synchrony

ILLINI DATATHON

March 28 – March 30, 2025

Synchrony Member

David Chau
SVP, Credit Technology Strategy

Deepthi Potluri
VP, Senior Solution Architect
Credit Technology

SYNCHRONY OVERVIEW

Synchrony Platform Overview

Home & Auto

Rooms To Go
Discount Tire
Ashley HomeStore
Lowe's

Synchrony's Home & Auto platform offers comprehensive payments and financing solutions for purchases across a broad network of more than one million home and auto merchants.

Digital

amazon
PayPal
venmo
verizon
qurate Retail, Inc.

Synchrony's Digital platform provides comprehensive payments and financing solutions through partners and merchants who primarily engage with their consumers through digital channels.

Diversified & Value

belk
Fleet Farm
TJX
sam's club
JCPenney

Synchrony's Diversified & Value platform provides comprehensive payments and financing solutions, which seamlessly integrate the in-store and digital experience at national and regional retail brands.

Health & Wellness

Walgreens
CareCredit

Synchrony's Health & Wellness platform provides comprehensive financing solutions, through a network of providers and partners, for those seeking health and wellness services for themselves, their families and their pets.

Lifestyle

Kawasaki
DICK'S Sporting Goods
Sweetwater
jtv
PANDORA

Synchrony's Lifestyle platform provides comprehensive payments and financing solutions for major consumer purchases in powersports, outdoor power equipment and other industries focused on lifestyle merchandise such as sporting goods, clothing, jewelry and music.

Synchrony Consumer Credit Products and Origination Paths

Credit Products

Credit Cards

Private Label Credit Cards (PLCC)
Dual Cards / Bankcards (DC)
Secured Cards (Amazon Only)

Installment Loans

Unsecured Installment (PayLater)
Secured Installment

Origination Systems

Credit Cards

SynApps (Core Card Business)
IDI (PayPal Inc. Products)

Installment Loans

SynApps (PayLater)
Surveyor (Secured Installment)

Application Channels

POS (In-store)

Digital
(Mobile/Internet)

Quickscreen
Prescreen
Invitation to Apply

PreQualifications

Note: Applications may be accepted through other small volume channels such as phone, fax, mail

How does data affect our business?

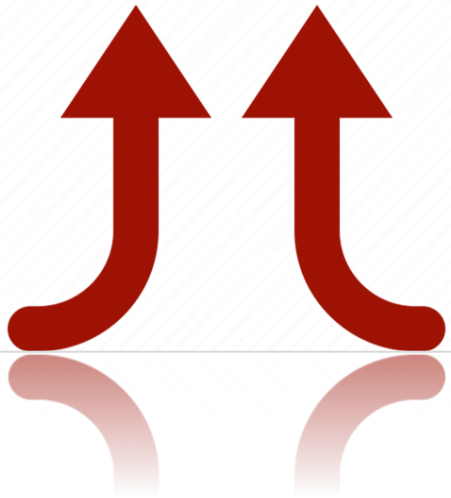
PRISM | The PRISM Ecosystem

SYNAPPS

Synchrony's Acquisitions Platform

Averages over 150,000 apps a day
<7 seconds SLA

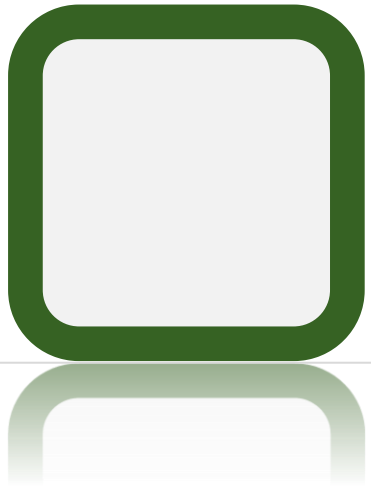
ALIGN



Account Management Platform

Deals with Millions of accounts per month.

GREENBOX



Transactional Fraud Platform

100's of Transaction / second
<150ms SLA
Over $200B Processed a Year

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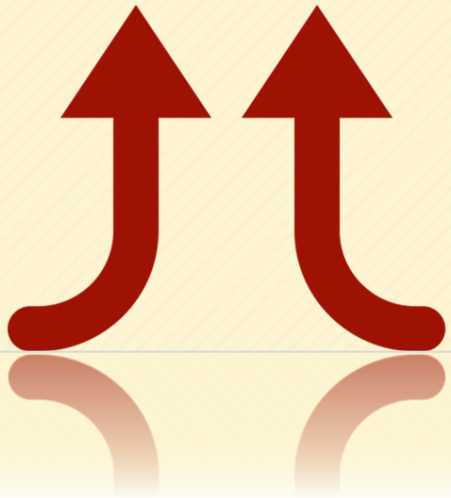

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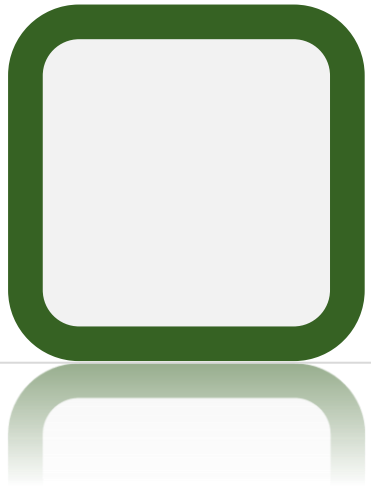

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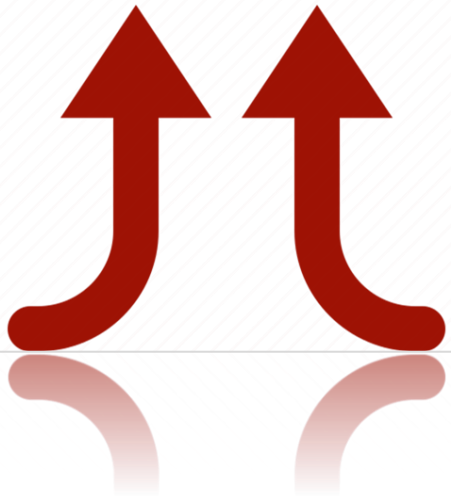

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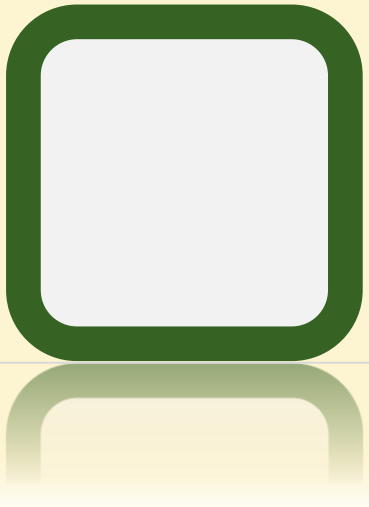

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2025 PROBLEM STATEMENT

In today's financial landscape, understanding customer spending behavior and accurately forecasting customer spending while accounting for macroeconomic factors is crucial for both enhancing customer service and effectively driving organizational growth. We have provided you with account data and non-monetary (few attributes explaining behavior of credit line usage) goal is to develop a robust predictive framework capable of forecasting customer spending for Q4 2025, identify credit limits that could be adjusted on an account while balancing risks of overextension, and mitigating fraud or defaults.

This framework should help:

1. Analyze historical spending patterns using account data and non-monetary information.
2. Predict the customer spending for the fourth quarter of the current year. Specifically, Using the recent last eight months of spending can we predict the customer spending for Q4 2025 (October to December 2025).
3. Classify accounts in to segments that can help identify potential accounts that would need a credit line increase because of the predicted spending.
4. Using risk factors overextension, fraud, or potential defaults, suggest the amount of credit line increase that could be given to an account.

Objectives

Analysis and model(s) designed should (a) Predict the customer spending for the fourth quarter of the current year, (b) classify the Accounts eligible for Credit Line Increase without Risk, Accounts eligible for Credit Line Increase but has risk of potential defaults or fraud, No Credit Line Increase required and Non-Performing accounts that pose a high risk. Further for each of the account segments what would be a credit line increase that could be offered at individual account.

- Build a predictive model to forecast a customer's spending for Q4 based on past years' spending trends and recent last 8 months of the current year.
- Build a classification model to segment the customers based on the account data.
- Identify risk of overextension, fraud, or potential defaults.
- Build a model that help identify a credit limit adjustments based on spending patterns and risk factors.

Deliverables

01

Presentation/ Video Max 7-minute

Sell us your recommendations in an elevator – what did you learn? Which features helped you better design solution? Provide an overview of your solution and why your solution is sound and responsive to the problem with supporting results. Code need not have to be explained in the presentation or video but include the output of code in the presentation.

02

Developed Code

Give us your work in the team folders in the box. We would like to see working code that can be reproduceable. Include a readme file with clear instructions on setup of the code, data used and commands to run your code. Include results and approach should be clearly documented in the readme file.

Video Submission

- Video should be 7 minutes or less.
- Can be structured however you want to solution your idea/findings/suggestions.
- Try to highlight the biggest points in your data collection and research.
- Try incorporating what you have learned during this process, shortcomings and any planned future enhancements.
- Only 1 person required to be in the video
- Create an unlisted YouTube video and then link the video to the Readme file on your repository

Submission Guidelines

Code:

- We would like to see working code that can be reproduceable.
- Include a readme file with clear instructions on setup of the code, data used and commands to run code.
- Code will be detected for plagiarism. No use of Chat GPT. Use of Copilot or Gemini in google colab is acceptable.
- Include the link to the video in the Readme file.
- Code should be zipped and uploaded to the project folder allocated for your team in the box.

Presentation :

- State your team and members.
- State your understanding and your approach to the solution
- Highlight analysis and features helped you design solution.
- Provide an overview of your solution and why your solution is sound and responsive to the problem with all supporting results.
- Presentation should be uploaded to the project folder allocated for your team in the box.

RUBRICS

Analysis

You will be evaluated on the techniques used in data wrangling. Provide a clear visual and statistical representation of the data patterns

Weightage – 20 points

Features

You will be evaluated on the approach that you used to create new features using existing raw data and how important that feature is for model

Weightage – 25 points

Model Development

You will be evaluated on completeness of the model build, training methods used, Validation, Performance metrics and results.

Weightage – 30 points

Recommendations

You will be evaluated in Why you think the features and approach are solid and applicable to solution, additional recommendations and enhancements to project.

Weightage – 30 points

Note: Video, Presentation and Code Implementation are all equally important.

RULES

1. All submissions must be in by 6:00 PM on Sunday. There will be no exceptions.
2. All submissions must have all 7-minute video, presentation and zipped code as deliverables, or they won't be counted.
3. No use of Chat GPT. Use of Copilot or Gemini in google colab is acceptable.
4. We are looking for clarity and ability to answer both business and data science questions not for flashiness of submissions. Work on what counts.
5. Teams can leverage any publicly available data source for generating input features in addition to the provided data set.
6. Teams can leverage any tools and/or libraries for this task but must provide the links for those tools in their code deliverable.
7. Teams are not allowed to ask anyone outside of mentors or their own team for help. Please do your own work because this is a learning opportunity first and foremost.
8. Be courteous to your peers as you work.
9. Have fun and get to know your fellow competitors and mentors.

Helpful resources

1. Make sure to upload all your files to your team folder in the box.
2. Link to data files and metadata about data: https://uofi.box.com/s/9te4280i6rj1m2wneilrhp3sh2hfqszl
3. Link to preworkshop document explaining few tips: https://uofi.box.com/s/ceaxbn8b4kolxfp43s4yvvlo1o1ley4s
4. Virtual office hours will be held during datathon to answer any questions.
   - Friday Night - 8:00 - 10:00 PM CST (2 hours)
   - Saturday Morning 8:00 - 10:00 AM CST (2 hours)
   - Saturday Evening - 6:00 - 8:00 PM CST (2 hours)
   - Sunday Morning 8:00 - 10:00 CST(2 hours)
5. In-person office hours schedule and room details to answer any questions
   - Friday: Monumental Stairs, Room 1035 Campus Instructional Facility
     5:00 - 8:00 PM CST- Feng Liang, Doug Simpson, Deepthi, Arpitha, Rohit, Dylan
   - Saturday: Room 4029, 4031, 4035 Campus Instructional Facility
     10:00 AM - 2:00 PM CST- Darren, Alexandra, Deepthi, Arpitha
   - 2:00 PM - 4:00 PM CST- Hyoeun Lee, Rohit, Dylan
6. Use the discord channel to post any questions and watch for announcements https://discord.gg/FfVZ5Esz

Schedule

Friday - 03/28

Opening Ceremony 5 PM CST

In Person Office hours
5 – 8 PM CST
Campus Instructional Facility
Monumental Stairs,
Room 1035

Virtual Office hours
8 – 10 PM CST

Schedule

Friday - 03/28	Saturday - 03/29
Opening Ceremony 5 PM CST In Person Office hours 5 – 8 PM CST Campus Instructional Facility Monumental Stairs, Room 1035 Virtual Office hours 8 – 10 PM CST	Virtual Office hours 8 – 10 AM CST In Person Office hours 10 - 4 PM CST Campus Instructional Facility Room 4029, 4031, 4035 Virtual Office hours 6 - 8 PM CST

Schedule

Friday - 03/28	Saturday - 03/29	Sunday - 03/30
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THANK YOU