

Instructions:

- Use of any AI tool such as ChatGPT, is strictly prohibited
- On-spot questions and quizzes will be taken from each student on the following tasks
- Solve each exercise in a separate notebook and upload them into the respected GitHub folder.

1. If and Nested If-Else Statements

1. Grade Evaluator

Input student marks and output grades:

- ≥ 90 : A
- 80–89: B
- 70–79: C
- < 70 : F

2. Leap Year Checker

Check if a given year is a leap year using nested if-else.

3. Largest of Three Numbers

Take three numbers and find the largest using nested if-else.

4. Traffic Light Simulator

Input a color (red, yellow, or green) and display appropriate action: STOP, WAIT, GO.

5. Simple Calculator with Conditions

Accept two numbers and an operator (+, -, *, /) and compute the result using nested conditions.

2. Loops (for, while)

1. Sum of First N Numbers

Input n , output the sum of first n natural numbers using `for` loop.

2. Factorial Finder

Find the factorial of a number using `while` loop.

3. Multiplication Table Generator

Print the multiplication table of a number.

4. Fibonacci Series

Print the first `n` terms of the Fibonacci sequence.

5. Prime Number Between 1 to N

Input `n`, print all prime numbers up to `n`.

3. Built-in Functions

1. List Stats

Given a list of numbers, use built-in functions to find max, min, sum, and average.

2. String Case Counter

Input a string and use built-ins to count uppercase and lowercase letters.

3. Sorted Even Numbers

From a list of integers, extract even numbers and return them sorted in descending order.

4. Custom Round-off

Input a float, round it to two decimal places using built-in `round()`.

5. ASCII Value Finder

Input a character and find its ASCII value using `ord()`.

4. Strings and String Operations

1. Palindrome Checker

Check if the input string is a palindrome (e.g., madam, racecar).

2. Word Frequency Counter

Count the frequency of each word in a sentence.

3. **Vowel and Consonant Counter**

Count how many vowels and consonants are in a string.

4. **Remove Punctuation**

Input a sentence and remove punctuation from it.

5. **Longest Word Finder**

Input a sentence and find the longest word.

5. Python Lists

1. **List Reverser**

Reverse a list without using `[::-1]` or `reverse()`.

2. **Duplicate Remover**

Remove all duplicate elements from a list.

3. **Second Largest Element**

Find the second largest number in a list.

4. **List Element Frequency**

Print the frequency of each element in the list.

5. **Merge and Sort Lists**

Merge two lists and sort the result without using `sort()`.

6. Python Tuples

1. **Tuple Swapper**

Swap the values of two tuples.

2. **Tuple Reverser**

Reverse a tuple using slicing and verify the result.

3. **Tuple to String**

Convert a tuple of characters into a single string.

4. **Element Index Finder**

Find the index of a user-input value in a tuple.

5. **Immutable Test**

Try modifying a tuple element and observe the error. Explain why it happens.

7. Python Sets

1. **Set Union and Intersection**

Input two sets and print their union and intersection.

2. **Unique Elements from List**

Convert a list to a set and show how duplicates are removed.

3. **Subset and Superset Check**

Check whether one set is a subset or superset of another.

4. **Common Elements Finder**

Given two lists, use sets to find common elements.

5. **Symmetric Difference Demo**

Show the symmetric difference between two sets and explain its meaning.

8. Python Dictionaries

1. **Student Gradebook**

Store student names and grades in a dictionary. Allow lookup by name.

2. **Word Counter**

Count occurrences of each word in a paragraph using a dictionary.

3. **Frequency of Characters**

Input a string and count character frequency using a dictionary.

4. **Key with Max Value**

From a dictionary of product:price, find the most expensive product.

5. Merge Dictionaries

Merge two dictionaries and handle overlapping keys (e.g., sum values if same key).