

# Python Advanced



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# Introduction

# Program



Python Recap  
Python Advanced Concepts



File Formats  
Pickle  
XML  
JSON



Database Access  
ORM  
SqlAlchemy



Web Frameworks  
Pyramid  
Django  
Flask

# Python Basics

- Built-in numeric types: bool, int, float, complex
- Operators: arithmetic, comparative, boolean
- Strings: concatenation, string methods, formatting, unicode
- Flow statements: while, for, if-elif-else
- Functions: arguments, default values, variadic arguments, keyword arguments, return value, lambda
- Built-in functions
- Reading from and writing to files, context manager
- Lists: indexing, slicing, modification, unpacking, comprehension
- Dicts: creation, modification, iterating
- Object Orientation: classes, objects, methods and attributes

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# Advanced Python

# Topics

- virtual environments
- type hinting
- logging
- zipfile
- concurrency:
  - Treading
  - Asynchronous IO
  - Multiprocessing
- tkinter
- pylint
- docstrings
- pydoc
- configparser
- git & github
- functools
- itertools
- pathlib
- shutil
- dateutil, calendar, arrow

# Project

# Python DBI API 2.0

- connect
- cursor
- execute



# RDBMS

- SQLite
- Microsoft SQL Server
- Oracle
- PostgreSQL
- MySQL

sqlite3

pyodbc

psycopg2

mysql-connector-python

# NoSQL

NoSQL databases are more flexible than relational databases. In these types of databases, the data storage structure is designed and optimized for specific requirements. There are four main types for NoSQL libraries:

- Document-oriented
- Key-value pair
- Column-oriented
- Graph

Python NoSQL:

- MongoDB
- Redis
- Cassandra
- Neo4j

# SQL

- CREATE TABLE
- ALTER TABLE
- DROP TABLE
- INSERT
- SELECT
- UPDATE
- DELETE
- LIMIT clause
- FROM clause
- JOIN clause
- WHERE clause
- ORDER BY clause
- GROUP BY clause

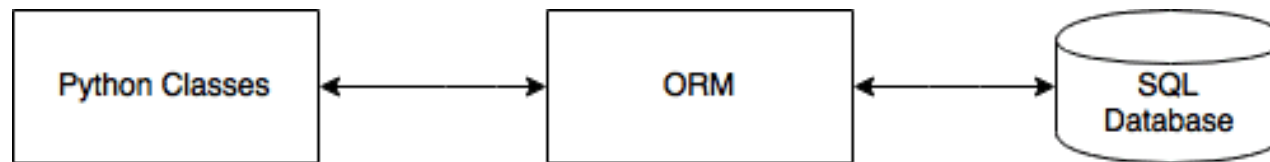
# SQLite

# PostgreSQL

# Links

- <https://pythonspot.com/python-database/>
- <https://www.geeksforgeeks.org/python-database-tutorial/>
- <https://www.tutorialspoint.com/postgresql/index.htm>

# SqlAlchemy



# Links

- <https://www.geeksforgeeks.org/python-database-tutorial/>



# Web Frameworks

- Django
- Flask
- Pyramid
- Bottle
- Sierra
- FastAPI

# Web Framework

- Routing
- Database ORM
- Templating

# RESTful

- Client – Server
- Http Verbs – Get, Post, Put, Delete
- Payload – Data - JSON

# GUI

- TkInter
- PyQt
- Dash
- Jupyter Widgets