

# CSCB20

## Introduction to Databases and Web Application

### Week 10 - SQLite and Flask

Dr. Purva R Gawde

# Topics

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- SQLAlchemy
  - Object Relational Mapper (ORM)
  - Setup
  - Demo

# SQLAlchemy

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- SQLAlchemy is a library used to interact with a wide variety of databases
- enables you to create data models and queries
- Created by Mike Bayer in 2005
- Used to connect to most databases:
  - Postgres, MySQL, SQLite, Oracle, and many others.
- Why SQLAlchemy?
  - Abstract your code away from the underlying database and its associated SQL peculiarities
  - Two modes of usage:
    - SQL Expression Language (commonly referred to as Core) and ORM

# Core and ORM

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- SQLAlchemy Core and the SQL Expression Language
  - Pythonic way of representing common SQL statements and expressions
  - focused on the actual database schema
- The SQLAlchemy ORM
  - It is focused around the domain model of the application
  - high-level abstraction on top of the SQL Expression Language that enables the user to work in a more idiomatic way

# Installing SQLAlchemy and Connecting to a Database

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- Installing Database Drivers
  - By default, SQLAlchemy will support SQLite3 with no additional drivers
- Connecting to a database
  - To connect to a database, we need to create a SQLAlchemy engine.

SQLAlchemy - Environment setup (in virtual environment)

```
pip install sqlalchemy
```

```
from sqlalchemy import create_engine  
  
engine = create_engine('sqlite:///persons.db')
```



# The SQLAlchemy ORM - Demo