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AI/ML Interns Weekly Plan

Python Learning Map - Week -02

Week 02 - Intermediate Python Concepts

Day 1

User Story - 0006 - Lists, Tuples, and Dictionaries

- **Topics Covered**
 - Lists and list operations (slicing, indexing, appending).
 - Tuples and immutability.
 - Dictionaries and basic dictionary operations.
 - **Exercises**
 - Create a contact list using dictionaries with names and phone numbers.
 - Write a script to find the highest number in a list.
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Day 2

User Story - 0007 -Strings and String Manipulation

- **Topics Covered**
 - String slicing, concatenation, and formatting.
 - Useful string methods (find, replace, split, join).
 - **Exercises**
 - Write a function to count the frequency of each word in a sentence.
 - Create a script to reverse a string input by the user.
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Day 3

User Story - 0008 - Error Handling and Debugging

- **Topics Covered**
 - Try, except blocks.
 - Raising exceptions.
 - Debugging basics and error types.
 - **Exercises**
 - Write a program that catches division-by-zero errors.
 - Implement exception handling in a calculator program.
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Day 4

User Story - 0009 - File Handling

- **Topics Covered**
 - Reading from and writing to files.
 - File modes (read, write, append) and handling file paths.
 - **Exercises**
 - Write a program to read a text file and count the number of words.
 - Implement a simple log system that writes messages to a file.
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Day 5

User Story - 0010 - Introduction to Libraries (NumPy & Pandas)

- **Topics Covered**
 - Overview of NumPy and Pandas libraries.
 - Basic operations in NumPy (arrays, reshaping).
 - Introduction to Pandas DataFrames.
 - **Exercises**
 - Perform basic data manipulation with NumPy arrays.
 - Load a small dataset using Pandas and explore its data.
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Final Project (Day 1 - 1-12) Mini Project

- **Project Description** Develop a program that uses various Python fundamentals learned during the two weeks.
 - **Sample Project** A student score tracker

- Input student names and scores.
 - Calculate average, highest, and lowest scores.
 - Save student data to a text file.
 - Implement basic error handling for invalid input.
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Learning Outcome

After completing this two-week learning map, interns should be able to

- Confidently write Python scripts and understand core programming concepts.
 - Work with Python's data structures, handle files, and perform data manipulations.
 - Have a solid foundation to explore advanced Python libraries and applications in data science and machine learning.
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