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Introduction to Python Frameworks

Welcome! This presentation will give you an overview of Python frameworks.

We will cover web development, data science, GUI, and more. Frameworks offer increased efficiency, code reusability, and enhanced security. You'll learn why frameworks are essential and see examples.

Web Development: Django

Key Features:

- ORM for database interactions

- Template engine for web pages

- URL routing and management

- Built-in security

Django is used by Instagram, Pinterest, and Mozilla. It simplifies web development with powerful tools and conventions.

Django

A high-level Python web framework. "The web framework for perfectionists with deadlines."

Web Development: Flask

Key Features:

- WSGI toolkit and routing

- Jinja2 template engine

- Extensible

Flask powers Netflix, Reddit, and Airbnb. It offers flexibility for custom web applications.

Flask

A microframework for Python, lightweight and flexible.

Asynchronous: FastAPI

High Performance

Data Validation

API Docs

FastAPI is built for modern, high-performance APIs. Automatic data validation and interactive API documentation included.

Data Science: Pandas

DataFrame

Tabular data structure

Series

One-dimensional data

Data Alignment

Handles missing data

Aggregation

Data transformation

Pandas excels in data cleaning, analysis, and visualization.

GUI: Tkinter

Widgets

Event Handling

Geometry Management

Tkinter is simple and cross-platform for GUI development. Great for desktop applications and prototyping.

GUI: PyQt

Key Features:

- Extensive widgets
- Signals and slots
- Qt Designer

PyQt offers advanced features and customization. Signals and slots for event handling and Qt Designer for UI design.

PyQt

Comprehensive GUI framework

Choosing the Right Framework

1	**Requirements** Consider project needs
2	**Complexity** Assess project size
3	**Performance** Note speed needs

Choose based on project needs, size, and performance. Scenarios: e-commerce site (Django), API (Flask or FastAPI), data analysis (Pandas and NumPy).

Conclusion & Further Learning
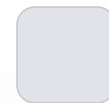
Summary

Review of frameworks

Benefits

Recap of key gains

Experiment

Try new frameworks

Resources

Docs, tutorials, forums

Explore, experiment, and continue learning. Use official documentation, online tutorials, and community forums.

Python mini project Git
Link https://github.com/Karan1028/Python-mini-project.git