



Django 1: Introduction to Django Models

Models and tables

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Who haven't heard about Django?



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Who haven't heard about Django?

DO NOT:

DO:

- Use Django ORM



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DO NOT:

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- Build a model



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- Learn SQL



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Who haven't heard about Django?

DO NOT:

DO:

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- Build a model
- Learn SQL
- Work with MySQL



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DO NOT:

■ Install Django

DO:

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- Build a model
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- Work with MySQL



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Who haven't heard about Django?

DO NOT:

DO:

- Use Django ORM
- Build a model
- Learn SQL
- Work with MySQL

- Install Django
- Go deep into details of Django inner parts



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Who haven't heard about Django?

DO NOT:

DO:

- Use Django ORM
- Build a model
- Learn SQL
- Work with MySQL

- Install Django
- Go deep into details of Django inner parts
- Hack anything



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DO NOT:

DO:

- Use Django ORM
- Build a model
- Learn SQL
- Work with MySQL

- Install Django
- Go deep into details of Django inner parts
- Hack anything
- Break anything (consciously)



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A model is a way to structure the information to simulate reality.



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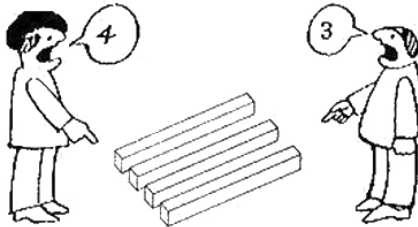
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A model is a way to structure the information to simulate reality.

"We Don't See Things As They Are,



We See Them As We Are." - AN



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- All the domain is represented as objects.



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- All the domain is represented as objects.
- Each object is independent



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- All the domain is represented as objects.
- Each object is independent
- Each object has his responsibilities



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- All the domain is represented as objects.
- Each object is independent
- Each object has his responsibilities
- Each object has his functions, attributes



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- All the domain is represented as objects.
- Each object is independent
- Each object has his responsibilities
- Each object has his functions, attributes
- Objects interact politely among their acquaintances



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■ Use logic



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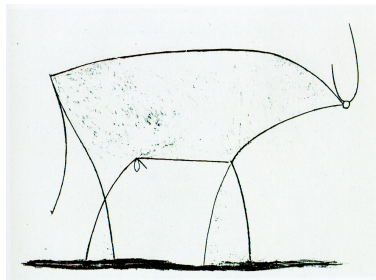
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- Use logic
- Abstraction



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- Use logic
- Abstraction
- Do not repeat yourself



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- Use logic
- Abstraction
- Do not repeat yourself
- Single responsibility



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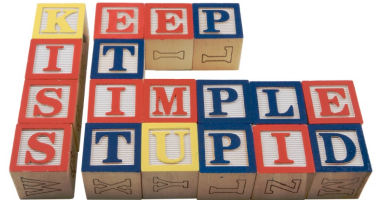
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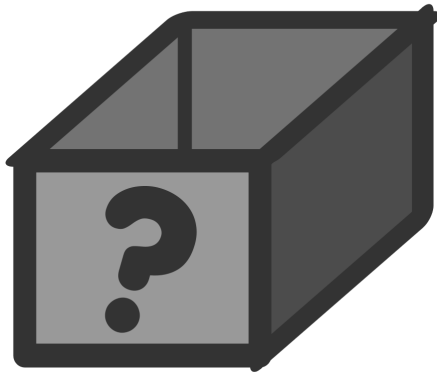
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- Use logic
- Abstraction
- Do not repeat yourself
- Single responsibility
- KISS



Databases

A database is a black box who stores and manages the information



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A database is a black box who stores and manages the information
How it stores/retrieves the information is not of our concern.



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A database is a black box who stores and manages the information

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It is trustworthy



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We use DB specific language to communicate with a DBMS.



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A database is a black box who stores and manages the information

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We use DB specific language to communicate with a DBMS.

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Django ORM is a layer of abstraction to release this communication (developer - DBMS) to Django.



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A database is a black box who stores and manages the information

How it stores/retrieves the information is not of our concern.

It is trustworthy

We use DB specific language to communicate with a DBMS.

SQL

Django ORM is a layer of abstraction to release this communication (developer - DBMS) to Django.
You can invest your time doing something productive!

DBMS Stantard Organization

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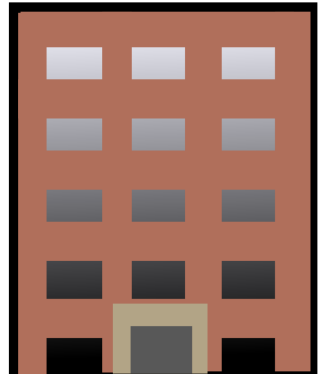
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- DBMS is the whole system.



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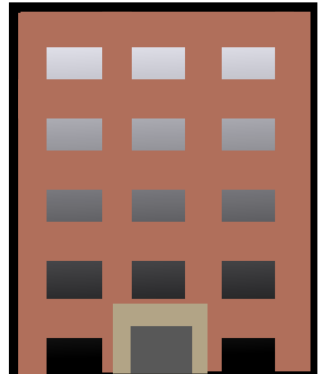
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- DBMS is the whole system.
- DBMS is divided into DATABASES



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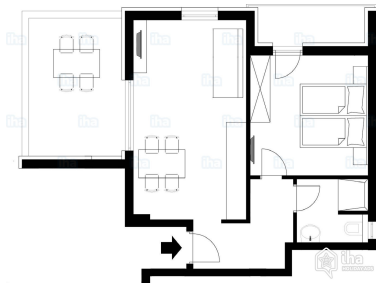
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- DBMS is the whole system.
- DBMS is divided into DATABASES
- Each DATABASE has his TABLES



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- DBMS is the whole system.
- DBMS is divided into DATABASES
- Each DATABASE has his TABLES
- Each USER has specific permissions to access/operate any part of the DBMS



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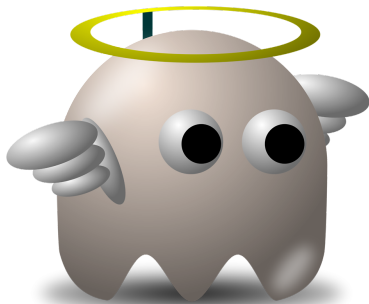
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- DBMS is the whole system.
- DBMS is divided into DATABASES
- Each DATABASE has his TABLES
- Each USER has specific permissions to access/operate any part of the DBMS
- ROOT can do ANYTHING!
Be aware of his usage



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SQL (Standard Query Language) is Standardized by ANSI



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SQL (Standard Query Language) is Standardized by ANSI
SQL is not case sensitive



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SQL (Standard Query Language) is Standardized by ANSI
SQL is not case sensitive
Each DBMS implements his own version



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SQL (Standard Query Language) is Standardized by ANSI
SQL is not case sensitive
Each DBMS implements his own version
Same-same, different-different



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SQL (Standard Query Language) is Standardized by ANSI
SQL is not case sensitive
Each DBMS implements his own version
Same-same, different-different
Let's start with SQL Syntax !



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■ Create Database



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- Create Database
 - CREATE DATABASE newDatabaseName



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 - CREATE DATABASE newDatabaseName
- Delete Database



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- Create Database
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- Delete Database
 - DROP DATABASE databaseName



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- Create Database
 - CREATE DATABASE newDatabaseName
- Delete Database
 - DROP DATABASE databaseName
- Modify Database



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- Create Database
 - CREATE DATABASE newDatabaseName
- Delete Database
 - DROP DATABASE databaseName
- Modify Database
 - ALTER DATABASE databaseName specs



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- Create Table
 - CREATE TABLE newTableName



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 - CREATE TABLE newTableName
- Delete Table



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 - CREATE TABLE newTableName
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- Modify Table



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■ Select Item/s



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- Select Item/s
 - `SELECT Items schemaName.tableName`



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 - `SELECT Items schemaName.tableName`
- Update Item/s



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- Select Item/s
 - `SELECT` Items `schemaName.tableName`
- Update Item/s
 - `UPDATE` `tableName` `SET col1=something ...`



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- Select Item/s
 - `SELECT` Items `schemaName.tableName`
- Update Item/s
 - `UPDATE` `tableName` `SET col1=something ...`
- Insert Item/s



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SQL Syntax

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Exercises

Creating Django Model
Import data to the model
Play with the data

- Select Item/s
 - `SELECT` Items `schemaName.tableName`
- Update Item/s
 - `UPDATE` `tableName` `SET col1=something ...`
- Insert Item/s
 - `INSERT INTO` `tableName` (`col1,..., coln`) `VALUES` (`11,...,1n`),(...),(`n1,..., nn`)



Operations over Items

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 - `UPDATE` `tableName` `SET col1=something ...`
- Insert Item/s
 - `INSERT INTO` `tableName` (`col1,..., coln`) `VALUES` (`11,...,1n`),(...),(`n1,..., nn`)
- Delete Item/s



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 - `SELECT` Items `schemaName.tableName`
- Update Item/s
 - `UPDATE` `tableName` `SET col1=something ...`
- Insert Item/s
 - `INSERT INTO` `tableName` (`col1,..., coln`) `VALUES` (`11,...,1n`),(...),(`n1,..., nn`)
- Delete Item/s
 - `DELETE FROM` `tableName`



Exercises time!

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- Let's create a Django Model
- Import data to the model
- Play with the data



Create Model

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■ Model related to Employee



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- Model related to Employee
- 6 Model objects



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Creating Django Model
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Play with the data

- Model related to Employee

- 6 Model objects

- Reference:

<https://docs.djangoproject.com/en/1.8/ref/models/fields/>



Import data to the model

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■ clone repository from github



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- clone repository from github
 - git clone <https://github.com/pyladies-bcn/django1.git>



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- clone repository from github
 - git clone <https://github.com/pyladies-bcn/django1.git>
- go to the folder django1/db



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- clone repository from github
 - git clone <https://github.com/pyladies-bcn/django1.git>
- go to the folder django1/db
- locate employees.sql



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- clone repository from github
 - git clone <https://github.com/pyladies-bcn/django1.git>
- go to the folder django1/db
- locate employees.sql
- import it to your mysql installation



Import data to the model

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- clone repository from github
 - git clone <https://github.com/pyladies-bcn/django1.git>
- go to the folder django1/db
- locate employees.sql
- import it to your mysql installation
- check there are no errors. Errors are evil!



Play with the data

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After populating our model with registers, we have lots of data.



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After populating our model with registers, we have lots of data.

We are going to look for INTERESTING Employees.

- Look for the oldest/youngest employee



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After populating our model with registers, we have lots of data.

We are going to look for INTERESTING Employees.

- Look for the oldest/youngest employee
- Look for the employee with the highest/lowest salary



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After populating our model with registers, we have lots of data.

We are going to look for INTERESTING Employees.

- Look for the oldest/youngest employee
- Look for the employee with the highest/lowest salary
- Look for the most veteran/new employee



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After populating our model with registers, we have lots of data.

We are going to look for INTERESTING Employees.

- Look for the oldest/youngest employee
- Look for the employee with the highest/lowest salary
- Look for the most veteran/new employee
- The department with more employees



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We are going to look for INTERESTING Employees.

- Look for the oldest/youngest employee
- Look for the employee with the highest/lowest salary
- Look for the most veteran/new employee
- The department with more employees
- The department with the youngest manager



Play with the data

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After populating our model with registers, we have lots of data.

We are going to look for INTERESTING Employees.

- Look for the oldest/youngest employee
- Look for the employee with the highest/lowest salary
- Look for the most veteran/new employee
- The department with more employees
- The department with the youngest manager
- Anything you can imagine!



Thank you :) @PyLadiesBCN

