**Week 1 Mini-Project: Python Basics**

Objective:

Learners will practice fundamental Python concepts like variables, dictionaries, functions, conditionals, loops, and input handling through six fun exercises.

Project Setup:

1. Create a folder named Week1\_MiniProject in the GDGOC\_ML/DL GitHub repo.

2. Save all the solutions in a single Python file named week1\_project.py

3. Upload your file to GitHub upon completion.

Questions & Code Implementation Guide

Question 1: User Data Collector

Concepts Used: Input handling, dictionaries, validation, formatted strings

**Task:**

* Prompt the user to enter their name, age, email, and favorite number.
* Store them in a dictionary.
* Validate the email format (must contain @ and .).
* Display a formatted output.

🔹 Hint: Use Python's in keyword to check if @ and . exist in the email.

Question 2: Even or Odd?

Concepts Used: Functions, conditionals

**Task:**

* Create a function Is\_even(number) that checks if a number is even.
* Print whether the number is even or odd.

🔹 Hint: Use the modulo operator % (i.e., number % 2 == 0).

Question 3: Temperature Converter

Concepts Used: Functions, conditionals, arithmetic operations

**Task:**

* Create a function convert\_temperature(temp, scale) that takes:
* A temperature value
* A scale ("C" for Celsius, "F" for Fahrenheit)

Convert:

* Celsius → Fahrenheit: (temp \* 9/5) + 32
* Fahrenheit → Celsius: (temp - 32) \* 5/9
* Display the converted temperature.

🔹 Hint: Use if conditions to check which scale to convert.

Question 4: Finding Min & Max

Concepts Used: Lists, functions, input handling

**Task:**

Create a function find\_max\_min(numbers\_list) that returns the max and min values from a list.

Prompt the user to enter 5 numbers, store them in a list, and find the min/max.

🔹 Hint: Use Python’s built-in max() and min() functions.

Question 5: Student Data Manager

Concepts Used: Lists, tuples, dictionaries, loops

**Task:**

* Prompt the user to enter details of 3 students (name, age, grade).
* Store them as tuples in a list.
* Convert this list into a dictionary, where:
* Key → Student name
* Value → Tuple (age, grade)
* Display the dictionary.

🔹 Hint: Use a for loop and dict() to create the dictionary.

Question 6: Inventory Management System

Concepts Used: Dictionaries, functions, conditionals

Task:

* Create a function update\_inventory(inventory\_dict, item, quantity) that:
* Takes an inventory dictionary {item: quantity}
* Updates the quantity (+ for adding, - for removing)
* Ensures quantity doesn’t go below zero
* Returns the updated inventory
* Initialize an inventory with 5 items.
* Prompt the user to update the inventory for 3 items.
* Display the updated inventory.

🔹 Hint: Use max(0, updated\_quantity) to prevent negative values.

**Submission Guidelines**

1. Create a folder Week1\_MiniProject inside your GitHub repo GDGOC\_ML/DL.

2. Save your Python file as week1\_project.py inside this folder.

3. Push it to GitHub.