Introduction to Python

Objective

Get basic knowledge and learn the fundamentals of python programming language.

Resources

Python 3 documentation: https://docs.python.org/3/

Python 3 Tutorial: https://docs.python.org/3/tutorial/index.html

Topics

Installation and setup your environment	Install Python 3 Choose and prepare your editor Write "Hello, World!" program
Variables and types	Variables Variable Names Strings Escape Sequences Formatted Strings String Methods Numbers Operators Type Conversion
Control Flow	Comparison Operators and Boolean Expression Conditional Statements Ternary Operator Logical Operators Short-circuit Evaluation Chaining Comparison Operators Truthy Values For Loops For..Else Nested Loops break and continue Statements Iterables While Loops Infinite Loops

Functions	Defining Functions
	Arguments
	Types of Functions
	Keyword Arguments
	Default Arguments
	xargs
	xxargs
	Scope
	Decorators
Data Structures	Lists
	Accessing Items
	List Unpacking
	Looping over Lists
	Adding or Removing Items
	Finding Items
	Sorting Lists
	Lambda Functions
	Map Function
	Filter Function
	List Comprehensions
	Zip Function
	Stacks
	Queues
	Tuples
	Arrays
	Sets
	Dictionaries
	Dictionary Comprehensions
	Generator Expressions
	Unpacking Operator
Exceptions	Handling Exceptions
	Handling Different Exceptions
	The With Statement
	Raising Exceptions
	Cost of Raising Exceptions

Classes	
Classes	Classes
	Creating Classes
	Constructors
	Class vs Instance Attributes
	Class vs Instance Methods
	Magic Methods
	Private Members
	Properties
	Inheritance
	The Object Class
	Method Overriding
	Multi-level Inheritance
	Multiple Inheritance
	Abstract Base Classes
	Polymorphism
Modules	Creating Modules
	Compiled Python Files
	Module Search Path
	Packages
	Sub-packages
	Intra-package References
	The dir Function
	Executing Modules as Scripts
Python Standard Library	Python Standard Library
	Working With Paths
	Working with Directories
	Working with Files
	Working with Zip Files
	Working with CSV Files
	Working with JSON Files
	Working with Timestamps
	Working with DateTimes
	Working with Time Deltas
	Generating Random Values
	Sending Emails
	Command-line Arguments
Python Package Index	Pypi
	Pip
	Virtual Environments
	Pipenv
	Pipfile
	Managing Dependencies
	Docstrings
	Pydoc

Note

Python is a general-purpose language, which means it can be used to build just about anything, in this course you will learn python fundamentals, your next step is to decide what you want to do with python and start learning any frameworks/packages/tools that can help you to accomplish your goals

Flask

Objective

Learn to create a web service with flask.

Learn working with data using sqlalchemy

Resources

Flask documentation: https://flask.palletsprojects.com

Topics

Introduction	What is an API & REST Principles What is Flask Visualizing the Application's Architecture Write "Hello, World!" program App Configuration App Context
Routing	Defining Routes Route HTTP Methods Variable Rules URL Converters Redirects Request Object & Query Parameters Caching Static Files Blueprints
Templates	Template Basics & Jinja Template Variables Template Control Flow Template Inheritance Template Forms
REST API	Create Basic REST API Use Postman to Test API Request Validation Serialization / Deserialization Marshmallow & Flask-Marshmallow Create Swagger UI Flask-RESTful & Flask-RESTPlus Extensions

SQL Databases with Flask	What is ORM
	What is Database Schema migration
	Alembic
	SQLAlchemy
	Flask-SQLAlchemy
	Flask-SQLAlchemy Configuration
	Declaring Models
	One-to-Many Relationships
	Many-to-Many Relationships
	One-to-One Relationships
	Select, Insert, Update, Delete
	Flask-Migrate
	Marshmallow-Sqlalchemy
Authentication & Authorization	What is JWT
	JWT Claims
	Flask-JWT
	Flask-JWT-Extended
	Refresh Token
	Customizing Flask-JWT-Extended Callbacks and Responses
	Blacklisting with Flask-JWT-Extended
Unit Tests	What is unit test
	Write unit test
	Testing Flask App
	Pytest
	Mock
Dockerize Flask App	What is Docker and Why to Use it
	Docker Image, Docker Container, Docker File, Docker Compose
	Dockerize Flask App

Django

Objective

Learn to create a web service with django.

Resources

Django documentation: https://docs.djangoproject.com/en/3.0/

Django documentation: https://www.django-rest-framework.org/

Topics

Introduction	What is Django Create Django App Django App Structure Django App Life Cycle
Views & Templates	Views & URLs Http Response & Http Response Redirect Dynamic URLs Template Engine Render Template Passing Data from View to Template A Base Layout and Template Inheritance Static Files
SQL Databases with Django	Add Connection Settings Django Models Models Relationships QuerySets and Laziness Migrations Django Admin Customizing the Admin

Django Rest Framework	Creating a Serializer class
	Working with Serializers
	Using ModelSerializers
	Django Views With Serializer
	Request Objects
	Response Objects
	Status Codes
	Wrapping API Views
	Adding Format Suffixes to URLs
	Class-Based Views
	Mixins
	Generic Class-Based views
	Authentication & Permissions
	API Hyperlinking
	Named URL patterns
	Pagination
	ViewSets
	Binding ViewSets to URLs
	Routers
Unit Tests	Testing Django App
	Unittest Framework¶
Dockerize Django App	Dockerize Django App