Essential Machine Learning and Exploratory Data Analysis with Python and Jupyter Notebook

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Day 1: Introductory Concepts in Python and Functions Using Jupyter Notebook (180 minutes)

- Part 1.1-1.2: (90 minutes)
  - Part 1.1: Introductory Concepts in Python, Jupyter and Colab
  - Part 1.2: Functions
- Q&A: 15 Minutes
- Break: 15 Minutes
- Part 1.3: (45 Minutes)
  - Part 1.3: Understanding Libraries, Classes, Control Structures, and Regular Expressions
  - Q&A: 15 Minutes

Poll: Programming Experience

- **What is your experience level with Programming?**
  - Novice (Just getting started or None)
  - Beginner (Have written programs, but under six months experience)
  - Intermediate (Worked previously or currently as a programmer)
  - Advanced (Expert level skills in any software language)

Poll: Python Experience

- **What is your experience level with Python?**
  - Novice (Just getting started or None)
  - Beginner (Have written programs, but under six months experience)
  - Intermediate (Worked previously or currently as a programmer)
  - Advanced (Expert level skills in any software language)

Part 1.1: Introductory Concepts in Python, IPython and Jupyter

- Using IPython, Jupyter, and Python executable
- Introductory Concepts
- Procedural statements
- Strings and String formatting
- Numbers and arithmetic operations
- Data Structures: Lists, Dictionaries, Sets and operations on them.
- Writing and Running Scripts

Part 1.2: Functions

- Writing Functions
- Function arguments: positional, keyword
- Functional Currying: Passing uncalled functions
- Functions that Yield
- Decorators: Functions that wrap other functions
- Making Classes Behave Like Functions
- Applying a Function to a Pandas DataFrame
- Writing Lambdas

Q&A: 15 Minutes

Break: 15 Minutes

Part 1.3: Understanding Libraries, Classes, Control Structures, Control Structures and Regular Expressions

- Writing And Using Libraries In Python
- Understanding Python Classes
- Control Structures
- Understanding Sorting
- Python Regular Expressions

Q&A: 15 Minutes

Day 2: Applied Python for Data Science and ML (180 minutes)

- Part 2.1: (90 Minutes)
  - 2.1
    - IO Operations in Python and Pandas and ML Project Exploration
    - Walking through Social Power NBA Data Science Project
- Q&A: 15 Minutes
- Break: 15 Minutes
- Part 2.2: (45 Minutes)
  - 2.2: AWS Cloud-Native Python for ML/AI
- Q&A: 15 Minutes

Poll: Pandas Experience

- **What is your experience level with Pandas?**
  - Novice (Just getting started or None)
  - Beginner (Have written programs, but under six months experience)
  - Intermediate (Worked previously or currently as a programmer)
  - Advanced (Expert level skills in any software language)

Part 2.1: IO Operations in Python and Pandas

- Working with Files
- Serialization Techniques
- Use Pandas DataFrames
- Concurrency in Python
- Walking through Social Power NBA EDA an
  d ML Project

Q&A: 15 Minutes

Break: 15 Minutes

Part 2.2: AWS Cloud-Native Python for ML/AI

- Introducing AWS Web Services: Creating accounts, Creating Users and Using Amazon S3
- Recap AWS Reinvent 2018 Features
- Using Python Boto
- Starting development with AWS Python Lambda development with Chalice
- Using of AWS DynamoDB
- Using of Step functions with AWS
- Using of AWS Batch for ML Jobs
- Using AWS Sagemaker for Deep Learning Jobs
- Using AWS Comprehend for NLP
- Using AWS Image Recognition API

Q&A: 15 Minutes