Inventory Management System
Iteration 2

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Five Major Risks

- Time management and communication
  - **Risk Exposure: 85% * 8 Hours = 6.8 Hours**
- Lack of certain programming language knowledge and skills
  - **Risk Exposure: 60% * 4 Hours = 2.4 Hours.**
- Our software is free, open source so all libraries used must be open source
  - **Risk Exposure: 30% * 4 Hours = 1.2 Hours**
- Website might not work on certain browsers
  - **Risk Exposure: 20% * 6 Hours = 1.2 Hours**
- Data limit on our server
  - **Risk Exposure: 25% * 4 Hours = 1 Hour**

Competitors: **According to website** 6 Best Inventory Management Software of 2019.

Company	Starting price per month
Ordoro	$25
Tradegecko	$79
Unleashed	$85
Veeqo	$200
Cin7	$299
Fishbowl	$399

Features

- **Primary**:
    - Open source and free to use
    - Different style of scanning compared to competitors
    - User friendly and Simple
    - Admin Login System

Assumptions

- We will not pay for our host server
- Our software is not customized for businesses like catering industry
- Access to Local Area Network

Constraints

- Since we are not paying for the server, only a limited amount of people can use our software

Requirements

	requirement	why?	how?
1a	Different style of scanning compared to competitors	To provide convenience and ease to the owner. They can pull out their phone anywhere to update inventory or add a new item	Business owners can use any phone with a camera to scan barcodes
1b	Different style of scanning compared to competitors	Small business owners do not need to spend additional funds on a designated hardware for scanning	No additional device is needed, just a mobile phone with access to website and log in

Requirements Engineering(why? And how?)

2	Admin Login System	To provide different levels of abstraction for different users	A password login based system for each user, and the business owner is solely able to give authorization to each person
3	User friendly and Simple	To make inventory taking easy to understand and attractive to switch to from old excel spreadsheets	Creating a simple user interface in the website with navigation header, visual branding, and icons
4	Open source	So we can provide a free service to small business owners and startup	Making sure everything used in programming phase is open source, to avoid support through an income stream

Testing Requirements

Requirements	Testing for requirement
Different style of scanning compared to competitors	Barcode scanning will work on all modern mobile phone devices with a camera
Admin Login System	Password access needed to login to inventory, try common attack vectors for vulnerabilities
User friendly and Simple	Send a survey to a diverse group of individuals, ranging from age, socio-economic status and race and have them rate the website based on a list of questions.
Open source	Software documentation indicating its open source, users will be able to audit the software to detect bugs, and all packages used within the project will be verified as open source.

Use case stories

1. Scan Barcode
2. Search Item
3. Deleting Item
4. Update Item Description
5. Sell Item

Use case story

Name: Scan Barcode
Primary actor: Business owner/employee
Stakeholders and interest: business owner or employee: wants to scan the barcode of an item quickly with minimum errors; wants to update the quantity in the inventory, each item has its own bin with a unique barcode and quantity.
Preconditions 1. The item is identified 2. The device used for scanning has to be turned on and working correctly
Postconditions: 1. The device scans the item 2. The inventory is updated

Use case story

Main success scenario:
1. The device scans the item successfully
2. The system records the new quantity in each bin, and displays a message indicating this current quantity
3. The system prompts the user to scan new item. If the user says yes, it continues, else, it goes to the first default page
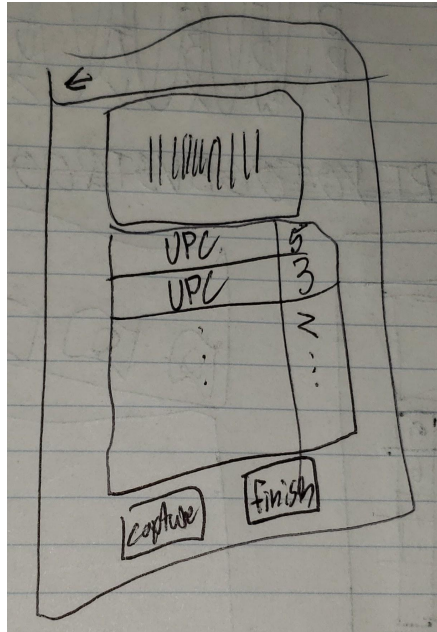
Extension:
a. If the scanner scanned the barcode of an item and it was not identified in the system:
 1. System prompts user to re-scan and check the the barcode for any defect
 2. After re-scanning, the system prompts the user to create a new bin that will include the new item
 3. The system updates the inventory
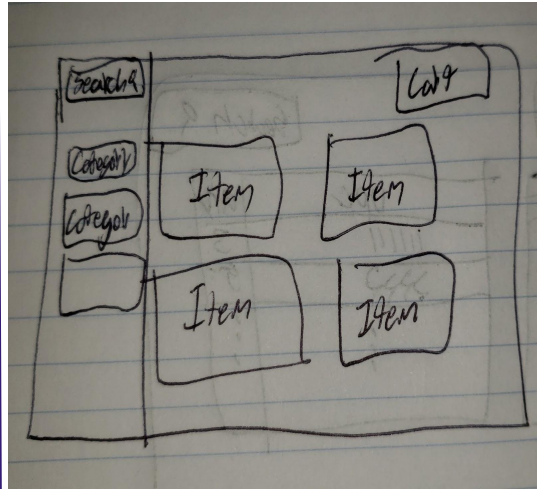***b.** At any time, System fails:
   To support recovery and correct the inventory system, ensure all operations can be recoverable for any step of scenario.
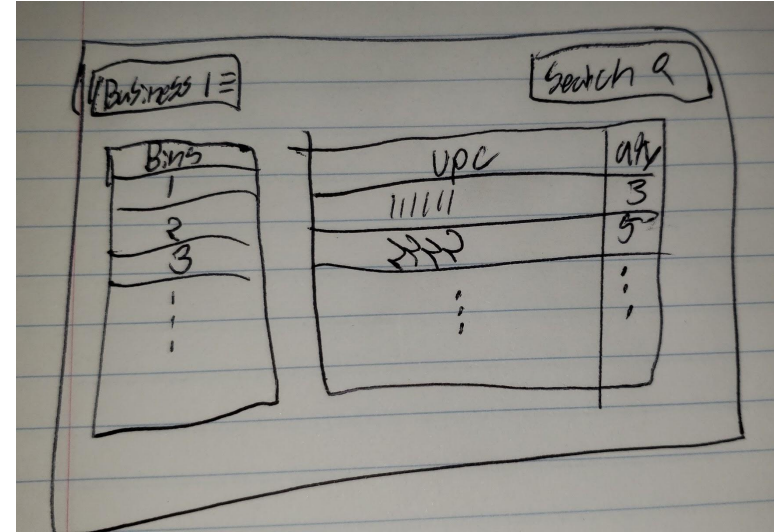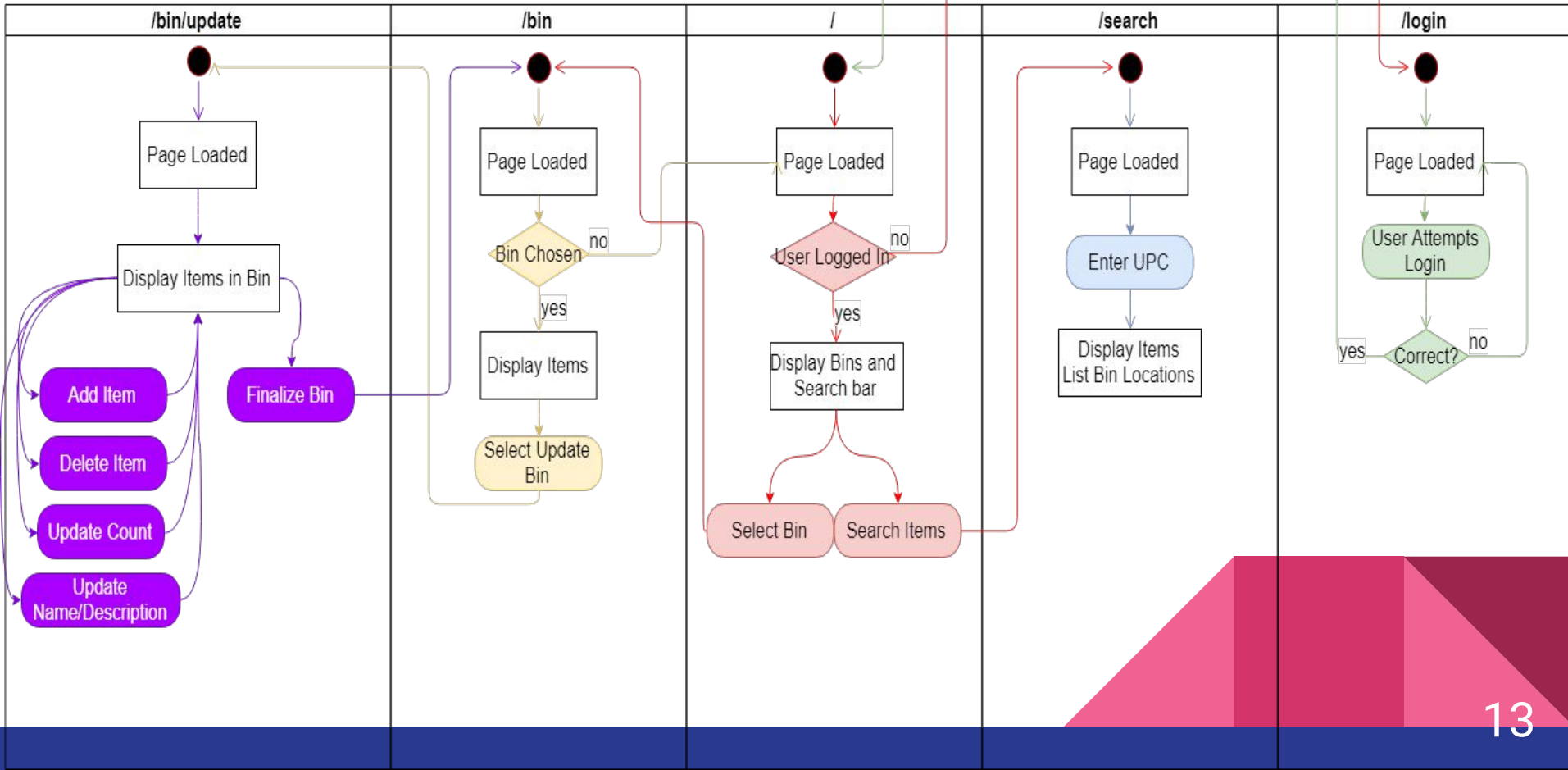
UI Prototype

Inventory Scanning

Shopping Page

Website Inventory Management

Website Use-Case diagram

/bin/update	/bin	/	/search	/login

/bin/update
- Page Loaded
- Display Items in Bin
  - Add Item
  - Delete Item
  - Update Count
  - Update Name/Description
  - Finalize Bin

/bin
- Page Loaded
- Bin Chosen — no / yes
- Display Items
- Select Update Bin

/
- Page Loaded
- User Logged In — no / yes
- Display Bins and Search bar
  - Select Bin
  - Search Items

/search
- Page Loaded
- Enter UPC
- Display Items List Bin Locations

/login
- Page Loaded
- User Attempts Login
- Correct? — yes / no

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Testing

Multiple Node JS packages which provide great code coverage and simple implementations will be used for testing.

Mocha, Supertest provide functionality for running tests as well as testing HTTP requests.

Chai provides an assertion library that makes tests simpler to understand and are less error prone.

Husky and Lint-Staged allow tests to be run every time a commit is made, this ensures that if something fails to work it will not be added to the code base.

Manual Tests can be done by running 'npm run test'

Software Development Plan

Iteration PlanFuture

Iteration 1: the first iteration will be getting the underlying technology stack in
place to allow for integration of the UI and backend services.
Iteration 2: login and registration, API (complete backend), basic UI for frontend,
Iteration 3: complete UI, barcode scanning, system primary requirements (everything that needs to be done is done), and hallway testing(create a survey and rating system to get feedback from people)
Final Deliverable: testing, additional requirements are added based on priority.

Software Development Plan

Tools
1. Programming application: JavaScript, MySQL, HTML, CSS, bootstrap, NodeJS
2. GitHub for collaboration: https://github.com/uta-cse-3311/inventory_management
3. Cloud: amazon web service
4. Agile Scrum software development: implementation and unit testing

People
1. Members of CSE 3311 Team 10
2. Review Team 11
3. Professor Christoph Csallner and TA Soumik Mohian

Software Development Plan

Education
Members have a foundational knowledge of programming and computer science, but education is needed on the some of the languages being used.

Licensing
The MIT license will be used for the project as it allows for free use to anyone, but bars any liability and warranty requirements from the project group.

References

"6 Best Inventory Management Software of 2019." Business.org, Business.org, 16 Jan. 2019, www.business.org/finance/cost-management/best-inventory-management-software/.

Demo & Code

Questions & Answers