Course Goals

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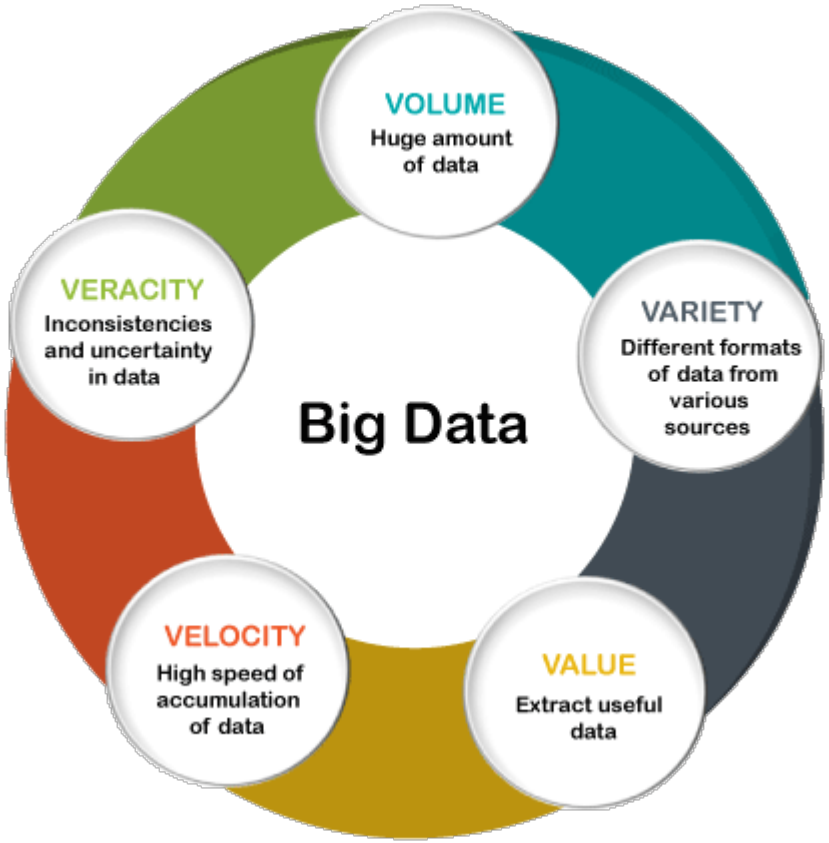
Welcome to Big Data Analysis!

What is Big Data?

- 5 V's of Big Data
  - Volume
  - Variety
  - Velocity
  - Veracity (Variability)
  - Value



Course Plan

- Course split into four topics
    1. Programming in `python`
    2. Big Data Management
    3. Modeling Big Data (with `Spark` via `pyspark`)
    4. Streaming Data

What is Python?

- A very high-level language
- General purpose
- Interpreted language
- Many modules available to form the basis of your program
- Spacing used to write blocks of code

```
def square(arg1):
    return arg1**2

square(arg1 = 10)
```

```
## 100
```

Programming in Python (Prep for Dealing with Big Data)

- `JupyterLab` as our IDE (interactive development environment)
- Basic Use of Python
- Markdown capabilities of `JupyterLab`
- Python Modules

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- Control flow (if/then/else, Looping)
- Summarizing Data Ideas

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- Compound data types (including `Numpy` arrays, `pandas` data frames)
- Summarizing data
- Common models and model evaluation

What Environment Will We Program In?

JupyterLab

- Focused on interactive, exploratory computing
- Start with Google Colab and move to JupyterLab on a JupyterHub to run spark

JupyterLab

- **Notebooks**
  - Work through *cells*
  - Cells can contain formatted text (via markdown), python code, or raw text (for JupyterLab)
  - Text cells can have math type, images, widgets, and more
  - Code cells allow you to submit code and output will be placed below the cell

Recap

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