

# **Diagonal Internship Assessment**

## **Objective:**

To Evaluate:

1. Your interest for the position
2. Your ability to understand the requirement
  - 2.1. Your ability to ask questions if the requirement is not clear enough
3. Your coding, debugging and analytical skills
4. Your attention to the details
5. Your ability to understand what you are doing.

**Note:** The objective of the task is not just the completion but the attempt towards the deliverables.

## **Tech Stack:**

You are free to choose your own technology however we encourage you to work with ReactJS or VanillaJS.

## **Code Submission:**

Create a GitHub repository for your solution, push all your code to the repository and share the link with us.

## **Task 1: Lets Create**

Lets create a restaurant menu app:

### **User Stories:**

1. As a user, I should see the menu card of various food items with their prices.
2. As a user, I can select the food and a total bill should be displayed at the bottom alongside the selection.
3. As a user, I should see the food selection even in page reload.
4. As a user, I should be able to click to pay the amount and place an order which should also clear out the current bill.
5. As a user, I should be able to check my previous order history.

## Task 2: Lets Debug

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*A cricket player gets a contract of 3 years to play for a team in IPL. He has an option to choose how he want to get paid. It could be weekly or monthly.*

*10% of the total amount will be paid at the time of signing the contract and remaining will be paid trough installments. The payment can be completed before the contract ends but cannot exceed more than contract period. Weekly payment can be multiple of 50 and monthly payment can be multiple of 100.*

*Example: if weekly amounts happens to be \$122 round it to \$150. If monthly amounts happens to be \$122 round it to \$200.*

*Here is the function which calculates the amount to be paid. Your task will be to find mistakes and improve the code efficiency.*

*Feel free to change code structure and variable names as you see fit.*

*\*/*

```
const formulatePayment = (choice, amount) => {
  const initialPayment = ((10 / 100) * amount).toFixed(2);
  const remainingTotal = amount - initialPayment;

  if (choice == 'weekly') {
    let weeklyAmountPayment = 0;
    let weekly = remainingTotal / weeklyAmountPayment;

    while (weekly > 156) {
      weeklyAmountPayment = weeklyAmountPayment + 50;
      let weeks = remainingTotal / weeklyAmountPayment;
      if (weeks % 50 !== 0) {
        weekly = Math.ceil(weeks);
      }
    }
    console.log(`You will be paid ${weeklyAmountPayment} for ${weekly} weeks.`);
    return { time: weekly, amount: weeklyAmountPayment };
  } else if (choice == 'monthly') {
    let monthlyPrice = 0;
```

```

let monthly = remainingTotal / monthlyPrice;

while (monthly > 36) {
  monthlyPrice = monthlyPrice + 100;
  let months = remainingTotal / monthlyPrice;
  if (months % 100 !== 0) {
    monthly = Math.ceil(months);
  }
}
console.log(`You will be paid ${monthlyPrice} for $
{monthly} months.`);
return { time: monthly, amount: monthlyPrice };
} else {
return null;
}
};

```

### **Task 3: Lets Solve**

John is a programmer. He treasures his time very much. He lives on the  $n$  floor of a building. Every morning he will go downstairs as quickly as possible to begin his great work today. There are two ways he goes downstairs: walking or taking the elevator. When John uses the elevator, he will go through the following steps:

1. Waiting the elevator from  $m$  floor to  $n$  floor;
    - 1a. Or take the stairs to  $m$  floor;
  2. Waiting the elevator open the door and go in;
  3. Waiting the elevator close the door;
  4. Waiting the elevator down to 0 floor;
  5. Waiting the elevator open the door and go out;
- (the time of go in/go out the elevator will be ignored)

**Given the following arguments:**

$n$ : An integer. The floor of John(0-based).

$m$ : An integer. The floor of the elevator(0-based).

$speeds$ : An array of integer. It contains four integer  $[a,b,c,d]$

$a$ : The seconds required when the elevator rises or falls 1 floor

$b$ : The seconds required when the elevator open the door

$c$ : The seconds required when the elevator close the door

$d$ : The seconds required when John walks to  $n-1$  or  $n+1$  floor

**Please help John to calculate the shortest time to go downstairs.**

### Example:

For  $n = 4$ ,  $m = 5$  and  $\text{speeds} = [1, 2, 3, 10]$ , the output should be 12.

John go downstairs by using the elevator:

$$1 + 2 + 3 + 4 + 2 = 12$$

For  $n = 0$ ,  $m = 5$  and  $\text{speeds} = [1, 2, 3, 10]$ , the output should be 0.

John is already at 0 floor, so the output is 0.

For  $n = 4$ ,  $m = 3$  and  $\text{speeds} = [2, 3, 4, 5]$ , the output should be 20.

John go downstairs by walking:

$$5 \times 4 = 20$$

For  $n = 7$ ,  $m = 6$  and  $\text{speeds} = [3, 1, 1, 4]$ , the output should be 25.

John walks down 1 floor and takes the elevator from there.

$$1 \times 4 + 1 + 1 + 6 \times 3 + 1 = 25$$

Pure walk would have taken  $7 \times 4 = 28$ ; pure elevator would have taken  $1 \times 3 +$

$$1 + 1 + 7 \times 3 + 1 = 27.$$

### Note

These are Dutch floors. They are numbered 0-based. (0 is usually called “begane grond”.)