Exercise 2.7: Data Analysis and Visualization in Django
Learning Goals

- Work on elements of two-way communication like creating forms and buttons
- Implement search and visualization (reports/charts) features
- Use QuerySet API, DataFrames (with pandas), and plotting libraries (with matplotlib)

Reflection Questions

1. Consider your favorite website/application (you can also take CareerFoundry). Think about the various data that your favorite website/application collects. Write down how analyzing the collected data could help the website/application.

The website I considered was Careerfoundry. The way analyzing the collected data could help this website is by being able to provide valuable insights that benefits the website to enhance user experience. When analyzing the collected data you can make decisions based on the data, optimize user content and courses, have user engagement, and be able to have different marketing strategies to better benefit the company as a whole.

2. Read the Django official documentation on QuerySet API. Note down the different ways in which you can evaluate a QuerySet.

Ways you can evaluate the QuerySet is by:

- Slicing
- Counting
- Existing check
- Iteration
- Indexing
- Boolean evaluation
- Aggregation
- Conversions to lists and query execution

3. In the Exercise, you converted your QuerySet to DataFrame. Now do some research on the advantages and disadvantages of QuerySet and DataFrame, and explain the ways in which DataFrame is better for data processing.

The advantages of QuerySet to Dataframe are Django ORM, Query optimization, lazy evaluation, and features. The disadvantages of QuerySet is that there is limited data manipulation Querysets in Django and are usually designed for database interactions which then lacks the advanced data manipulation and analysis capabilities. The focus hereis to retrieve and be able to filter data from the database rather than to be able to perform complex processing tasks for data.

The advantages of the DataFrame are integration with data ecosystem, versatility, manipulation and analysis, wide range of data sources, and deep functionality. Dataframes are able to provide more advanced data manipulation and analysis capabilities compared to QuerySets which makes sense for developers to use DataFrame when processing data tasks.