



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'

```
response = requests.get(url)

# Print the status code (if you want)
print(response.status_code)

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print(f"Status: {response.status_code}")

# Use BeautifulSoup to parse the response
soup = BeautifulSoup(response.content, "html.parser")

# Find all images in the soup
images = soup.find_all("img", attrs={"alt": "image"})

# Print the number of images
print(len(images))
```

WORKING WITH DATABASES – P2

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

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loading images
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```


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

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INTRODUCING API CONCEPTS – P2

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

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CRAWLING

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

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# Print the number of images found
print(f"Number of images: {len(images)}")
```

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

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BeautifulSoup to parse the response
BeautifulSoup(response.content, "html")

Find Post images in the soup
images = soup.find_all("img", attrs={"alt": "Post image"})

Loading images
images = []
```


INTRODUCING MATPLOTLIB

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

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INTRODUCING PANDAS

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

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# Parse the response with BeautifulSoup
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INTRODUCING SCIKIT-LEARN

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

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SCIPY

- Quick Intro to Scipy

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FINAL PROJECT

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

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BONUS

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

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NOTES

WEBSITES

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

TEXTS

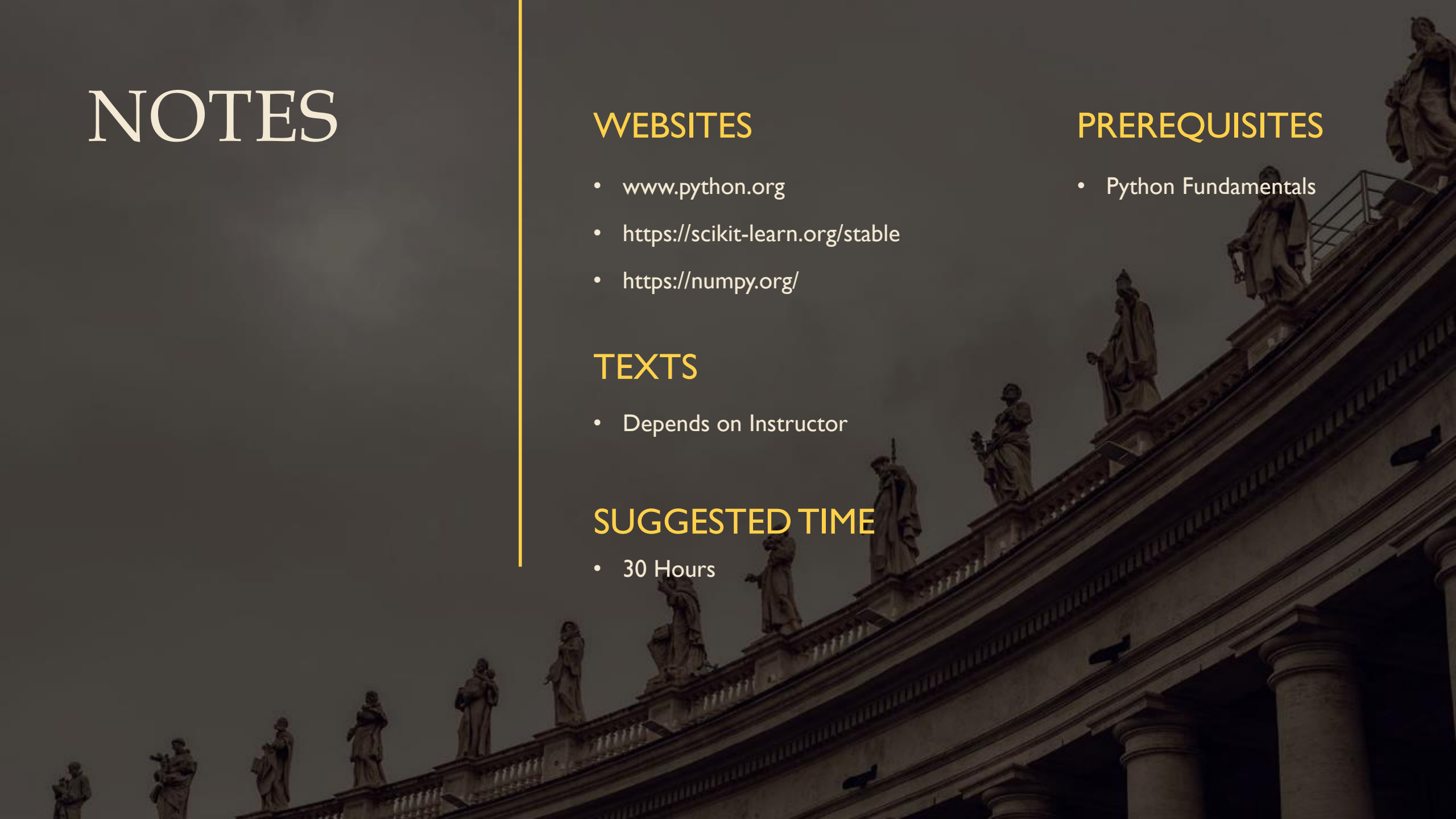
- Depends on Instructor

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

