Bootcamp Info Sheet

Instructors

Name: *Elliot Stern*

Bio: *Elliot is a freelance Data Scientist with 7+ years of experience, including working with an Olympic team and creating an NBA salary model for Hazan Sports Management, an NBA sports agency. He co-founded a soccer computer vision company that secured $250,000 of funding. Elliot was a leader in creating computer vision products for the vertical jump and juggling a soccer ball. His sports algorithms have generated over $100,000 in profit and are more accurate than those of industry leaders such as ESPN and Yahoo. Elliot currently works as a data science freelancer taking on a myriad of data science challenges, including regression, computer vision, dashboard creation, and clustering problems, to name a few.*

Name: *Joy Hopkins*

Bio: *Joy Hopkins (she/they) has more than 15 years experience in education. After an extensive career in the nonprofit sector, they transitioned to tech about 9 years ago. Joy has a deep background in the performing arts which is the foundation for both their communication and project management skills. Their data science expertise and passion lie primarily in data literacy, visualization, and storytelling. Joy has a Bachelor's degree from James Madison University and a Master's degree from American University.*

Bootcamp Details

Bootcamp Title: *Intermediate Python and Data Wrangling*

Number of Days: *4*

Hours per Day: *3*

Type of Instruction: *Lecture, polling questions (knowledge checks) and exercises*

Description: *In this course, learners will recognize and incorporate conditional statements, for loops, while loops, and list comprehensions into their programs in order to sequence and limit the scope of their programs. Learners will also practice defining functions, blocks of code that interact with data in specific ways.learners will augment their understanding of Python using two of the most popular libraries for data cleaning and wrangling, NumPy and Pandas. First, learners will practice working with NumPy objects, transforming data into efficient arrays for ease of analysis. Then, learners will clean and structure arrays into readable tabular DataFrames using Pandas, allowing them to profile a dataset for key answers and values.*

Target Audience: *Learners who are comfortable performing basic operations on different data types in Python.*

Technologies: *Python*

Prerequisites: *Learners should be comfortable performing basic operations on different data types in Python.*

Student References: *Class slides, class exercises and code, datasets.*

Bootcamp Syllabus

Day 1

- Control Flow
    - Discuss control flow structures and the practice of writing modular code
    - Use conditional statements such as if / else
    - Implement for loops
    - Implement list comprehensions
    - Implement while loops
    - Add break/continue statements to the loop

Day 2

- Functions

- Identify the use cases and types of functions in Python
- Implement functions in Python

- Data wrangling with NumPy
  - Illustrate NumPy objects in Python
  - Explore NumPy array data types and implement more NumPy objects
  - Perform operations on NumPy arrays
  - Manipulating arrays using set operations
  - Filter NumPy arrays
  - Reshape NumPy arrays

Day 3

- Data wrangling with NumPy
  - Perform operations on NumPy arrays
  - Manipulating arrays using set operations
  - Filter NumPy arrays
  - Reshape NumPy arrays

- Data wrangling with Pandas
  - Summarize use cases of Pandas
  - Demonstrate use of basic operations on series

Day 4

- Data wrangling with Pandas
  - Define the use and properties of DataFrames, and apply basic operations
  - Define the use and properties of Index in DataFrames, and apply basic operations
  - Load data into Python using Pandas
  - Review and inspect loaded data using Pandas
  - Summarize data using Pandas
  - Filter and sort data using Pandas
  - Create subsets and clean data using Pandas
  - Understand how to reshape data using Pandas