



DAY 1

**INTRODUCTION
TO
PROGRAMMING**

INTRODUCTION TO PROGRAMMING AND ITS IMPORTANCE IN TODAY'S WORLD. BASIC PROGRAMMING CONCEPTS SUCH AS ALGORITHMS, DATA STRUCTURES, AND PROGRAMMING LANGUAGES.

DAY 2

**INTRODUCTION
TO
PYTHON**

INTRODUCTION TO PYTHON AND ITS FEATURES. INSTALLING PYTHON AND AN IDE (INTEGRATED DEVELOPMENT ENVIRONMENT) LIKE ANACONDA, SPYDER, OR PYCHARM. BASIC PYTHON SYNTAX, DATA TYPES, AND VARIABLES

DAY 3

**CONTROL FLOW
AND
FUNCTIONS**

CONDITIONAL STATEMENTS, LOOPS, AND LOGICAL OPERATORS. WRITING FUNCTIONS AND CALLING THEM WITH ARGUMENTS.

DAY 4

**DATA TYPES
IN
PYTHON**

BASIC DATA TYPES IN PYTHON: STRINGS, NUMBERS, AND BOOLEANS. TYPECASTING IN PYTHON.

**QUIZ ON BASIC DATA TYPES
AND CONTROL FLOW**

DAY 5

**LISTS
IN
PYTHON**

CREATING AND MANIPULATING LISTS IN PYTHON. ACCESSING ELEMENTS IN LISTS AND MANIPULATING THEM. LIST METHODS AND OPERATIONS.



DAY 6

**TUPLES
AND SETS
IN PYTHON**

CREATING AND MANIPULATING TUPLES AND SETS IN PYTHON. ACCESSING ELEMENTS IN TUPLES AND SETS AND MANIPULATING THEM. TUPLE AND SET METHODS AND OPERATIONS.

DAY 7

**DICTIONARIES
IN
PYTHON**

CREATING AND MANIPULATING DICTIONARIES IN PYTHON. ACCESSING ELEMENTS IN DICTIONARIES AND MANIPULATING THEM. DICTIONARY METHODS AND OPERATIONS.

**QUIZ ON LISTS TUPLES
DICTIONARIES**

DAY 8

**FILE HANDLING
IN
PYTHON**

READING AND WRITING TO TEXT FILES IN PYTHON. WORKING WITH CSV FILES.

DAY 9

**OBJECT-
ORIENTED
PROGRAMMING
IN PYTHON**

INTRODUCTION TO OBJECT-ORIENTED PROGRAMMING (OOP) IN PYTHON. CREATING CLASSES AND OBJECTS IN PYTHON. ENCAPSULATION, INHERITANCE, AND POLYMORPHISM IN PYTHON.

DAY 10

**EXCEPTION
HANDLING IN
PYTHON**

UNDERSTANDING EXCEPTIONS IN PYTHON. USING TRY-EXCEPT BLOCKS TO HANDLE EXCEPTIONS. RAISING AND CATCHING EXCEPTIONS IN PYTHON.



DAY 11

FUNCTIONAL PROGRAMMING IN PYTHON

INTRODUCTION TO FUNCTIONAL PROGRAMMING IN PYTHON. USING LAMBDA FUNCTIONS, MAP(), FILTER(), AND REDUCE() FUNCTIONS. FUNCTIONAL PROGRAMMING CONCEPTS SUCH AS HIGHER-ORDER FUNCTIONS AND RECURSION.

QUIZ ON OOPS AND FUNCTIONAL PROGRAMMING

DAY 12

DEBUGGING AND TESTING IN PYTHON

DEBUGGING TECHNIQUES IN PYTHON: PRINT STATEMENTS, DEBUGGING TOOLS, AND LOGGING. UNIT TESTING IN PYTHON: USING THE UNITTEST MODULE AND TEST-DRIVEN DEVELOPMENT.

DAY 13

ADVANCED DATA STRUCTURES IN PYTHON - 1

INTRODUCTION TO ADVANCED DATA STRUCTURES IN PYTHON, SUCH AS STACKS, QUEUES, AND LINKED LISTS. UNDERSTANDING THEIR IMPLEMENTATION AND OPERATIONS.

DAY 14

ADVANCED DATA STRUCTURES IN PYTHON - 2

INTRODUCTION TO ADVANCED DATA STRUCTURES IN PYTHON, SUCH AS STACKS, QUEUES, AND LINKED LISTS. UNDERSTANDING THEIR IMPLEMENTATION AND OPERATIONS.

QUIZ ON DATA STRUCTURES



DAY 15

**INTRODUCTION
TO
NUMPY**

CREATING NUMPY ARRAYS. INDEXING AND SLICING ARRAYS. BASIC ARRAY OPERATIONS AND MATHEMATICAL FUNCTIONS.

DAY 16

**NUMPY-
ADVANCED**

ARRAY MANIPULATION, SUCH AS RESHAPING, STACKING, AND SPLITTING. BROADCASTING AND VECTORIZATION. UNIVERSAL FUNCTIONS.

DAY 17

**INTRODUCTION
TO
PANDAS**

INTRODUCTION TO PANDAS DATA STRUCTURES: SERIES AND DATAFRAME. CREATING SERIES AND DATAFRAMES. INDEXING AND SELECTING DATA FROM SERIES AND DATAFRAMES.

DAY 18

**PANDAS-
ADVANCED**

DATA MANIPULATION WITH PANDAS: MERGING, JOINING, AND CONCATENATING DATAFRAMES. GROUPING AND AGGREGATING DATA WITH PANDAS.

**QUIZ ON NUMPY
AND PANDAS**

DAY 19

**PYTHON
BEST
PRACTICES**

WRITING CLEAN AND MAINTAINABLE CODE IN PYTHON. CODE OPTIMIZATION TECHNIQUES. UNIT TESTING AND DEBUGGING IN PYTHON.



DAY 20

**FINAL
PROJECT**

BUILDING A PYTHON APPLICATION THAT DEMONSTRATES YOUR SKILLS IN PROGRAMMING FUNDAMENTALS, NUMPY, AND PANDAS. PROJECT IDEAS CAN INCLUDE DATA ANALYSIS, DATA VISUALIZATION, OR ANY OTHER RELEVANT TOPIC.

