Updated Basic Python Session

Day 1: Introduction to Python

- Overview of Python: history, features, and applications
- Advantages and disadvantages of Python
- Installing Python on various platforms
- Introduction to the Python interpreter and IDLE: interactive mode, executing scripts
- Writing and executing simple Python programs: basic syntax, comments, and printing output
- Basic data types (integers, floats, strings, and Booleans): defining variables, type conversion, and built-in functions

Day 2: Control Structures and Functions

- Control structures: if/else statements, for/while loops, and break/continue statements
- Functions: defining and calling functions, function arguments and parameters, return statements, and lambda functions

Day 3: Collections

- Lists: creating, indexing, and slicing lists, list methods, and list comprehensions
- Tuples: creating, indexing, and slicing tuples, tuple methods, and tuple packing and unpacking
- Dictionaries: creating, indexing, and updating dictionaries, dictionary methods, and dictionary comprehensions
- Sets: creating, adding to, and removing from sets, set methods, and set operations

Day 4: File Input and Output and Error Handling

- File input and output: reading and writing text files, handling different file modes, and using file objects
- Error handling: handling exceptions using try/except blocks, raising exceptions, and creating custom exceptions

Day 5: Introduction to OOP

- Object-oriented programming (OOP): introduction to OOP concepts, including classes, objects, attributes, and methods
- Defining classes: creating classes, defining attributes and methods, and instantiating objects
- Inheritance: defining parent and child classes, and overriding methods

Day 6: Web Development with Flask

- What is Flask and its advantages
- Setting up a Flask environment: installation, virtual environments, and dependencies
- Creating a basic Flask application: routes, views, and HTTP methods
- HTML templates and Jinja2: rendering templates, template inheritance, and using variables
- Forms and user input: creating forms, validating input, and handling form submission

Day 7: Final Project and Review

- Final project: working on a project using concepts learned throughout the workshop, including Flask
- Review: revisiting key concepts and topics covered throughout the workshop
- Resources for further learning: recommended books, tutorials, and online courses
- Q&A session: addressing any remaining questions or concerns from participants