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.

   CareerFoundry can improve learning experience and improve services and course content by collecting user data.

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

   Iteration: A QuerySet is iterable, and it executes its database query the first time you iterate over it.
   Slicing: Slicing a QuerySet with [:n] or [start:end] will evaluate it.
   Pickling/Caching: The list() function can be used to evaluate and cache a QuerySet.
   Repr(): Converting a QuerySet to a string (for printing) will evaluate it.
   Len(): Using len() on a QuerySet evaluates it and performs a COUNT query.
   List(): Calling list() in a QuerySet forces evaluation.
   Bool(): Checking if a QuerySet is empty or non-empty (if statement) will evaluate it.

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.

   DataFrames offer extensive capabilities for data manipulation, including grouping, pivoting, merging, and complex transformations, which are more powerful and flexible than what QuerySets offer. They also operate in-memory, allowing for faster data processing and manipulation compared to repeated database queries. DataFrames seamlessly integrate with other data science libraries.
   One of the disadvantages of DataFrames is: They can consume a significant amount of memory