Betting Against Sports Betting Case Study - Rubric

DS 4002 - Instructor: Anna Fisher
Due: April 28, 2025

Submission Format:

- Upload link to GitHub repository to Canvas

Individual Assignment

Why am I doing this? This project allows you to practice creating and interpreting time series analyses, incorporating outside data to create a model. Additionally, this project will give you experience in building seasonal models and evaluating model diagnostics. This project provides an opportunity to understand real-world applications of data science concepts.

- Course Learning Objective: Independently learn and apply a new data science modeling technique
- Course Learning Objective: Interpret findings in a real-world context

What am I going to do? You will use DraftKings's stock market data from Yahoo Finance to conduct a time series analysis and investigate correlation with major sporting events in the United States. Additionally, you will build a seasonal model to represent past trends in price and predict future stock prices of DraftKings. This analysis will allow you to identify when the optimal time to invest and sell DraftKings stock over the next year will be so you can maximize your profit and win the bet against your friend.

Tips for success:

- Be confident in your data science skills. Don't be afraid to dive into a new data science concept or technique.
- Don't overthink this project. Shoot for learning, not perfection.
- Focus - avoid distractions and remain organized throughout the analysis.
- Ask for help if you are stuck. There are resources available to help you, and you are not in this alone. If you find yourself at a loss for how to proceed, don't be afraid to get help from course instructors.

How will I know I have succeeded? You will meet expectations on this case study when you follow the criteria in the rubric below.

Spec Category	Spec Details
Formatting	• One GitHub repository (submitted via link on Canvas)

	● The top level page of the repository should contain: ○ A README.md file ○ A LICENSE.md file (use MIT as default) ○ A SCRIPTS folder ○ A DATA folder ○ AN OUTPUT folder
README.md	● Goal: This document will orient anyone who visits your repository ● Explain the contents of the repo in an H2 section, along with the goal of the project ● Section 1: Software and Platform - describe the software, packages, and platform that you used ● Section 2: Map - provide a map of everything found in your repo ● Section 3: Summarize key results found over the course of your case study, along with any challenges you faced in completing the study.
LICENSE.md	● MIT license appears within the repo
SCRIPTS folder	● Goal: This folder contains all of the source code for your project ● Code should: ○ Execute time series analysis with shaded sections corresponding to major sporting events ○ Build a seasonal ARIMA model of DraftKings stock prices and evaluate model accuracy ○ Generate predictions of DraftKings stock for the next year ○ Include comments throughout code to explain what is being done and significance
OUTPUT folder	● Goal: This folder contains outputs from code and frames major results ● Upload any graphs, figures, and key metrics calculated ● Be sure to include your recommendation of when to invest in the DraftKings stock based on your analysis and supporting evidence ● Use informative file names
REFERENCES.md	● Goal: Cite any sources used over the course of this case study ● Use the IEEE citation format

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