JS Problem Solving

(Solve all the problems given below)

1. ATM Withdrawal System

Scenario:
A customer wants to withdraw money from an ATM. Write a function atmWithdrawal(balance, amount, pin, enteredPin) that checks:

- If enteredPin matches pin, proceed. Otherwise, return "Incorrect PIN"
- If amount > balance, return "Insufficient Funds"
- If amount is a multiple of **100**, allow withdrawal, else return "Enter amount in multiples of 100"

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2. Online Shopping Discount & Free Shipping

Scenario:
An online store offers the following:

- **Discounts**:
  - 20% for orders above $1000
  - 10% for orders between $500 and $1000
  - No discount below $500
- **Free shipping** for orders above $50
- **Express shipping ($10)** for all orders below $50
  Write a function calculateFinalAmount(orderAmount) that returns the final payable amount after discount and applicable shipping charges.

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3. Student Grading System with Extra Credit

Scenario:
A school assigns grades based on marks and awards **extra credit** if attendance is above 90%.

- **Grading:**
  - 90+ → "A"
  - 80-89 → "B"
  - 70-79 → "C"
  - 60-69 → "D"
  - Below 60 → "F"

- If **attendance is above 90%, add 5 extra marks**
  Write a function calculateGrade(marks, attendance) that returns the student's final grade.

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4. Smart Traffic Light System

Scenario:
A smart traffic light changes signals based on traffic density:

- "Heavy Traffic" → **Green for 60 seconds**
- "Moderate Traffic" → **Green for 40 seconds**
- "Light Traffic" → **Green for 20 seconds**
  Write a function trafficLightControl(density) that returns how long the green signal will stay on.

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5. Movie Ticket Pricing with Time and Age Discount

Scenario:
A movie theater offers tickets with dynamic pricing:

- **Standard price: $12**
- **Matinee show (before 5 PM)** → 20% discount
- **Senior citizens (above 60)** → 30% discount
- **Children (below 12)** → 40% discount
  Write a function calculateTicketPrice(age, showTime) that returns the final ticket price.

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6. Job Application Filter

Scenario:
A company is hiring and requires candidates to meet the following conditions:

- **Age** must be **between 21 and 55**
- **Experience** must be at least **2 years**
- **Minimum qualification**: "Bachelor's Degree"
  Write a function isEligibleForJob(age, experience, qualification) that returns whether the applicant is eligible.

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7. E-commerce Coupon Redemption

Scenario:
An e-commerce store offers coupon-based discounts:

- **Coupon "DISCOUNT10"** → 10% off for orders above $500

- **Coupon "FREESHIP"** → Free shipping for orders above $200
- **Both coupons cannot be used together**
  Write a function applyCoupon(orderAmount, couponCode) that calculates the final price.

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8. Fitness Membership Plan

Scenario:
A gym offers different membership plans:

- **Basic ($20/month)** → Only gym access
- **Premium ($50/month)** → Gym + Personal Trainer
- **VIP ($80/month)** → Gym + Trainer + Diet Plan
  Write a function choosePlan(planType, wantsTrainer, wantsDietPlan) that suggests the best membership.

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9. Electricity Bill Calculation with Peak Hours

Scenario:
An electricity board charges differently based on consumption and time:

- **Normal hours (8 AM - 8 PM)**
  - Below 100 units → $5 per unit
  - 100-300 units → $4 per unit
  - Above 300 units → $3 per unit
- **Peak hours (8 PM - 8 AM)** → Extra 10% charge on all rates
  Write a function calculateElectricityBill(units, timeOfDay) that returns the total bill.

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10. Flight Ticket Booking System

Scenario:
A flight booking system applies the following rules:

- **Base fare:** $300
- **Additional charges:**
  - **Business class:** +$200
  - **First class:** +$500
  - **Luggage over 20kg:** +$50 per 10kg extra
- **Discounts:**
  - **Students** → 15% off

- **Seniors (above 60 years old)** → 10% off
  Write a function calculateFlightFare(classType, luggageWeight, isStudent, isSenior) that returns the final price.