CarMax Analytics Workshop

Dr. Chris Davis, Sr. Data Scientist

Nick Jernigan, Sr. Analyst

Lauren Nash, Analyst II

What to Gain from This Workshop

- Observe an example of analytical decision making

- Observe walkthroughs and discussions of past data and analyses

- A forum to ask your Analytics Showcase questions (at the end)

Project Criteria

➡ Projects will be assessed across the following criteria:

➡ **Curiosity:** Did you find unique insights in the data?

➡ **Rigor:** Are your analyses sound and accurate?

This Workshop

➡ **Clarity:** Are your thoughts clear and organized?

➡ **Communication:** How well did you summarize findings and present recommendations? Are your results clearly communicated?

Next Workshop

Agenda

- Introduction to Data Analysis
  - How do companies use it
  - What questions do business analysts ask?
- Exploring Data in Excel
  - Basic cleaning and analysis techniques and approaches
  - Excel visualization
- Python for Data analysis
  - Data manipulation with pandas
  - Python data visualization
- Basic modeling
- General Q&A

Introduction to Corporate Data Analysis

Data Analysis in a Corporate Context

- Analytics is a **means to an end**
  - The goal is to make informed, evidence-based and data-driven decisions
- Key asset for organizations
  - Informs strategy
  - Optimizes processes
  - Improves employee and customer experience

Mindset in Data Analysis – Ask the right Q's

- Understand the problem or goal
  - What is the business problem I am trying to solve?
  - What are key metrics or KPIs?
  - What insights are most valuable to stakeholders?
- Understand your data
  - Do I have the data I need?
  - Am I handling the data in the right way?
- Understand your decisions
  - What insights does the data lead me to?
  - Does this decision make sense with the data I have?

Case Study: Grocery Store Supply Chain

Problem

➡ **How should a grocery store chain manage its milk inventory?**

Questions

➡ Understand the problem or goal

- ➡ What is the business problem I am trying to solve?
- ➡ What are key metrics or KPIs?
- ➡ What insights are most valuable to stakeholders?

➡ Understand your data

- ➡ Do I have the data I need?
- ➡ Am I handling the data in the right way?

➡ Understand your decisions

- ➡ What insights does the data lead me to?
- ➡ Does this decision make sense with the data I have?

Basic Analytics

Focusing on Excel

Using data from the prior Analytics Showcase: https://github.com/kmx-analytics-showcase/Winter-2024

Advanced Analytics

Focusing on Python

Using data from the prior Analytics Showcase: https://github.com/kmx-analytics-showcase/Winter-2024
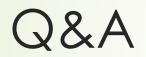
Basic Modeling

Using AI for decision-making

Using data from the prior Analytics Showcase: https://github.com/kmx-analytics-showcase/Winter-2024

Closing (Q&A Coming Up)

- All materials used here will be posted on the GitHub tomorrow morning
    - https://github.com/kmx-analytics-showcase/Fall-2024
    - Presentation
    - Excel worksheet
    - Python notebook
- We will also post a cleaned copy of the Q&A on the FAQ on Github
- Important dates coming up
    - **Presentation and communication workshop:** October 11th, 2024
    - **Registration deadline:** October 16th, 2024
    - **Submission deadline:** October 23rd, 2024
    - **Finalists notified:** On or around November 8th, 2024
    - **Finalists present virtually to leaders:** November 22nd, 2024

Q&A

Questions and answers to be copied into FAQ on the GitHub repo