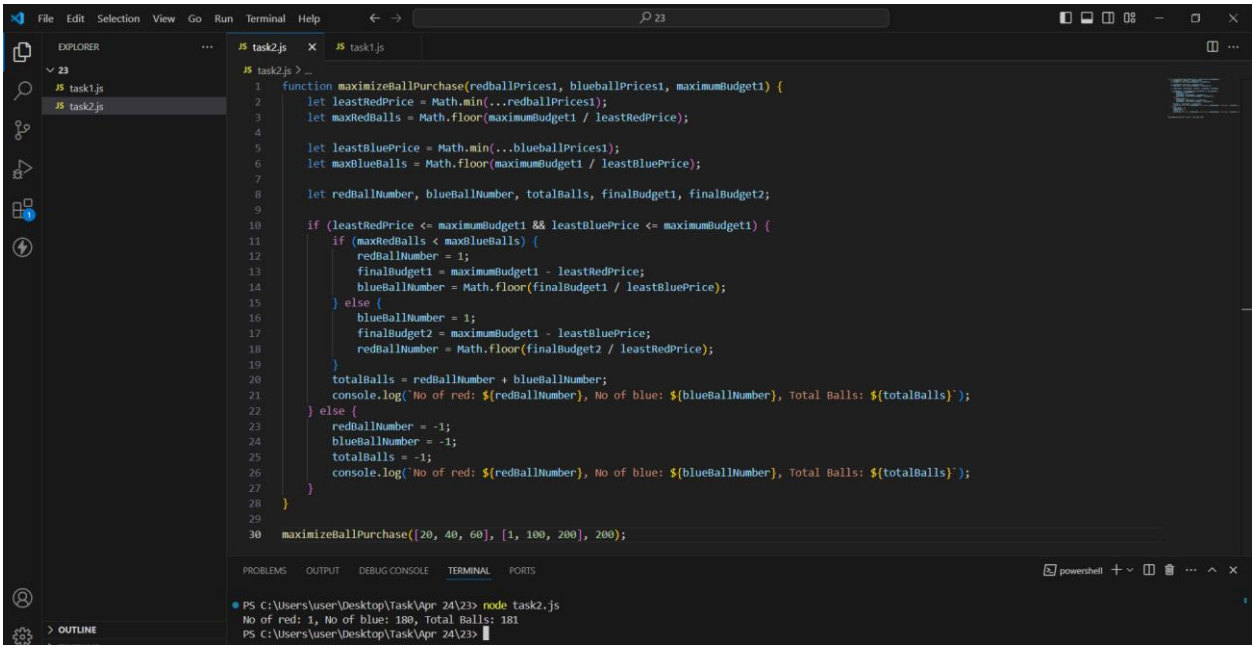
QUESTION: 1

```
function maxDifference(arr) {
    let maxDiff = arr[1] - arr[0];
    let minElement = arr[0];
    for (let i = 1; i < arr.length; i++) {
        if (arr[i] - minElement > maxDiff) {
            maxDiff = arr[i] - minElement;
        }
        if (arr[i] < minElement) {
            minElement = arr[i];
        }
    }
    return maxDiff;
}
const arr = [7, 1, 0, 6, 5, 4];
console.log(maxDifference(arr));
```

```
PS C:\Users\user\Desktop\Task\Apr 24\23> node task1.js
6
```

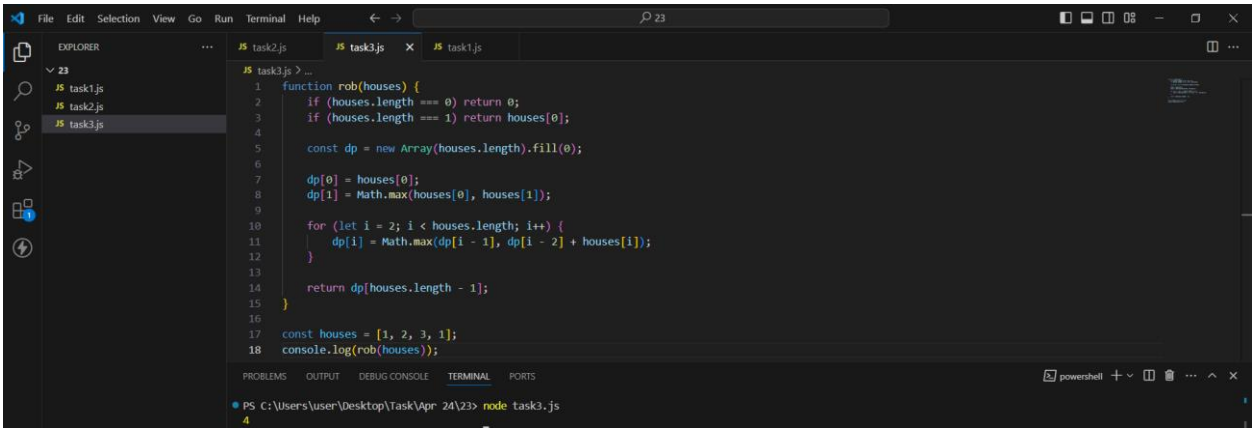
QUESTION: 2



```
function maximizeBallPurchase(redballPrices1, blueballPrices1, maximumBudget1) {
    let leastRedPrice = Math.min(...redballPrices1);
    let maxRedBalls = Math.floor(maximumBudget1 / leastRedPrice);

    let leastBluePrice = Math.min(...blueballPrices1);
    let maxBlueBalls = Math.floor(maximumBudget1 / leastBluePrice);

    let redBallNumber, blueBallNumber, totalBalls, finalBudget1, finalBudget2;

    if (leastRedPrice <= maximumBudget1 && leastBluePrice <= maximumBudget1) {
        if (maxRedBalls < maxBlueBalls) {
            redBallNumber = 1;
            finalBudget1 = maximumBudget1 - leastRedPrice;
            blueBallNumber = Math.floor(finalBudget1 / leastBluePrice);
        } else {
            blueBallNumber = 1;
            finalBudget2 = maximumBudget1 - leastBluePrice;
            redBallNumber = Math.floor(finalBudget2 / leastRedPrice);
        }
        totalBalls = redBallNumber + blueBallNumber;
        console.log(`No of red: ${redBallNumber}, No of blue: ${blueBallNumber}, Total Balls: ${totalBalls}`);
    } else {
        redBallNumber = -1;
        blueBallNumber = -1;
        totalBalls = -1;
        console.log(`No of red: ${redBallNumber}, No of blue: ${blueBallNumber}, Total Balls: ${totalBalls}`);
    }
}

maximizeBallPurchase([20, 40, 60], [1, 100, 200], 200);
```

```
PS C:\Users\user\Desktop\Task\Apr 24\23> node task2.js
No of red: 1, No of blue: 180, Total Balls: 181
PS C:\Users\user\Desktop\Task\Apr 24\23>
```

QUESTION: 3



```
function rob(houses) {
    if (houses.length === 0) return 0;
    if (houses.length === 1) return houses[0];

    const dp = new Array(houses.length).fill(0);

    dp[0] = houses[0];
    dp[1] = Math.max(houses[0], houses[1]);

    for (let i = 2; i < houses.length; i++) {
        dp[i] = Math.max(dp[i - 1], dp[i - 2] + houses[i]);
    }

    return dp[houses.length - 1];
}

const houses = [1, 2, 3, 1];
console.log(rob(houses));
```

```
PS C:\Users\user\Desktop\Task\Apr 24\23> node task3.js
4
```