

Rentto.me Web Application

Software Engineering CSC648-848

Section 4 Team 6

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Table of Contents

Section I: Executive Summary	2
Section II: Personas and User Stories	3
Section III: Data Definitions	8
Section IV: Functional Requirements	10
Section V: Non-Functional Requirements	15
Section VI: Competitive Analysis	16
Section VII: High-Level System Requirements	17
Section VIII: Team Members And Study Plan	18
Section XI: Checklist	19

Section I: Executive Summary

Rentto.me is an easy and efficient web application that is designed to allow users to rent, try-then-buy, and rent *out* their tools, gears, or any other items that they desire.. The primary outline and mission of Rentto.me is to effectively and safely help users book, rent out, and manage their items based on their own personal schedule. The Rentto.me website is a one-stop-trip user experience that allows users to rent and lend a vast variety of tools, gears, etc. that they need.. Individuals that are in need of items for an event (ex: 20 chairs for a birthday), or an item that they can't afford to purchase but would like to use, can easily and quickly search through our web application to find and rent the perfect tool, gear, supply, etc. that matches their described needs and budget. Individuals who have excess supplies or simply like to rent out their under-used items can do so quickly and efficiently through our website. The option to list an item as a try-or-buy also allows potential buyers to see if they like a product before purchasing.

Rentto.me is similar to other web applications, such as Idle and Sparetoolz; however, many users may want to purchase items after trying them, so we sought to implement a try-then-buy system to encourage potential buyers of a product to try it out first. In addition, we would like to implement a craigslist auto templated post feature to allow lender's the ability to list their product on craigslist simultaneously with our site linked on the post, driving more traffic to our site In addition, Rentto.me's unique feature of renter reviews *and* lender reviews allows lenders to determine a potential renter's credibility in order to ensure good treatment of their items. Vice versa renter reviews on lender's can provide insight to future renter's on the condition of a lender's items.

Our startup team is determined and driven to implement and ensure on-time delivery of this web application. In addition, our team is confident to deliver and uphold Rentto.me's mission of an one-trip-stop user experience and efficient and effective exchange of items between renters and lenders to guarantee overall customer satisfaction while providing safe usage and protection.

Section II: Personas and User Stories

ID: JT1



Persona #1: Poor college student

User Story #1: A poor college student would like to put up a new whiteboard they ordered from Amazon, but they have no power tools to drill holes into their walls. With a tight budget, she would like to be able to borrow a drill for a few dollars from a neighbor.

ID: V1



Persona #2: 60-yr old retired woman; living by herself, likes going on walks, trying new things, etc.

User Story #2:

Annie is a 60 yr-old woman that just retired from her job. She is finding new things to do now that she has more time on her hands. The new activities she tries must be easy and light as

she has subtle pain in her limbs, so doing harder activities is sometimes too much. Annie would like to try out crocheting, but since she is not sure of whether she will like crocheting, she does not want to fully buy the knitting needles at a store. Her son tells her about rentto.me. Annie signs up and searches through categories to find knitting needles she would like to rent and use. Thanks to rentto.me, Annie can start learning how to crochet without buying knitting needles, driving to multiple stores, and ineffectively wasting money, if she decides to stop learning.

ID: C1



Persona #3: Millennial working professional, just moved in who needs to build dressers/tables/beds etc..

User Story #3:

Bob just moved in to start his new career. He just received his shipment of household goods but did not receive all his boxes. Those boxes that are missing contain his tools. He needs tools to build his dresser to store his clothes in and to build his mattress so he would not have to sleep on the mattress that is on the floor. He is in a rush to get his furniture setup, and would prefer to pick up a tool from someone in the neighborhood. Since he is new to the neighborhood, he thought of just going through a rental tool program online instead. As he was searching the web, he came across [rentto.me](#) that is local and was just down the street. Since he is still waiting for his car to be shipped to him. He chooses to get all the tools that he rented, delivered to him.

User Story #3.2:

Bob just moved into a house and wants to redo the flooring, since he will only change it once, he doesn't want to buy the tools to renovate the floors.

ID: J1



Persona #4: Restaurant owner who's storefront has closed due to covid, and transitioned onto online

User Story #4:

Jim's restaurant has moved to all online orders, and no longer uses its tables or chairs. Since the transition to moving to fully online orders, he realized making money has been short and needs money to be able to continue maintaining his restaurant. Upon discovering [rentto.me](#), instead of selling off tables and chairs like he intended to do, he could rent out tables and chairs to people who need tables and chairs. This way he could get his tables and chairs back after the renter no longer needs them and can continue making more money renting out his tables and chairs.

ID: A1



Persona #5: private detective who loves birds

User Story #5:

Lester is a private detective so he must be able to blend in with his environment wherever his target is. This means that he must acquire clothing to match his surroundings to make sure he doesn't raise any suspicions. He also likes to bird watch as a hobby so he cares for the environment a lot, therefore, he uses [rentto.me](#) in order to look for clothes that he can rent, knowing that the clothes will be reused once he has finished his investigation. Since he is wary of being seen on the job, he prefers his items shipped to him discreetly.

ID: W1



Persona #6: senior military officer who just retired, only trusts renters with great text reviews from other lenders, has expensive heavy equipment with high repair cost

User Story #6:

He devoted his life to his country and the army. When he just retired, he started a construction company and made a fortune. Now he's too old to work, but still has a plethora of heavy duty equipment. But he doesn't really need the money, and will only lend out to trusted renters. Since his equipment is so expensive, he would like to talk to the renter beforehand to find out how his equipment will be used. P.S. He hopes his equipment can help people who really need help.

ID: V2



Persona #7: Single mother of 2 young children, is experiencing financial burden and works 2 jobs.

User Story #7:

Betty is a single mother of two young children, 5 year old Brian and 7 year old Benjamin. Betty works two jobs so spending time with her kids is unfortunately limited. Brian's birthday is coming up next week, and Betty would like to throw a special birthday party for him. Since Betty does not have the money to buy party supplies and decorations, she goes onto the rentto.me web application and searches through for birthday party kits, supplies, and decorations. Brian loves the color blue, so Betty is able to filter and sort out items that are blue. Once she finds items that meet her needs, in terms of price, rental period, exchange type, etc, she adds it to her rental cart and checks out. She fills out the required information and payment and has successfully rented out her desired items and waits for it to come through postal shipment. Once she has received the items on time, she is able to set up the party supplies and decorations in order for Brian to have a special day.

Section III: Data Definitions

Name	Definition	Usage
Registered User	Renter - person borrowing item(s) from lender Lender - person renting out their item(s)	Information is stored on the database.
User Account	A general user can create an account which consists of entering their full name, username, password, address, and phone number.	This allows the user to fully use the website, set up posts, establish credibility, etc, that is tied to the account. Information is stored in the database.
Profile	A user account has a profile that others can see; information such as pronouns, bio descriptions, etc. can be added as well.	This allows users to view other's profiles, to set up more credibility to the user to rent and lender from.
Transaction	Includes Deposit, Rental Fee, Damage Fee, Cleanup Fee	This allows the user, the renter and lender, more protection in case of destruction/damage of item(s).
Permissions	Lender is able to see the text reviews/comments on previous transactions that the renter has completed. Lenders are able to list items as auto accept or manual acceptance of transactions (ex.) 12 hr response time.	This allows the user, the lender, to view previous transactions of the potential renter (some information will be omitted for privacy). These permissions allow the lender more protection and prevent renter fraud.
Rental History	Reviews - Lender comments - Renter respectability rating	This allows the user, the lender, to look at the potential renter's history and view their review comments to determine credibility.

Rental Cart	Place where a potential renter's items are stored until the transaction is completed.	This allows the user to select multiple items into a space and allows them to rent/check out in one go.
Rental Post	A post containing an item's picture, description, rental fee, and delivery methods. A potential renter can respond to a rental post with a date range, and once the lender agrees to terms of delivery the transaction can be completed.	This allows the user to easily set up items for rent based on the user's preference of rental price, rental period, etc. This allows the potential renter to send a request to rent out the lender's items, assuming that the lender has set up this feature for requesting to rent.
Rating System	A 0-10 star rating system for cleanliness and physical condition (written by the lender after their item is returned to them).	This system is for the lender, in which the item has been returned successfully, it gives more protection for the lender.
Review System	Renter's can write a review that is associated with a lender's item, and the lender. Lender's can write reviews on renter's that rent from them. Review is tied to the renter's account.	This allows the user who has rented an item, to write a review to the lender about the lender themselves, the item, etc. And vice versa.
Message Chat	A message client that is accessible to renter's and lender's at any stage of the rental agreement process.	This allows users (renters and lenders) to communicate about item(s) and civilly discuss price, rental period, etc.

Section IV: Functional Requirements

Requirement ID: 1

Title: User Creates Account

Owner: Jonathan Tsegaye

Priority: 1

User Story Reference: All

Description:

A general user can go to the homepage or login page and create an account. The new user must enter a unique username, password, name, address, and phone number. After the user has successfully created an account, they can now create rental posts, etc.

Requirement ID: 2

Title: User Creates Rental Post

Owner: Jonathan Tsegaye

Priority: 1

User Story Reference: W1

Description:

The user must login into their account, once successful, they can select to create a new rental post. The rental post must consist of a title, description, item type, price, rental period(s), exchange type, and any other information necessary.

Requirement ID: 3

Title: User Creates Rental Request

Owner: Jonathan Tsegaye

Priority: 3

User Story Reference: V2

Description:

The user must login into their account, once successful, they can search for a desired item. Once they have found the desired item that matches their needs, they may select to have a

rent request to the lender. The rent request is optionally placed by the lender, and once the lender receives the request, they can accept for exchange or deny the request.

Requirement ID: 4

Title: User Rents Out Selected Items

Owner: Jonathan Tsegaye

Priority: 1

User Story Reference: ALL

Description:

Once the user has selected the desired items into their rental cart, the user can checkout and fill out the required information. Once the user finishes and enters into a rental agreement, upon the lender's approval, the selected items can be shipped or exchanged locally, depending on what the lender posted. Payment is accepted when both parties confirm delivery of the item.

Requirement ID: 5

Title: Lender Leaves Condition Review

Owner: Jonathan Tsegaye

Priority: 5

User Story Reference: A1

Description:

Lenders can leave a review of the condition their tool/item was returned in by selecting from a scale of Bad-Perfect. Lenders can optionally add detailed 1-10 scaled reviews on cleanliness, physical condition, or missing component, and a text field. Renters are able to see reviews on Lender.

Requirement ID: 6

Title: Lender Sends Item Through Postage

Owner: Vanessa Van Dinh

Priority: 2

User Story Reference: J1

Description:

After a renter selects an item and checks out to rent, the lender can start packaging the item with appropriate and necessary postal packaging (assuming that the lender did not select local exchange), and then drop it off at a nearby postal office. Shipment fees can be by the lender or by the renter.

Requirement ID: 7**Title:** Lender Can Exchange Locally**Owner:** Vanessa Van Dinh**Priority:** 2**User Story Reference:** J1**Description:**

After a registered renter selects an item and checks out to rent, assuming that shipment is not available and only local pickup, the lender and renter can exchange the item at a chosen destination or a safe destination given by Rentto.me. Once the item has been exchanged, the lender must select that it has been picked up and the rental period shall start.

Requirement ID: 8**Title:** Filter Item by Category**Owner:** Vanessa Van Dinh**Priority:** 5**User Story Reference:** V2**Description:**

A user can select through the items by category and filter for a desired item based on size, color, model, etc. The user can also filter and sort through by price, rental period, local exchange, etc.

Requirement ID: 9**Title:** Comments**Owner:** Vanessa Van Dinh**Priority:** 4**User Story Reference:** ALL

Description:

Users can post short comments on rental posts to ask questions, make comments, etc.

Requirement ID: 10

Title: Renter Review

Owner: Vanessa Van Dinh

Priority: 3

User Story Reference: C1

Description:

After the renter has returned the item by local exchange, completed the shipment, and fully completed the transaction, the renter can leave a review for the lender about the item, the lender, etc.

Requirement ID: 11

Title: Test Drive Item

Owner: Jonathon

Priority: 3

User Story Reference: JT1

Description:

After the renter checks out the item from the lender and receives the item from the lender, if the renter really likes the item, then they can request to fully purchase it from the lender (that is, if the lender has selected it to be available for purchase).

Requirement ID: 12

Title: Lender's Compare Rates

Owner: Vanessa Van Dinh

Priority: 5

User Story Reference: V2

Description:

A user looking at a rental post may be able to see and select the prices and total prices for multiple rental periods that the lender has set up for the said item. Example can be \$20 total for 4 days (\$5/per day).

Requirement ID: 13**Title:** Users Can Login/Logout**Owner:** Vanessa Van Dinh**Priority:** 1**User Story Reference:** ALL**Description:**

Once the user has registered for an account, the user can now login and logout of their account through the login page. The user must enter their email they registered with, and their password. If the login fails, they may request for a password change.

Requirement ID: 14**Title:** Users Rental Cart**Owner:** Alan Lo**Priority:** 1**User Story Reference:** V2, A1, C1, JT1, V1**Description:**

If the user wants to rent out multiple items from different lenders, they can select the said items into a rental cart. Once they checkout, they will see the total price, prices of each item along with the exchange type, and rental period. They will be sent a confirmation notification.

Requirement ID: 15**Title:** Forgotten Username/Password**Owner:** Alan Lo**Priority:** 3**User Story Reference:** ALL**Description:**

If the user tries to login into their account through the login page and fails, the user can select to request a password change.

Section V: Non-Functional Requirements

1. **Compatibility:** Application shall be compatible and usable for both PC browsers and mobile browsers.
2. **Performance:** Users shall be able to use the application without lag.
3. **Storage Space:** 2 GB
4. **Usability:** Application shall be easy to use and intuitive through the user interface, layout, etc.
5. **Security:** Application has password-encryption and tokenized login.
6. **Storage:** Application shall be hosted and stored through AWS 2GB
7. **Availability:** Application shall be available and accessible based on our AWS instance.
8. **Fault Tolerance:** Application shall be available based on our AWS instance.
9. **Development Requirements:**
 - a. Data shall be stored in AWS instance 1vCPU 2 GB ram
 - b. The code in the master branch of team's github repo should be well maintained, by branches, and guaranteed working at any time

Section VI: Competitive Analysis

Competitor's Features	Rentto.me Features
Open reviews; both parties can view reviews after transaction	Lenders Only Reviews (Not visible to other renters)
Chat messaging	Test Drive Item
Local pickup, postal shipment, local drivers	Craigslist post auto creation
Flexible Cancellation	Lender Compare Rates
Lender Protection	Renter and Lender Protection

Rentto.me features allow users to have a more efficient and usable experience. Our first unique feature of lender only reviews gives more incentive to lenders to use our web application; once a renter has successfully returned an item to the lender, the lender can leave a review of the renter based on the condition of the returned item, the renter, etc. The review itself cannot be seen by the renter, but other users/lenders can see their review in order to decide whether they are credible and worthy of renting out their items. Our second unique feature is the test drive item feature, which allows the renter to rent out item(s) and if they would like, they can purchase the item from the lender, assuming that the lender has set up their items to this feature. This feature along with rentto.me's application provides renter and lender protection to ensure safe, authentic, and smooth transactions.

In addition to this feature, the lender setting up the rental post can also automatically post to their craigslist account, this feature allows their post and items to gain more traction and potential renters. Lastly, rentto.me has a unique feature which allows the renter/user to see rental rates that the lender has optionally provided. These compare rates may include differentiations such as price per day, price per week, etc. This feature shall also show a cost-benefit analysis, the amount that the renter will save if they choose to select a specific rental rate by the lender.

Section VII: High-Level System Requirements

1. **Cloud Server:** AWS 1vCPU 2 GB ram
2. **Server-side language:** NodeJS
3. **Web Application Framework:** Express
4. **Web Server:** Caddy version 2.4.6
5. **Operation System:** Ubuntu version 20.04.3
6. **Database:** MySQL version 8.0.26
7. **Supported Browsers:** Chrome and Safari
8. **Additional Technologies:**
 - o Namecheap
 - o Sequelize
 - o React
 - o IDE: Visual Studio Code

Section VIII: Team Members And Study Plan

Team Leader: Vanessa Van Dinh

Frontend Lead: Alan Lo, Justin Lau, Vanessa Van Dinh

Backend Lead: Jonathan Tsegaye

Github Master: Camilla Alcartado

Scrum Master: Wilson Wu

Current Study Plan

Our current study plan consists of meeting online every 2-3 days, discussing in depth about the project and what trajectory we should take. It also includes studying in our own time of resourceful online pages and videos, so that we can gather more of our ideas and insights of the project when the meeting time comes. We are using this 17 part video playlist as our study plan: [Introduction - Full Stack Web Development Course \[1\] | ReactJS, NodeJS, Express, MySQL - YouTube](#), in addition to researching more online.

Current Study Plan:

1. Meeting every two days
 - a. Complete 2-3 videos between each meeting to
 - b. Progress of members is tracked to keep everyone on pace
 - c. Meeting minutes are shared after the meeting
 - d. All members are assisting each other for help and better understanding of project ideas
2. AWS: Everyone will research more into AWS as the project progresses to get a better understanding of how it works; those with higher familiarity will assist others as the project progresses.
3. JavaScript: Everyone has a decent understanding of JS, so its priority on touching up is low.
4. NodeJS: Most people have an okay understanding; everyone will research more into NodeJS and assist those with lower familiarity.
5. React: Everyone will research more into React, understanding the basics, etc. and more deeply as the project progresses.
6. MySQL: It seems like MySQL is decently known by all the members, so its priority touching up is low; those with low familiarity must research and understand at least the basics.
7. Express: Everyone will research more into Express to get a better understanding, especially for backend leads and frontend leads.

Section XI: Checklist

- Team found a time slot to meet outside of the class **DONE**
- Scrum Master shares meeting minutes with everyone after each meeting. **DONE**
- Github master chosen **DONE**
- Everyone sets up their local development environment from the team's git repo. **DONE**
- Team decided and agreed together on using the listed SW tools and deployment server **DONE**
- Team ready and able to use the chosen back/front-end frameworks. **ON TRACK**
 - For each technology (front/back-end/DB/cloud) , the team decides who will lead the study of each technology and what will be output of the (feasibility) study within one month.
 - Ex : implement sample about page using React
 - **If you list a detailed study plan for this, earn extra point!**
 - Please see Section VIII: Team Members And Study Plan
- Team lead ensured that all team members read the final M1 and agree/understand it before submission **DONE**