

## ***Coder's Hub Courses Offered***

### ***1. Basics of Python***

1. Introduction
2. How Python Code Gets Executed
3. Your First Python Program
4. Variables
5. Receiving Input
6. Type Conversion
7. Strings
8. Formatted Strings
9. String Methods
10. Arithmetic Operations
11. Operator Precedence
12. Math Functions
13. If Statements
14. Logical Operators
15. Comparison Operators
16. Weight Converter Program
17. While Loops
18. Building a Guessing Game
19. Building the Car Game
20. For Loops
21. Nested Loops
22. Lists
23. 2D Lists
24. List Methods
25. Tuples
26. Unpacking
27. Dictionaries
28. Emoji Converter
29. Functions
30. Parameters
31. Keyword Arguments
32. Return Statement
33. Creating a Reusable Function
34. Exceptions
35. Comments
36. Classes
37. Constructors
38. Inheritance
39. Modules

40. Packages
41. Generating Random Values
42. Working with Directories
43. Project 1: Automation with Python
44. Project 2: Machine Learning with Python
45. Project 3: Building a Website with Django

## **2. Data Structures in Python**

1. Abstract data types
2. Introduction to Big-O
3. Dynamic and Static Arrays
4. Dynamic Array Code
5. Linked Lists Introduction
6. Doubly Linked List Code
7. Stack Introduction
8. Stack Implementation
9. Stack Code
10. Queue Introduction
11. Queue Implementation
12. Queue Code
13. Priority Queue Introduction
14. Priority Queue Min Heaps and Max Heaps
15. Priority Queue Inserting Elements
16. Priority Queue Removing Elements
17. Priority Queue Code
18. Union Find Introduction
19. Union Find Kruskal's Algorithm
20. Union Find - Union and Find Operations
21. Union Find Path Compression
22. Union Find Code
23. Binary Search Tree Introduction
24. Binary Search Tree Insertion
25. Binary Search Tree Removal
26. Binary Search Tree Traversals
27. Binary Search Tree Code
28. Hash table hash function
29. Hash table separate chaining
30. Hash table separate chaining source code
31. Hash table open addressing
32. Hash table linear probing
33. Hash table quadratic probing
34. Hash table double hashing
35. Hash table open addressing removing
36. Hash table open addressing code

37. Fenwick Tree range queries
38. Fenwick Tree point updates
39. Fenwick Tree construction
40. Fenwick tree source code
41. Suffix Array introduction
42. Longest Common Prefix (LCP) array
43. Suffix array finding unique substrings
44. Longest common substring problem suffix array
45. Longest common substring problem suffix array part 2
46. Longest Repeated Substring suffix array
47. Balanced binary search tree rotations
48. AVL tree insertion
49. AVL tree removals
50. AVL tree source code
51. Indexed Priority Queue | Data Structure
52. Indexed Priority Queue | Data Structure | Source Code

### **3. Tkinter Library for GUI in Python**

1. Intro to Tkinter
2. Positioning With Tkinter's Grid System
3. Creating Buttons
4. Creating Input Fields
5. Build A Simple Calculator App
6. Using Icons, Images, and Exit Buttons
7. Build an Image Viewer App
8. Adding A Status Bar
9. Adding Frames To Your Program
10. Radio Buttons
11. Message Boxes
12. Create New Windows in tKinter
13. Open Files Dialog Box
14. Sliders
15. Checkboxes
16. Dropdown Menus
17. Using Databases
18. Building Out The GUI for our Database App
19. Delete A Record From Our Database
20. Update A Record With SQLite
21. Build a Weather App
22. Change Colors In our Weather App
23. Add Zipcode Lookup Form
24. Matplotlib Charts

### **4. C++**

1. **Getting Started**

- i. Object-Oriented Fundamentals
  - 1. Programming Paradigms
- ii. C++ Basics
  - 1. Built-in Types, Arrays and Pointers
  - 2. Comments, Keywords, I/O Streams
  - 3. Built-in Operators and Control Constructs
- iii. C++ Functions
  - 1. Definition and Prototypes
  - 2. Inline Functions
- iv. Structures and References
- 2. Classes and Objects**
  - i. Encapsulation
    - 1. Data Members, Member Functions
    - 2. Private and Public
  - ii. Constructors and Destructors
    - 1. Default Arguments
    - 2. Parameterised Constructors
    - 3. this Pointer
    - 4. Copy Constructors
- 3. Overloading**
  - i. Overloading Functions
  - ii. Overloading Operators
    - 1. Unary and Binary Operators
    - 2. Initialization vs. Assignment
- 4. Polymorphic Programming**
  - i. Inheritance
    - 1. Public Inheritance and Subtyping
    - 2. Base and Derived Classes
    - 3. Constructors and Destructors
    - 4. Base Class Initialization
    - 5. Using Protected keyword
  - ii. Virtual Functions
    - 1. Base Class Pointers and References
  - iii. Dynamic Binding
    - 1. Abstract Base Classes
    - 2. Pure Virtual Functions
    - 3. Virtual Destructors

## **5. Basics of Java**

- 1. Introduction
- 2. Installing Java
- 3. Anatomy of a Java Program
- 4. Your First Java Program
- 5. How Java Code Gets Executed

6. Types
7. Variables
8. Primitive Types
9. Reference Types
10. Primitive Types vs Reference Types
11. Strings
12. Escape Sequences
13. Arrays
14. Multi-Dimensional Arrays
15. Constants
16. Arithmetic Expressions
17. Order of Operations
18. Casting
19. The Math Class
20. Formatting Numbers
21. Reading Input
22. Project: Mortgage Calculator
23. Solution: Mortgage Calculator
24. Types Summary
25. Control Flow
26. Comparison Operators
27. Logical Operators
28. If Statements
29. Simplifying If Statements
30. The Ternary Operator
31. Switch Statements
32. Exercise: FizzBuzz
33. For Loops
34. While Loops
35. Do...While Loops
36. Break and Continue
37. For-Each Loop
38. Project: Mortgage Calculator
39. Solution: Mortgage Calculator
40. Control Flow Summary
41. Clean Coding

## **6. C**

1. Introduction
2. Windows Setup
3. Hello World
4. Drawing a Shape
5. Variables
6. Data Types

7. Printf
8. Working With Numbers
9. Comments
10. Constants
11. Getting User Input
12. Building a Basic Calculator
13. Building a Mad Libs Game
14. Arrays
15. Functions
16. Return Statement
17. If Statements
18. Building a Better Calculator
19. Switch Statements
20. Structs
21. While Loops
22. Building a Guessing Game
23. For Loops
24. 2D Arrays & Nested Loops
25. Memory Addresses
26. Pointers
27. Dereferencing Pointers
28. Writing Files
29. Reading Files

## Registrations Open.

### Slots available

Days	Time Slots Available	
MWF	11 am - 1 pm	3.30 pm - 5.30 pm
TTS	11 am - 1 pm	3.30 pm - 5.30 pm

**10% off applicable if you form a group of 4 students or more with a time-slot of your preference.**

### Contact Details :

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