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Data Science Exploration: Financial Wellness™

Curriculum Guide

- **Recommended Grade Level:** 9th–12th graders
- **Total Time:** 2 lessons, approx. 15 minutes each
- **Subject Fit:** Mathematics, College/Career Prep, STEM, Technology, Business, Homeroom, Finance, CTE
- **Standards Alignment:** Common Career Technical Core Standards (CCTC), Common Core National Standards: High School Statistics and Probability (CCSS Math), International Society for Technology in Education Standards (ISTE), Jump$tart National Standards for Personal Finance Education (2017 and 2021)

COURSE DESCRIPTION

The *Data Science Exploration: Financial Wellness* course is a 201 course designed to be taken after learners complete Data Science Foundations. This course will include a brief refresher of core data science concepts, an introduction to data science within the banking industry, and a simulation exploring how data scientists can target specific financial wellness solutions to a young adult population. This course will also give learners the ability to accurately evaluate the ROI of data science education and career opportunities within the banking industry.

COURSE OVERVIEW

TOPIC
Risk detection
Marketing and user experience
Machine learning and automation
Ethical considerations in data science
Identifying negative financial behaviors and decisions
Customer segmentation and determining ideal timing for advice
Data mining for trends
Creating and manipulating graphs
Financial wellness for newly financially independent adults

COURSE STRUCTURE

Data Science in the Banking Industry	Pre-assessment	Financial Wellness	Post-assessment	Post-survey

Each lesson is accompanied by offline lesson plans and discussion guides to use in the classroom.

KEY LEARNING OBJECTIVES

Students will be able to…

- Describe the methods used to collect, analyze, visualize, and communicate data.
- List examples of how data science is used to prevent risk in the banking industry.
- List examples of how data science is used to create improved processes and automation in the banking industry.
- List examples of how data science is used to improve customer experience in the banking industry.
- Describe specific ethical considerations for data science in the banking industry.
- Define and demonstrate how to use data mining techniques.
- Define and demonstrate how to segment customers based on specific characteristics.
- Identify common financial challenges faced by newly independent adults and how to overcome them.

DETAILED COURSE OUTLINE

Lesson: Data Science in the Banking Industry

The purpose of this lesson is to equip upper high school students with the skills and knowledge they need to accurately evaluate the ROI of data science education and career options, specifically within the banking industry. The lesson will cover core concepts of data science in banking, including risk prevention, process automation, customer experience, and ethics.

Learning Objectives

Students will be able to…

- Describe the methods used to collect, analyze, visualize, and communicate data.
- List examples of how data science is used to prevent risk in the banking industry.
- List examples of how data science is used to create improved processes and automation in the banking industry.
- List examples of how data science is used to improve customer experience in the banking industry.
- Describe specific ethical considerations for data science in the banking industry.

ACTIVITY TOPIC	ACTIVITY DESCRIPTION
Working in the Banking Industry	Students review the basics of data science including collecting and cleaning data, visualizing data, analyzing data, and reporting on data.
Data Science Roles in Banking	Students take a close look at the roles and responsibilities of data scientists, data engineers, and data analysts.
Data Science Applications in Banking	Students explore how banking institutions use data to drive decision-making in order to minimize risk, maximize customer experience and automate processes.

Lesson: Data Science Exploration: Financial Wellness

The purpose of this lab is to expand upon the concepts in the Banking Industry lesson by allowing learners to practice and apply data science concepts to identify financial wellness solutions for common issues faced by young adults.

Learning Objectives

Students will be able to…

- List examples of how data science is used to create improved processes and automation in the banking industry.
- List examples of how data science is used to improve customer experience in the banking industry.
- Define and demonstrate how to use data mining techniques.
- Define and demonstrate how to segment customers based on specific characteristics.
- Identify common financial challenges faced by newly independent adults and how to overcome them.

ACTIVITY TOPIC	ACTIVITY DESCRIPTION
Story Set-Up	Learners meet a character they'll follow through the lesson as he learns how to use online banking to manage his money.
Financial Wellness and New Adults	Learners are introduced to the common financial problems and pitfalls for newly independent adults. They will explore ideal financial behavior. Learners will practice segmenting customer data by age and life stage.
How Data Scientists Use Data to Provide Advice	Learners will review solutions to common financial problems and pitfalls. They will identify ideal timing for delivering information, as well as best messaging and delivery methods for information and products.
Testing and Validating Messaging	Learners will apply automated processes to get messages to the right customers and evaluate how well the process worked.