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.

Being able to analyze collected user data is vastly helpful to determine and establish the best user experience for a website/application. Optimizing the UX can drive better engagement, which ends up with better business practices. Being able to make UX decisions that are based in data leads to more sound business.

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

A QuerySet can be evaluated by slicing, counting, aggregation, iteration, pickling and caching.

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 include it coming built into Django, so it's already ready to use. It's designed to handle large data sets smoothly and efficiently and also has a robust API for data manipulation making it pretty easy to create complex queries.

The disadvantages of QuerySet are that it can really only be used with relational databases, limiting the data sources that it can use. It can also be slow if the datasets being used are large or the queries complex.

Advantages of using DataFrame are that it's highly versatile, can use a broad variety of data sources, has a robust API for data manipulation. It's optimized for working with data in-memory and can be quite quick with using small to medium sized datasets.