### Challis Regan

### Exercise 2.7: Data Analysis and Visualization in Django

#### 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.
   1. YouTube (owned by Google) collects a lot of data about their users. If you watch YouTube videos while logged in, the website will recommend other videos to you based on what you have already watched and searched for. They also use any information you filled out on your Google profile to give you video recommendations and targeted ads.

If YouTube recommends good videos to the user, the user will be engaged and want to use the website in the future.

1. Read the [Django official documentation on QuerySet API](https://docs.djangoproject.com/en/3.2/ref/models/querysets/). Note down the different ways in which you can evaluate a QuerySet.
   1. A QuerySet is a collection of data from a database and is built up as a list of objects. There are several different ways to evaluate a QuertySet such as iteration, slicing, pickling/caching, repr(), len(), list(), and bool(). Iteration executes its database query the first time you iterate over it, synchronously or a synchronously. Also, a QuerySet can be sliced, using Python’s array-slicing syntax.
2. 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.
   1. Pandas DataFrame is better for visualizing data because it has more advanced data manipulation capabilities than Django QuerySet. DataFrame is better for data visualization because it integrates well with plotting libraries such as Seaborn and Matplotlib. DataFrame is better at data analysis because it has a lot of tools for grouping, aggregation, and statistical analysis. Finally, pandas DataFrame supports various methods for reshaping, cleaning, and transforming data.

Sources:

<https://docs.djangoproject.com/en/5.1/ref/models/querysets/>

<https://www.w3schools.com/django/django_queryset.php>

<https://www.geeksforgeeks.org/converting-django-queryset-to-pandas-dataframe/>