

# Project Status Report #1

April 26, 2019

## Project Identification

<b>Project Name</b>	PayChex Recommendation Engine
<b>Project Team</b>	Team 9
<b>Project Sponsor</b>	PayChex
<b>Team Drive Link</b>	<a href="https://drive.google.com/drive/folders/1o_f0w7LYla9rtSkQzedNbEZwAg5MxB-4">https://drive.google.com/drive/folders/1o_f0w7LYla9rtSkQzedNbEZwAg5MxB-4</a>

## Vision & Goal Summary

- Create a recommendation engine capable of making most relevant item recommendations to clients.

### Goal #1. Conduct exploratory analysis to uncover hidden patterns in the data.

- Get data distribution based on Representative Level, Size, and Industry features
- Get the frequencies of each product individually and by high-level categories
- Create a correlation matrix of features and products

### Goal #2. Implement the item-based recommendation engine by looking at the similarity between user groups.

- Calculated the Cosine Similarity between products.
- Output a priority list of products for each client

## Major Milestones & Updated Status

Milestone	Original Date	Status & Date
Meet with sponsor and gather requirements	09/27/2019	Completed-09/27
Finalize the Project Charter	10/10/2019	Completed-10/10
Present findings of EDA to sponsors	10/11/2019	Completed-10/11
Finish developing collaborative filtering model	10/21/2019	Completed-10/21
Present results of the collaborative filtering model to sponsors	10/25/2019	Completed-10/25

## Deliverable Progress Since Last Report

- Team meeting with sponsors held on Friday, Sep. 27
- Team meeting with sponsors held on Friday, Oct. 11
- Gave a presentation of the results of our EDA analysis
- Discussed the presentation format and the next meeting's deliverables
- Made a section on our Trello page reserved for question to our sponsors

- Team meeting with sponsors held on Friday, Oct. 25
- Considered the pros and cons of each of our proposed methods and discussed implementation details
- Presented the preliminary results from two nearly implemented models

### Plan for Upcoming Deliverables

- Attempt to incorporate the client features into our collaborative filtering model, and enhance this to make a hybrid model
- Implement a basic popularity model and association rule model
- Brainstorm on possible evaluation metrics to try
- Determine a reasonable similarity metric for the client features (categorical data)

### Risks & Opportunities

Risk	Mitigation
Team disengagement	Agree on a fixed meeting time each week to discuss progress and work together on model development and other logistics
Challenges implementing collaborative filtering model	Research and find implementations of hybrid, collaborative filtering methods
Metrics	Researching how categorical data can be encoded to extract useful similarity measurements and how to evaluate the overall performance of a given model

Opportunities	Significance
Complete the collaborative filtering model	Indicates completion of project within schedule, having tangible product to show
Establish a solid evaluation metric	Can be useful to the sponsors should they choose to keep evaluating the performance of the recommendation system(s) we develop for them as more user data becomes available

**Baseline-to-Actual: Schedule Comparison and Budget Comparison**

Milestone Name	Completion Date		Budget Hours	
	Projected	Actual	Projected	Actual
Sponsor Meeting # 1	Sep. 27	Sep. 27	5	3
Project Charter	Oct. 10	Oct. 9	8	4
Sponsor Meeting # 2	Oct. 11	Oct. 11	10	8
Finish developing popularity model	Oct. 21	--	20	12
Submit Progress Report # 1	Oct. 24	Oct. 24	10	4
Sponsor Meeting # 3	Oct. 25	--	10	--
Finish developing association rule model	Nov. 4	--	20	--
Submit Progress Report # 2	Nov. 7	--	10	--
Finish developing collaborative filtering model	Nov. 18	--	20	--
Submit Progress Report # 3	Nov. 21	--	10	--
Sponsor Meeting # 4	Nov. 22	--	15	--
Final presentation	Dec. 2	--	10	--
Submission of all deliverables	Dec. 10	--	5	--

**Upcoming Meetings and Presentations**

- Thursday, Oct. 24 2019 → Team Meeting
- Friday, Oct. 25, 2019 → Sponsor Presentation

**Current Project Assessment**

We have shifted our priority to developing the collaborative filtering model. We have not been very good at meeting regularly each week, but we have made a commitment to fix this issue moving forward. Each member has attended group meetings, and we have mostly been successful with communicating with the rest of the team regarding individual tasks. We need to improve our responsiveness in terms of agreeing to team meetings. Our sponsors gave us some very helpful tips on how to improve our next presentation. Last time, we did not discuss our findings as a team before making the presentation, and we did not stick to a simple, clear presentation style. In our next meeting, we will aim to be concise and clear with what we share with the sponsors and resort to showing our code only when the sponsors request to see it for more implementation detail.