Problem-Solving Homework Tasks

Easy Tasks

Task: Even or Odd Checker (Electricity Billing System)

Description: Determine if a given meter reading (in kWh) is even or odd. If the reading is even, suggest a discount code 'EVENPOWER10'. If it's odd, suggest 'ODDSAVER5'.

Input Example: meter_reading = 452

Expected Output: Even reading, use discount code: EVENPOWER10

Task: Temperature Conversion (Weather App)

Description: Allow the user to convert a temperature from Celsius to Fahrenheit. Use the formula: (Celsius * 9/5) + 32.

Input Example: Celsius = 25

Expected Output: Temperature: 77°F

Task: Divisibility Check (Offer Eligibility)

Description: Check if an order number is divisible by 3, 5, or both: Divisible by 3 gives 'Free Shipping', divisible by 5 gives 'Cashback', and divisible by both gives 'Free Shipping and Cashback'.

Input Example: order_number = 15

Expected Output: Free Shipping and Cashback

Task: Personalized Greeting System

Description: Based on the time of day, greet the user appropriately: Morning (6 AM-11:59 AM), Afternoon (12 PM-5 PM), Evening (5 PM-9 PM), and Night (9 PM-6 AM).

Input Example: current_time = '2 PM'

Expected Output: Good Afternoon!

Medium Tasks

Task: FizzBuzz (Event Alert System)

Description: Develop a program to assign teams based on event number: Divisible by 3 ('Handled by Team A'), divisible by 5 ('Handled by Team B'), divisible by both ('Handled by Special Team'), otherwise 'No team assigned'.

Input Example: event_number = 30

Expected Output: Handled by Special Team

Task: Speed Limit Checker (Traffic Monitoring System)

Description: Check vehicle speed and respond: Speed < 60 ('Normal Speed'), 60-80 ('Warning: Close to Overspeeding'), > 80 ('Overspeeding! Penalty applied').

Input Example: speed = 75

Expected Output: Warning: Close to Overspeeding

Task: Grade Calculator (Performance Review)

Description: Assign grades based on scores: 90+ ('A+'), 80-89 ('A'), 70-79 ('B'), 60-69 ('C'), < 60 ('F').

Input Example: score = 85

Expected Output: Grade: A (Excellent)

Advanced Tasks

Task: ATM Withdrawal Validator

Description: Simulate an ATM withdrawal. Prompt for account balance and withdrawal amount. If the withdrawal amount exceeds balance, show 'Insufficient funds!'; otherwise, deduct and show 'Transaction successful!'.

Input Example: balance = 2000, withdrawal = 2500

Expected Output: Insufficient funds!

Task: Shopping Discount Calculator (Festival Offer)

Description: Calculate the price after applying discounts: Purchase > $1000 (20% discount), $500-$1000 (10% discount), below $500 (no discount).

Input Example: purchase_amount = 1200

Expected Output: Discounted price: $960

Task: Movie Ticket Price Calculator (Dynamic Pricing System)

Description: Assign ticket prices based on age: Age < 12 ($5), 12-60 ($10), > 60 ($7).

Input Example: age = 65

Expected Output: Ticket price: $7