Foundations of Data Science: Computational Thinking with Python

https://www.inferentialthinking.com/

http://data8.org/datascience/

- Require Reading and Information
    - Syllabus
        - Welcome
        - Expectations and Requirements
        - Discussion Forum Guidelines
    - Frequently Asked Questions
    - [Optional] Non-notebook Workflow
        - Non-Notebook Workflow: Setup and Installation
        - Non-Notebook Workflow: Downloading and Completing Labs
- Week 1
    - Section 1: Introduction (Lec 1.1 - Lec 1.6)
        - Lec 1.1 Course Overview
        - Lec 1.2 Why Data Science
        - Lec 1.3 Programming
        - Lec 1.4 Demo: Little Women
        - Lec 1.5 Demo: Visualizations (1)
        - Lec 1.6 Demo: Visualizations (2)
    - Introduction to Jupyter Notebooks
        - Lab 0: Practice with Jupyter Notebooks
    - Section 2: Cause and Effect
        - Lec 2.1 Questions
        - Lec 2.2 Association
        - Lec 2.3 Causation
        - Lec 2.4 Confounding
    - Reading and Practice for Section 2
    - Section 3a: Pyhton
        - Lec 3.1 Python
        - Lec 3.2 Names
        - Lec 3.3 Call Expressions
    - Reading and Practice for Section 3a
    - Section 3b: Tables
        - Lec 3.4 Tables
        - Lec 3.5 Select
        - Lec 3.6 Sorting
        - Lec 3.7 Bar Charts
    - Reading and Practice for Section 3b
    - Lab 1: Introduction to Python
        - Lab 1: Introduction to Python
- Week 2
    - Section 4: Expressions
        - Lec 4.1 Arithmetic

        - Lec 4.2 Arithmetic Question
        - Lec 4.3 Exponential Growth
        - Lec 4.4 Arrays
        - Lec 4.5 Columns
    - Reading and Practice for Section 4
    - Section 5a: Strings
        - Lec 5.1 Creating Tables
        - Lec 5.2 Strings
        - Lec 5.3 String Exercise
        - Lec 5.4 Exercise Answer
    - Reading and Practice for Section 5a
    - Section 5b: Minrad's Map
        - Lec 5.5 Minard's Map
        - Lec 5.6 Minard's Map Code
    - Section 5c: Building Tables
        - Lec 5.7 Lists
        - Lec 5.8 Take
        - Lec 5.9 Where
    - Reading and Practice for Section 5c
    - Lab 2: Data Types (Jupyter Notebook)
- Week 3
    - Section 6: Census
        - Lec 6.1 Census
        - Lec 6.2 Column Arithmetic
        - Lec 6.3 Accessing Values
        - Lec 6.4 Males and Females
    - Reading and Practice for Section 6
    - Section 7: Charts
        - Lec 7.1 Line Graphs
        - Lec 7.2 Example 1
        - Lec 7.3 Scatter Plots
        - Lec 7.4 Example 2
        - Lec 7.5 How to Choose
        - Lec 7.6 Types of Data
        - Lec 7.7 Distributions
        - Lec 7.8 Example 3
    - Reading and Practice for Section 7
    - Section 8: Histograms
        - Lec 8.1 Area Principle
        - Lec 8.2 Binning
        - Lec 8.3 Example 1
        - Lec 8.4 Drawing Histograms
        - Lec 8.5 Density
        - Lec 8.6 Example 2
        - Lec 8.7 Example 3
    - Reading and Practice for Section 8

    - Lab 3: Tables (Jupyter Notebook)
- Week 4
    - Section 9a: Comparing Histograms
        - Lec 9.1 Comparing Histograms
        - Lec 9.2 Comparing Histograms Discussion
    - Section 9b: Functions
        - Lec 9.3 Defining Functions
        - Lec 9.4 Defining Functions Discussion
        - Lec 9.5 Apply
        - Lec 9.6 Example Prediction
    - Reading and Practice for Section 9b
    - Section 10a: Groups
        - Lec 10.1 One Attribute Group
        - Lec 10.2 Cross Classification
        - Lec 10.3 Example 1
    - Reading and Practice for Section 10a
    - Section 10b: Pivot
        - Lec 10.4 Pivot Tables
        - Lec 10.5 Example 2
        - Lec 10.6 Comparing Distributions
    - Reading and Practice for Section 10b
    - Section 11: Joins
        - Lec 11.1 Joins
        - Lec 11.2 Bikes
        - Lec 11.3 Shortest Trips
        - Lec 11.4 Maps
    - Reading and Practice for Section 11
    - Lab 4: Functions and Visualizations
- Week 5
    - Section 12: Table Examples
        - Lec 12.1 Table Method Review
        - Lec 12.2 Discussion Question
        - Lec 12.3 Midterm Question
        - Lec 12.4 Advanced Where
    - Reading and Practice for Section 12
    - Section 13: Iteration
        - Lec 13.1 Comparison
        - Lec 13.2 Predicates
        - Lec 13.3 Random Selection
        - Lec 13.4 Random Selection Discussion
        - Lec 13.5 Print
        - Lec 13.6 Control Statements
        - Lec 13.7 For Statements
    - Reading and Practice for Section 13
    - Lab 5: World Progress (Jupyter Notebook)
    - Optional Lab: More World Progress (Jupyter Notebook)