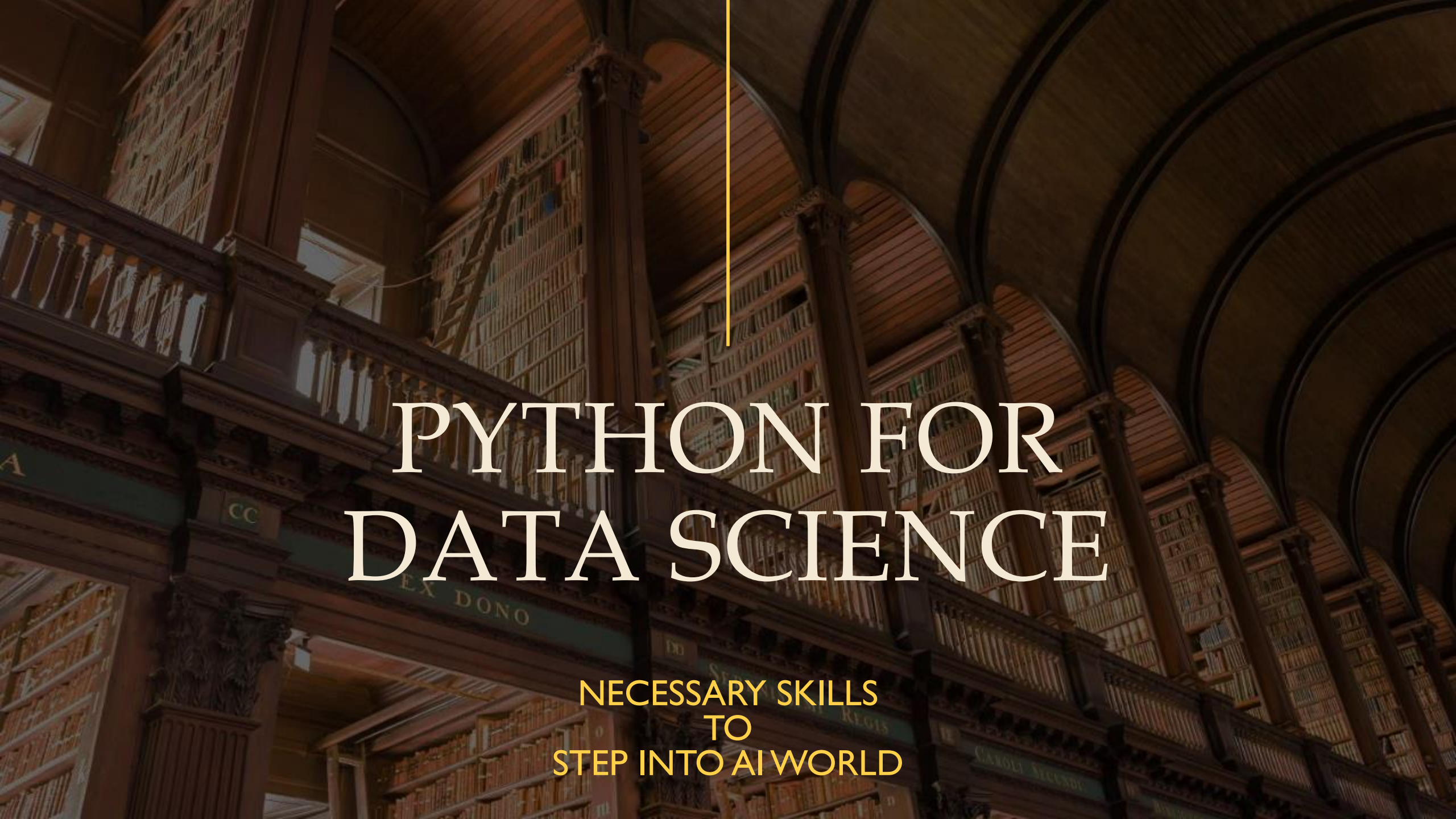
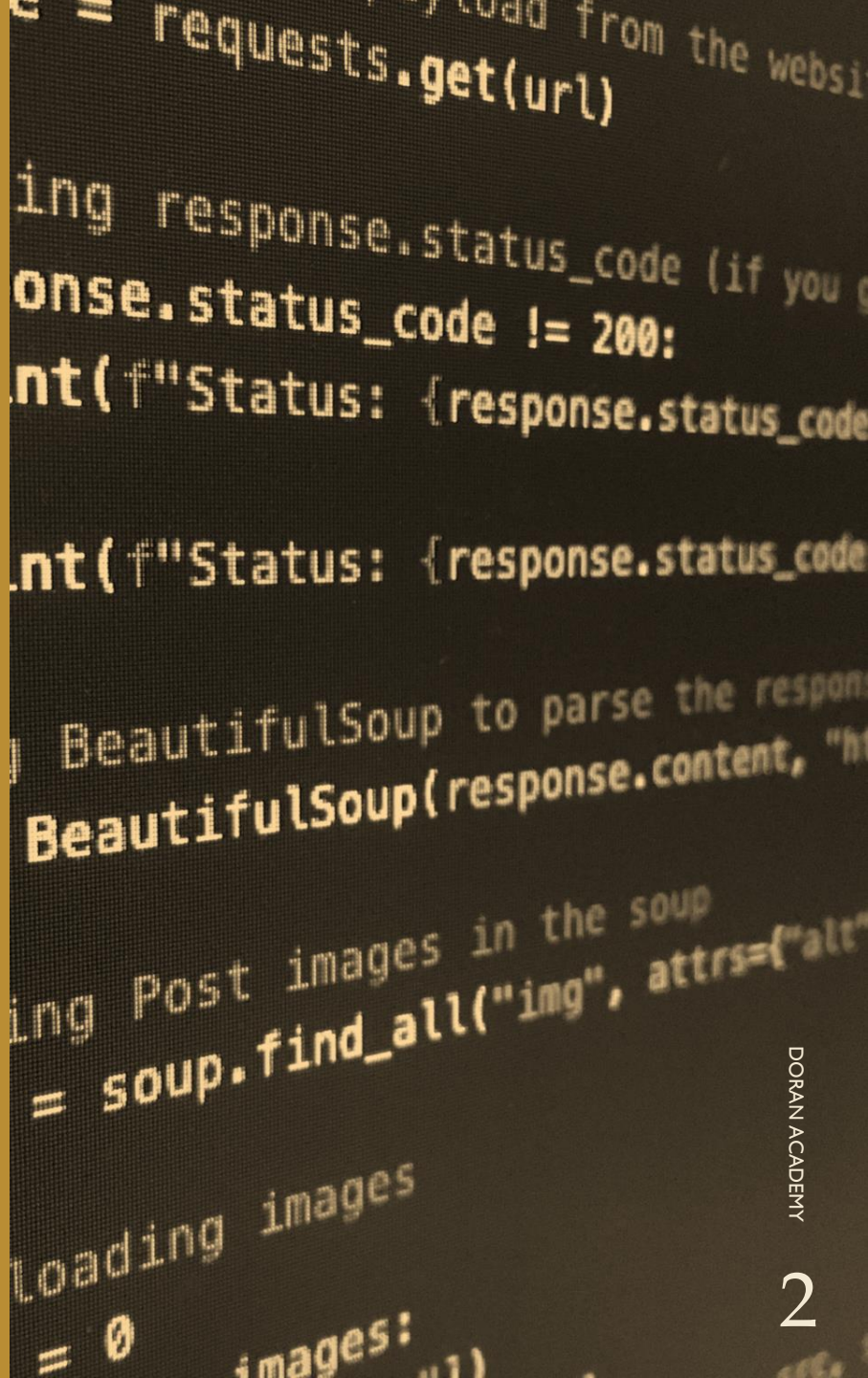

PYTHON FOR
DATA SCIENCE
NECESSARY SKILLS
TO
STEP INTO AI WORLD

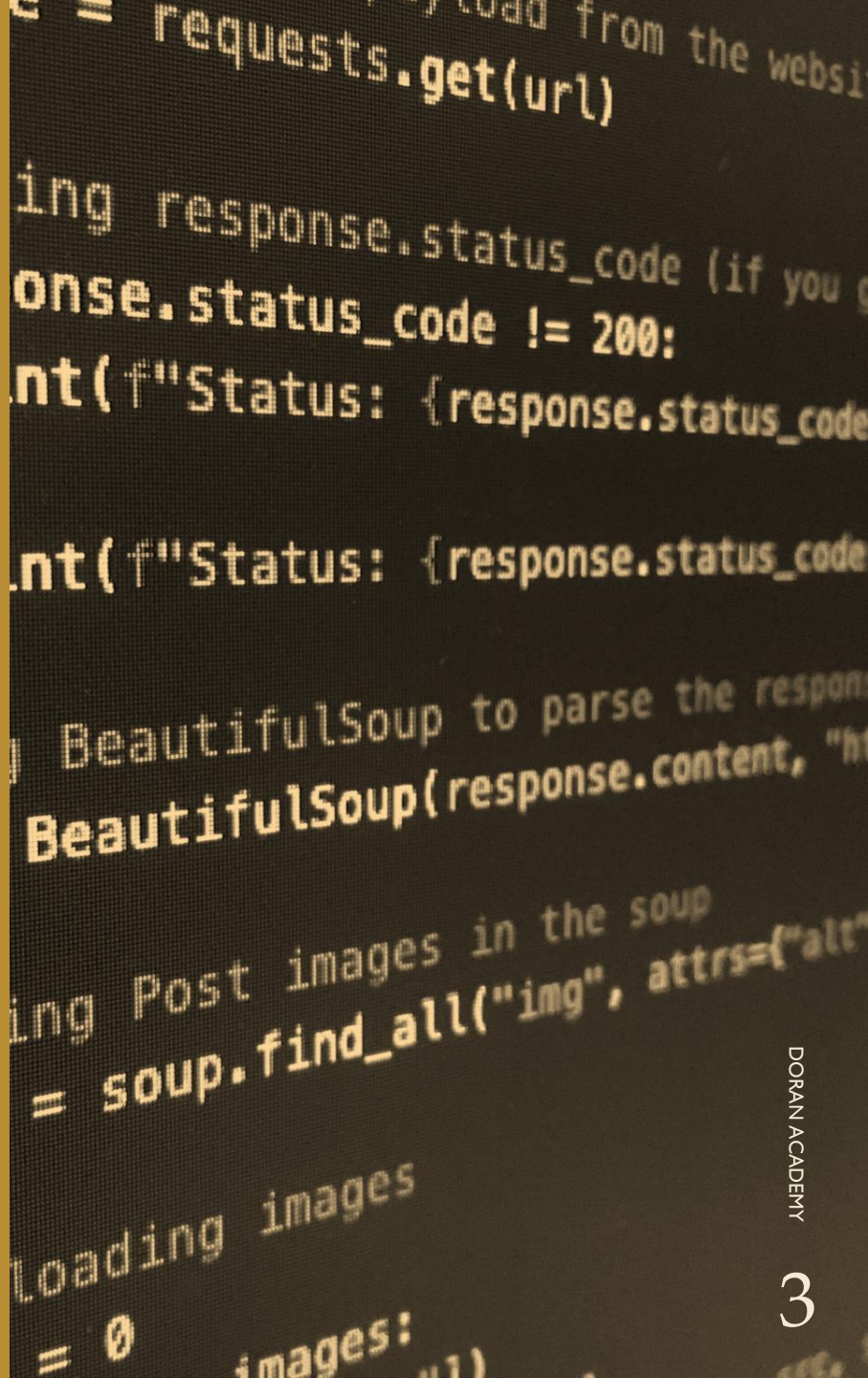
WORKING WITH DATABASES – P1

- Introduction to Databases
- Database Concepts
- Keys
- Introduction to SQlite
- CRUD on SQlite
- Introducing ‘Cursor’



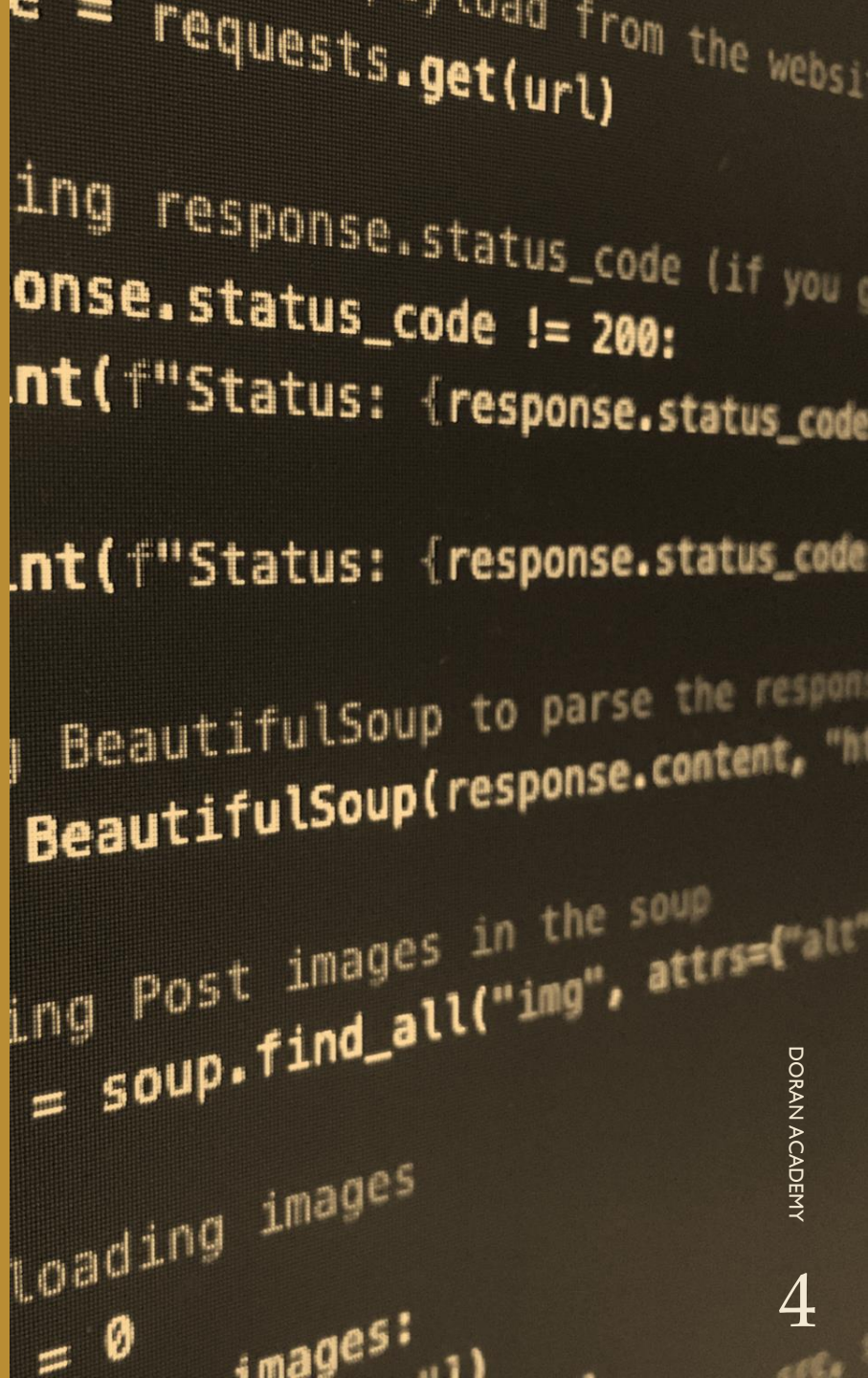
WORKING WITH DATABASES – P2

- Tools of the Trade in Big Databases
- Configuring MySQL
- Connection Error Handling
- CRUD in MySQL



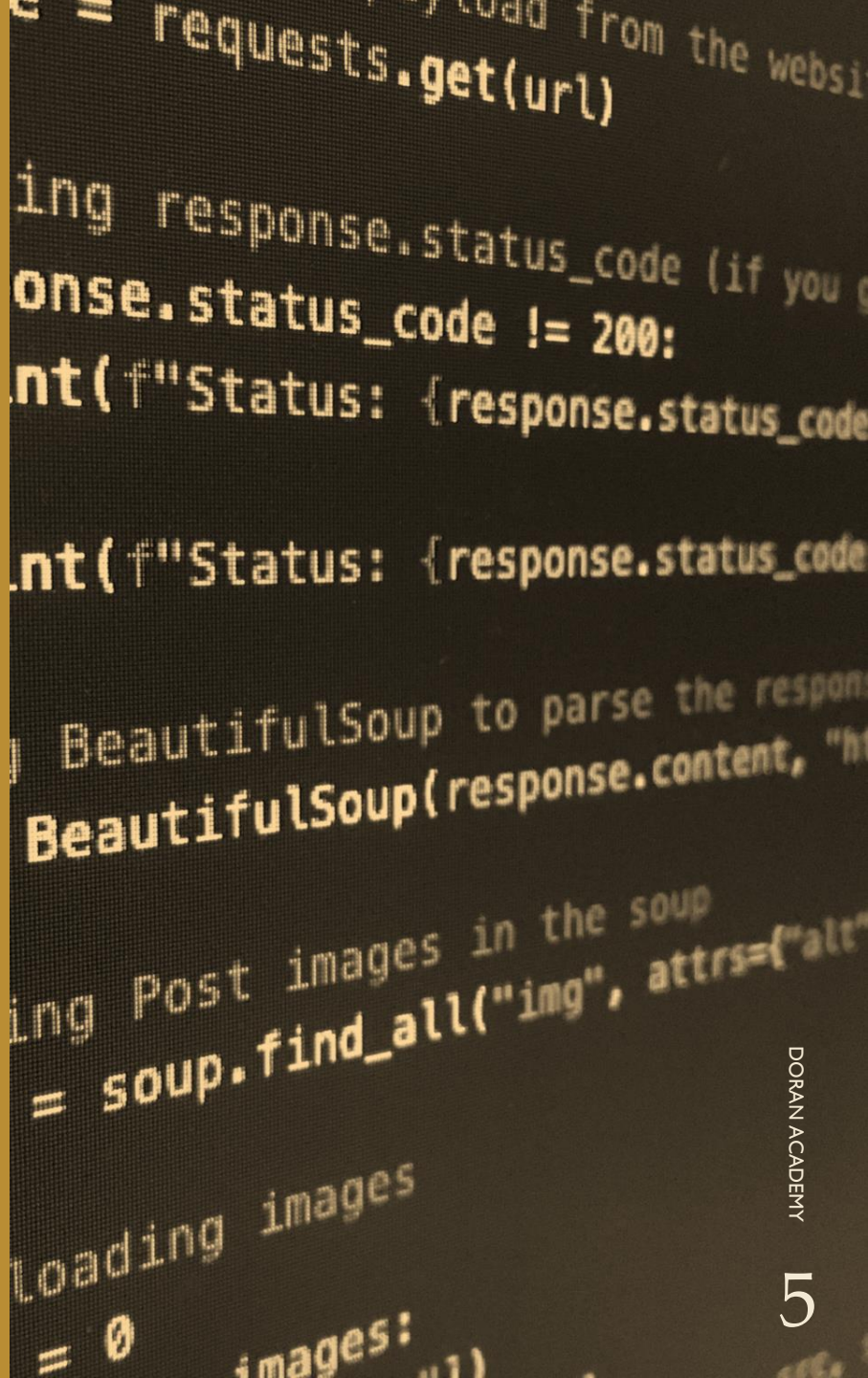
INTRODUCING API CONCEPTS – P1

- Introduction to API
- Discussing Rest-API
- API Call
- Getting to Know JSON Format
- Working with Restful APIs
- Project: Getting Data From ‘NASA’ Mars Rover



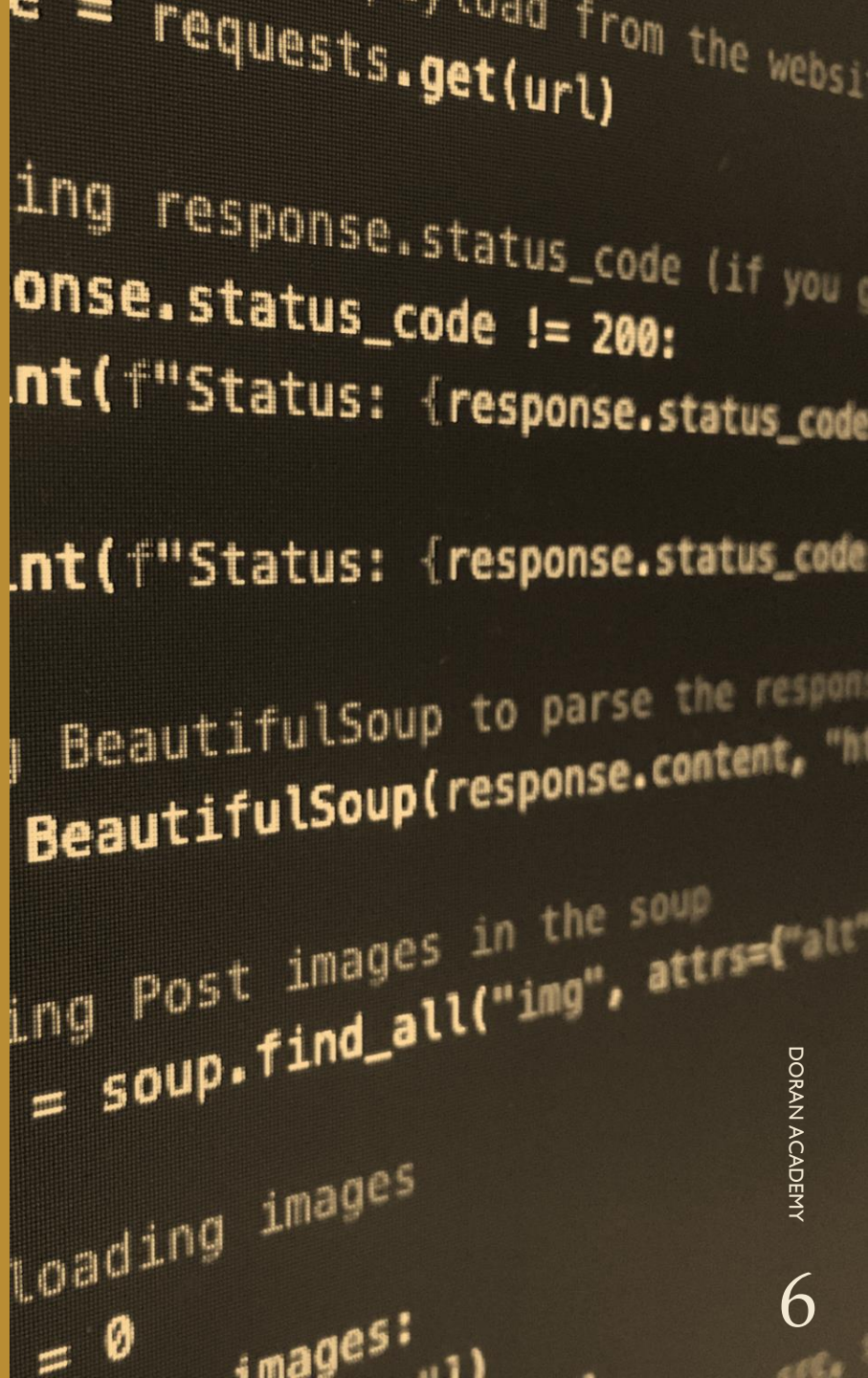
INTRODUCING API CONCEPTS – P2

- Concepts of fastAPI
- Writing Your First API
- Path Parameters
- Enumerations
- Query Parameters



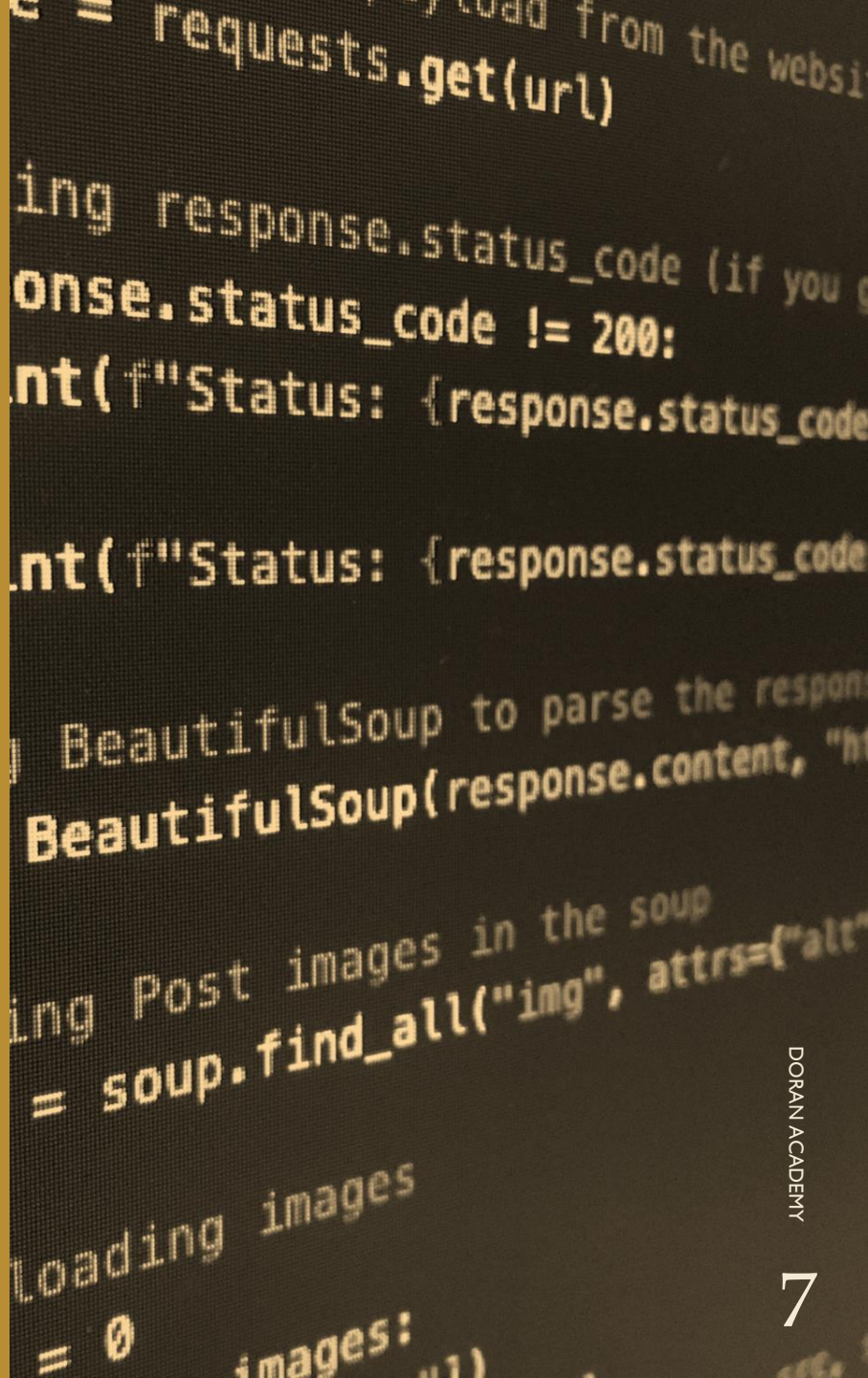
CRAWLING

- What Are Crawlers?
- Selenium
- Quick Overview on CSS Styling
- Quick Overview on HTML Tags
- Extracting the Exact Information From Websites
- Project: Crawling Digikala



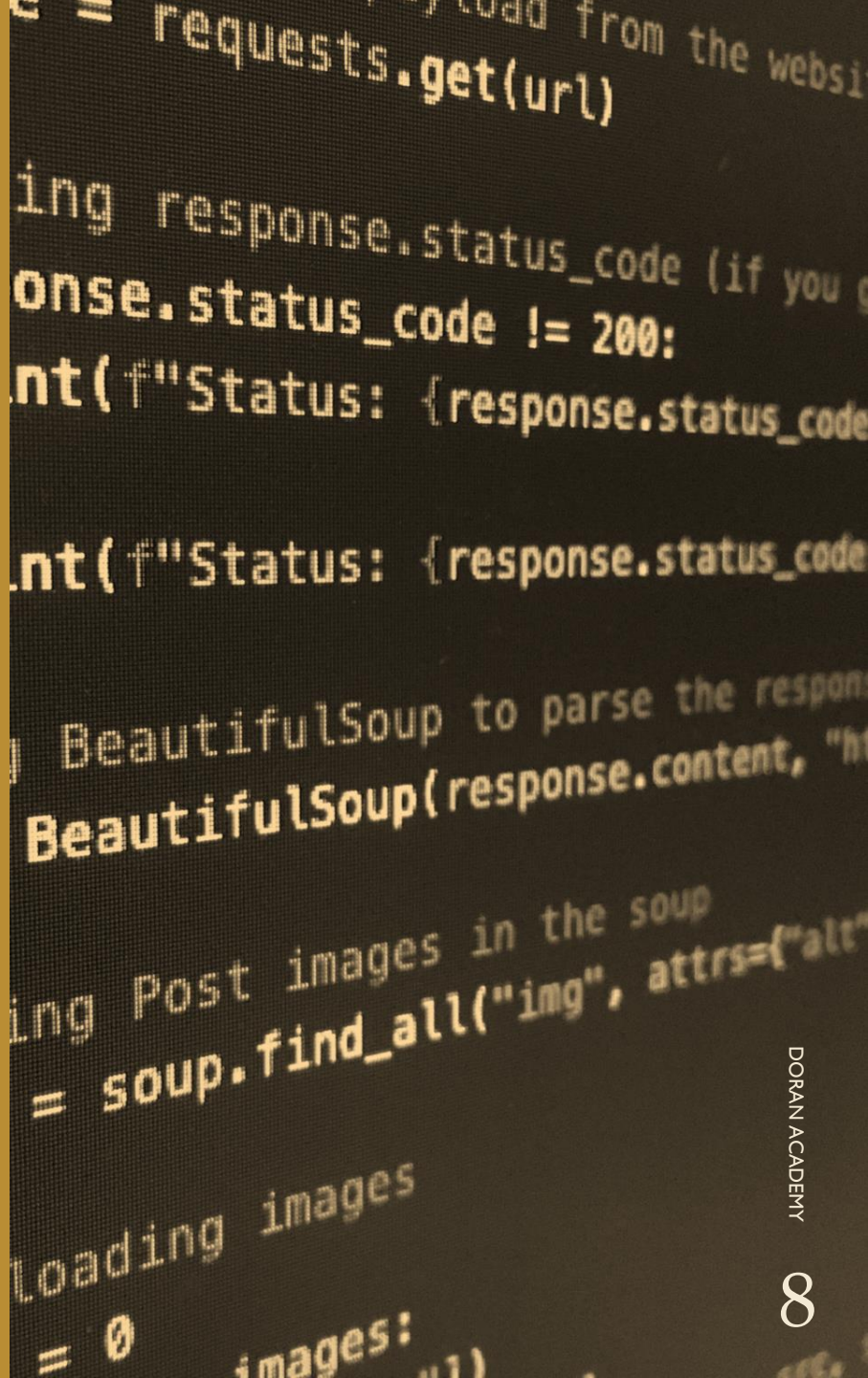
INTRODUCING NUMPY

- Jupyter Notebook
- Introducing Numpy
- Creating a Numpy Array
- Numpy Array vs List
- Calculating Norm and Inner Product
- Matrices in Numpy
- Solving Linear Systems in Numpy



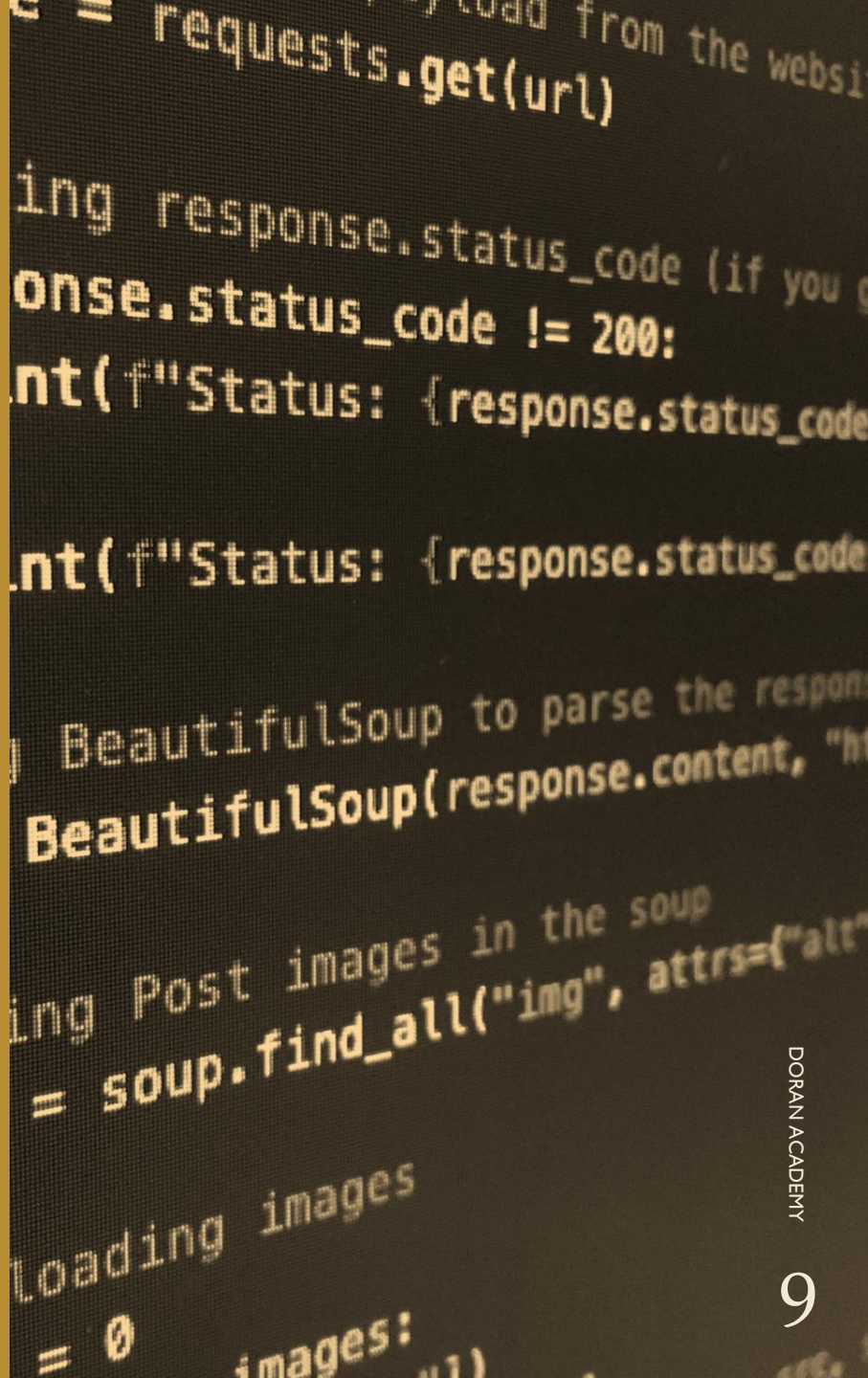
INTRODUCING MATPLOTLIB

- Getting to Know Charts
- Histograms
- Piechart
- Boxplot
- Errorbar



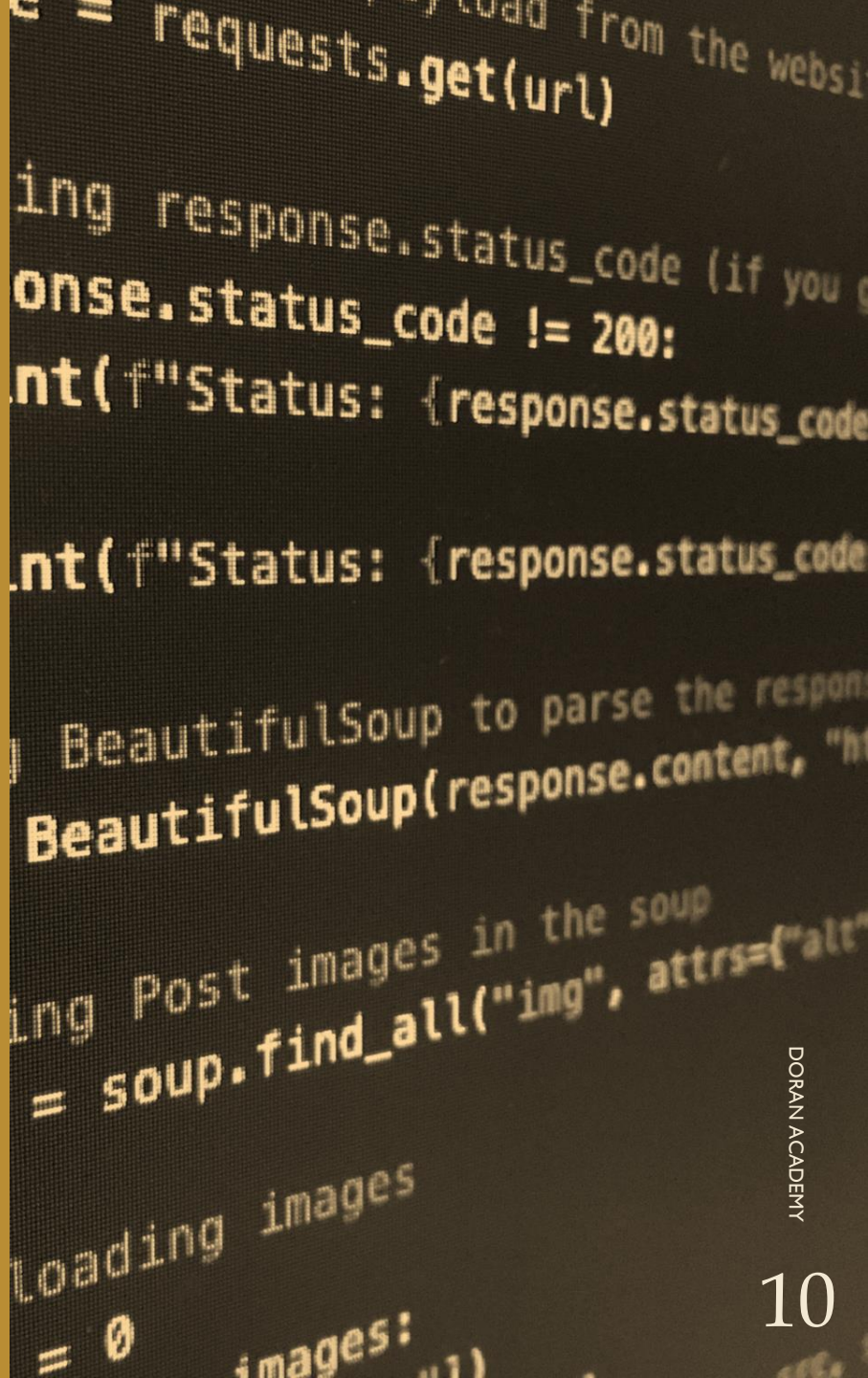
INTRODUCING PANDAS

- Reading Files Into Pandas
- Matrix Manipulation in Pandas
- Introducing Data Frames
- Working With Rows and Columns



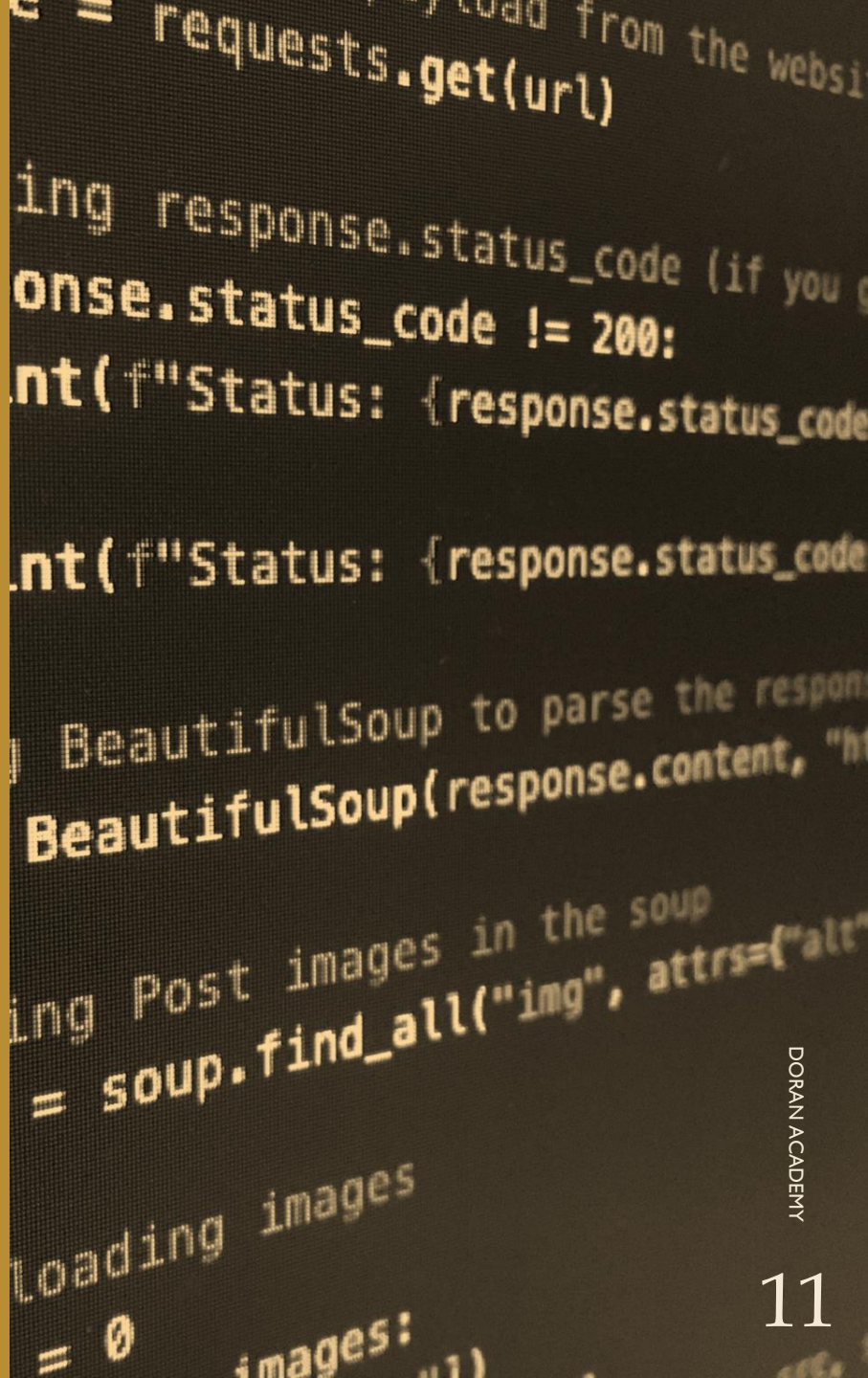
INTRODUCING SCIKIT-LEARN

- Data Cleaning
- Data Encoding
- Re-scaling Data
- Introducing Outliers
- Outlier Detection
- Project: Avocado Price Estimation



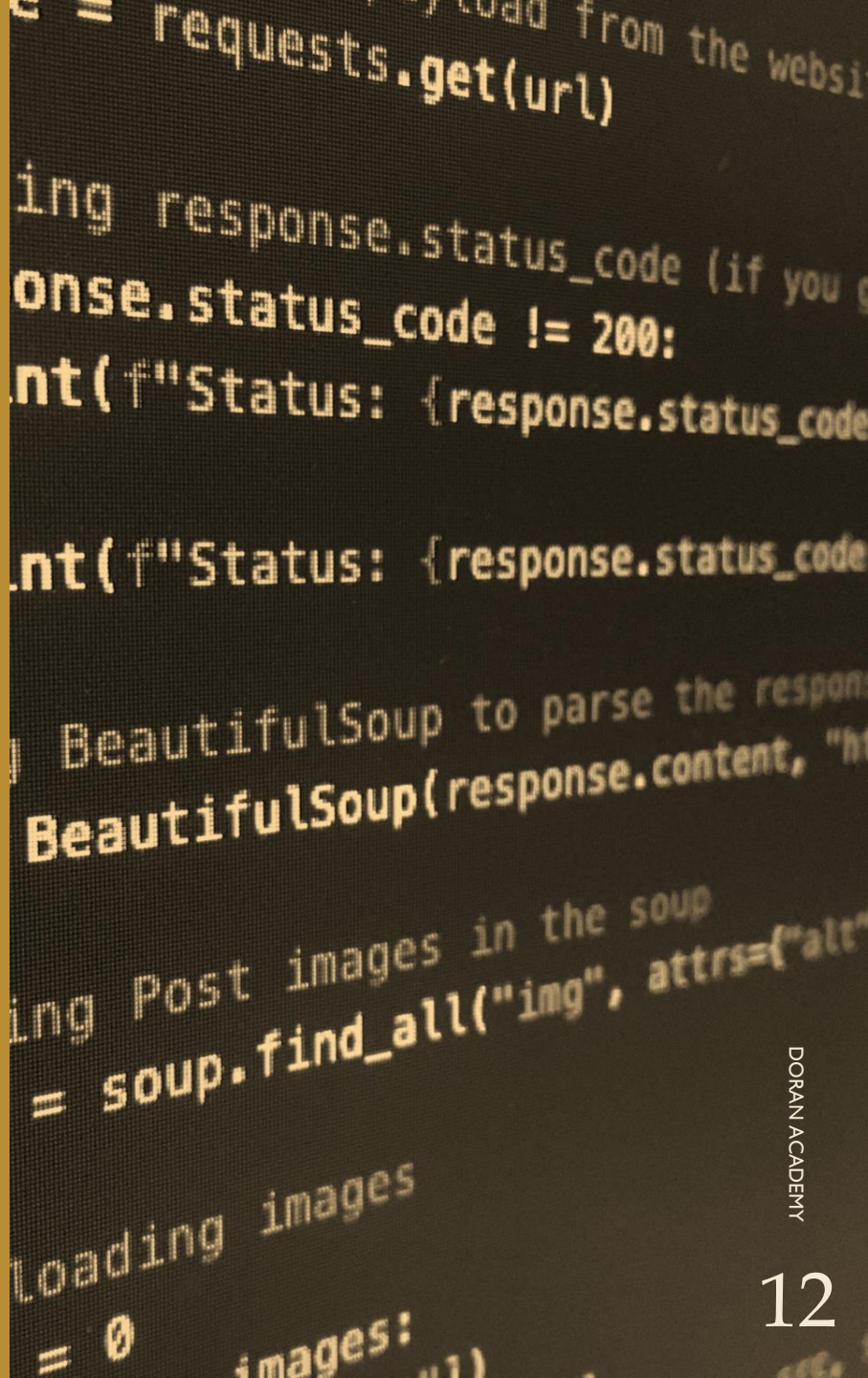
SCIPY

- Quick Intro to Scipy



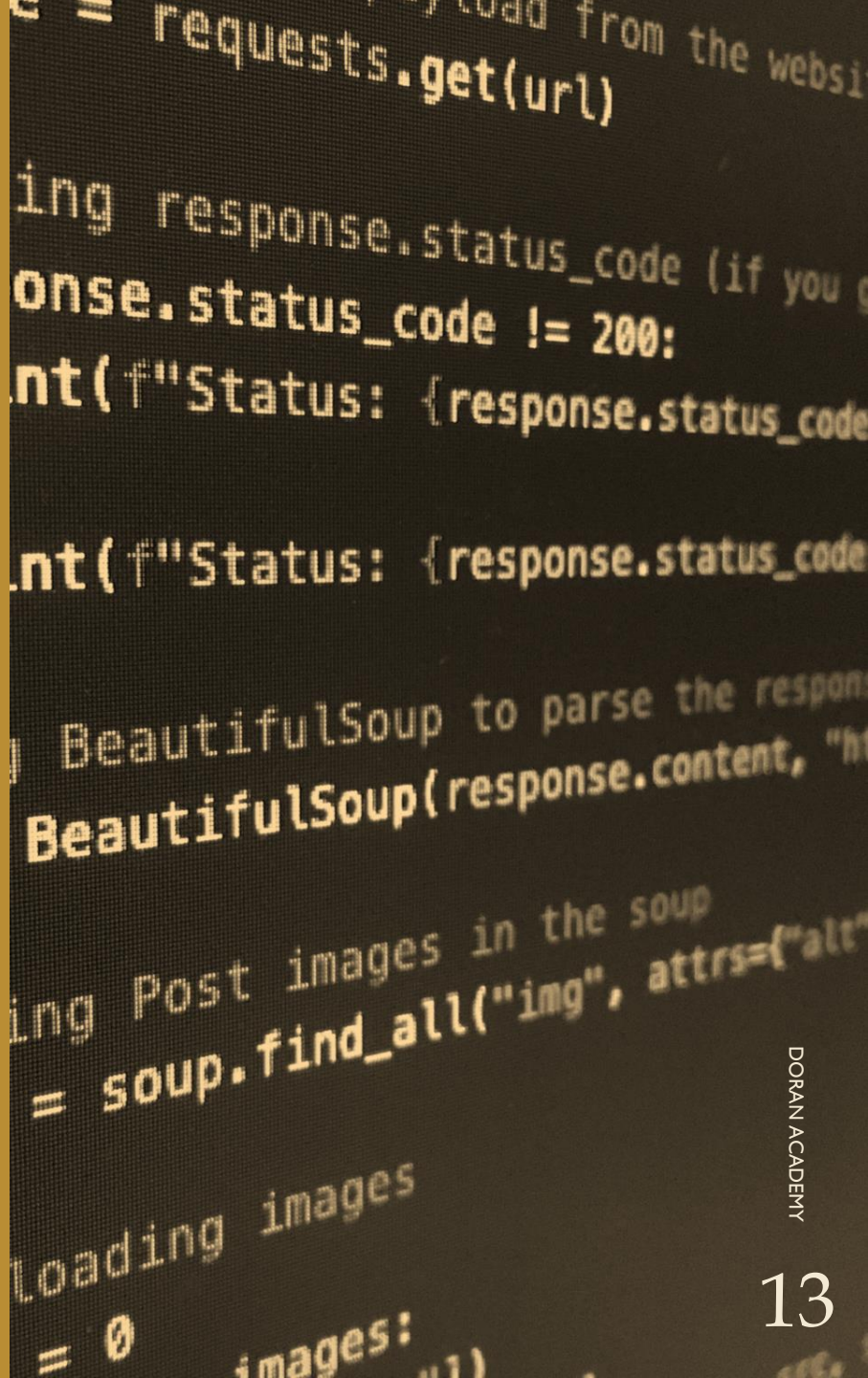
FINAL PROJECT

- Dataset Introduction
- Data Pre-processing Modules
- KNN Estimator
- Confusion Matrix of KNN Results
- Creating CNN Model
- CNN Results



BONUS

- Getting to Know Streamlit
- Creating Web Based UI
- Backend Handling
- Model Serialisation
- Sending Requests to Server
- Updating UI Based on Server Response



NOTES

WEBSITES

- www.python.org
- https://scikit-learn.org/stable
- https://numpy.org/

TEXTS

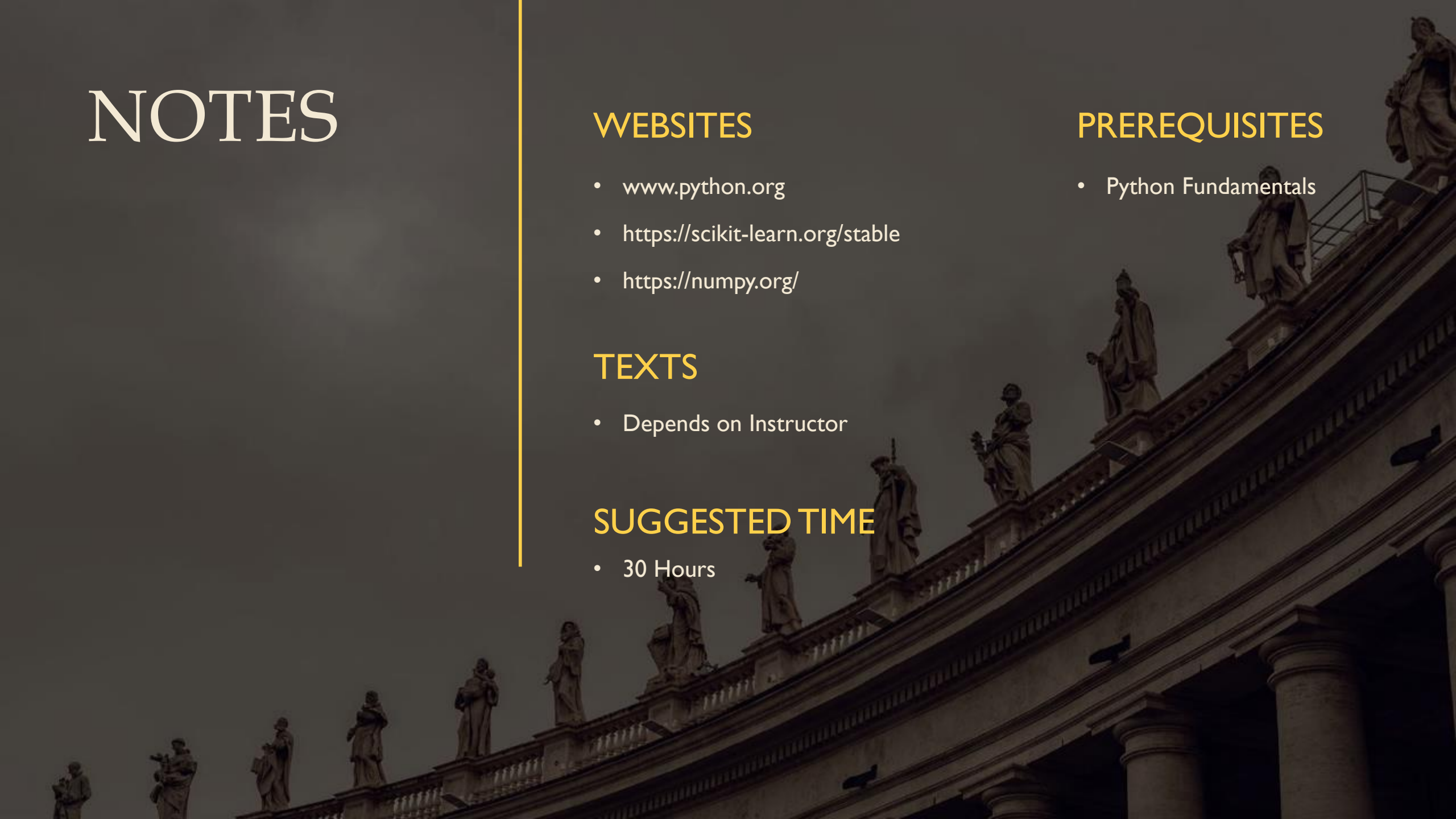
- Depends on Instructor

SUGGESTED TIME

- 30 Hours

PREREQUISITES

- Python Fundamentals



DOCUMENT HISTORY

Author	Version	Revision	Date / Time	Department	Validity
Mehdi Shokri	1.0.0		14-05-2023	AI	3 Months
Mehdi Shokri		1.0.1	16-05-2023	AI	3 Months