

The background is a deep black space filled with numerous small white stars. A large, bright yellow sun is positioned in the center-right. To the left of the sun is a small orange planet. To the right of the sun is a small orange planet. Below the sun is a small black planet. Above the sun is a small black planet. The text "Lecture 7" is written in a large, white, sans-serif font, centered over the sun.

Lecture 7

Introduction to Pandas

What is Pandas?


- Introducing a new python package
- One of the easiest ways to import and manipulate data



Importing Pandas

```
import pandas as pd
```

- This library imports data files with tremendous ease by storing them in a new data type called a dataframe



	count	names	percentage
0	19837	Liam	0.0102
1	18688	Emma	0.0101
2	18267	Noah	0.0097
3	17921	Olivia	0.0095
4	14924	Ava	0.0081

Uses: Reading in Data

- Reading in data from a csv file

```
Data_frame = pd.read_csv('filename.csv')
```

- Reading in data from a excel file

```
Data_frame = pd.read_excel('filename.excel')
```

- Reading in data from a hdf5 file

```
Data_frame = pd.read_hdf('filename.hdf')
```

Uses: DataFrames to Arrays/Lists

- Now how do we extract a column from our data?

```
Column_values = Data_frame['column name']
```

- If you want to make the data values a numpy array:

```
Column_values = Data_frame['column name'].to_numpy()
```

- If you want to make the data values a regular list:

```
Column_values = Data_frame['column name'].to_list()
```

Making Your Own DataFrames

- You have some data lists or arrays:

```
names = ['Eleanor', 'Derek', 'Jason', 'Michael', 'Janet']
```

```
birth_count = [9837, 8688, 8267, 1921, 1924]
```

- Lets first construct a dictionary:

```
data = {'names': names, 'count': birth_count}
```



Data Conversion

- Now we can convert this data to a DataFrame:

```
>>> df = pd.DataFrame(data)
```



- Lastly we can export our DataFrame to a .csv file:

```
>>> df.to_csv('filename.csv')
```

	names	count
0	Jim	9837
1	Dwight	8688
2	Pam	8267
3	Michael	1921
4	Stanley	1924

The background is a deep black space filled with numerous small, white stars of varying brightness. A large, bright yellow sun is positioned in the center-right. To the left of the sun, there are three planets: a reddish-orange one, a smaller orange one, and a black one. To the right of the sun, there is a small orange planet. The text "Demo Time" is centered over the sun.

Demo Time