

### Overview

UCF students will engage in an insightful real-world project with Addition Financial, focusing on understanding why consumers choose one financial institution over another for mortgage loans. The primary objective is to accurately predict and make well-informed decisions about the factors influencing these consumer choices, providing a crucial foundation for Addition Financial's strategic planning.

Students will analyze a variety of factors that influence consumer decisions, such as interest rates, fees, reputation, trust, loan terms, customer service, approval speed, product offerings, convenience, recommendations, financial stability, and special offers. Utilizing publicly available HMDA data, alongside other resources such as consumer reviews, financial ratings, and industry reports, students will uncover patterns and trends in consumer behavior.

This experiential learning initiative encourages creative and critical thinking, challenging students to envision the future growth of Addition Financial and its impact on the communities it serves. The analysis and recommendations generated by the students will enable the institution to tailor its offerings and better meet the needs of future potential borrowers, enhancing Addition Financial's competitive edge in the mortgage market.

Throughout the process, UCF students will have the opportunity to collaborate with industry experts, receive guidance from professors and Graduate Assistants, and present their findings to key stakeholders at Addition Financial. This hands-on experience will not only foster practical skills in data analysis and decision-making but also instill a deep appreciation for the intricate interplay between finance, demographics, and community development.

Ultimately, this innovative partnership between UCF and Addition Financial seeks to empower the next generation of professionals with the knowledge and expertise to navigate the complexities of modern financial institutions and contribute to the sustainable growth and prosperity of Florida's diverse communities.

### Problem Statement

Addition Financial, with its mission to empower the financial well-being of its members, seeks to understand the critical factors influencing consumer decisions when choosing a financial institution for mortgage loans. By analyzing a variety of factors such as interest rates, fees, reputation, trust, loan terms, customer service, approval speed, product offerings, convenience, recommendations, financial stability, and special offers, Addition Financial aims to gain valuable insights into consumer behavior.

The challenge lies in identifying why consumers choose one financial institution over another, enabling Addition Financial to tailor its offerings to better meet the needs of future potential borrowers. This multifaceted approach will inform Addition Financial's strategic planning, enhancing its competitive edge in the mortgage market and ensuring sustainable growth and profitability. Through this analysis, Addition Financial aims to broaden its reach and impact, fostering financial growth and well-being within the communities it serves.

### Dataset

Contest participants will have access to a variety of publicly available datasets to aid in their analysis. The primary sources of data are:

1. **\*\*Consumer Financial Protection Bureau (CFPB)\*\*:**
  - The CFPB provides a comprehensive overview and access to HMDA data, including raw data, reports, and analysis of mortgage trends. This data is crucial for understanding lending patterns and consumer behavior.
2. **\*\*Federal Financial Institutions Examination Council (FFIEC)\*\*:**
  - The FFIEC's HMDA platform offers access to loan-level data, including the Modified Loan Application Register (LAR) data. This platform is essential for detailed analysis of loan applications and mortgage market activity.

Participants will also need to use publicly available data dictionaries pertaining to the dataset that describes each of the data points, ensuring a clear understanding of the data being used. It is imperative for participants to familiarize themselves

with the data dictionary, as much of the data is industry specific.

Using these datasets, participants are expected to perform in-depth analysis to uncover patterns and trends in mortgage lending. Participants will need to explain their findings in a clear and concise manner, emphasizing the accuracy of their results. This comprehensive approach will help participants understand the critical factors influencing consumer choices and provide actionable insights for Addition Financial's strategic planning.

### Contest Structure

The primary objective of this endeavor is to accurately predict and make well-informed decisions about the critical factors influencing consumer choices when selecting a financial institution for mortgage loans. This analysis aims to leverage publicly available HMDA data, consumer reviews, financial ratings, and industry reports to uncover patterns and trends in consumer behavior.

By harnessing the power of data-driven decision-making, Addition Financial seeks to understand why consumers choose one financial institution over another, enabling the institution to tailor its offerings to better meet the needs of future potential borrowers and enhance its competitive edge in the mortgage market.

To achieve this objective, the project will involve an in-depth analysis of various factors, including interest rates, fees, reputation, trust, loan terms, customer service, approval speed, product offerings, convenience, recommendations, financial stability, and special offers. Utilizing advanced data analysis techniques and possibly machine learning algorithms, the team will evaluate these variables to identify key factors that correlate with consumer preferences and loan approval rates.

Throughout the process, students will have the opportunity to collaborate with industry experts, receive guidance from professors and Graduate Assistants, and present their findings to key stakeholders at Addition Financial. This comprehensive approach aims to provide valuable insights that will aid Addition Financial in enhancing its strategic planning, ensuring sustainable growth, and fostering long-term financial wellness within the communities it serves.

Ultimately, the goal is to make data-informed decisions that enhance Addition Financial's ability to positively impact the lives of its members while fostering long-term growth and prosperity for the institution as a whole.

All entries will be judged based on the following criteria:

- Content in the Project Report
- Modeling Approach
- Results and Conclusions
- Presentation of results

Project codes must be written in R, Python, or Microsoft SQL.

Code file types should be compatible with the software used:

(example: R file should be in `"*.r"` (.rmd preferred), Python in `"*.py"` (.ipynb preferred), Microsoft SQL file should be in `"*.sql"`).

**\*\*Teams will be required to formally present their findings to the AFCU competition judges at the AFCU Headquarters located at 1000 Primera Blvd. Lake Mary, FL 32746.\*\***

Judges will need to replicate the analysis using the team's code/model on a validation dataset. Teams must provide formal instructions on how to run their model. Judging will be based on the application of the data, the method(s) used to reach conclusions, the number of significant relationships or correlations discovered, and the presentation of their findings. It is crucial that contest participants communicate their findings in layman's terms. Treat this assignment as if you were presenting it to a group of decision makers that may not have strong background in rigorous statistical analysis.

### Important Dates

**Contest start date:** September 20<sup>th</sup>, 2024

**Final submissions due:** January 13<sup>th</sup>, 2025 (early submissions are encouraged)

Group presentations will be conducted between February 10<sup>th</sup>, 2025 and February 21<sup>st</sup>, 2025

UCF analytics dept. notification of top three winners: March 1<sup>st</sup>, 2025  
Annual UCF data symposium presentation: March 24<sup>th</sup>, 2025

### Prizes

AFCU is offering a worthy prize structure to incentivize participation:

1st Place: \$3000

2nd Place: \$1,500

3rd Place: \$500

These amounts will be paid out split evenly among all team members. If the members wish to re-disburse the amounts among themselves, that is up to their discretion. UCF requires that prize funds be distributed through the UCF Foundation.

### Questions & Contact Info

AFCU encourages students to contact us at any time with questions concerning the dataset. Please direct any questions you may have to [Dept-BusinessIntelligence@additionfi.com](mailto:Dept-BusinessIntelligence@additionfi.com)

### Competition Documentation and Final Submission

To **download** competition instructions, documentations and data sets please click this link:

<https://additionfi.sharepoint.com/:f:/r/sites/FileShare-BusinessIntelligence/Shared%20Documents/UCF%20Data%20Science%20Competition%20-%20Description%20and%20Rules?csf=1&web=1&e=jWFD4n>

To **submit** final competition presentations no later than January 13<sup>th</sup>, 2025 (*early submissions are encouraged*), please use this link: [https://additionfi.sharepoint.com/:f:/s/FileShare-BusinessIntelligence/EgGOe\\_bD515LoZ\\_muDP8jEkBabYjAzBtDjNkN1fzqrU8VA](https://additionfi.sharepoint.com/:f:/s/FileShare-BusinessIntelligence/EgGOe_bD515LoZ_muDP8jEkBabYjAzBtDjNkN1fzqrU8VA)

Here are a few publicly available datasets that participants can utilize:

## 1. Interest Rates and Fees

- **HMDA (Home Mortgage Disclosure Act) Data:**
  - Provides detailed information on mortgage loan applications, including interest rates and fees.
  - [Consumer Financial Protection Bureau \(CFPB\) HMDA Data](https://www.consumerfinance.gov/data-research/hmda/) (https://www.consumerfinance.gov/data-research/hmda/)
- **Freddie Mac Primary Mortgage Market Survey:**
  - Provides data on average mortgage interest rates.
  - [Freddie Mac PMMS](https://www.freddiemac.com/pmms/archive) (https://www.freddiemac.com/pmms/archive)
  - [National Survey of Mortgage Originations \(NSMO\) Public Use File](https://www.fhfa.gov/data/national-survey-mortgage-originations-nsmo-public-use-file) (https://www.fhfa.gov/data/national-survey-mortgage-originations-nsmo-public-use-file)

## 2. Reputation and Trust

- **Consumer Complaints Database:**
  - Contains consumer complaints about financial products and services.
  - [Consumer Financial Protection Bureau \(CFPB\) Consumer Complaint Database](https://www.consumerfinance.gov/data-research/consumer-complaints/#download-the-data) (https://www.consumerfinance.gov/data-research/consumer-complaints/#download-the-data)
- **J.D. Power Mortgage Origination Satisfaction Study:**
  - Provides ratings and reviews of mortgage lenders based on customer satisfaction.
  - [J.D. Power Studies](https://www.google.com/search?q=%E2%80%A2%09J.D.+Power+Mortgage+Origination+Satisfaction+Study&sca_esv=18f094ea9bb8ac0e&sca_upv=1&sxsrf=ADLYWILgUDaUs7Da10FrGicVVgwSiOi-pw%3A1721766454148&ei=NhKgZq_VCIcykvQP5MqO8Ak&ved=0ahUKEwivYIrv_72HAXUAmYQIHWsIA54Q4dUDCA8&uact=5&oq=%E2%80%A2%09J.D.+Power+Mortgage+Origination+Satisfaction+Study&gs_l=p=Egxn3Mtd2l6LXNlcnAiNuKAogIKLkQuIFBvd2VyIE1vcnRnYWdlIE9yaWdpbmF0aW9uIFNhdGZmFjdGlvb_iBTdHVkeTIGEAAYFhgeMgYQABgWGB4yCBAAGKIEGikFMggQABiABBiiBDIIEAAyAQYogRI7AJQAFgAcAB4AJABAjgBUaABUaoBATG4AQPIAQD4AQL4AQGYAgGgAISYAwCSBwExoAehBg&scient=gws-wiz-serp&safe=active&ssui=on) (https://www.google.com/search?q=%E2%80%A2%09J.D.+Power+Mortgage+Origination+Satisfaction+Study&sca\_esv=18f094ea9bb8ac0e&sca\_upv=1&sxsrf=ADLYWILgUDaUs7Da10FrGicVVgwSiOi-pw%3A1721766454148&ei=NhKgZq\_VCIcykvQP5MqO8Ak&ved=0ahUKEwivYIrv\_72HAXUAmYQIHWsIA54Q4dUDCA8&uact=5&oq=%E2%80%A2%09J.D.+Power+Mortgage+Origination+Satisfaction+Study&gs\_l=p=Egxn3Mtd2l6LXNlcnAiNuKAogIKLkQuIFBvd2VyIE1vcnRnYWdlIE9yaWdpbmF0aW9uIFNhdGZmFjdGlvb\_iBTdHVkeTIGEAAYFhgeMgYQABgWGB4yCBAAGKIEGikFMggQABiABBiiBDIIEAAyAQYogRI7AJQAFgAcAB4AJABAjgBUaABUaoBATG4AQPIAQD4AQL4AQGYAgGgAISYAwCSBwExoAehBg&scient=gws-wiz-serp&safe=active&ssui=on)

## 3. Loan Terms and Flexibility

- **HMDA Data:**
  - Includes information on loan terms and types.
  - [CFPB HMDA Data](https://www.consumerfinance.gov/data-research/hmda/) (https://www.consumerfinance.gov/data-research/hmda/)
- **HUD FHA Loan Data:**
  - Provides data on FHA loan terms and conditions.
  - [HUD FHA Data](https://www.investopedia.com/terms/f/fhaloan.asp) (https://www.investopedia.com/terms/f/fhaloan.asp)

## 4. Customer Service

- **Consumer Complaints Database:**
  - Includes complaints about customer service from various lenders.
  - [CFPB Consumer Complaint Database](https://www.consumerfinance.gov/data-research/consumer-complaints/#download-the-data) (https://www.consumerfinance.gov/data-research/consumer-complaints/#download-the-data)
- **J.D. Power Mortgage Origination Satisfaction Study:**
  - Evaluates customer service satisfaction among mortgage lenders.
  - [J.D. Power Studies](https://www.google.com/search?q=%E2%80%A2%09J.D.+Power+Mortgage+Origination+Satisfaction+Study&sca_esv=18f094ea9bb8ac0e&sca_upv=1&sxsrf=ADLYWILgUDaUs7Da10FrGicVVgwSiOi-pw%3A1721766454148&ei=NhKgZq_VCIcykvQP5MqO8Ak&ved=0ahUKEwivYIrv_72HAXUAmYQIHWsIA54Q4dUDCA8&uact=5&oq=%E2%80%A2%09J.D.+Power+Mortgage+Origination+Satisfaction+Study&gs_l=p=Egxn3Mtd2l6LXNlcnAiNuKAogIKLkQuIFBvd2VyIE1vcnRnYWdlIE9yaWdpbmF0aW9uIFNhdGZmFjdGlvb_iBTdHVkeTIGEAAYFhgeMgYQABgWGB4yCBAAGKIEGikFMggQABiABBiiBDIIEAAyAQYogRI7AJQAFgAcAB4AJABAjgBUaABUaoBATG4AQPIAQD4AQL4AQGYAgGgAISYAwCSBwExoAehBg&scient=gws-wiz-serp&safe=active&ssui=on) (https://www.google.com/search?q=%E2%80%A2%09J.D.+Power+Mortgage+Origination+Satisfaction+Study&sca\_esv=18f094ea9bb8ac0e&sca\_upv=1&sxsrf=ADLYWILgUDaUs7Da10FrGicVVgwSiOi-pw%3A1721766454148&ei=NhKgZq\_VCIcykvQP5MqO8Ak&ved=0ahUKEwivYIrv\_72HAXUAmYQIHWsIA54Q4dUDCA8&uact=5&oq=%E2%80%A2%09J.D.+Power+Mortgage+Origination+Satisfaction+Study&gs\_l=p=Egxn3Mtd2l6LXNlcnAiNuKAogIKLkQuIFBvd2VyIE1vcnRnYWdlIE9yaWdpbmF0aW9uIFNhdGZmFjdGlvb\_iBTdHVkeTIGEAAYFhgeMgYQABgWGB4yCBAAGKIEGikFMggQABiABBiiBDIIEAAyAQYogRI7AJQAFgAcAB4AJABAjgBUaABUaoBATG4AQPIAQD4AQL4AQGYAgGgAISYAwCSBwExoAehBg&scient=gws-wiz-serp&safe=active&ssui=on)

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## 5. Pre-approval and Speed of Approval

- **HMDA Data:**
  - Contains information on loan application outcomes and timelines.
  - [CFPB HMDA Data](https://www.consumerfinance.gov/data-research/hmda/) (https://www.consumerfinance.gov/data-research/hmda/)
- **Ellie Mae Origination Insight Report:**
  - Provides data on loan approval times and efficiency.
  - [Ellie Mae Insight Reports](https://catalog.data.gov/dataset?tags=mortgage) (https://catalog.data.gov/dataset?tags=mortgage)

## 6. Product Offerings

- **HMDA Data:**
  - Includes details on different mortgage products offered.
  - [CFPB HMDA Data](https://www.consumerfinance.gov/data-research/hmda/) (https://www.consumerfinance.gov/data-research/hmda/)
- **Bankrate Mortgage Product Listings:**
  - Lists various mortgage products available from different lenders.
  - [Bankrate](https://www.bankrate.com/mortgages/types-of-mortgages/) (https://www.bankrate.com/mortgages/types-of-mortgages/)

## 7. Convenience and Accessibility

- **FDIC Summary of Deposits:**
  - Provides data on branch locations and availability of financial institutions.
  - [FDIC Summary of Deposits](https://www.fdic.gov/resources/bankers/call-reports/call-summary-of-deposits.html) (https://www.fdic.gov/resources/bankers/call-reports/call-summary-of-deposits.html)
- **CFPB Mortgage Market Activity and Trends:**
  - Offers insights into mortgage market activities by geography.
  - [CFPB Mortgage Market Trends](https://www.consumerfinance.gov/data-research/hmda/) (https://www.consumerfinance.gov/data-research/hmda/)

## 8. Recommendations and Referrals

- **Zillow Home Loans Reviews:**
  - Contains consumer reviews and ratings for various mortgage lenders.
  - [Zillow Home Loans](https://www.zillow.com/lender-directory/) (https://www.zillow.com/lender-directory/)
- **NerdWallet Mortgage Lender Reviews:**
  - Provides detailed reviews and ratings of mortgage lenders.
  - [NerdWallet](https://www.nerdwallet.com/h/reviews/mortgage-lender-reviews) (https://www.nerdwallet.com/h/reviews/mortgage-lender-reviews)

## 9. Financial Stability and Security

- **FDIC Institution Directory:**
  - Provides information on the financial health and stability of banks.
  - [FDIC Institution Directory](https://catalog.data.gov/dataset/fdic-failed-bank-list) (https://catalog.data.gov/dataset/fdic-failed-bank-list)
- **Moody's and Standard & Poor's Ratings:**
  - Offers financial ratings and stability assessments of financial institutions.

- [Moody's](https://www.moody.com/) (https://www.moody.com/)
- [Standard & Poor's](https://www.spglobal.com/ratings/en/) (https://www.spglobal.com/ratings/en/)

## 10. Special Offers and Discounts

- **Bankrate Mortgage Rates and Offers:**
  - Lists current mortgage rates and special offers from different lenders.
  - [Bankrate](https://www.bankrate.com/mortgages/mortgage-rates/) (https://www.bankrate.com/mortgages/mortgage-rates/)
- **LendingTree Mortgage Offers:**
  - Provides information on special mortgage offers and rates.
  - [LendingTree](https://www.lendingtree.com/home/mortgage/rates/) (https://www.lendingtree.com/home/mortgage/rates/)