CHECKLIST CHAPTER – 1 PYTHON REVISION-1

TOKENS, VARIABLES & ASSIGNMENTS

- [ ] Keywords, Identifiers, Literals, Operators, Punctuators
- [ ] Dynamic Typing
- [ ] Multiple Assignments

IF CONDITIONALS

- [ ] Plain IF Conditional
- [ ] IF-ELSE Conditional
- [ ] IF- ELIF conditional
- [ ] Nested IF Statements
- [ ] Sorting Conditional

I/O, DATA TYPES & EXPRESSIONS

- [ ] input() & print()
- [ ] Numbers, Strings, Lists, Tuples, Dictionaries
- [ ] Mutable and Immutable Types
- [ ] Arithmetic, Relational, Logical, Types Casting, Math Library Functions

LOOPING STATEMENT

- [ ] For Loop
- [ ] While Loop
- [ ] Break andContinue Statement

MISCELLANEOUS

- [ ] Bear-bones of Python
- [ ] Loop Else Statement
- [ ] Advanced Math Library Functions
- [ ] Nested Loops

CHECKLIST CHAPTER - 2 PYTHON REVISION-II

STRINGS IN PYTHON

- [ ] Traversing a String
- [ ] String Operations
- [ ] String Slices
- [ ] String Functions

LISTS IN PYTHON

- [ ] Creating Lists
- [ ] List operations - Traversing a list, Joining Lists, Repeating or Replicating Lists, Slicing the Lists
- [ ] List Functions - index, append, extend, insert, pro, remove, clear, count, reverse, sort

DICTIONARIES IN PYTHON

- [ ] Creating a Dictionary
- [ ] Accessing Elements of a Dictionary
- [ ] Dictionary Operations - Traversing a Dictionary, Adding Elements, Uploading Existing Elements, Deleting Elements, Checking for Existence for a Key
- [ ] Dictionary Functions and Methods - len(), clear(), get(), items(), keys(), values(), update()

SORTING TECHNIQUES

- [ ] Bubble Sort
- [ ] Insertion Sort

CHECKLIST CHAPTER - 3 WORKING WITH THE FUNCTIONS

UNDERSTANDING FUNCTIONS

- ☐ Calling/Invoking/ Using a Function
- ☐ Python Function types - Built-in Functions, Functions defined in modules, User Defined Functions

PASSING PARAMETERS

- ☐ Positional/Required Arguments
- ☐ Default Arguments
- ☐ Keyword (Named) Arguments
- ☐ Using Multiple Argument Types Together

MISCELLANEOUS

- ☐ Composition
- ☐ Scope of Variables
- ☐ Mutable/Immutable Properties of Passed Data Objects
- ☐ Function Calls

CHECKLIST CHAPTER - 4 USING PYTHON LIBRARIES

WHAT IS A LIBRARY?

- [ ] Python Standard Library - Math, cmath, randn, statistics, urllib
- [ ] NumPy Library
- [ ] Scipy Library
- [ ] Tkinter Library
- [ ] Matplorlib Library

IMPORTING MODULES

- [ ] Importing Entire Module
- [ ] Importing Single Object from a module
- [ ] Importing multiple objects from a Module
- [ ] Importing all objects of a module

USING STANDARD LIBRARY'S FUNCTIONS AND MODULES

- [ ] Using Python's built-in Functions
- [ ] Working with Random Modules
- [ ] Working with urllib and Webbrowser Modules

CREATING A PYTHON LIBRARY

- [ ] Structure of a Package
- [ ] Procedure for Creating Packages
- [ ] Using/Importing Python Libraries

CHECKLIST CHAPTER – 5 FILE HANDLING

DATA FILES

- ☐ Text Files
- ☐ Binary Files

OPENING AND CLOSING FILES

- ☐ Opening Files
- ☐ Closing Files

READING AND WRITING FILES

- ☐ Reading from Files
- ☐ Writing into Files , Appending a File
- ☐ The flush() function
- ☐ Removing whitespaces after Reading from File
- ☐ Significanceof File Pointer in File Handling

STANDARD INPUT, OUTPUT AND ERROR STREAMS

- ☐ Interesting _ Standard Input, Output Devices as files
- ☐ Absolute and Relative Paths

CHECKLIST CHAPTER - 6 RECURSION

- [ ] **RECURSIVE FUNCTION**
- [ ] **HOW RECURSION WORKS?**

RECURSION IN PYTHON

- [ ] Computing Factorial Recursively
- [ ] Computing GCD Recursively
- [ ] Fibonacci Numbers
- [ ] Binari Search
- [ ] Recursive Binary Search

- [ ] **RECURSION VS ITERATION**

CHECKLIST CHAPTER - 7 IDEA OF ALGORITHMIC EFFICIENCY

☐ WHAT IS COMPUTATIONAL COMPLEXITY?

BIG-O NOTATION

☐ Dominant Term

☐ Common Growth Rates

GUIDELINES FOR COMPUTATIONAL COMPLEXITY

☐ Loops

☐ Nested Loops

☐ Consecutive Statements

☐ If-then-else Statements

☐ Logarithmic Complexity

☐ BEST AVERAGE AND WORST CASE COMPLEXITY

CHECKLIST CHAPTER – 8 DATA VISUALISATION USING PYPLOT

USING PYPLOT OF MATPLOTLIB LIBRARY

- [ ] Install and Import Matplotlib
- [ ] Working with Pyplot Methods

CREATING CHARTS WITH MATPLOTLIB LIBRARY'S PYPLOT INTERFACE

- [ ] Line Chart
- [ ] Bar Chart
- [ ] Pie Chart

CUSTOMISING THE PLOT

- [ ] Anatomy of a chart
- [ ] Adding a Title
- [ ] Setting X and Y Labels, Limit and Tricks
- [ ] Adding Legends
- [ ] Saving a Figure

COMPARING CHART TYPES

- [ ] When to use a Line Chart?
- [ ] When to use a Pie Chart?
- [ ] When to use a Bar Graph?

CHECKLIST CHAPTER – 9 DATA STRICTURES- 1: LINEAR LISTS

ELEMENTARY DATA REPRESENTATION

- [ ] Data Type vs Data Structure
- [ ] Simple Data Structures
- [ ] Compound Data Structures

DIFFERENT DATA SCRUCTURES

- [ ] Linear List Arrays
- [ ] Stacks
- [ ] Queues
- [ ] Linked Lists
- [ ] Trees

OPERATIONS ON DATA STRUCTURE

- [ ] Insertion
- [ ] Deletion
- [ ] Searching
- [ ] Traversal
- [ ] Sorting
- [ ] Merging

LINEAR LIST DATA STRUCTURES

- [ ] Searching in Linear List - Linear and Binary Search
- [ ] Insertion, Traversal, Sorting of a Linear List
- [ ] Deletion of an element from a Sorted Linear List
- [ ] List Comprehensions and its advantages

NESTED/TWO DIMENSIONAL LISTS IN PYTHON

- [ ] Creating a 2D List
- [ ] Traversing a 2D List
- [ ] Accessing/Changing Individual Elements
- [ ] How a Two-Dimensional List is Stored
- [ ] Slices ofTwo-Dimensional Lists

CHECKLIST CHAPTER - 10 DATA STRICTURES- II

STACKS

- ☐ Peek, Overflow and Underflow
- ☐ Implementing Stacks in Python
- ☐ Types of Stack

STACK APPLICATION

- ☐ Reversing a Line
- ☐ Polish Strings

IMPLEMENTING QUEUES IN PYTHON

- ☐ Number of Elements in Queue
- ☐ Queue Item-nodes

VARIATIONS IN QUEUES

- ☐ Circular Queues
- ☐ Deque (Double-ended Queues

QUEUE APPLICATIONS

- ☐ Direct Applications
- ☐ Indirect Applications

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