

Assignment 4

Task 1: Word Frequency Counter

1. Write a program to count the frequency of each word in a given sentence.
 - Ignore case and punctuation.

Example Input:

Sentence: "Flutter is amazing. Flutter is fast!"

Output:

Frequency: {flutter: 2, is: 2, amazing: 1, fast: 1}

Task 2: Using Continue

1. Write a program that prints all the numbers from 1 to 50, but skips:
 - Multiples of 3
 - Numbers containing the digit 5

Example Output:

1, 2, 4, 7, 8, 11, ...

Task 3: Using Break

1. Write a program to find the first number in a list that is divisible by both 7 and 13.
 - Stop processing the list as soon as such a number is found.

Example Input:

List: [10, 21, 42, 91, 182, 364]

Output:

First Number: 91

Task 4: Process a List of Maps

Write a program to process a list of maps representing employees:

var employees = [

```
{ "name": "Ali", "age": 30, "salary": 50000 },
{ "name": "Sara", "age": 25, "salary": 60000 },
{ "name": "John", "age": 35, "salary": 55000 }
];
```

1.

- Find the average salary.
- Filter employees earning more than 55000.

Example Output:

Average Salary: 55000

Employees earning more than 55000: [Sara]

Task 5: Nested List of Maps

Process a nested list of maps representing products in categories:

```
var categories = [
{
  "category": "Electronics",
  "products": [
    { "name": "Laptop", "price": 70000 },
    { "name": "Phone", "price": 50000 }
  ]
},
{
  "category": "Appliances",
  "products": [
    { "name": "Refrigerator", "price": 60000 },
    { "name": "Microwave", "price": 20000 }
  ]
}
];
```

1.

- Find the total cost of all products.
- List all product names under "Electronics".

Example Output:

Total Cost: 200000

Electronics Products: [Laptop, Phone]

Task 6: Number Analysis with Conditions

1. Write a program to process a list of numbers:
 - Count how many numbers are even and odd.
 - Find the sum of all positive numbers.

Example Input:

List: [12, -7, 5, -3, 14, 9, 0]

Output:

Even Numbers: 3

Odd Numbers: 3

Sum of Positive Numbers: 40

Task 7: Customer Shopping Cart

Write a program to process a shopping cart stored as a **Map**:

```
var cart = {  
  "items": [  
    {"name": "Shirt", "price": 2000, "quantity": 2},  
    {"name": "Pants", "price": 3000, "quantity": 1},  
    {"name": "Shoes", "price": 4000, "quantity": 1}  
  ],  
  "discount": 10 // in percentage  
};
```

1.

- Calculate the total cost before the discount.
- Apply the discount and display the final amount.

Example Output:

Total Before Discount: 12000

Final Amount: 10800

Task 8: Palindrome Checker (Advanced)

Write a program to check if a sentence is a palindrome (ignoring spaces, punctuation, and

case).

Example Input:

Sentence: "A man, a plan, a canal: Panama"

Output:

Palindrome: Yes

Task 9: Remove Duplicates from a List

Write a program to remove duplicates from a list while maintaining the order of elements.

Example Input:

List: [1, 2, 3, 2, 4, 3, 5]

Output:

Updated List: [1, 2, 3, 4, 5]

Task 10: Character Frequency in a String

Write a program to count the frequency of each character in a string (ignore spaces).

Example Input:

String: "hello world"

Output:

Frequency: {h: 1, e: 1, l: 3, o: 2, w: 1, r: 1, d: 1}