SkyNet

– A business management system

Present by:

CS 691 Capstone Project Team Three

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Houqi Zhan, Jincheng Zou

Agenda

- Feedback & Improvements
- Team Intro
- Problem Statement & Project Description & Personas
- MVP (Minimal Viable Product): Design & Functions
- Technologies & Architecture Diagram
- Sprint 2 Recap
- Product Backlog
- Sprint Backlog
- Metrics
- Retrospective
- Sprint 4

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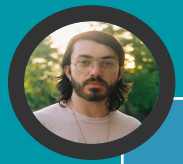
Team Members

Josh Krinsky
Project Manager
Scrum Master
Back-end Developer



Peter Torrente
Front-end Developer

Kai Wang
Database Admin
Back-end Developer

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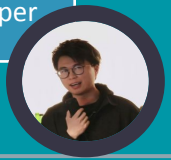
Peter McKechnie
Front-end Developer
Project Consultant

Houqi Zhan
Database Developer

Jincheng Zou
Front-end Developer



Improvements From Feedback

Feedback

- Better to have a “header“ sentence to describe what the bullet points.
- Add more diagram (UML, component)
- For size of the items in the Backlog, use story point instead of large, medium, small
- Call “task stories” and “user stories”
- Missing planned/committed ratio
- The speed of the presentation is slow

Improvements

- Improved the slides’ structure
- Design diagrams that explain our project better
- Applied story point for the Backlog
- Rename the “task” to “task story”
- Create planned/committed ratio
- Rehearse before the presentation recording

Problem Statement

What problem is our project aiming to solve?

- Companies rely heavily on CRM and POS software to control the customer experience.
- These are sold as complex software platforms offering a variety of features.
- Large and expensive packages dominate the market and are tailored to larger companies.
- Many customers do not have the budget, nor the technological aptitude, to effectively employ popular CRM and POS platforms.

Project Description

What are we building?

- We aim to design a POS styled system with greater simplicity for customers.
- We will prioritize fundamental services for day to day operations of a small business.
- Users will be able manage inventory, track sales, compare vendors, analyze production output, organize contact info, track orders/deliveries. Record order, shipping, and vendor history.
- Easy-to-use interface means even the most novice users are capable of creating custom data visualizations and analysis.

Personas - 1

David:

Who is he?

- A 43-year-old man, the owner of the retail store.
- Has a happy family: his wife has just given birth to his third child.
- Currently on sabbatical; His oldest daughter just entered college to study nursing, while his son just entered high school and is the point guard for the school's basketball team.
- To make his family's financial situation better, he started to expand his retail business last year.

Issue:

- Spends a huge amount of time each week comparing offers from different suppliers.
- Needs to do a lot of calculations and comparisons based on stock availability and expectations of sales
- Has very little free time to spend with his wife and children, despite his off-hours.

Personas - 2

Mike:

Who is he?

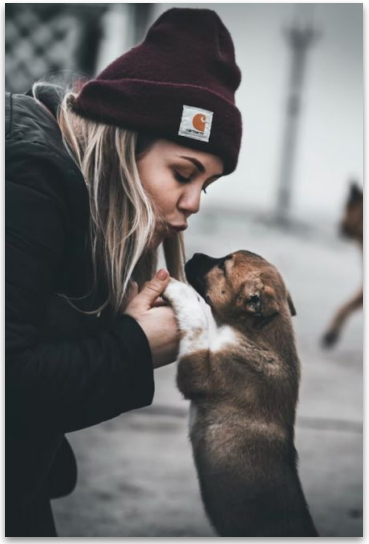
- A 26-year-old production manager, responsible for several different production lines
- He and his accountant fiancée got engaged this spring and the wedding is being planned!
- He and his fiancée are both hikers and usually go on weekend excursions to the countryside

Issue:

- The traditional forms (for example, Excel or the printed forms) makes him tired of calculating the efficiency of the different lines
- Needs to provide more rational and useful advice for each quarter of production
- His factory is a traditional manufacturing factory, in the cost-effective consideration, did not use the popular production management software

Personas - 3

Alexis:

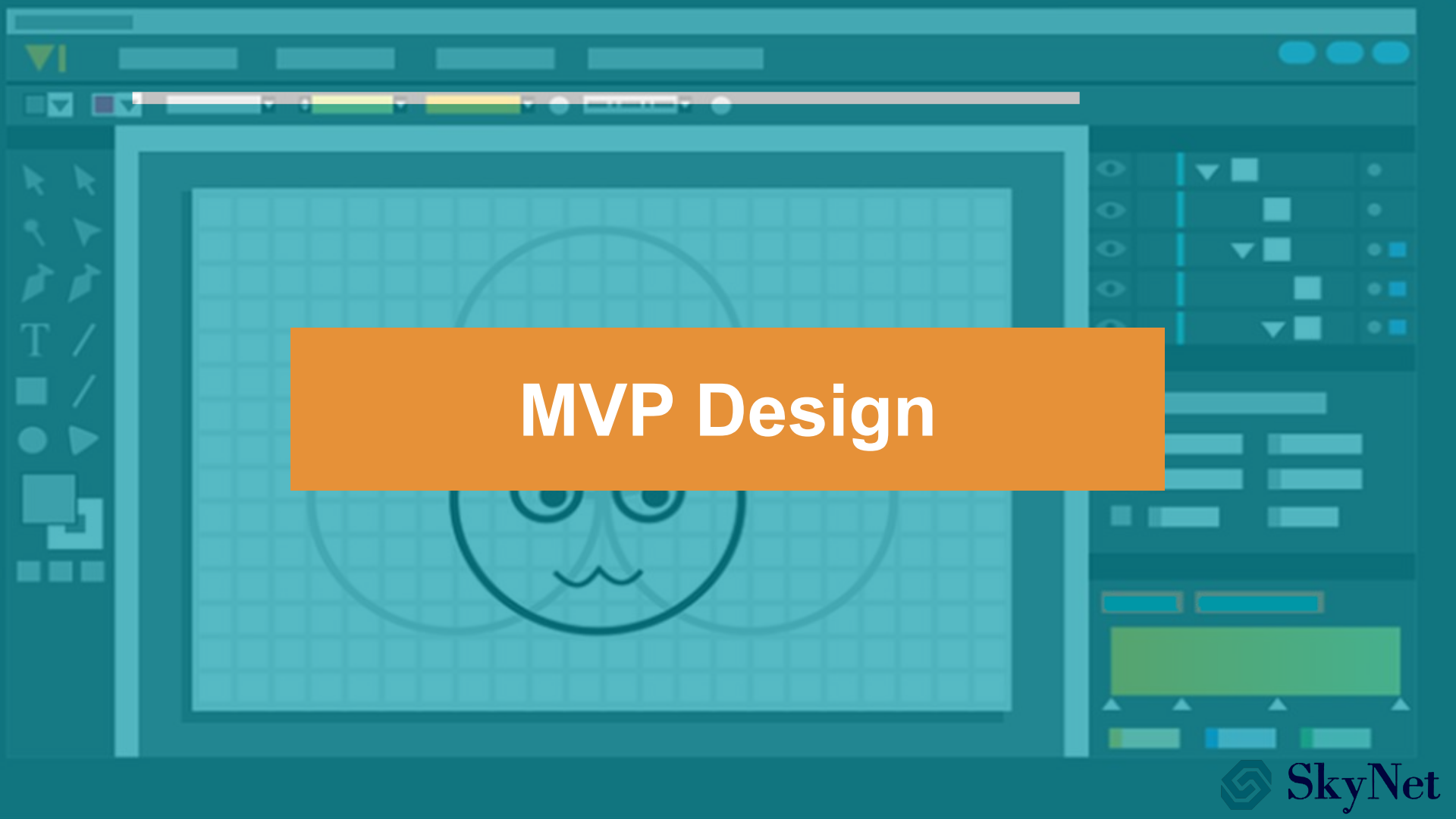


Who is she?

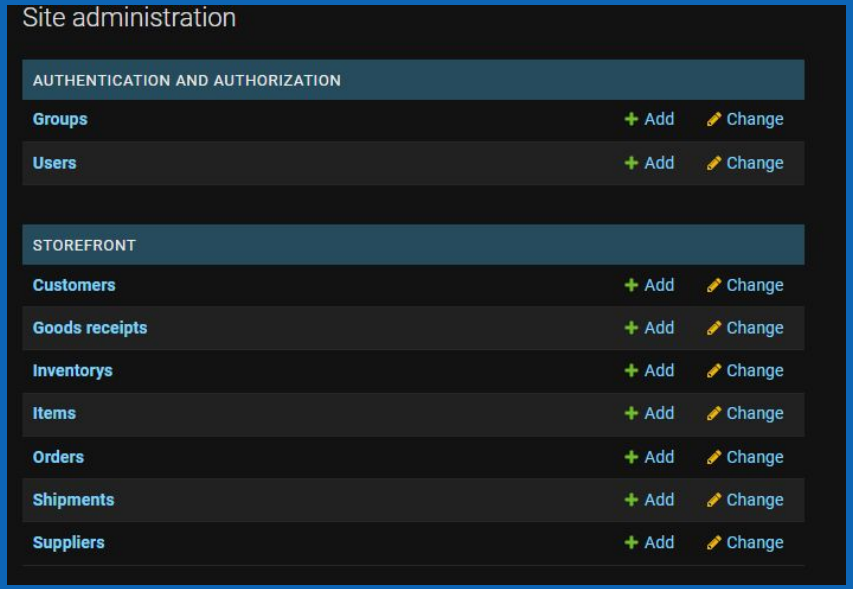
- A 23-year-old girl, with her college friends, founded a pet transport company
- She like to travel with her pets. A few years ago she traveled abroad with a friend and due to the negligence of her pet transport company, her shepherd became ill upon her return.
- She is a girl who is good at dealing with people and knows many friends who are in pet services.

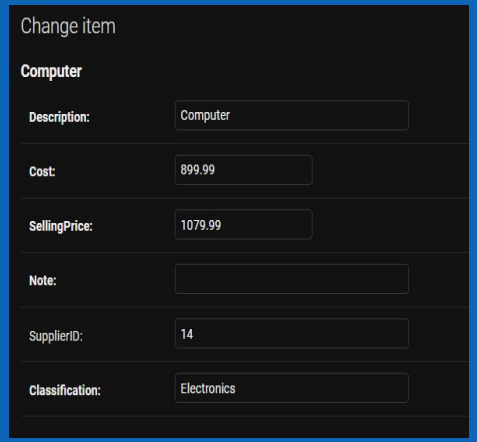
Issue:

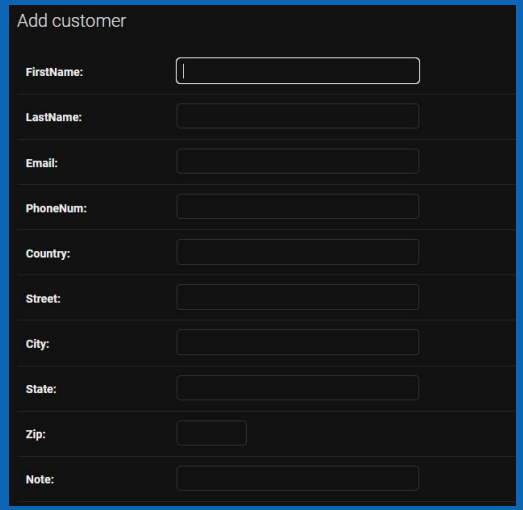
- Alexis's company needed a low-cost management software to help them calculate costs and compare suppliers.
- She needs to manage different service providers, such as transportation companies, pet nail technicians, etc.



MVP


Site administration
AUTHENTICATION AND AUTHORIZATION
Groups + Add Change
Users + Add Change
STOREFRONT
Customers + Add Change
Goods receipts + Add Change
Inventorys + Add Change
Items + Add Change
Orders + Add Change
Shipments + Add Change
Suppliers + Add Change


Change item
Computer
Description: Computer
Cost: 899.99
SellingPrice: 1079.99
Note:
SupplierID: 14
Classification: Electronics


Add customer
FirstName:
LastName:
Email:
PhoneNum:
Country:
Street:
City:
State:
Zip:
Note:

Supplier

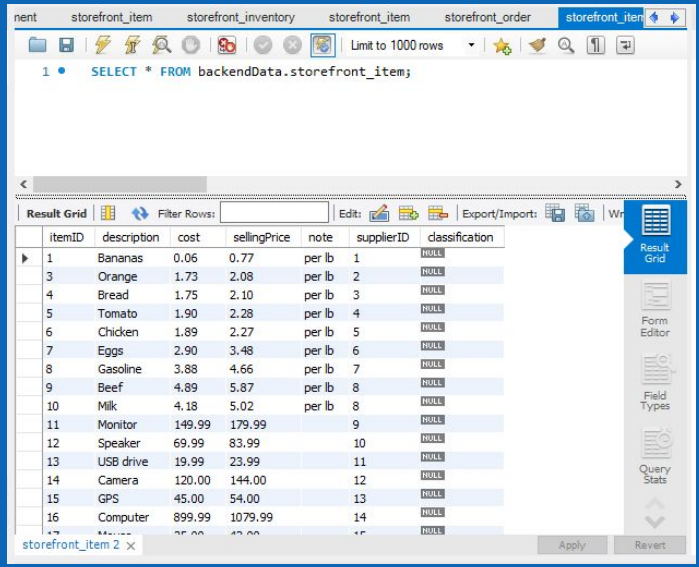
```
GET /supplier/
```

```
HTTP 200 OK
Allow: GET, HEAD, OPTIONS
Content-Type: application/json
Vary: Accept

[
    {
        "supplierID": 1,
        "company": "3M Company",
        "email": "manager@gmail.com",
        "phoneNum": "809-815-6322",
        "country": "USA",
        "street": "Albany St",
        "city": "New York",
        "state": "New York",
        "zip": 10001,
        "note": ""
    },
    {
        "supplierID": 2,
        "company": "The Alpine Group, Inc.",
        "email": "manager@office.com",
        "phoneNum": "536-459-2355",
        "country": "USA",
        "street": "Allen St",
        "city": "Los Angeles",
        "state": "California",
        "zip": 57586,
        "note": ""
    },
```

Item

```
GET /item/
```

```
HTTP 200 OK
Allow: GET, HEAD, OPTIONS
Content-Type: application/json
Vary: Accept

[
    {
        "itemID": 1,
        "description": "Bananas",
        "cost": "0.06",
        "sellingPrice": "0.77",
        "note": "per lb",
        "supplierID": "1"
    },
    {
        "itemID": 3,
        "description": "Orange",
        "cost": "1.73",
        "sellingPrice": "2.08",
        "note": "per lb",
        "supplierID": "2"
    },
    {
        "itemID": 4,
        "description": "Bread",
        "cost": "1.75",
        "sellingPrice": "2.10",
        "note": "per lb",
        "supplierID": "3"
    },
```



itemID	description	cost	sellingPrice	note	supplierID	classification
1	Bananas	0.06	0.77	per lb	1	NULL
3	Orange	1.73	2.08	per lb	2	NULL
4	Bread	1.75	2.10	per lb	3	NULL
5	Tomato	1.90	2.28	per lb	4	NULL
6	Chicken	1.89	2.27	per lb	5	NULL
7	Eggs	2.90	3.48	per lb	6	NULL
8	Gasoline	3.88	4.66	per lb	7	NULL
9	Beef	4.89	5.87	per lb	8	NULL
10	Milk	4.18	5.02	per lb	8	NULL
11	Monitor	149.99	179.99		9	NULL
12	Speaker	69.99	83.99		10	NULL
13	USB drive	19.99	23.99		11	NULL
14	Camera	120.00	144.00		12	NULL
15	GPS	45.00	54.00		13	NULL
16	Computer	899.99	1079.99		14	NULL

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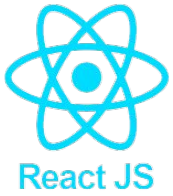
Technologies



The Purpose of the Technologies

- React - Front-end JavaScript library for building UI
- Django - Back-end Python framework that implements a restful API
- Pandas - Python based data structure & data analysis tools
- MySQL - Database Management
- AWS (Amazon Web Services) - Hosting, Relational Database Service, and Machine Learning
- Discord - Team Communication

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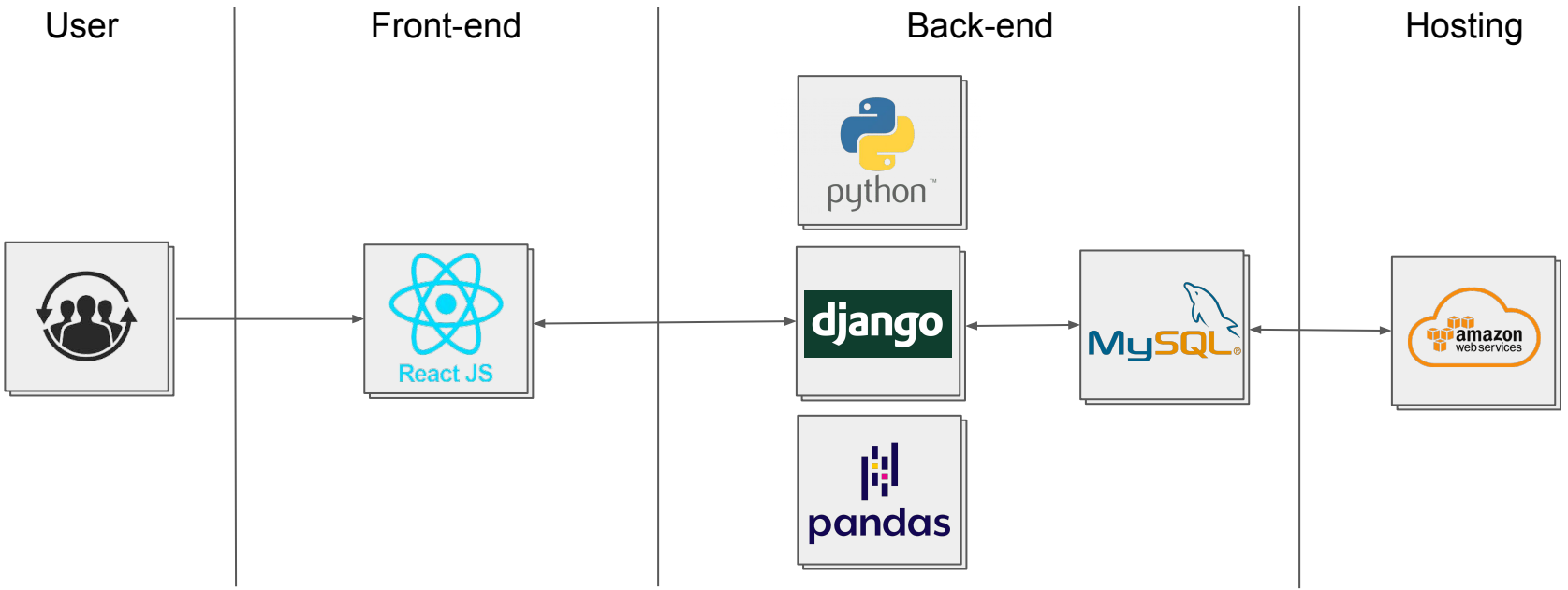
Technologies - continue



Database ER-diagram

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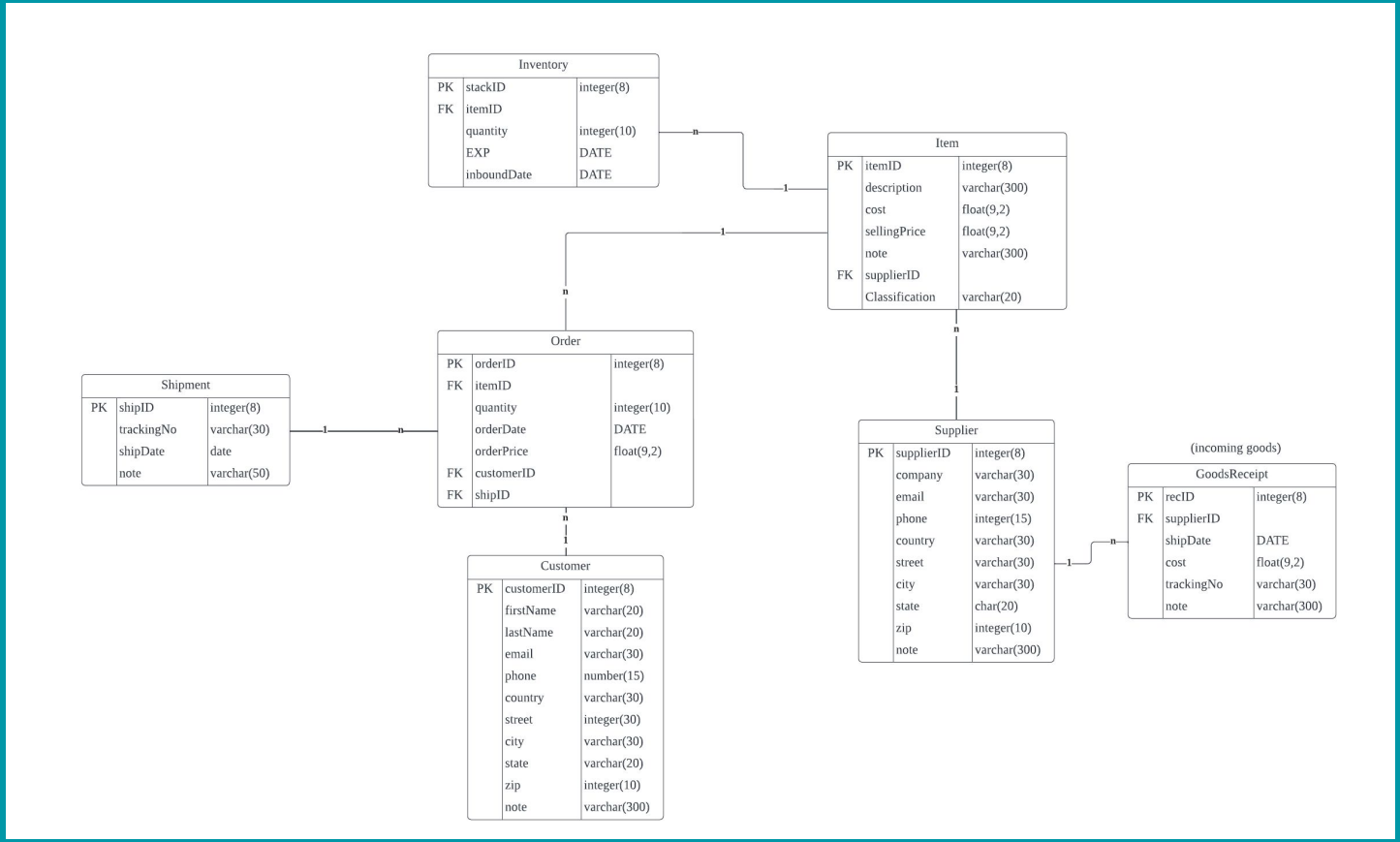

Conceptual Architecture Diagram

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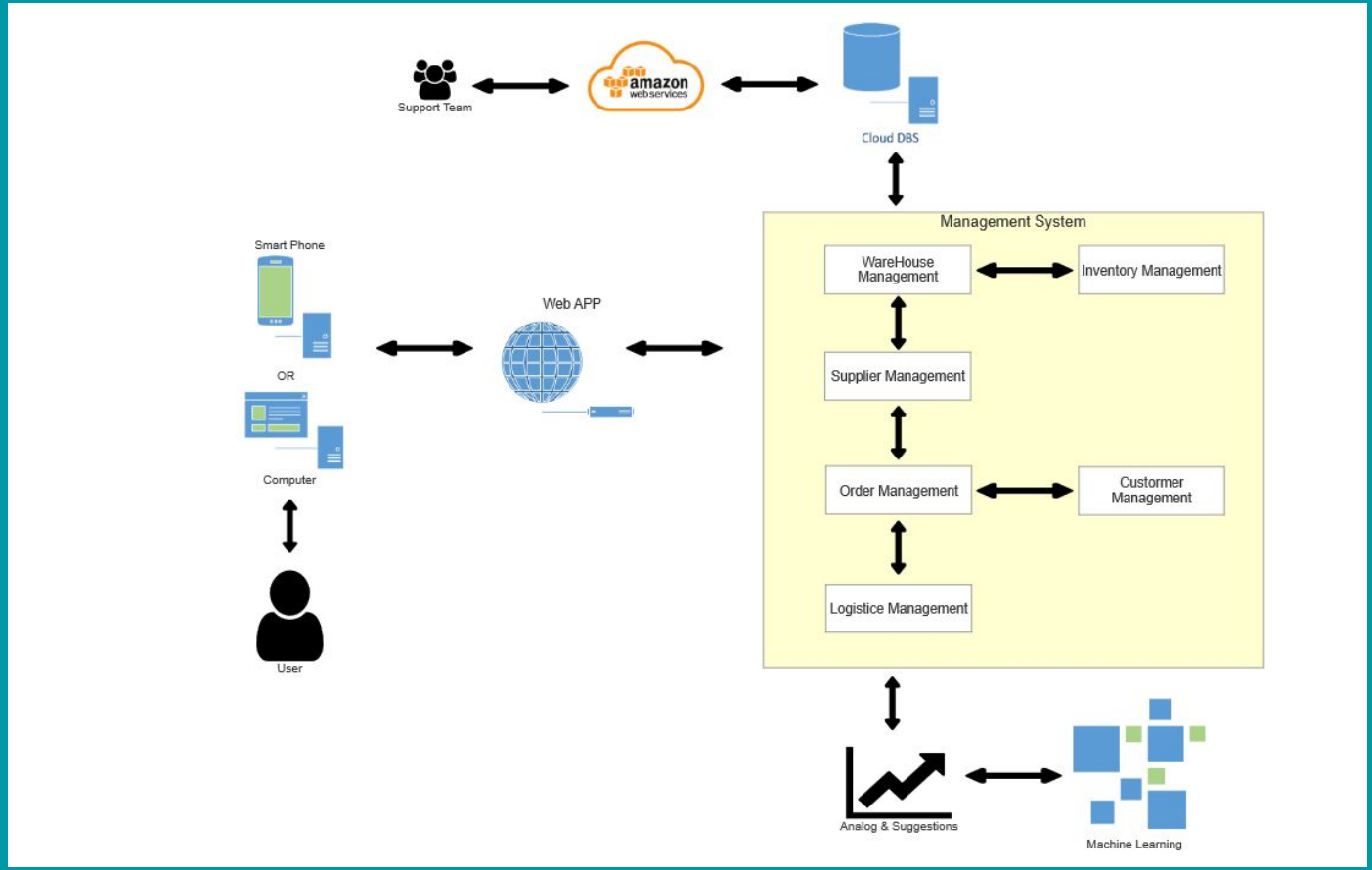

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Sprint 2 Recap

This is what we delivered in Sprint 2:

- Project Overview
- MVP mock-up design
- Product Backlog & Test Cases
- Sprint 3 Plan

What is new in Sprint 3:

- We designed the ERD for database, and made the database online
- MVP moves from mockup to live!
- Redefined some details in Backlog
- Built an interactive interface with the user (demo)

Backlog

				When, And, Then)				
US1	user	I want to be able to add new inventory to my database	Keep my database accurate to my changing inventory	When a user adds data, Then the database will add a new row.	DBS_add	4	High	Done
US2	user	I want to be able to edit inventory items in my database	Make changes to inventory details and correct typos	When a user delete data, Then the database will delete the row.	DBS_edit	4	High	Done
US3	user	I want to be able to delete inventory items in my database	Effeciently utilize server space and keep data accurate	When a user edit data, Then the database will edit the row	DBS_delete	4	High	Done
US4	user	I need to sort the data in my database	analyze and track my inventory my different metrics	Given different categories, When the user selects a category, Then show the products undere that category.	DBS_sort	4	Medium	Done
US5	user	I want to be able to check my inventory with a visual chart	Get a clearer picture of my inventory	Given automatically generated charts, When the user changes the chart options or changes the data range, Then the chart is regenerated based on user behavior	DBS_visualization	7	High	Waiting
US6	user	I would like to be alerted when some items are out of stock	Replenish my inventory in a timely manner	When an item is about to expire, Then the system will automatically send a reminder.	DBS_alert	5	Medium	Waiting
US7	user	I want the system to record my sales and analyze them	Keep track of my sales and change sales strategies	Given users the opthon of AI analysis, When the user chooses to use this feature, Then the user's data is used as input for his analysis fuciton, Then provides analysis of	DBS_analyze	10	Medium	Waiting
US8	user	I want to be able to enter data via cell phone camera or			odeInput	3	Low	Waiting
US9	user	I want to be able to scan items				5	Medium	Waiting
US10	user	I want to be able to calculate the amount of money owed	Know the total amount of money owed	When there are no items remaining to be added, Then the total amount of payment due will be correctly reported	CR_amountowed	3	High	Waiting
US11	user	I want to be able to record a payment	Collect money from the customer	When payment is tendered, Then the status of the order will change from "Payment Outstanding" to "Paid"	CR_deposit	3	High	Waiting
US12	user	I want to keep track of what items the customer wants to purchase	Analyze consumer preferences	Given a list of custmore, When select a customer, Then show the history of the customer	CR_trackCunsumer	3	High	Waiting
US13	user	I want to record and offer a receipt of the customer's purchase	Have an itemized list of items purchased by the customer	When an order is paid, Then a formatted record of the sale will be created	CR_receipt	3	Low	Waiting
US14	user	Evaluate suppliers	Create relationships with the best possible suppliers for my industry	Given a list of all suppliers, When a user filters on a detaill, Then the relevant data will be shown	SRM_eval	6	High	Done
US15	user	Streamline onboarding with suppliers	Quickly establish working supply chains	Given a new supplier, When new data needs to be collected, Then a standard template will be sent and uploaded to the database	SRM_select	3	High	Done
US16	user	Manage supplier performance	Quickly and easily track supplier performance with key performance metrics that are already established for me	Given a supplier ID, When the metrics are requested, Then the database returns accurate data	SRM_kpi	6	Medium	Waiting

Product Backlog - What has changed

We redefined the size of each item with story point, so we can better evaluate the progress of our project:

Size	Story Point
Large	7~12
Medium	4~6
Small	1~3

We added one Task Story because we thought adding the front-end design work to the Backlog would better track our project progress

ID	Task Description	Acceptance Criteria	Task Name	Size	Priority	Status	Sprint	Notes
TS14	Design interactive interface with the user	Approved by all team members	Project_UIdesign	9	High	Done	3	*added in 2022/11/01*

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Sprint Backlog - 1/2

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Task Story								
ID	**Task Description**	**Acceptance Criteria**	**Task Name**	**Size**	**Priority**	**Status**	**Sprint**	**Notes**
TS14	Design interactive interface with the user	Approved by all team members	Project_UIdesign	9	High	Done	3	*added in 2022/11/08; And need to be improved.*

User Story										
ID	**As a...**	**I want to...**	**So that I can...**	**Acceptance Criteria (format: use keywords Given, When, And, Then)**	**Task Name**	**Size**	**Priority**	**Status**	**Sprint**	**Notes**
US1	user	I want to be able to add new inventory to my database	Keep my database accurate to my changing inventory	When a user adds data, Then the database will add a new row.	DBS_add	4	High	Done	3	
US2	user	I want to be able to edit inventory items in my database	Make changes to inventory details and correct typos	When a user delete data, Then the database will delete the row.	DBS_edit	4	High	Done	3	
US3	user	I want to be able to delete inventory items in my database	Efficiently utilize server space and keep data accurate	When a user edit data, Then the database will edit the row	DBS_delete	4	High	Done	3	

Sprint Backlog - 2/2

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User Story										
ID	**As a...**	**I want to...**	**So that I can...**	**Acceptance Criteria (format: use keywords Given, When, And, Then)**	**Task Name**	**Size**	**Priority**	**Status**	**Sprint**	**Notes**
US4	user	I need to sort the data in my database	analyze and track my inventory my different metrics	Given different categories, When the user selects a category, Then show the products under that category.	DBS_sort	4	Medium	Done	3	
US14	user	Evaluate suppliers	Create relationships with the best possible suppliers for my industry	Given a list of all suppliers, When a user filters on a detail, Then the relevant data will be shown	SRM_eval	6	High	Done	3	
US15	user	Streamline onboarding with suppliers	Quickly establish working supply chains	Given a new supplier, When new data needs to be collected, Then a standard template will be sent and uploaded to the database	SRM_select	3	High	Done	3	
US27	user	I want to be able to access my data from any device	Know the status of my business anytime, anywhere	Given successful login from a device, When access is attempted, Then the app is correctly rendered	DBS_cloud	3	High	Done	3	

Test Cases

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ID	User Story	Test Description	Test Data	Action	Expected Output	Actual Output	Test Result	Comments
TS1	US1	Insert a product data	2022/11/13	Enter product info(price, description...)	Product data is correctly displayed in the database	New item shown in the database	PASS	
TS2	US2	Edit a product data	2022/11/13	Change the price. update the image, re-write the description	Product database is updated with new data	Updated item info is shown in the database	PASS	
TS3	US3	Delete a product data	2022/11/13	Delete a product	The target data is deleted	The target item is deleted	PASS	
TS4	US4	Sort the data	2022/11/13	Select Classification = food	all food items are display	all food items are display	PASS	This project will need to be retested in the future. We should have a drop down list for users to select categories instead of manually typing
TS5	US16	Evaluate suppliers	2022/11/13	Select supplier which id=1	all info of supplier is shown	all info of supplier is shown	PASS	
TS6	US17	Collect supplier's info	2022/11/13	Add a new supplier to the DBS	a new supplier info is added	shows the info of the new supplier	PASS	
TS7	US31	Online realtime Database	2022/11/13	Add a new item data from device A, and check the update from device B	the new item is shown on device B	the new item is shown on device B	PASS	

Sprint 3

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Stories completed:

ID	Story Name	Size	Status	Date
TS14	Project UI Design	9	Done	11/13
US1	DBS_add	4	Done	11/05
US2	DBS_edit	4	Done	11/05
US3	DBS_sort	4	Done	11/10
US4	DBS_delete	4	Done	11/10
US16	SRM_eval	3	Done	11/11
US17	SRM_select	3	Done	11/11
US31	DBS_cloud	3	Done	11/03

Stories completed:

ID	Story Name	Size	Reason	Note
NONE				

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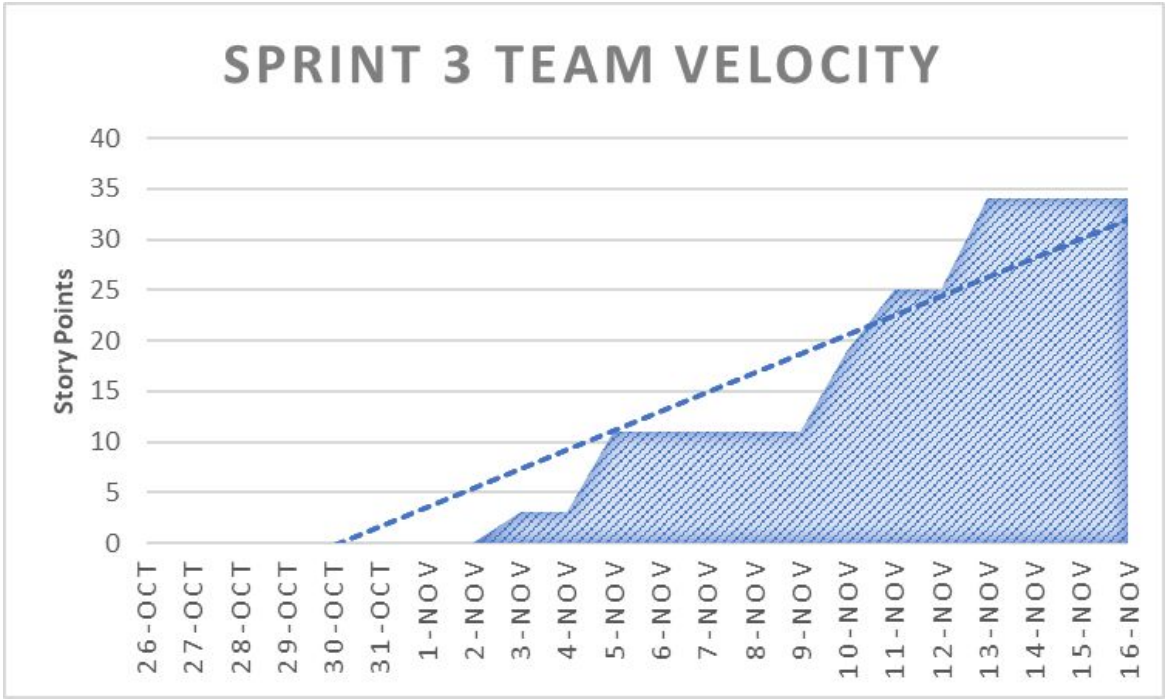
Metrics - Team Velocity of Sprint 3



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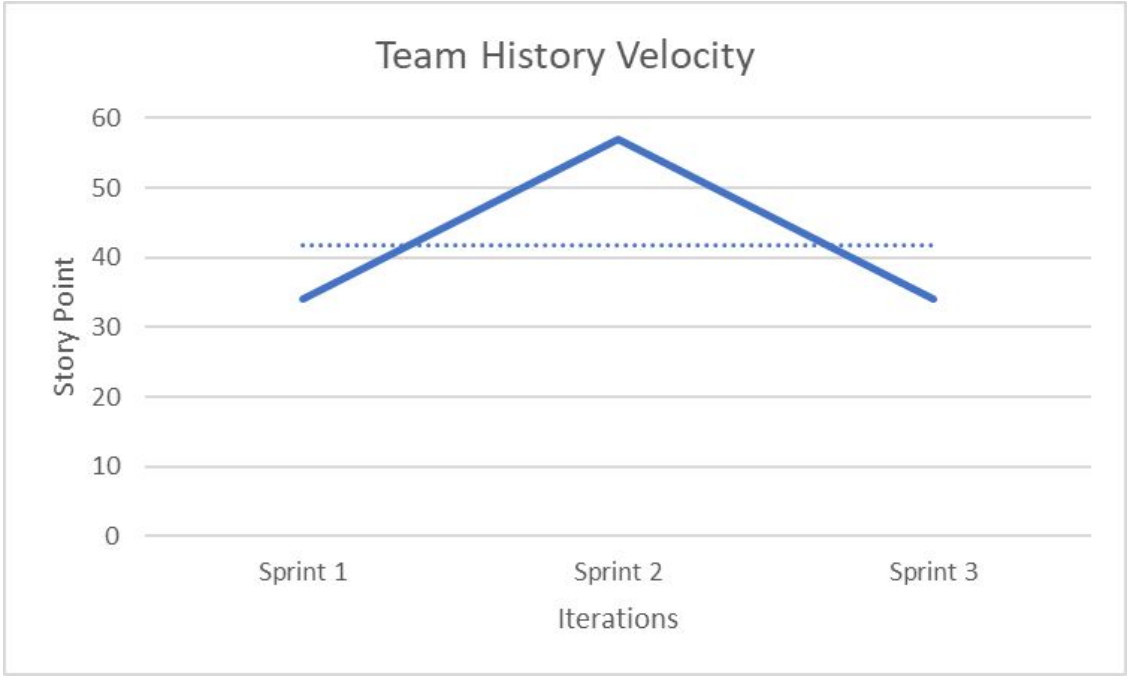
Metrics - Team History Velocity



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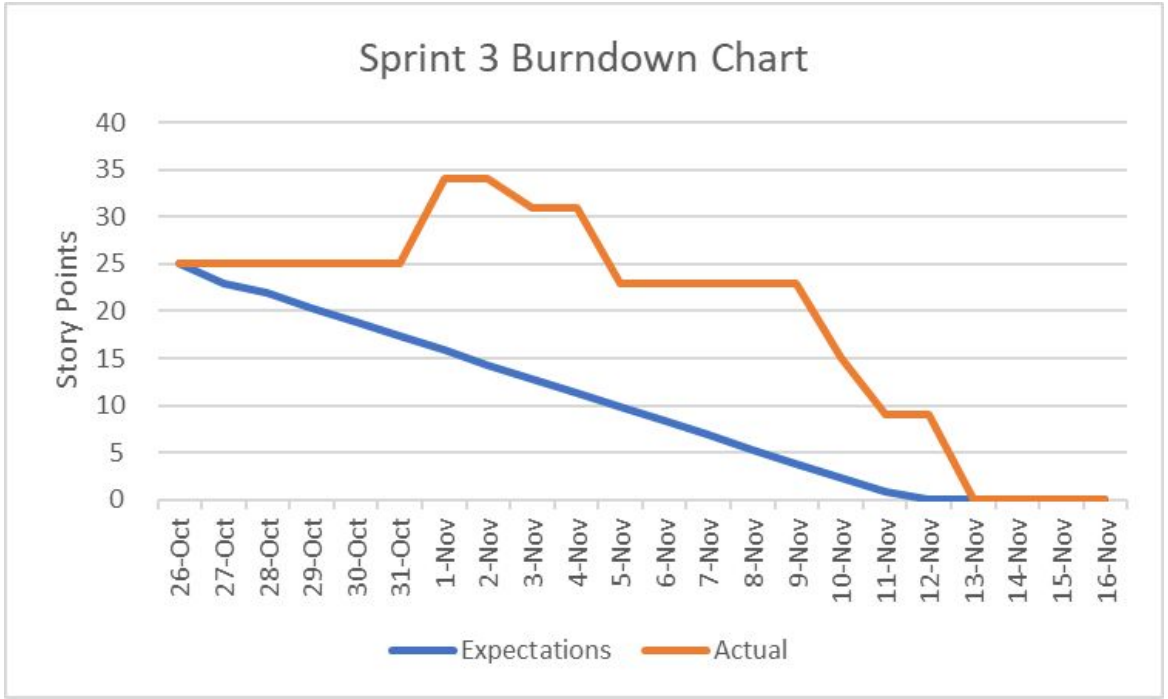
Metrics - Burndown Chart



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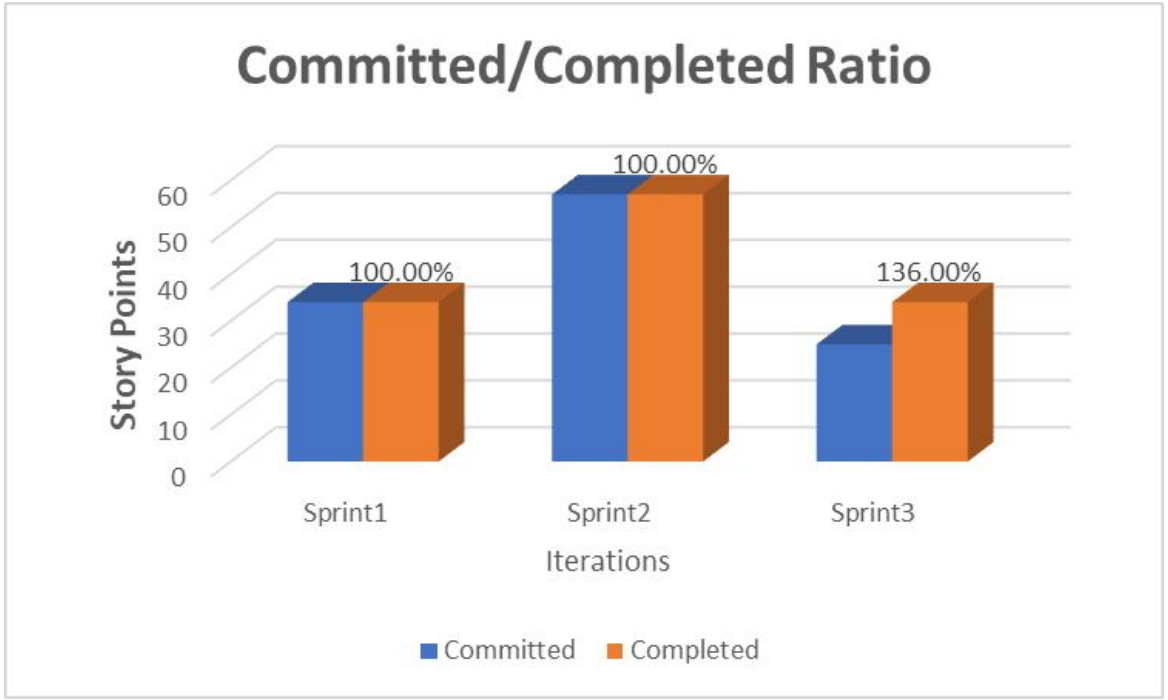
Metrics - Committed/Completed Ratio



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Retrospective - What Went Well

What went well in Sprint 3?

- For some subject topics, group members often provide different solutions and ideas.
- Division of labor was overall done well, with regards to frontend and backend.
- Team members helped one another out with tasks, often playing to their strengths.
- Problems that were identified were quickly remedied, before becoming massive issues.
    - For example, frontend group had some delays and issues starting, but we came together with team lead and rectified the issue.
    - We found a solution with sufficient time left to complete the necessary work.

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Retrospective - What Did Not Go Well

What did not go well in Sprint 3?

- Attendance at meetings was not consistent.
- Development is behind schedule.
- Procrastination took hold at times. Some segments of the MVP were left late.
- Group engagement was low.
- Group often lacked initiative, lots of waiting for something to be assigned (as opposed to taking up a task and getting it done).
- Communication was occasionally lacking, for example, there seemed to be unanswered messages or questions raised on Discord.

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Retrospective - Action Plan

What we need to improve for next Sprint?

- More thought needs to be given to the planning process, such as allowing more time for review and presentation preparation
- Team members need to take more self initiative
- Follow the timeline to be able to spread out the work across the entire sprint
- Hold team members accountable for getting their work done

Sprint 4 - Plan 1/2

User Story									
ID	**As a...**	**I want to...**	**So that I can...**	**Acceptance Criteria** (format: use keywords Given, When, And, Then)	**Task Name**	**Size**	**Priority**	**Status**	**Notes**
US12	User	I want to keep track of what items the customer wants to purchase	Analyze consumer preferences	Given a list of customer, When select a customer, Then show the history of the customer	CR_trackCunsumer	3	High	Waiting	
US13	User	I want to record and offer a receipt of the customer's purchase	Have an itemized list of items purchased by the customer	When an order is paid, Then a formatted record of the sale will be created	CR_receipt	3	Low	Waiting	
US21	User	I want to check the detail of the current orders	Have idea of a order detail	Given information about all order. When the user selects a particular order, Then the details of that order are provided.	LOG_OrderDetails	3	High	Waiting	
US22	User	I want to get notification when delivery of an order is imminent	Be prepared for the coming package	Given information about all logistics. When the user selects a particular logistics, Then the details of that logistics are provided.	LOG_comingTrack	6	Medium	Waiting	
US23	User	I want to check the previous shipping information	Ensure accurate shipping details	When shipping details are entered, Then a check against the previous details is run	LOG_history	5	low	Waiting	

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Sprint 4 - Plan 2/2

User Story									
ID	**As a...**	**I want to...**	**So that I can...**	**Acceptance Criteria (format: use keywords Given, When, And, Then)**	**Task Name**	**Size**	**Priority**	**Status**	**Notes**
US24	user	I want to see shipping history filtered for specific details	Review and analyze my shipment efficiency and timeliness	When a filter is added, Then data matching that filter is returned	LOG_filter	3	**Medium**	Waiting	
US25	user	I want to use two factor authorization to verify my customer's login	Prevent fraudulent login	Given a new device, When login is successful, Then the secondary security check will be sent	Login_2Factor	4	**Medium**	Waiting	
US26	user	I want to strongly encrypt and safely store my user's data	Ensure my customers their data is safe	Given a database of customer data, When unauthorized entry is attempted, Then request will not be returned	DBS_security	7	**Medium**	Waiting	

Total Story Points: 34

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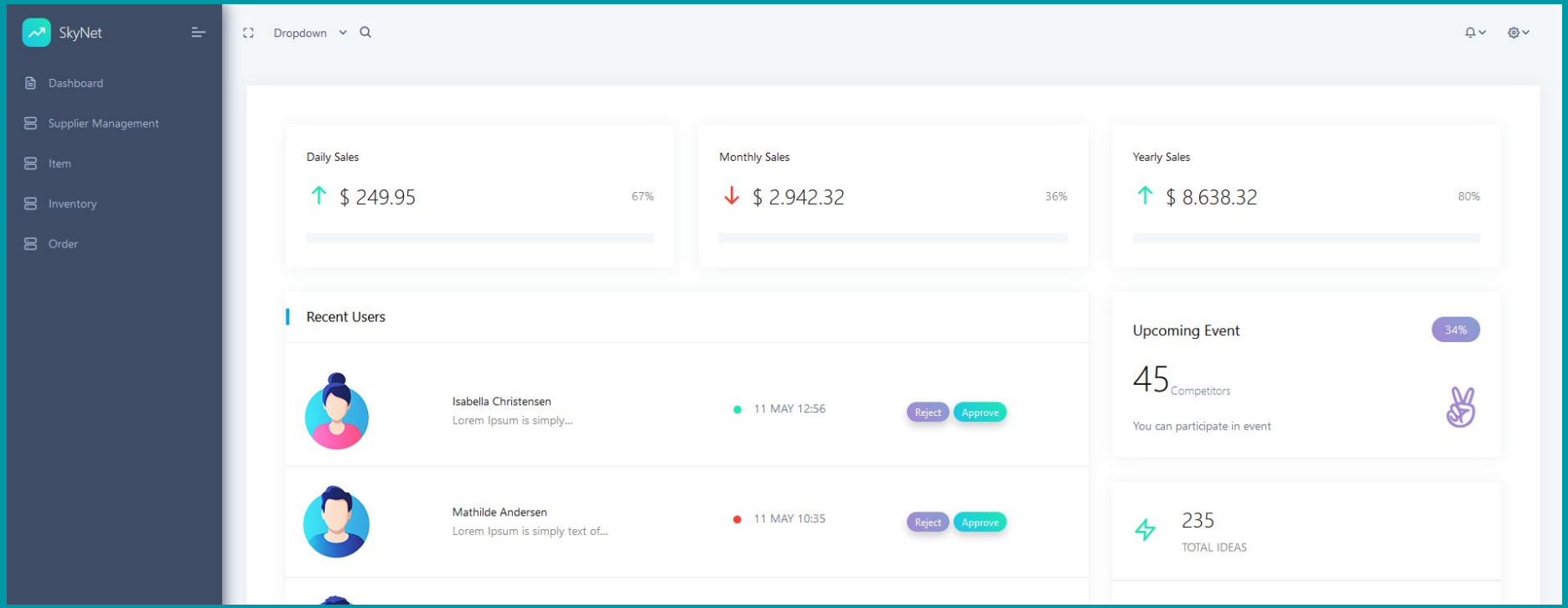
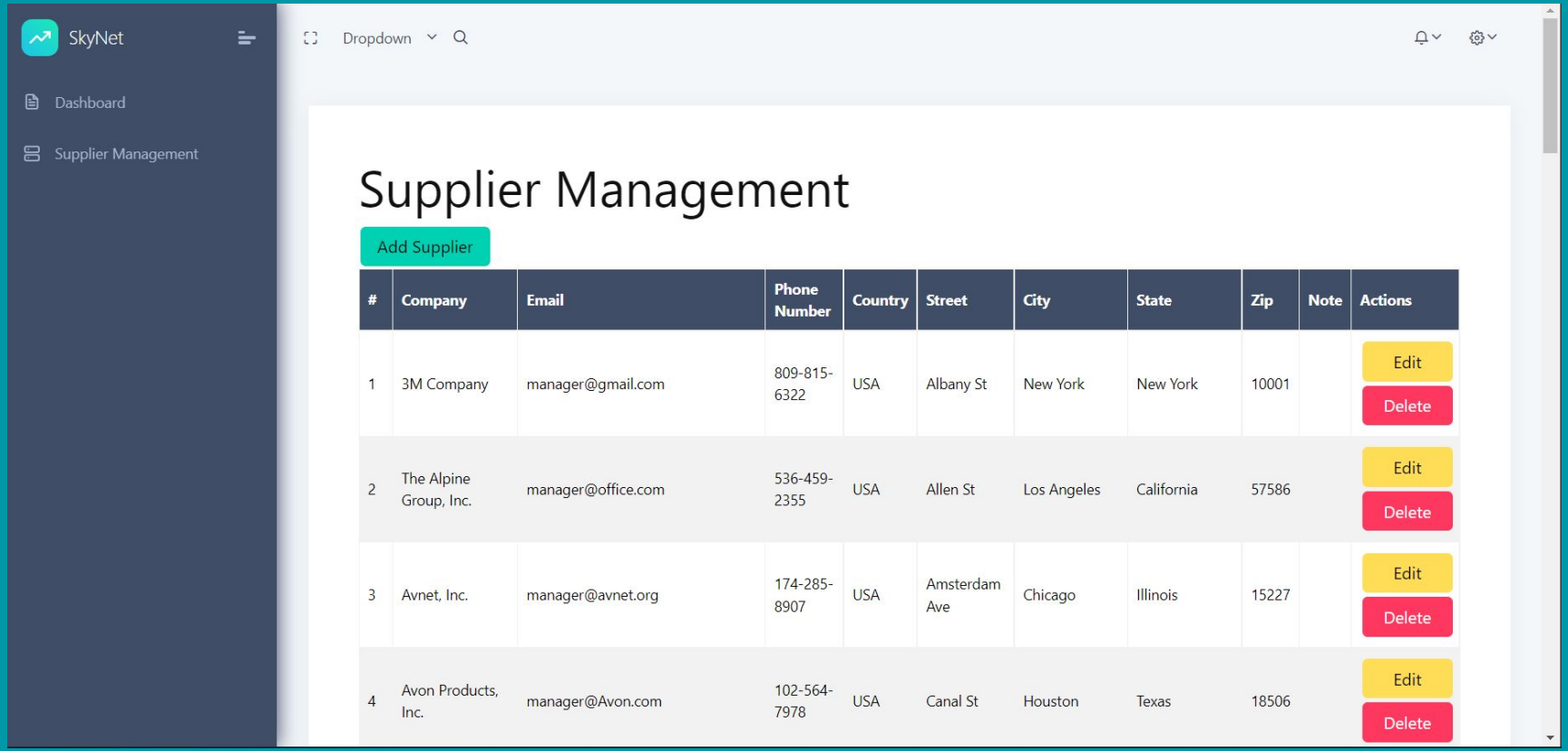
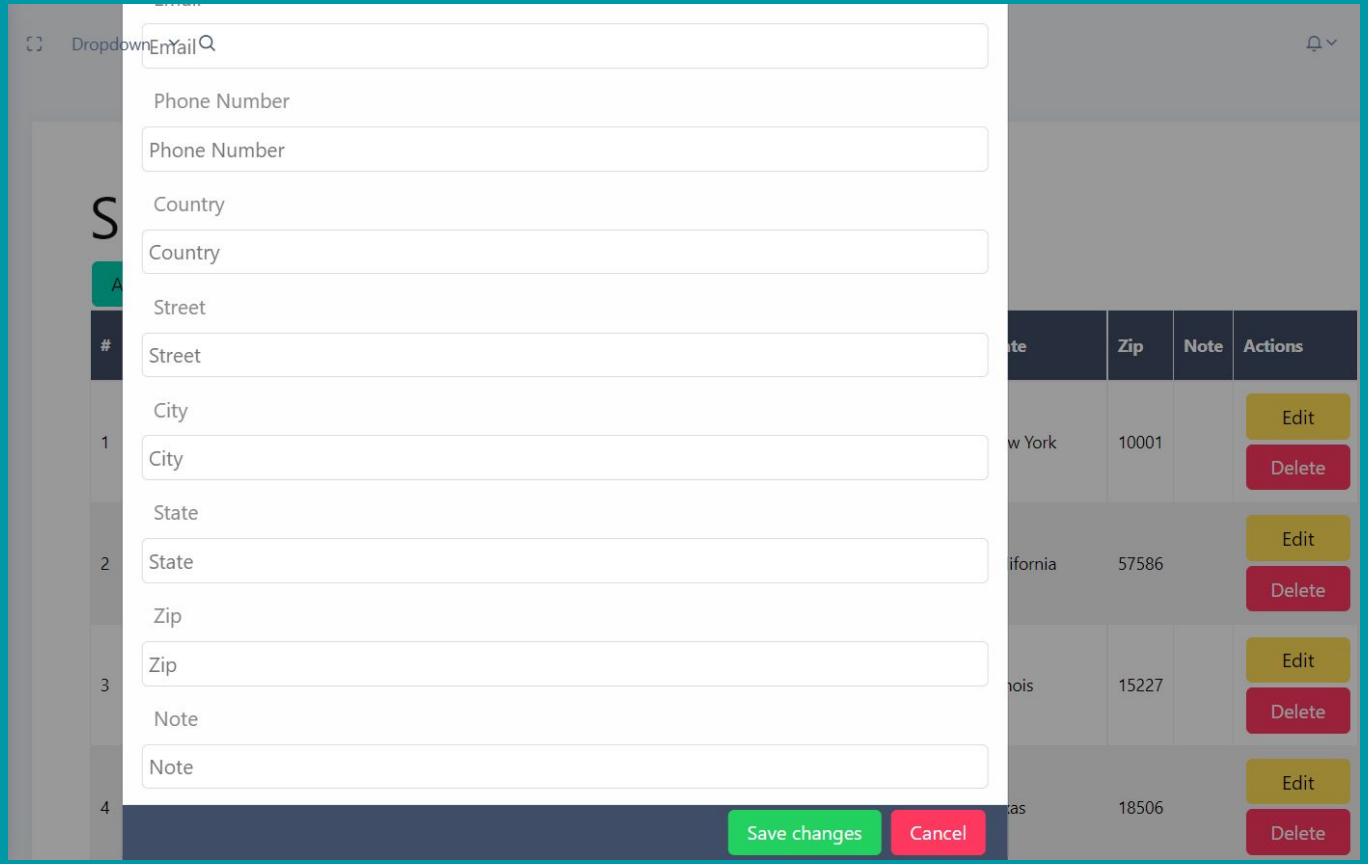
Project Demo - Screenshot



Project Demo - Screenshot



Project Demo - Screenshot



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Project Demo - APIs

Bootstrap
Django rest framework
Django CORS(Cross-origin resource sharing)
Django also comes equipped with many APIs in its standard library, some examples include a Database API, Model-View-Template APIs, HTTP request and Response, and URL utility API.

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Github Link

https://github.com/CarviS0302/Pace-MS-Capstone/wiki

Live Demo

Thank you for watching!