JS Problem Solving : INNOMATICS TASK

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"

function atmtransactions(balance,moneyreq,pin,originalpin)

{

if (pin !== originalpin)

{

return "Incorrect PIN,recheck it "

}

if (moneyreq > balance){

return "Insufficient Funds"

}

return moneyreq % 100 !== 0

? "Enter amount in multiples of 100"

: `Withdrawal successful. Remaining balance: ₹${(balance -= moneyreq)}`;

}

console.log(atmtransactions(1000,500,12345,12345))

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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.

function calculateFinalAmount(orderAmount) {

let discount = 0;

if (orderAmount > 1000) {

discount = 0.2;

console.log(`Order Amount: ₹${orderAmount} eligible for 20% Discount`);

} else if (orderAmount >= 500) {

discount = 0.1;

console.log(`Order Amount: ₹${orderAmount} eligible for 10% Discount`);

} else {

console.log(`Order Amount: ₹${orderAmount} → No Discount Applied`);

}

let discountedAmount = orderAmount \* (1 - discount);

console.log(`Discounted Amount: ₹${discountedAmount.toFixed(2)}`);

let shipping = 0;

if (discountedAmount <= 50) {

shipping = 10;

console.log(`Shipping Charge: ₹${shipping} (For Express Shipping)`);

} else {

console.log(`Shipping Charge: ₹${shipping} (Normal/Free Shipping)`);

}

let finalAmount = discountedAmount + shipping;

console.log(`Final Amount to be paid: ₹${finalAmount.toFixed(2)}\n`);

return finalAmount;

}

calculateFinalAmount(1800);

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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.

function calculateGrade(marks, attendance) {

if (attendance > 90) {

marks += 5;

}

if (marks >= 90) {

return "Grade A";

} else if (marks >= 80) {

return "Grade B";

} else if (marks >= 70) {

return "Grade C";

} else if (marks >= 60) {

return "Grade D";

} else {

return "F";

}

}

console.log(calculateGrade(79, 95));

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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.

function trafficLightControl(density){

if (density === "Heavy Traffic"){

console.log("Green for 60sec.")

}

if (density === "Moderate Light"){

console.log("Green for 40sec.")

}

if(density === "Light Trafiic"){

console.log("Green for 20sec.")

}

}

trafficLightControl("Heavy Traffic")

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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.

function calculateTicketPrice(age, showTime) {

let price = 250;

if (showTime < 17) {

price \*= 0.8;

}

if (age > 60) {

price \*= 0.7;

} else if (age < 12) {

price \*= 0.6;

}

return `The final price is ${price.toFixed(2)}rs`;

}

console.log("The cost of the ticket for the show is 250rs")

console.log(calculateTicketPrice(65, 14));

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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.

function isEligibleForJob(age, experience, qualification) {

if (age >= 21 && age <= 55 && experience >= 2 && qualification === "Bachelor's Degree") {

return "THE APPLICANT IS ELIGIBLE FOR THIS ROLE";

} else {

return "THE APPLICANT IS NOT ELIGIBLE FOR THIS ROLE";

}

}

console.log(isEligibleForJob(30, 3, "Bachelor's Degree");

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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.

function applyCoupon(orderAmount, couponCode) {

if (couponCode === "DISCOUNT10" && orderAmount > 500) {

console.log(`the final price is ${orderAmount \* 0.9} after discount of 10% `) ;

} else if (couponCode === "FREESHIP" && orderAmount > 200) {

console.log(`the final price is ${orderAmount} and you get freeshipping`);

} else {

console.log(`the final price is ${orderAmount}`);

}

}

applyCoupon(600, "DISCOUNT10");

applyCoupon(250, "FREESHIP");

applyCoupon(100, "DISCOUNT10");

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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.

function choosePlan(planType, wantsTrainer, wantsDietPlan) {

if (wantsTrainer && wantsDietPlan) {

return "VIP Plan ($80/month)";

} else if (wantsTrainer) {

return "Premium Plan ($50/month)";

} else {

return "Basic Plan ($20/month)";

}

}

console.log(choosePlan("Basic", false, false));

console.log(choosePlan("Premium", true, false));

console.log(choosePlan("VIP", true, true));

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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.

function calculateElectricityBill(units, timeOfDay) {

let rate = 0;

if (units <= 100) {

rate = 5;

} else if (units <= 300) {

rate = 4;

} else {

rate = 3;

}

if (timeOfDay >= 20 || timeOfDay < 8) {

rate \*= 1.1;

}

return `The final amount is Rs.${(units \* rate).toFixed(2)}`;

}

console.log("Here considering the time in the 24hr format for the easier calculation")

console.log(calculateElectricityBill(120, 10));

console.log(calculateElectricityBill(120, 21));

console.log(calculateElectricityBill(350, 22));

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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.

function calculateFlightFare(classType, luggageWeight, isStudent, isSenior) {

let fare = 3000;

if (classType === "Business") {

fare += 200;

} else if (classType === "First") {

fare += 500;

}

if (luggageWeight > 20) {

fare += Math.ceil((luggageWeight - 20) / 10) \* 50;

}

if (isStudent) {

fare \*= 0.85;

} else if (isSenior) {

fare \*= 0.9;

}

return fare.toFixed(2);

}

console.log(calculateFlightFare("Economy", 25, false, true));

console.log(calculateFlightFare("Business", 15, true, false));

console.log(calculateFlightFare("First", 30, false, false));

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