SQLAlchemy Primer

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Overview

What is SQL?

What is an ORM?

Design Patterns

Final Warning

What is SQL?

Structured **Q**uery **L**anguage

✓ Talk to a Relational Database

✓ **C**reate, **R**ead, **U**pdate, **D**elete (CRUD)

✓ DB Vendor syntax can differ

Typical Relational Databases

✓ MySQL / Oracle (Oracle)

✓ Postgres

✓ SQLite3

✓ SqlServer (Microsoft)

What is an ORM?

Object-**r**elational **M**apping

✓ Use OO constructs to work with a RDBMS

Benefits

✓ Write Python Code instead of SQL
✓ Abstract away Vendor Syntax

Downsides

✓ Lot's of "magic" hides the truth
✓ Cannot leverage native vendor features

What is an ORM?

OO Constructs

✓ Classes == Tables
✓ Instance == Row
✓ Instance Attributes == Columns

Class (Person)

Instances (2)

Attributes (4)

first	last	height	age
Jimmy	Johnson	74"	33
Willis	Jones	72"	40

What is an ORM?

Simple Python Class Example

```python
class Person(ORMSuperClass):
    def __init__(self, first, last, height, age):
        self.first = first
        self.last = last
        self.height = height
        self.age = age
```
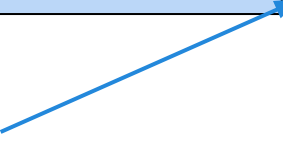
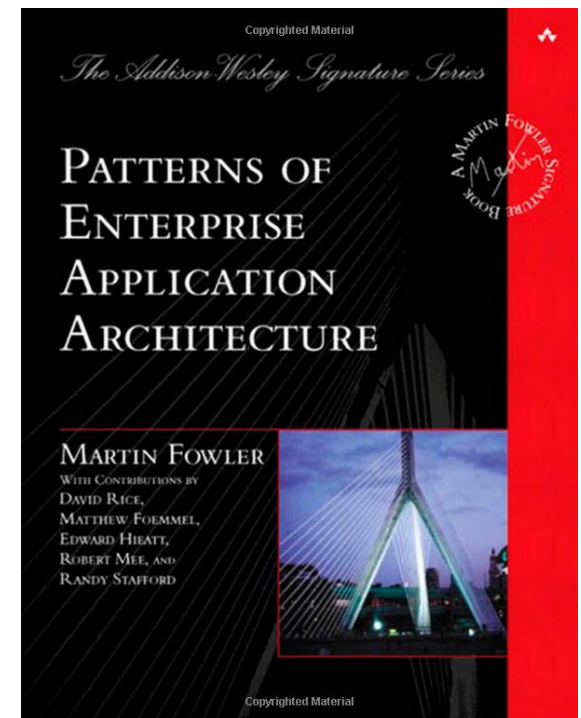| first	last	height	age
Jimmy	Johnson	74"	33
Willis	Jones	72"	40
Cameron	Goodale	73"	36

Person(Cameron, Goodale, 73, 36)

Design Patterns

Patterns to describe common problems

✓ Data mapper (SQLAlchemy)
✓ Active Record (Ruby on Rails)

sources:

http://en.wikipedia.org/wiki/Data_mapper_pattern

http://en.wikipedia.org/wiki/Active_record_pattern

Final Warning

Learn SQL

ORMs hide A LOT

You still need good Database Design

✓   Indexes

✓   Views

✓   Normalized vs. De-normalized

✓   Spatial Queries

Thank you