Assignment Week 1

Instructions:

- Use Python 3 syntax
- Submit both code and outputs (if applicable).
- Try to write clean, readable, and modular code
- Submission is expected as a pdf with all answers written to both the programming and the chess section

Python Programming Basics – Assignment

Q1. List Operations and Loops

Write a program that takes a list of integers from the user (space-separated), and then:

- Prints the list in reverse order.

- Prints the sum and average of the elements.

- Removes all even numbers from the list and displays the result.

Example Input: 5 8 3 12 7
Example Output:

Reversed list: [7, 12, 3, 8, 5]
Sum: 35
Average: 7.0
List without even numbers: [5, 3, 7]

Q2. Functions and String Processing

Write a function `count_vowels_and_consonants(text)` that takes a string and returns the count of vowels and consonants.

Example Input: `"Hello World"`
 Example Output:

Vowels: 3
Consonants: 7

Q3. Control Flow – Number Classification

Write a program that asks the user to enter a number. The program should:

- Check if the number is positive, negative, or zero.

- Check if the number is even or odd.

- Print an appropriate message for each case.

Example Output:

Number is positive.
Number is odd.

Q4. Basic File Handling

Write a Python program to:

- Create a file named `notes.txt`.

- Write the lines "Python is fun." and "Let's learn it well!" to the file.

- Read the contents of the file and print it to the console.

Q5. Dictionary and User Input

Write a program that allows the user to enter the names and marks of 5 students, stores them in a dictionary, and then:

- Prints the dictionary.

- Displays the name(s) of the student(s) with the highest marks.

Example Output:

Student Marks: {'Alice': 85, 'Bob': 78, 'Clara': 92, 'Dave': 88, 'Eva': 92}
Top Scorer(s): Clara, Eva

Chess Basics-

Try to attempt these based on your existing knowledge first, and only then go ahead and check the answers from google or any other source, this way you will have better retention of concepts

1. Board and Pieces

- How many squares are there on a chessboard?

- Can you name all the pieces in chess and how many of each are there per side?

- Which square does the white queen start on?

2. Movement Rules

- How does a bishop move?

- What is the only piece that can jump over others?

- How does a pawn capture?

3. Special Rules

- What is castling and when can you do it?

- What is en passant?

- What happens when a pawn reaches the other side of the board?

4. Game Objective

- What is the main objective of a chess game?

- What is "check" vs "checkmate"?

- What is "stalemate"?