IF ELSE PROBLEMS

Problem 1: Salary Bonus Calculation

Description: Write a program that calculates the annual bonus for an employee based on their years of service and performance rating. The rules are:

- If years of service are greater than 10 and performance rating is "Excellent," bonus is 20% of salary.
- If years of service are between 5 and 10 and performance rating is "Good," bonus is 10% of salary.
- If years of service are less than 5 and performance rating is "Average," bonus is 5% of salary.
- Otherwise, no bonus.

Input: `years_of_service = 8, performance_rating = "Good", salary = 50000`

Output: "Bonus: 5000"

Problem 2: Grade Classification

Description: Write a program that classifies a student's grade based on their average score. The classification rules are:

- If the average score is 90 or above, the grade is "A."
- If the average score is between 80 and 89, the grade is "B."
- If the average score is between 70 and 79, the grade is "C."
- If the average score is between 60 and 69, the grade is "D."
- If the average score is below 60, the grade is "F."

Input: `average_score = 85`

Output: "Grade: B"

Problem 3: Shipping Cost Calculation

Description: Write a program that calculates the shipping cost based on the weight of the package and the destination. The rules are:

- If the weight is less than 5 kg and the destination is "domestic," the cost is $5.
- If the weight is between 5 and 20 kg and the destination is "domestic," the cost is $10.
- If the weight is more than 20 kg and the destination is "domestic," the cost is $20.
- If the destination is "international," the cost is $30 regardless of the weight.

Input: `weight = 15, destination = "domestic"`

Output: "Shipping Cost: $10"

Problem 4: User Authentication System

Description: Write a program that checks if a user's inputted username and password match the stored values. The rules are:

- If both username and password match, print "Access granted."
- If username matches but the password does not, print "Incorrect password."
- If neither matches, print "Invalid username and password."

Input: `stored_username = "user1", stored_password = "pass123", input_username = "user1", input_password = "pass124"`

Output: "Incorrect password"

Problem 5: Utility Bill Calculation

Description: Write a program that calculates the monthly utility bill for electricity based on the number of units consumed. The billing rules are:

- For the first 100 units, the cost is $0.5 per unit.
- For the next 100 units (101-200), the cost is $0.75 per unit.
- For units above 200, the cost is $1.0 per unit.
- Additionally, if the total bill exceeds $100, add a surcharge of 10%.

Input: `units_consumed = 250`

Output: "Total Bill: $162.5"

Problem 6: Voting Eligibility with ID Verification

Description: Write a program to read the age and citizenship status of a candidate, as well as whether they have a valid ID, to determine whether they are eligible to cast their vote. The rules are:

- A candidate is eligible if they are 18 years or older and a citizen.
- Additionally, they must have a valid ID to vote.

Input: `age = 21, is_citizen = True, has_valid_id = True`

Output: "Congratulation! You are eligible for casting your vote."

Problem 7: Comprehensive Utility Bill Calculation

Description: Write a program to calculate the monthly utility bill for electricity based on units consumed and include additional surcharges and discounts. The rules are:

- For the first 100 units, the cost is $0.5 per unit.
- For the next 100 units (101-200), the cost is $0.75 per unit.
- For units above 200, the cost is $1.0 per unit.
- If the total bill exceeds $100, add a surcharge of 10%.

- If the total bill is less than $20, apply a discount of 5%.

Input: `units_consumed = 250`

Output: "Total Bill: $162.5"

Problem 8: Employee Performance Bonus with Department Check

Description: Write a program to calculate the annual bonus for an employee based on their department, years of service, and performance rating. The rules are:

- If the department is "Sales" and years of service are greater than 5, the bonus is 15% of salary if the performance rating is "Excellent."
- If the department is "HR" and years of service are greater than 10, the bonus is 10% of salary if the performance rating is "Good."
- For other departments, if years of service are greater than 3, the bonus is 5% of salary if the performance rating is "Average."

Input: `department = "Sales", years_of_service = 6, performance_rating = "Excellent", salary = 60000`

Output: "Bonus: 9000"

Problem 9: Quadrant Determination with Axis Check

Description: Write a program to accept a coordinate point in an XY coordinate system and determine in which quadrant the coordinate point lies, or if it is on an axis or the origin. The rules are:

- If both x and y are positive, it's in the First quadrant.
- If x is negative and y is positive, it's in the Second quadrant.
- If both x and y are negative, it's in the Third quadrant.
- If x is positive and y is negative, it's in the Fourth quadrant.
- If x is 0 and y is not 0, it's on the Y-axis.
- If y is 0 and x is not 0, it's on the X-axis.
- If both x and y are 0, it's the origin.

Input: `x = 7, y = -9`

Output: "The coordinate point (7,-9) lies in the Fourth quadrant."

Problem 10: Student Grade and Division Calculation

Description: Write a program to read the roll number, name, and marks of three subjects of a student, calculate the total, percentage, and determine the division based on percentage. The rules are:

- If the percentage is 60 or above, the division is "First."
- If the percentage is between 50 and 59, the division is "Second."
- If the percentage is between 35 and 49, the division is "Third."

- If the percentage is below 35, the student fails.

Input: `roll_number = 784, name = "James", marks_physics = 70, marks_chemistry = 80, marks_computer_application = 90`

Output: "Roll No: 784\nName of Student: James\nMarks in Physics: 70\nMarks in Chemistry: 80\nMarks in Computer Application: 90\nTotal Marks = 240\nPercentage = 80.00\nDivision = First"