**Python & DSA Preparation Checklist for Google STEP**

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| **Python Topics** |

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| **Basics** |

- Variables & Data Types  
- Input/Output  
- Operators & Expressions  
- Conditional Statements (if, elif, else)  
- Loops (for, while)

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| **Data Structures in Python** |

- Strings  
- Lists  
- Tuples  
- Sets  
- Dictionaries

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| **Functions** |

- Defining & calling functions  
- Parameters & return values  
- Lambda functions  
- Recursion

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| **Object-Oriented Programming** |

- Classes and Objects  
- \_\_init\_\_() Constructor  
- Instance vs Class variables  
- Inheritance & Polymorphism

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| **Advanced Python** |

- File Handling (read, write, with)  
- Exception Handling (try, except)  
- List Comprehension

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- Modules & Packages  
- Working with JSON  
- map(), filter(), reduce(), zip()

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| **DSA Topics** |

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| **Arrays & Strings** |

- Traversal, Insertion, Deletion  
- Prefix Sum  
- Sliding Window  
- Two Pointers  
- Subarrays and substrings

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| **Linked Lists** |

- Singly & Doubly Linked List  
- Reversal, Middle, Cycle Detection

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| **Stacks & Queues** |

- Using Lists, Deque  
- Parentheses problems  
- Monotonic Stack

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| **Recursion & Backtracking** |

- Factorial, Fibonacci  
- Subsets, Permutations  
- N-Queens (basic idea)

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| **Hashing (Dictionaries & Sets)** |

- Frequency Counting  
- HashMaps  
- HashSet Problems

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| **Searching & Sorting** |

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- Linear & Binary Search  
- Bubble, Selection, Insertion Sort  
- Merge Sort, Quick Sort

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| **Trees (Basic)** |

- Binary Trees, BST  
- Traversals (Inorder, Preorder, Postorder)  
- Height, Count, Sum

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| **Graphs (Intro)** |

- DFS, BFS  
- Adjacency List/Matrix

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| **Dynamic Programming (Basic)** |

- Fibonacci, Coin Change  
- 0/1 Knapsack (just the concept)