**Overview**

The UCF students will engage in an exciting real-world project with Addition Financial, a leading financial institution aiming to expand its branch network within the state of Florida. As part of this unique opportunity, students will be provided with essential data on potential locations where Addition Financial is eligible to build new branches. Armed with this data, the students will embark on a dynamic journey of exploration and analysis, encouraged to use any other publicly available resources such as Census data, city and county websites, and various governmental statistics sites.

Their task is to meticulously gather comprehensive demographic and location-related information for each potential branch site. Through rigorous research and data mining, the students will gain valuable insights into the diverse communities and neighborhoods across Florida, enabling them to make well-informed decisions about the most promising locations for Addition Financials’ expansion.

The focus of this project extends beyond just identifying suitable sites; the students will delve into understanding the unique characteristics and needs of various regions and populations. By considering factors like population density, income distribution, economic indicators, and local consumer behaviors, they will uncover valuable patterns and trends that will help shape the strategic positioning of new branches.

This experiential learning initiative encourages creative and critical thinking, challenging the 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 serve as a crucial foundation for Addition Financials’ strategic planning, enabling the institution to enhance its presence and better serve its members across Florida.

Throughout the process, the UCF students will have the opportunity to collaborate with industry experts, receive guidance from either their professor’s and or 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 Credit Union (AFCU), with its mission to empower the financial well-being of its members, embarks on a strategic expansion plan to identify a new location for its branch network. With a commitment to providing exceptional service and fostering financial growth within the communities it serves, AFCU aims to pinpoint a location that aligns with its core values and has the potential to become a thriving hub of financial activity.

As AFCU seeks to broaden its reach and impact, the challenge lies in selecting a new location that not only complements the existing branches but also exhibits the potential for sustainable growth and profitability. The decision-making process must encompass a multifaceted approach, considering various data points, market dynamics, and demographic trends.

**Dataset**

Contest participants will be provided anonymized Branch Level data and Member Level Data.

Contest participants will also be provided with a data dictionary, describing each of the data points. It will be imperative for participants to have a clear understanding of the data that they are working with—as much of the data is industry specific. Explaining their findings in a clear & concise manner will be just as important as having accurate results.

**Contest Structure**

The primary objective of this endeavor is to predict, with a high degree of accuracy, and make a well-informed decision(s) about the most promising location(s) for Addition Financials’ next expansion. This predictive modeling aims to leverage historical performance data, market insights, and demographic information to assess the potential success of the proposed location.

By harnessing the power of data-driven decision-making, AFCU seeks to minimize risk and ensure that the chosen location aligns seamlessly with its mission of serving members effectively and fostering long-term financial wellness.

To achieve this objective, the project will involve an in-depth analysis of past performance metrics of existing branches, identifying key success factors that correlate with profitability. Utilizing cutting-edge predictive modeling techniques and machine learning algorithms, the team will evaluate a wide range of variables, including local economic indicators, demographic characteristics, competition, and proximity to target demographics.

Through this comprehensive approach, AFCU aims to gain valuable insights that will aid in selecting a location poised for success, driving positive financial outcomes for both the credit union and the communities it serves. Ultimately, the goal is to make data-informed decisions that enhance AFCU's ability to positively impact the lives of its members while fostering long-term growth and prosperity for the credit union 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.\*\*

\*\*Winning Teams will be required to formally present their findings at the Big Data Analytics Symposium 2024 at the UCF Main Campus, Pegasus Ballroom\*\*

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 a strong background in rigorous statistical analysis.

**Important Dates**

**Contest start date:** September 22, 2023 (data files will be available on this date)

**Final submissions due:** January 15, 2024 (early submissions are encouraged)

Group presentations will be conducted between February 6th, 2024 through February 17th, 2024

UCF analytics dept. notification of top three winners: March 1, 2024

UCF Big Data Analytics Symposium 2024: March 14, 2024

**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.

**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, documentation and data sets please click this link: <https://additionfi.sharefile.com/d-s5d7fb72a74954b97896548c7f7780f08>

To **upload** final competition submissions/presentations, no later than January 15, 2024 (early submissions are encouraged), please use this link: <https://additionfi.sharefile.com/r-rcffc4749b15a46cf9a6b25b5bd2edf09>

**Data Dictionary**

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| Branch Level Data will provide students with Count of transactions for every single Branch by transaction type as of End of Month for the Year 2022 till end of Month July 2023. This data will enable students to analyze transaction patterns, identify popular services, and assess branch performance for making data-driven decisions on future branch locations. | | |
|  |  |  |
| **Column Names** | **Data Type** | **Description** |
|  |  |  |
| **EOM TRANS DATE** | datetime64[ns] | End of Month Transaction Date |
| **BranchCategory** | object | AFCU Branch Location |
| **ATM** | int64 | Count of ATM (Automated Teller Machine) transactions that occurred during that Month at that branch. |
| **Bill Payment** | int64 | Count of bill payment transactions that occurred during that Month at that branch |
| **Cash** | int64 | Count of cash transactions that occurred during that Month at that branch |
| **Draft** | int64 | Count of draft transactions that occurred during that Month at that branch |
| **ACH** | int64 | Count of Automated Clearing House (ACH) transactions that occurred during that Month at that branch |
| **Fee** | int64 | Count of fee-related transactions that occurred during that Month at that branch |
| **Credit/Debit Card** | int64 | Count of credit and debit card transactions that occurred during that Month at that branch |
| **Home Banking** | int64 | Count of home banking transactions that occurred during that Month at that branch |
| **Dividend** | int64 | Count of dividend-related-pay-out transactions that occurred during that Month at that branch |

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| Member Level Data will provide students with Count of Transactions by transaction type for Members that have End of Month for the Year 2022 till end of Month July 2023. This data will enable students to analyze transaction patterns, identify popular services, and assess branch performance for making data-driven decisions on future branch locations. | | |
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| **Column Names** | **Data Type** | **Description** |
|  |  |  |
| **Unique\_Member\_Identifier** | object | randomly generated number representative of Member Account Number |
| **EOM TRANS DATE** | object | End of Month Transaction Date |
| **Age\*** | int64 | Member age based on age category (refer to age category description table) |
| **BranchCategory** | object | Branch assigned based on Members Address |
| **address\_zip** | object | Members address Zip Code |
| **n\_accts** | int64 | Numbers of Accounts that belong to member |
| **n\_checking\_accts** | int64 | numbers of Checking Accounts that belong to member |
| **n\_savings\_accts** | int64 | numbers of Savings Accounts that belong to member |
| **n\_open\_loans** | int64 | numbers of Open Accounts that belong to member |
| **n\_open\_cd’s** | int64 | numbers of Open Certificate of Deposits (cd’s) that belong to member |
| **n\_open\_club\_accts** | int64 | numbers of Open\_Club Accounts that belong to member |
| **n\_open\_credit\_cards** | float64 | numbers of Open\_Credit\_Card Accounts that belong to member |
| **ATMCount** | int64 | Count of ATM (Automated Teller Machine) transactions that were performed by member during that month |
| **BillPaymentCount** | int64 | Count of BillPaymentCount transactions that were performed by member during that month |
| **CashCount** | int64 | Count of Cash transactions that were performed by member during that month |
| **DraftCount** | int64 | Count of Draft transactions that were performed by member during that month |
| **ACHCount** | int64 | Count of ACH (Automated Clearing House) transactions that were performed by member during that month |
| **FeeCount** | int64 | Count of Fee Related transactions that were accessed to the member during that month |
| **Credit\_DebitCount** | int64 | Count of Credit\_Debit transactions that were performed by member during that month |
| **Home\_Banking** | int64 | Count of Home Banking transactions that were performed by member during that month |
| **WireCount** | int64 | Count of Wire Transfer transactions that were performed by member during that month |
| **DividendCount** | int64 | Count of Dividends that were Paid out to the member during that month |

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| **Addition Financials’ field of membership is based on a community charter. Anyone who lives, works, worships, attends school or vocational training, or is an alumni of any college, university, or educational institution located in** |
| Alachua |
| Brevard |
| Duval |
| Flager |
| Hernando |
| Highlands |
| Hillsborough |
| Indian River |
| Lake |
| Marion |
| Martin |
| Okeechobee |
| Orange |
| Osceola |
| Pasco |
| Pinellas |
| Polk |
| Seminole |
| St. Johns |
| St. Lucie |
| Sumter |
| Volusia |
| Manatee |
| Sarasota |

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| **Branch Names** |
| Mills |
| Winter Garden |
| Clermont |
| Sanford |
| Lake Mary |
| Kissimmee |
| The Loop |
| Poinciana |
| St. Cloud |
| Pine Hills |
| Altamonte Springs |
| Apopka |
| MetroWest |
| Fern Park |
| Leesburg |
| Eustis |
| Longwood |
| Orange City |
| South Orlando |
| Lake Nona |
| East Orlando |
| Addition Financial Arena |
| UCF Commons |
| UCF Campus |
| Downtown Campus |
| Seminole State |
| Merritt Island |
| Oviedo |
| Virtual Branch\* |
| Timber Creek High School |
| Lake Brantley High School |
| Poinciana High School |
| Boone High School |
| Oak Ridge High School |
| Colonial High School |
| St. Cloud High School |
| Ocoee High School |
| Lake Howell High School |
| Edgewater High School |

Virtual Branch\* - Online Account Opening