Subscriptions Flow AI

In Partnership With LightningLab Solutions

Presentation Overview

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Project Introduction

Subscriptions Flow AI

Shopify

With over 2,000,000 merchant users, Shopify is an ecommerce platform that provides everything a business needs to run a store all in one place.

Well... almost everything.

The problem...

Shopify does not provide any built in subscription management apps, leading merchants to rely on 3rd party apps.

Subscriptions are easily canceled with no effective way to attempt to retain customers.

Our solution

SubscriptionsFlowAI offers merchants the ability to sell their products as subscriptions.

Merchants can view the health of their selling plans via churn scores and reports.

Personalized offers, especially discounts, are offered prior to cancellation to prevent churn.

Requirements

What does the app need to do?

Elicitation

Sponsor Provided

The original requirements of the project were concisely provided by the sponsor

They included descriptions for many of the core features and provided examples of for product enhancements

Sprint Insights

During each sprint the team actively researched the product's domain to gain a deeper understanding of the context in which we are developing

Quite often communicating our insights led to more descriptive and even new requirements:

- Subscription contract creation on shopper's behalf
- Evolved during development
- Major shift in scope regarding churn intervention

Requirements

Core Functionality

Subscription Management

The app must provide merchants with the ability to do the following:

Manage selling plans

Sell their products as subscriptions

View analytics

Send custom emails

Churn Insights

Churn data needs to be recorded and displayed which includes the following metrics:

Customer cancellations

Customer subscription habits

Overall saved customers & revenue

Churn Prevention

The app can attempt to prevent churn in the following ways:

Setting discounts on selling plans

Offering special discounts for staying subscribed

Offering shoppers the ability to manage their subscriptions

AI

The app must consider AI integration within core features:

Calculating churn risks

Recommending offers

Determining optimal discounts

Paradigm Shift

Before

The app was originally intended to involve the customer more in terms of preventing churn. For example, customers would be notified about unused subscriptions or offered rewards directly to incentivize them to stay.

This idea was believed to cause more churn from being reminded of unwanted subscriptions.

Now

The app focuses primarily on directly preventing customers from cancelling by offering rewards during the cancellation process

Customers can also seamlessly manage their plans themselves by pausing or skipping deliveries

These subtle changes to the scope ensure that customers are not indirectly reminded to cancel plans they do not want

Design

From concept to code:
How we designed Subscriptions Flow AI

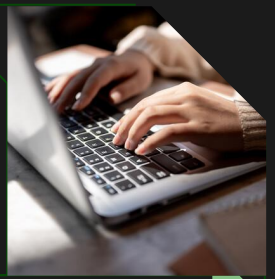
Timeline

Weeks 1-4: Inception

The team got organized, defined roles, and defined the scope of the project.

Weeks 5-6: Elaboration

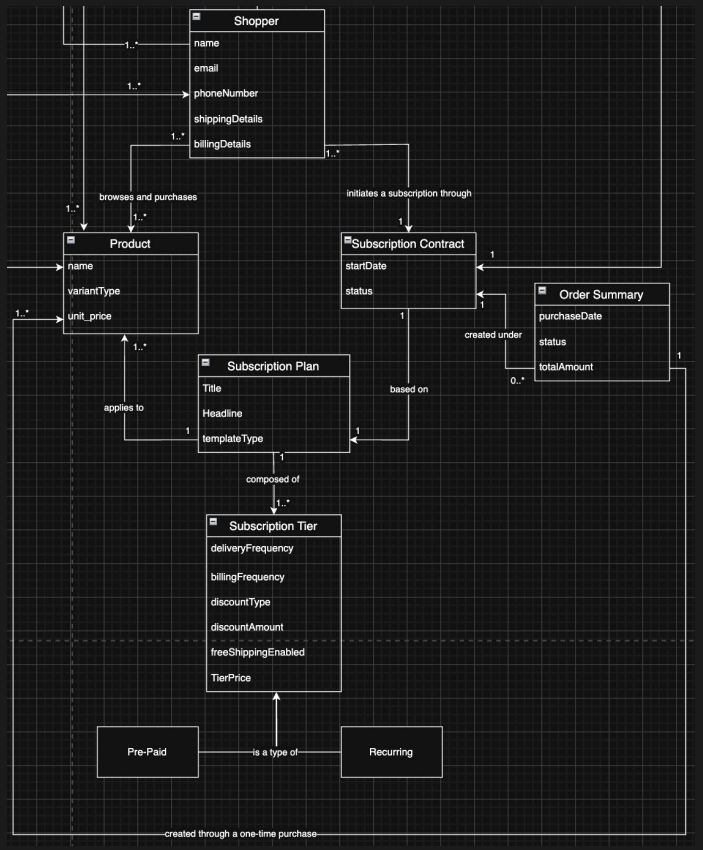
The team researched project domains and came up with a plan for the architecture.



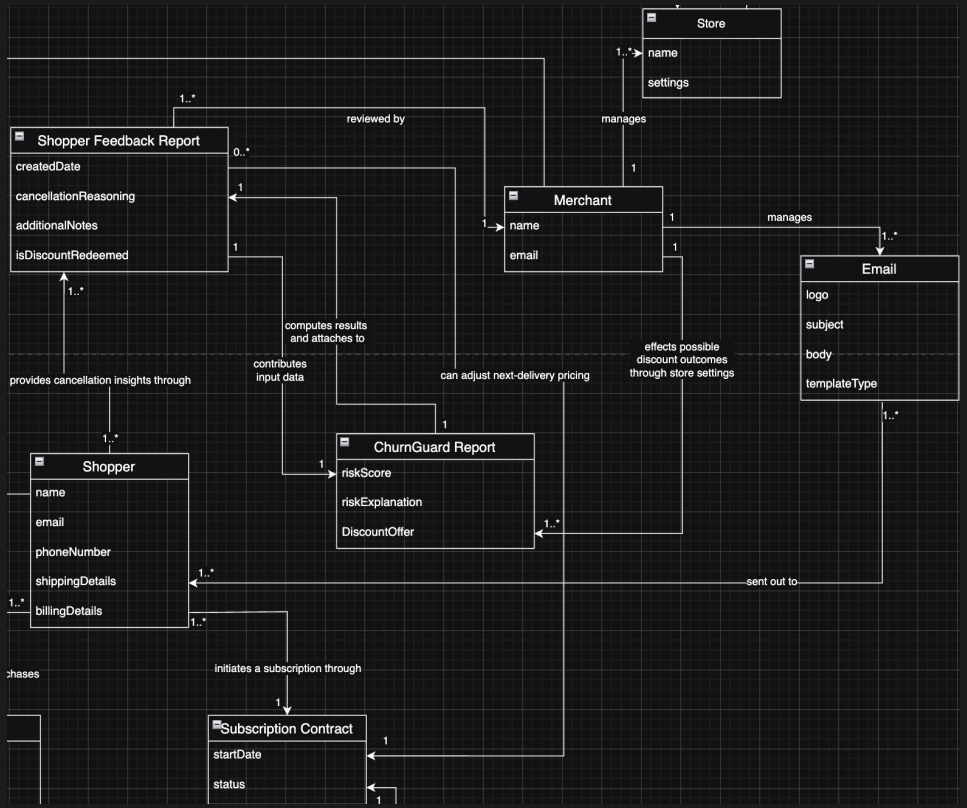
Weeks 7-15: Construction

The team focused on developing features for the project, though certain tasks required additional planning.

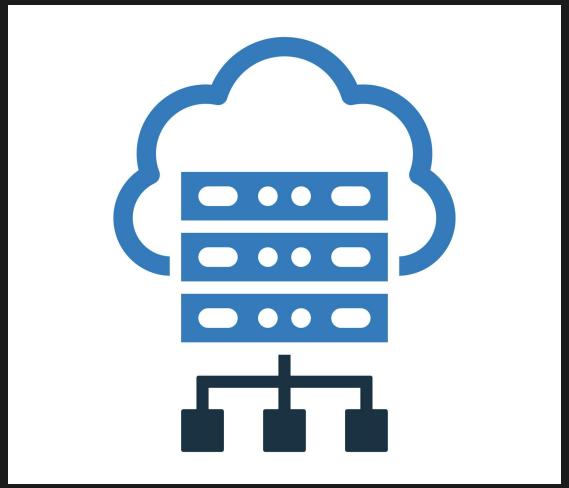
Domain Model - Products and Subscriptions



Domain Model - Shopper Feedback and Email workflows



Architecture and Tech Stack



AWS Cloud

- AWS RDS
- AWS SES
- AWS SQS
- AWS IAM

Shopify App Dev

- Vite React App
- Typescript
- Cloudflare

AI

- OpenAI GPT-5 Mini

And more AWS services planned...

Tech Trade Offs

Cloud

- AWS vs Azure vs Google Cloud Platform
- Cloud Storage vs Shopify Native storage
- External Cloud Compute Services vs Shopify Built-in APIs (ex: Automated email workflows)

App Development

- Typescript vs Javascript
- Router vs Remix

AI

- Cost vs quality vs speed
- Convenience vs another dependency
- Level of AI influence
- Storage vs API call

Tech Constraints

Choice Limitations

The following factors were out of our control per the domain and scope of the project

Shopify App

SubscriptionsFlowAI needs to be deployed to the Shopify app store

Built for Shopify requirements
- Polaris UI
- GDPR Compliance
- Insusceptible to click attacks

Initiated using the Shopify CLI

Cost & Schedule

SubscriptionsFlowAI will be sold on in different tiers of functionality

Services such as AWS and AI needed to be planned appropriately

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The team agreed to deliver an MVP by the end of November to begin beta testing by December

The team must produce a polished final product by the end of the Spring semester

Application Testing

Unit & Integration

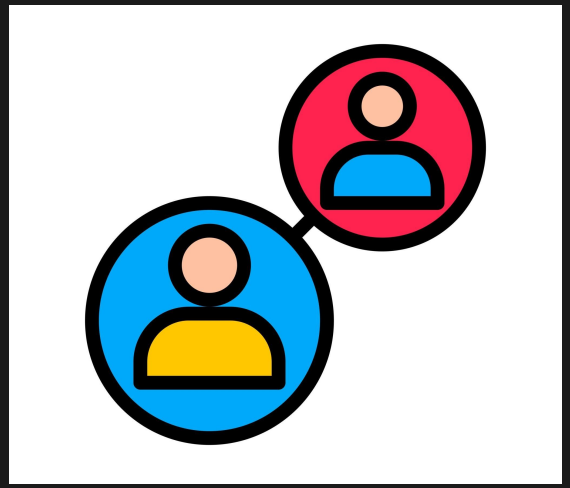
Vite unit tests

Github actions

UI & Requirements

Manual acceptance testing

Sprint demos



Beta

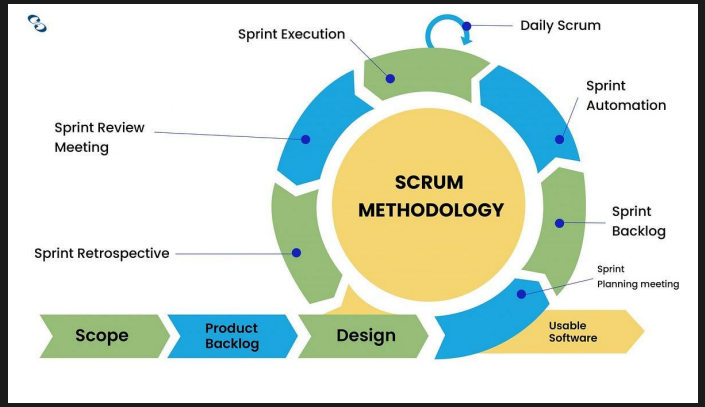
Planned to occur during Winter break

SUMI scores

Methodology

Agile Scrum

Why Scrum?



Scrum is best for a project with evolving requirements and iterative products.

Project structure

Small Team

Our team is temporarily working for a Rochester based sponsor - Lightning Lab Solutions

Product

Software products are most often iterative which makes their development integrate well into a scrum process

Startup Software

Our product is being built from the ground up

We need to offer high visibility into our progress for our sponsor to be sure we're adequately fulfilling the basic requirements

Methodology

Typical Sprint – Two Week Intervals

Sprint Planning

The team meets to assess what needs to get done during the next sprint

Tickets are refined and added to the sprint backlog

If necessary new work is thought of and added to the product backlog

Mid Sprint Meeting

At this point the team has worked on their tickets and provides and update

Our progress is assessed and priorities are managed

Sprint Retro

The team reflects on the progress of the last sprint and adjusts priorities / backlogs as necessary

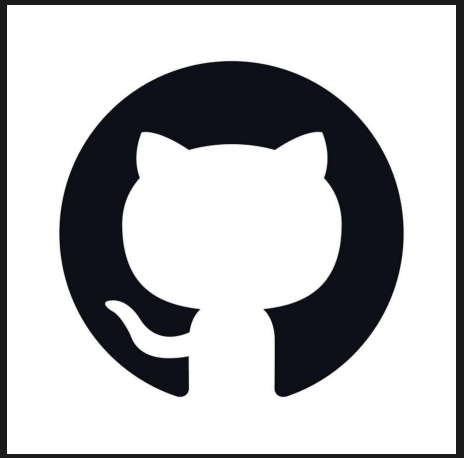
Sprint Demo

Completed work is shown to the sponsor for feedback

Answers to any possible questions we may have and sponsor feedback influences the next sprint's goals

Methodology

Agile Scrum Extras



Spikes

Most of the team did not have much prior knowledge and experience on developing Shopify apps and subscription management

The team performed numerous official and unofficial spikes during the inception and elaboration phases of the project

Epics

The project began with no preexisting source code nor documentation

We use epics to organize large tasks and core features that will be iterated on until perfection

*Github Projects

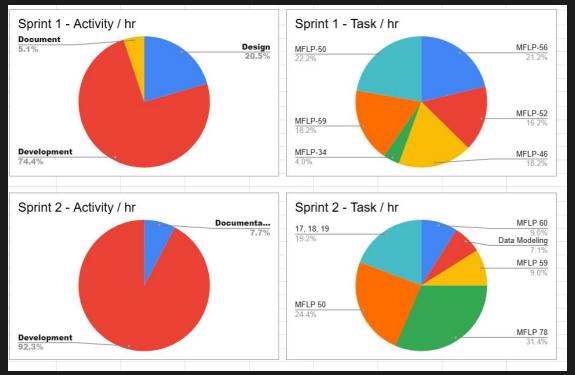
The team originally began working with a Jira board however switched to GH Projects

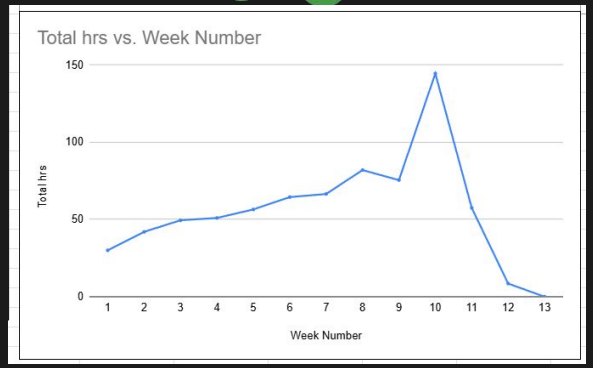
This tool allows us to integrate our codebase with project management tools

Metrics

Measurements used to drive decisions

Process Metrics





Sprint Velocity

Measures how much story points completed during each sprint

Helps the team understand delivery capacity and improves sprint planning

Effort By Type

Tracks how the team's time is spent across different work categories

Provides insights on work distribution and support team efficiency and alignment with product goals

Weekly Time Tracking

Measures how much time each team member spent working on the project

Product Metrics

Web Core Vitals

Measures performance each time a user loads the app

Focuses on three aspects of user experience - loading, interactivity, and visual stability

SUMI Scores

Standardized tool designed to measure the usability of software from the perspective of end users

Provides insights in five key areas: efficiency, satisfaction, helpfulness, control, and learnability

Customers will receive surveys to provide feedback on their experience

Risk Management

Expecting the unexpected

Risks Assessment

Shopify Native Risks

- Risk: Underestimated research time (APIs & "Built-for-Shopify" compliance).
- Likelihood: High | Impact: High
- Result: Critical Priority. Substantially reduces available development time.

Development Risks

- Risk: Underestimated ticket complexity (Polaris, Subscriptions and Billing logic).
- Likelihood: Medium | Impact: High
- Result: Critical Priority. Bottlenecks affect overall Sprint velocity.

AI Risks

- Risk: AI generating excessive/unprofitable discount offers.
- Likelihood: Low | Impact: High
- Result: High Priority. Financial loss leads to immediate app uninstalls.

Cloud Infrastructure Risks

- Risk: AWS Account Ban (due to compromised sponsor credentials).
- Likelihood: Low | Impact: High
- Result: Critical Priority. Halts deployment of cloud-dependent features.

Risk Mitigations

Shopify Native Strategy

- Continuous Knowledge Sharing: Mandatory documentation of all API findings to prevent redundant research and accelerate team learning.

Development Strategy

- Agile Refinement: Utilization of weekly Retrospectives to analyze bottlenecks and adjust ticket sizing based on actual team velocity.

AI Strategy

- Hard Guardrails: Implement merchant-controlled settings (e.g., Max Discount Caps) that override AI logic to prevent revenue loss.

Cloud Infrastructure Strategy

- Administrative Resolution: Immediate coordination with the sponsor to restore AWS access/get a new account altogether.
- Architecture Pivot: Prioritizing Shopify-native implementation where possible and simplifying Beta scope to reduce external cloud dependency.

Reflection

Less, More, Keep

State Of the Project

Finished:

Subscription management

Merchant settings & customization

Customer checkout & intervention

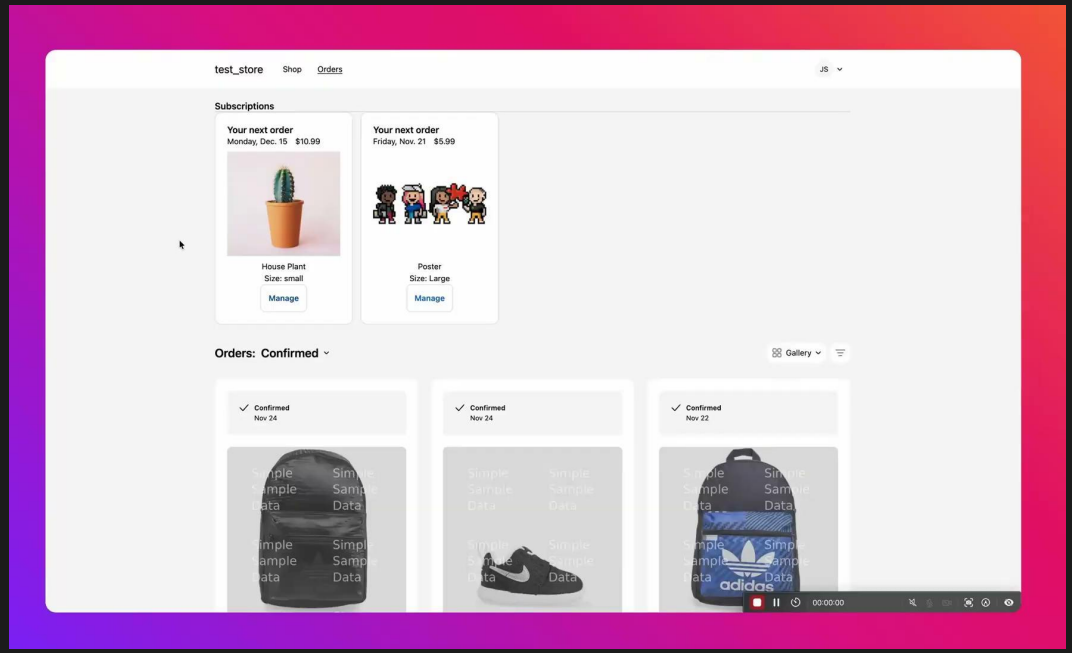
Email templates

Getting ready in the next week or so:

AI features

Cloud integration

Beta testing



We've achieved remarkable progress, and we will continue to push ourselves to reach new heights.

Key learning 1

Collaboration and knowledge sharing is the golden key to progress.

Key learning 2

When we overestimate what we know, we often find ourselves with more responsibilities than we anticipated.

Key learning 3

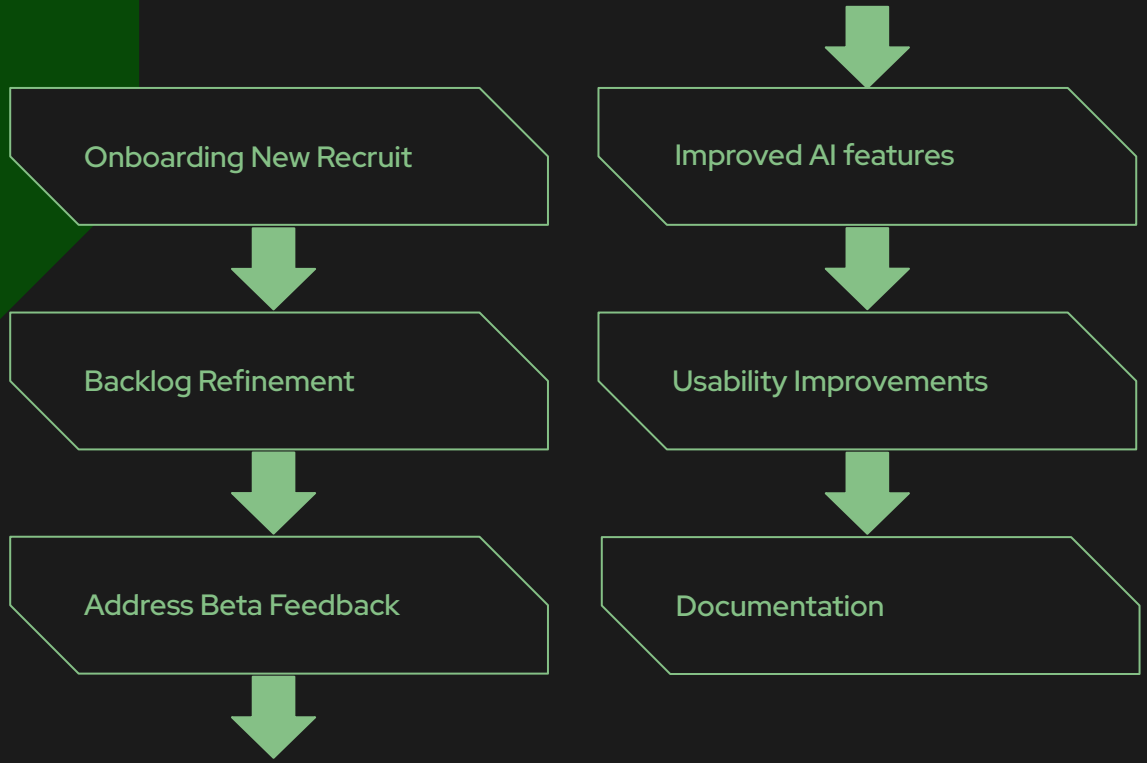
To better manage both our expectations and the sponsor's, ensuring we don't overcommit.

Future Outlook

What’s next for Subscriptions Flow AI?

Next steps

In the next semester, we plan to complete the following tasks



Thank you.

Questions?

RIT