1. Python for Data Science: Fundamentals

a. Programming in Python

b. Variables and Data Types

c. Lists and For Loops

d. Conditional Statements

e. Dictionaries and Frequency Tables

f. Functions: Fundamentals

g. Functions: Intermediate

h. Project: Learn and Install Jupyter Notebook

i. Guided Project: Profitable App Profiles for the App Store and Google Play Markets

2. Python for Data Science: Intermediate

a. Cleaning and Preparing Data in Python

b. Python Data Analysis Basics

c. Object-Oriented Python

d. Working with Dates and Times in Python

e. Guided Project: Exploring Hacker News Posts

3. Pandas and NumPy Fundamentals

a. Introduction to NumPy

b. Boolean Indexing with NumPy

c. Introduction to pandas

d. Exploring Data with pandas: Fundamentals

e. Exploring Data with pandas: Intermediate

f. Data Cleaning Basics

g. Guided Project: Exploring Ebay Car Sales Data

4. Exploratory Data Visualization

a. Line Charts

b. Multiple plots

c. Bar Plots And Scatter Plots

d. Histograms And Box Plots

e. Guided Project: Visualizing Earnings Based On College Majors

5. Storytelling Through Data Visualization

a. Improving Plot Aesthetics

b. Color, Layout, and Annotations

c. Guided Project: Visualizing The Gender Gap In College Degrees

d. Conditional Plots

e. Visualizing Geographic Data

6. Data Cleaning and Analysis

a. Data Aggregation

b. Combining Data With Pandas

c. Transforming Data With Pandas

d. Working With Strings In Pandas

e. Working With Missing And Duplicate Data

f. Guided Project: Clean And Analyze Employee Exit Surveys

7. Data Cleaning in Python: Advanced

a. Regular Expression Basics

b. Advanced Regular Expressions

c. List Comprehensions and Lambda Functions

d. Working with Missing Data

8. Data Cleaning Project Walkthrough

a. Data Cleaning Walkthrough

b. Data Cleaning Walkthrough: Combining the Data

c. Data Cleaning Walkthrough: Analyzing and Visualizing the Data

d. Guided Project: Analyzing NYC High School Data

e. Challenge: Cleaning Data

f. Guided Project: Star Wars Survei

9. Elements of the Command Line

a. Introduction to the Command Line

b. The Filesystem

c. Modifying the Filesystem

d. Glob Patterns and Wildcards

e. Users and Permissions

10. Text Processing in the Command Line

a. Getting Help and Reading Documentation

b. File Inspection

c. Text Processing

d. Redirection and Pipelines

e. Standard Streams and File Descriptors

11. SQL Fundamentals

a. Introduction to SQL

b. Summary Statistics

c. Group Summary Statistics

d. Subqueries

e. Guided Project: Analyzing CIA Factbook Data Using SQL

12. SQL Intermediate: Table Relations and Joins

a. Joining Data in SQL

b. Intermediate Joins in SQL

c. Building and Organizing Complex Queries

d. Querying SQLite from Python

e. Guided Project: Answering Business Questions using SQL

f. Table Relations and Normalization

g. Guided Project: Designing and Creating a Database

13. SQL and Databases: Advanced

a. Using PostgreSQL

b. Command line PostgreSQL

c. Project: PostgreSQL Installation

d. Introduction to Indexing

e. Multi-column indexing

14. APIs and Web Scraping

a. Working with APIs

b. Intermediate APIs

c. Challenge: Working with the reddit API

d. Web Scraping

15. Statistics Fundamentals

a. Sampling

b. Variables in Statistics

c. Frequency Distributions

d. Visualizing Frequency Distributions

e. Comparing Frequency Distributions

f. Guided Project: Investigating Fandango Movie Ratings

16. Statistics Intermediate: Averages and Variability

a. The Mean

b. The Weighted Mean and the Median

c. The Mode

d. Measures of Variability

e. Z-scores

f. Guided Project: Finding the Best Markets to Advertise In

17. Probability: Fundamentals

a. Estimating Probabilities

b. Probability Rules

c. Solving Complex Probability Problems

d. Permutations and Combinations

e. Guided Project: Mobile App for Lottery Addiction

18. Conditional Probability

a. Conditional Probability: Fundamentals

b. Conditional Probability: Intermediate

c. Bayes Theorem

d. The Naive Bayes Algorithm

e. Guided Project: Building a Spam Filter with Naive Bayes

19. Hypothesis Testing: Fundamentals

a. Significance Testing

b. Chi-squared tests

c. Multi category chi-squared tests

d. Guided Project: Winning Jeopardy

20. Machine Learning Fundamentals

a. Introduction to K-Nearest Neighbors

b. Evaluating Model Performance

c. Multivariate K-Nearest Neighbors

d. Hyperparameter Optimization

e. Cross Validation

f. Guided Project: Predicting Car Prices

21. Calculus For Machine Learning

a. Understanding Linear and Nonlinear Functions

b. Understanding Limits

c. Finding Extreme Points

22. Linear Algebra For Machine Learning

a. Linear Systems

b. Vectors

c. Matrix Algebra

d. Solution Sets

23. Linear Regression For Machine Learning

a. The Linear Regression Model

b. Feature Selection

c. Gradient Descent

d. Ordinary Least Squares

e. Processing And Transforming Features

f. Guided Project: Predicting House Sale Prices

24. Machine Learning in Python: Intermediate

a. Logistic regression

b. Introduction to evaluating binary classifiers

c. Multiclass classification

d. Overfitting

e. Clustering basics

f. K-means clustering

g. Guided Project: Predicting the stock market

25. Decision Trees

a. Introduction to Decision Trees

b. Building a Decision Tree

c. Applying Decision Trees

d. Introduction to Random Forests

e. Guided Project: Predicting Bike Rentals

26. Deep Learning Fundamentals

a. Representing Neural Networks

b. Nonlinear Activation Functions

c. Hidden Layers

d. Guided Project: Building A Handwritten Digits Classifier

27. Machine Learning Project

a. Machine Learning Project Walkthrough: Data Cleaning

b. Machine Learning Project Walkthrough: Preparing the features

c. Machine Learning Project Walkthrough: Making Predictions

28. Kaggle Fundamentals

a. Getting Started with Kaggle

b. Feature Preparation, Selection and Engineering

c. Model Selection and Tuning

d. Guided Project: Creating a Kaggle Workflow

29. Exploring Topics in Data Science

a. Naive Bayes for Sentiment Analysis

b. An Introduction to K-Nearest Neighbors

30. Natural Language Processing

a. Introduction to Natural Language Processing

Functions: Advanced

a. Best Practices for Writing Functions

b. Context Managers

c. Introduction to Decorators

d. Decorators: Advanced

31. Data Structures and Algorithms

a. Memory and Unicode

b. Binary Search

c. Data Structures

d. Recursion and Advanced Data Structures

e. Guided Project: Investigating Airplane Accidents

32. Python Programming: Advanced

a. Object-Oriented Programming

b. Exception Handling

c. Lambda Functions

d. Introduction to Computer Architecture

e. Parallel Processing

33. Command Line: Intermediate

a. Working with Programs

b. Command Line Python Scripting

c. Challenge: Working with the Command Line

d. Working with Jupyter console

e. Piping and redirecting output

f. Challenge: Data Munging Using The Command Line

g. Data Cleaning and Exploration Using Csvkit

34. Git and Version Control

a. Introduction to Git

b. Git Remotes

c. Git Branches

d. Merge Conflicts

e. Project: Git Installation and GitHub Integration

35. Spark and Map-Reduce

a. Introduction to Spark

b. Project: Spark Installation and Jupyter Notebook Integration

c. Transformations and Actions

d. Challenge: Transforming Hamlet into a Data Set

e. Spark DataFrames

f. Spark SQL