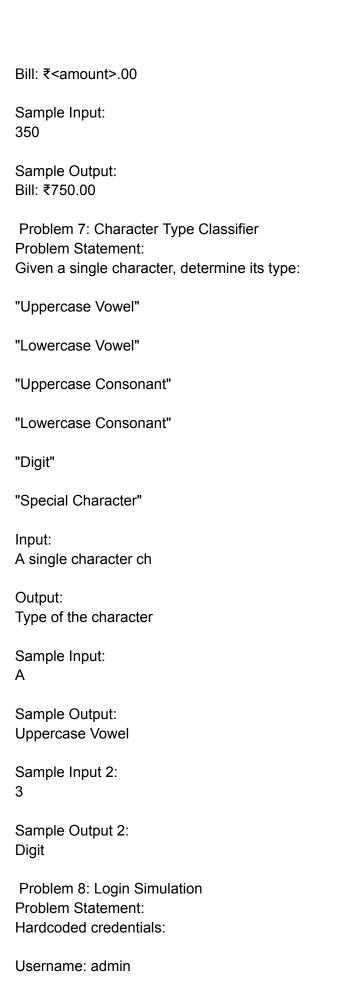
Problem 3: Triangle Type Checker **Problem Statement:** Given three sides of a triangle, determine its type: "Equilateral", if all sides are equal "Isosceles", if two sides are equal "Scalene", if all sides are different If the sides do not form a valid triangle, print "Not a Triangle" Input: Three integers a, b, c Output: Type of triangle or "Not a Triangle" Sample Input: 333 Sample Output: Equilateral Sample Input 2: 123 Sample Output 2: Not a Triangle Problem 4: Nature of Roots (Quadratic Equation) Problem Statement: Given coefficients a, b, and c of a quadratic equation $ax^2 + bx + c = 0$, determine the nature of its roots: "Real and Equal" "Real and Distinct" "Imaginary" Input: Three integers a, b, c Output: Nature of the roots

Sample Input:

Output:

Print total bill in format:

Sample Output: Real and Equal Sample Input 2: 123 Sample Output 2: Imaginary Problem 5: Day of the Week **Problem Statement:** Given an integer between 1 and 7, print the corresponding day of the week. If the input is invalid, print "Invalid". Input: An integer d (1–7) Output: Name of the day or "Invalid" Sample Input: Sample Output: Monday Sample Input 2: 8 Sample Output 2: Invalid Problem 6: Electricity Bill Calculator **Problem Statement:** Calculate the total electricity bill based on the number of units consumed: Units Rate per Unit 0–100 ₹1.5 101-300 ₹2 Above 300 ₹3 Input: An integer units $(0 \le units \le 10000)$



Password: 1234

Given input username and password, validate them and display:

"Login successful"

"Invalid username"

"Invalid password"

"Invalid username and password"

Input:

Two strings: username and password

Output:

Appropriate message

Sample Input: admin 1234

Sample Output:

Login successful

Sample Input 2: admin 0000

Sample Output 2: Invalid password

Problem 9: Piecewise Function Evaluation

Problem Statement:

Given an integer x, evaluate a piecewise function:

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$$f(x) =$$

$$x^{2} + 3x + 2$$
 if $x < -1$
 $2x + 5$ if $-1 \le x \le 2$
 $x^{3} - 4x$ if $x > 2$

Input:

An integer x

Output:

Value of f(x)

Sample Input:

-2

Sample Output: 0
Sample Input 2: 3
Sample Output 2: 15
Problem 10: Loan Eligibility Checker Problem Statement: A person is eligible for a loan if they meet all of the following conditions:
Age ≥ 21
Income ≥ ₹25,000
Credit score ≥ 700
If any condition fails, print all reasons.
Input: Three integers: age, income, creditScore
Output:
"Eligible"
or, "Not Eligible: Reason1, Reason2," (list all reasons)
Sample Input: 20 30000 710
Sample Output: Not Eligible: Age below requirement
Sample Input 2: 25 24000 650
Sample Output 2: Not Eligible: Income too low, Credit score too low