

# Internship On IOT Application With Python Programming

## Course Content

### IOT (Internet Of Things)

- Introduction to IoT
- Architecture & Scope
- IOT Technology
- Programming
- Concept of Sensors Interfacing with Controller
- Arduino environment
- Hardware Interfacing & ESP12/ESP32
- IoT Devices Testing

### Python Programming

- **Language Fundamental**
  - ✓ Introduction
  - ✓ Features Of Python
  - ✓ Limitations Of Python
  - ✓ Flavour Of Python
  - ✓ Ruby Python
  - ✓ Anaconda Python
- **Detailed Index**
  - ✓ Data Types
  - ✓ Base Conversions
  - ✓ Slicing of Strings
  - ✓ Type Casting
  - ✓ Int()



- ✓ Float()
- ✓ Complex()
- ✓ Bool ()
- ✓ Str()
- ✓ Fundamental data types vs Immutability
- ✓ Escape Characters
- ✓ Constants
  
- **Operators**
  - ✓ Arithmetic Operators
  - ✓ Relational Operators / Comparison Operator
  - ✓ Equality Operators
  - ✓ Logical Operators
  - ✓ Bitwise Operators
  - ✓ Bitwise complement Operator
  - ✓ Shift Operators
  - ✓ Assignment Operators
  - ✓ Conditional operators
  - ✓ Special Operator
  - ✓ Identity Operators
  - ✓ Membership Operators
  
- **Flow Control**
  - ✓ Conditional Statements
  - ✓ Iterative Statements
  - ✓ Transfer Statements
  - ✓ Loops with else Block
  - ✓ Difference between del & none
  
- **String Data Type**
  - ✓ What is string ?



- ✓ How to define multi-line string Literals ?
- ✓ How to access characters of a string ?
- ✓ Behaviour of slice operator
- ✓ Slice operator case study
- ✓ Mathematical Operators for string
- ✓ Len() in-built function
- ✓ Checking membership
- ✓ Comparison of string
  
- **List Data Structure**
  - ✓ Creation of list Objects
  - ✓ Accessing Elements of list
  - ✓ List vs mutability
  - ✓ Traversing the elements of list
  - ✓ Important Functions of list
  - ✓ To get information about list i:e len(), count(), index()
  - ✓ Manipulating Elements of list i:e append(), insert(), extend(), remove(), pop()
  - ✓ Ordering Elements of list i:e reverse(), sort()
  
- **Tuple Data Structure**
  - ✓ Tuple Creation
  - ✓ Accessing Elements of tuple
  - ✓ Tuple vs Immutability
  - ✓ Mathematical Operators for Tuple
  - ✓ Important Functions of Tuple
  - ✓ Tuple Packing & Unpacking
  - ✓ Tuple Comprehension
  - ✓ Differences between list & Tuple
  
- **Dictionary Data Structure**



- ✓ How to create Dictionary ?
- ✓ How to Access Data From the dictionary?
- ✓ How to update Dictionaries?
- ✓ How to delete elements from Dictionary?
- ✓ Important Functions of Dictionary
- ✓ Dictionary comprehension

- **Functions**

- ✓ Built in Functions
- ✓ User Defined Functions
- ✓ Parameters
- ✓ Return Statement
- ✓ Returning multiple values from a function
- ✓ Types of Arguments
- ✓ Types of Variables
- ✓ Recursive Functions
- ✓ Anonymous Functions
- ✓ Normal Functions
- ✓ Lambda Functions
- ✓ Filter() Functions
- ✓ Map() function
- ✓ Reduce() functions
- ✓ Everything is an object
- ✓ Function Aliasing
- ✓ Nested Functions