

Python and Django Course contents

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Introduction

The Python Environment

- Starting Python
- Using the interpreter
- Running a Python script
- Python scripts on Unix/Windows
- Editors and IDEs

Getting Started

- Using variables
- Built-in functions
- Strings
- Numbers
- Converting among types
- Writing to the screen
- Command line parameters

Flow Control

- About flow control
- White space
- Conditional expressions
- Relational and Boolean operators
- While loops
- Alternate loop exits

Lists and Tuples

- About sequences
- Lists and list methods
- Tuples
- Indexing and slicing
- Iterating through a sequence
- Sequence functions, keywords, and operators
- List comprehensions
- Nested sequences

Working with Files

- File overview
- The with statement
- Opening a text file
- Reading a text file
- Writing to a text file
- Raw (binary) data

Dictionaries and Sets

- About dictionaries
- Creating dictionaries
- Iterating through a dictionary
- About sets
- Creating sets
- Working with sets

Functions

- About sequences
- Function parameters
- Global variables
- Global scope
- Returning values
- Sorting data

Errors and Exception Handling

- Syntax errors
- Exceptions
- Using try/catch/else/finally
- Handling multiple exceptions
- Ignoring exceptions

Using Modules

- The import statement
- Module search path
- Zipped libraries
- Creating Modules
- Function and Module aliases

Classes

- About o-o programming
- Defining classes
- Constructors
- Instance methods and data
- Class/static methods and data

- Inheritance

Django Architecture

- Sites and apps
- Shared configuration
- Minimal Django layout
- Built-in flexibility

Configuring a Project

- Executing manage.py
- Starting the project
- Database setup
- The development server

Adding an Application

- Generate the application files
- Defining models
- Related objects
- SQL Migration
- App configuration
- Accessing models

Login for Nothing and Admin for free

- Setting up the admin user
- Running the admin site
- Tweaking the admin interface
- Changing the admin index page

Basic Views (AKA Controllers)

- What is a view
- HttpResponse
- URL route configuration
- Shortcut: `get_object_or_404()`

Basic Views (AKA Templates)

- About templates
- Django template syntax
- Static files
- Loading templates
- The url tag
- Shortcut: `template.render()`

Querying the Models

- QuerySets
- Field lookups
- Chaining filters
- Slicing QuerySets
- Related fields
- Q objects

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- Escaping HTML
- Custom filters

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- GET and POST
- The Form class
- Processing the form
- Widgets
- Validation
- Forms in templates
- Beyond the basics

Automated Testing

- Why create tests?
- When to create tests
- Using Django's test framework
- Using the test client
- Running tests
- Checking code coverage