Python-Focused Entry-Level Interview Prep Plan

Month 1: Python Basics and Simple Data Structures

Week 1: Getting Started with Python

Reading

- "Automate the Boring Stuff with Python" by Al Sweigart (Chapters 1-3)
- Blog post: "Understanding Version Control with Git" on Real Python

Practice

Complete 5 LeetCode "Easy" problems focusing on basic Python syntax: * Two Sum * Reverse String * FizzBuzz * Valid Parentheses * Roman to Integer

Project

- Set up a GitHub account and create a repository for your progress

Acceptance Criteria

- GitHub repository is set up with a README.md file
- All 5 LeetCode problems are solved and pushed to GitHub

Week 2: Lists and Basic Functions

Reading

- "Automate the Boring Stuff with Python" (Chapters 4-5)
- Article: "Python Lists: A Deep Dive" on Real Python

Practice

Complete 7 LeetCode "Easy" problems focusing on list manipulation:

- Remove Duplicates from Sorted Array
- Merge Sorted Array
- Move Zeroes
- Contains Duplicate
- Intersection of Two Arrays II
- Maximum Subarray
- Plus One

Acceptance Criteria

- All 7 LeetCode problems are solved and pushed to GitHub

Week 3: Dictionaries and File I/O

Reading

- "Automate the Boring Stuff with Python" (Chapters 8-9)
- Tutorial: "Working with JSON Data in Python" on Python.org

Practice

Complete 5 LeetCode "Easy" problems involving dictionaries:

- Two Sum
- Roman to Integer
- Valid Anagram
- First Unique Character in a String
- Ransom Note

[[Project 1 - Simple Address Book]]

- Build a simple address book that saves contacts to a JSON file

Acceptance Criteria

- Address book can add, remove, and display contacts
- Contacts are successfully saved to and loaded from a JSON file
- All 5 LeetCode problems are solved and pushed to GitHub

Week 4: Basic Algorithm Analysis

Reading

- "Introduction to Algorithms" by Cormen et al. (Chapter 1-2)
- Article: "Big O Notation in Python: A Practical Guide" on Real Python

Practice

- Complete 5 LeetCode "Easy" problems, analyzing their time complexity

Project

- Implement and analyze the time complexity of linear and binary search algorithms

Acceptance Criteria

- Correct implementation of linear and binary search algorithms
- Written analysis of time complexity for both algorithms
- All 5 LeetCode problems are solved, analyzed, and pushed to GitHub

Month 2: Intermediate Python and Data Structures

Week 5: Object-Oriented Programming Basics

Reading

- "Automate the Boring Stuff with Python" (Chapter 15)
- Article: "Object-Oriented Programming (OOP) in Python 3" on Real Python

Practice

- Complete 5 LeetCode "Easy" problems that can benefit from OOP solutions

[[Project 2 - Basic Library Management System]]

- Implement a basic library management system using classes and objects

Acceptance Criteria

- Classes are correctly defined for books and library
- Methods for checking out and returning books are implemented
- All 5 LeetCode problems are solved and pushed to GitHub

Week 6-7: Data Structures - Stacks, Queues, and Hash Tables (2 weeks)

Reading

- "Introduction to Algorithms" (Chapters 10-11)
- Article: "Implementing Data Structures in Python" on Real Python

Practice

- Complete 10 LeetCode "Easy" and "Medium" problems using stacks, queues, and hash tables

Acceptance Criteria

- All 10 LeetCode problems are solved and pushed to GitHub

Week 8: String Manipulation and Regular Expressions

Reading

- "Automate the Boring Stuff with Python" (Chapter 7)
- Article: "An Introduction to String Functions in Python" on Real Python

Practice

- Solve 5 LeetCode "Easy" and "Medium" problems involving string manipulation

[[Project 3 - Text Analyzer with Word Frequency Counter and Pattern Finder]]

- Create a text analyzer that counts word frequency and finds patterns using regular expressions

Acceptance Criteria

- Correct implementation of word frequency counter
- Successfully use regular expressions to find patterns in text
- All 5 LeetCode problems are solved and pushed to GitHub

Month 3: Problem-Solving Techniques and Interview Preparation

Week 9-10: Two-Pointer Technique and Sliding Window (2 weeks)

Reading

- Article: "Two Pointer Technique" on GeeksforGeeks
- Blog post: "Sliding Window Algorithm Technique" on Educative.io

Practice

- Complete 10 LeetCode "Easy" and "Medium" problems using two-pointer and sliding window techniques

Acceptance Criteria

- All 10 LeetCode problems are solved and pushed to GitHub

Week 12: Final Project and Interview Preparation

Reading

- Review key chapters from "Introduction to Algorithms" and "Automate the Boring Stuff with Python"
- Article: "Preparing for a Technical Interview" on HackerRank

Practice

- Solve a mix of 15 LeetCode "Easy" and "Medium" problems across various topics covered

Acceptance Criteria

- All 15 LeetCode problems are solved and pushed to GitHub

Ongoing Throughout the 3 Months

- Commit code to GitHub at least 3 times per week
- Spend 30 minutes each day on LeetCode problems
- Participate in Python-focused coding communities or forums
- Keep a learning journal to track progress and areas for improvement
- Practice explaining your problem-solving approach out loud (mock interviews)
- Update your resume with new projects and skills learned