“SW Engineering CSC648/848”

DrillShare

Rent tools owned by anyone

Section 4 Team 1:
Tyler Heslop (Team Lead) - theslop@mail.sfsu.edu
Trevor Henrich (Front-End Lead)
Saksham Manandhar (Back-End Lead)
Kevin Karmacharya (Scrum Master)
Arsany Attalla (Github Master)

“Milestone 1”

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History Table

Revision ID	Revision Date	Revised By
1.0	03/18/2022	Tyler Heslop
2.0	05/11/2022	Kevin Karmacharya

Executive Summary

General contractors and homeowners alike often take one-off remodels that require expensive and specific tools that are outside of their budget. Brick and mortar tool rental shops typically lack the infrastructure for online orders, so customers often find that their local shop is out of stock only after they arrive. And with COVID-19 still in action, the demand for tools is high, however, the supply is limited. To make matters worse, what happens when you go to pick up your rental only to find that the table saw you need doesn't fit in your Toyota pickup? Looks like you're adding a truck to the cost of the rental. With so many add-ons and unknowns, the customer's time and money could have been used to effectively finish their project faster, but instead find themselves hunting for out of stock items. Imagine if there was a product that could save a customer's time and money, enabling them to get back to what they do best. That's where Drillshare comes in. Drillshare is an app that makes it easier not only for general contractors and homeowners, but anyone to locally source affordable tools for the duration of their project.

Drillshare aims to simplify the logistics and cost associated with tool rental, while being simple and easy to use. DrillShare allows users to rent tools from one another as well as put their tools up for rent. Users can rent tools at hourly as well as daily rates. Users who put their tools up for rent have the option of offering delivery to the renter or an address of their choosing, such as a job site. Typically when a contractor owns large or bulky equipment, they have the vehicle necessary to transport it. Owners can charge renters a fee not only to borrow the tool but to deliver and pickup as well. Renters and owners will be able to check their order history to make sure that their transactions are in progress or completed. Unlike typical brick and mortar stores who have limited stock, Drillshare maximizes availability of tools by allowing customers to view stock of all tool owners near them. Like the Home Depot, a popular equipment store and online store, we want to give customers an easy experience to search and filter rental tools they want at the price they can afford, while giving them greater availability and an ease of mind when viewing transactions. DrillShare seeks to provide the infrastructure to do just that. DrillShare has a variety of choices like *Airbnb* with the convenience of *Amazon Prime*.

Who are we? We're a group of college seniors looking to break into the industry headstrong. We're passionate about producing not only a great product, but a great experience. We believe Drillshare will bring a wide variety of people together to share their tools with one another such that anyone can get the tools they need.

Personas and User Stories

Jill Sawyer, Persona ID#0001
Licensed Contractor

Age: 45
Location: San Francisco, CA

Bio:
Jill is a general contractor whose mainstay of work is fencing. While on the job, she often talks to customers and finds that they have other things they'd like done around the house from tiling to drywall repair. Buying tools for a one-off job can be a net loss, so Jill frequently finds herself renting tools. Jill isn't very tech savvy and has difficulty navigating the Home Depot rent site.

Goals:
- Provide a good service without breaking the bank

Frustrations:
- Making trips to home depot to rent tools
- Waiting in lines
- Limited options/availability of tools

User Story
**Persona ID# 0001: Jill Sawyer - Renting an Item - Priority 1, Filtering Item - Priority 2**

Jill moves her mouse over the filter menu and filterings the listings based on the amount she is willing to rent "wet tile saws" on a daily basis. She's presented with a list of postings available for rent near her. She selects a post(alt listing) that offers local delivery. She selects the dates she wishes to rent an item, expanding over 5 days. She selects "tool delivery" and chooses a delivery date for next Monday. Jill enters the address of the job site into her profile and the system confirms it's within 25 miles of the post owner. She's presented with a price and hits "add to cart" followed by "continue to checkout". Jill enters her credit card information and is emailed a receipt with details about his rental agreement.

Chad Muska, Persona ID#0002
Entrepreneur

Age: 30
Location: San Francisco, CA
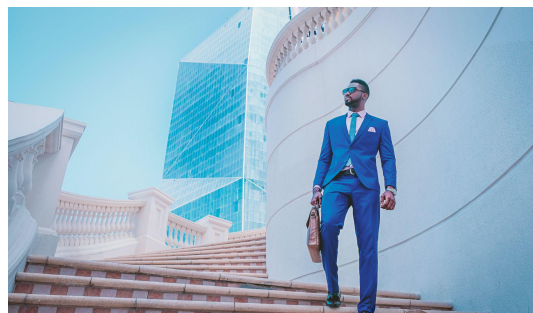
Bio:

Chad is an entrepreneur who has a history of drop shipping for Amazon. Always seeking a new business venture, Chad is quick to jump onto the next business move and is typically in-the-know with up and coming industries. Chad considers himself a bit of a power user when it comes to computers.

Goals:
- Own a Lambo

Frustrations:
- 9-5 jobs
- Difficult to use/confusing seller resources

User Story

Persona ID# 0002: Chad Muska - Creating Account and Logging In - Priority 1, Posting an Item - Priority 1

Chad views the signup page and signs up for DrillShare. Here Chad fills in a form with a username and password, along with some of his personal details. Chad logs into DrillShare. He clicks the dropdown and notices that "New Listing" is grayed out because before Chad can create a post, he must fill out some more personal details. He mouses over his profile picture and clicks "Account Details". A form with mailing address, driver's license, and banking information, is presented to him. He fills in this information, hits submit, and clicks the now green "New Listing". He's redirected to the new listing page where he's prompted to fill-in a form. The form asks for the tool name, model number, manufacturer, serial number, a description, and photos. Additionally, there's a spot for price per day, and checkboxes for "available for delivery" and "available for pickup". Chad has a full-sized truck and could use the money, so he checks "available for delivery" and sets a price that he's willing to deliver for. He now patiently waits for someone to rent his tool.

Michael Scott, Persona ID #0003
Retired Engineer

Age: 72
Location: Modesto, CA

Bio:
Michael recently retired as a mechanical engineer and now spends his time on his large farm in Modesto, spending time on his own mini projects. He goes to physical therapy to make sure his muscles and health are in tip top shape. He lives with his wife and two dogs and loves to spend time outdoors. He has a lot of expensive tools and equipment that he used to use for work and doesn't use anymore, so he's looking for a bit of pocket change to travel with his wife.

Goals:
- Rent/Sell tools or equipment that he doesn't use anymore to free up space
- Make extra money to enjoy retirement

Frustrations:
- Difficult to find people who want to rent his tools
- Learning new technologies
- Health degradation (Can't use tools, wants to rent them)

User Story
Persona ID# 0003 - Michael Scott - Register - Priority 1, Posting an Item - Priority 1

Michael wants to put his rotary hammer, a backhoe & cement mixer for rent because he knows that these items are expensive and people wouldn't want to buy them. He opens the app, creates an account and then creates a new post for each item with all the information about the tools (name, manufacturer, serial number, a description, etc.). He adds in the photos of each tool and describes that the offer is pickup only because he is old & frail. He specifies the asking price per day, includes a bio, and gives contact details. He makes the post & waits for correspondence.

George Jetson, Persona ID #0004
Senior Accountant

Age: 37
Location: Oakland, CA

Bio:
George recently got promoted as a senior accountant and loves to go enjoy the outdoors with his wife, 2 kids and 2 big German Shepards. When George has personal time, he loves cooking, reading, and exercising. He is always doing research to find affordable items while being eco-friendly as he's more frugal than the average human being. He is currently thinking of remodeling his house so that his home increases in value as well as when his kids grow up, they can, each, have their own room rather than sharing one room as they currently do.

Goals:
- Remodel his home in an affordable way so it appreciates in value
- Getting things done fast

Frustrations:
- Using tools that are complex
- Construction and Woodworking

User Story

Persona ID# 0004: George Jetson - Logging In - Priority 1, Renting an Item - Priority 1, Returning an item - Priority 1, Searching for item - Priority 1, Filtering item - Priority 2, Messaging - Priority 3

George wants to remodel his home without spending a lot of money on a contractor and labor. He needs to rent a saw to install the hardwood floor himself. He needs to find the right saw that will fit in his small driveway. He will first log into his account as he has previously used Drillshare. He will sort through different types of saws until he sees one in the price range with the child safety features he needs. He will message the owner of the tool & put in a bid to request a drop off. When adding a bid, George will be able to add a base price, a tip, a travel fee, etc. When the owner accepts, they will work out a drop off and pickup time to return the saw. If needed, George can extend the time with the tool to finish his hardwood floors. When George returns his item to the owner, the owner will confirm that they have it, changing the status on George's rental status to "Complete".

Matt Thomas, Persona ID #0005
Artist

Age: 29
Location: San Francisco, California

Bio:
Matt Thomas is an artist residing in a studio in San Francisco, California. He works on various art projects ranging from portraits and paintings to sculpting which consists of clay sculpting and wood work. Although most of his commission comes from portraits and paintings, he often gets jobs regarding sculpting. Regarding woodworking jobs, he finds himself shy of the necessary tools such as a power saw for example. Rather than going to Home Depot to get the cuts, he prefers to rely on himself to get the proper dimensions rather than to leave it in the hands of a stranger. Also considering, he lives in a studio, he doesn't have the proper storage for most woodworking tools as his canvas and other art projects tend to take up space.

Goals:
- Wants to rent tools locally and support small businesses
- Prefers to have tools deliverable and picked up

Frustrations:
- Limited number of tools to rent per store
- Have to check multiple locations for one store

User Story

Persona ID# 0005: Matt Thomas - Register- Priority 1, Renting an Item - Priority 1, Searching - Priority 2, Reviewing an Item - Priority 3

It's the last Monday before the end of February and Matt realized that his artwork needed final touches to be completed before his work could be shown to his boss. Matt recalls a fast online rental store called Drillshare by his colleagues and googles it instantly. Matt searches for his item and finds his item; however, before he continues, he creates an account by filling in a form with his unique id and password. Once he creates his account, he's logged in and begins to choose the time period he wishes to rent the tool. He adds his payment method onto his account, chooses delivery and pays the necessary amount. After the time period of the rented equipment is complete, the rentee will drop off the equipment at the specified location for the renter to pick up. This will allow users to have methods without any contact as most users would prefer due to the pandemic. In addition, he should also be able to leave comments and reviews about the product and product owner after use.

Bob Ross, Persona ID #0006
Retired Artist

Age: 60
Location: Oakland, California

Bio: Bob Ross was an independent worker who took on jobs from his client regarding home remodeling amongst other jobs. His job required him to use a variety of tools such as a power saw to nail guns to even wet tile saws. However, now that he is retired, his tools tend to just lay around in his garage when he isn't working on simple at-home projects to fulfill his hobbies. Most of his hobbies lie along the lines of woodworking so he finds himself using his power saw and sanders often. However, tools such as his wet tile saw and pressure washers amongst the rest tend to just take up space. As a result, he is looking for an option to free up space even if temporarily and to make a little bit of cash on the side. His interests include hands on woodworking as his hobbies. When he's not working on his projects, he likes to sit back and relax to watch his sports, spend time with family, and travel to various countries to enjoy his retirement.

Goals:
- Wants an easy and accessible way to post his equipment for rent

Frustrations:
- Learning the latest technology styles
- Does not like a difficult interface to work with since he works with paper majority of his time

User Story
Persona ID# 0006: Bob Ross - Logging In/Register - Priority 1, Posting an Item - Priority 1, Returning an Item - Priority 1

After cleaning up his equipment and making sure they are ready for use, Bob will take a picture of the equipment. Then he will login into his account after creating one and go to the section where he is able to post his listing. He will upload the image of the equipment, add a few lines of description, select the pricing per time period to his liking and submit for use. He will then just wait for a rentee who is interested to submit a request to rent the equipment. Once the request arrives, he will drop off the equipment. Once the rental period is complete and Bob receives his equipment back, Bob will mark the item as received, allowing for the next person to rent the equipment.

Data Definitions
1. tool (alt names: tool, item, rentable, shareable)
    a. Name
    b. Category
    c. model_num
2. Listing(alt names: listing)
    a. Title
    b. Description
    c. Photos
    d. model_num
    e. ratehourly
    f. rateDaily
    g. postOwner
    h. currentRenter (can use this for isAvailable)
    i. rentalStatus
3. Contract (Alt names: agreement)
    a. Rentee
    b. Renter
    c. dateStart
    d. dateEnd
    e. priceRent
    f. priceDelivery
    g. isPaid
    h. isActive
    i. isComplete

      j. deliveryID
4. Delivery
      a. Renter
      b. Rentee
      c. dateDelivery
      d. dateDelivered
      e. isActive
      f. isDelivered
      g. Address
5. Owner
      a. NameLast
      b. NameFirst
      c. Email
      d. Phone
      e. Drivers license
      f. Address
      g. DOB
6. Renter
      a. NameLast
      b. NameFirst
      c. Email
      d. Phone
      e. Drivers license
      f. Address
      g. DOB
7. User
      a. nameLast
      b. nameFirst
      c. Email
      d. password
      e. phone
      f. driversLicence
      g. Address
      h. DOB
      i. userType (Renter, Owner, or both)
8. Payment
      a. cardNumber
      b. expDate
      c. authcode
      d. creditcardType

      e. User
9. Transaction
      a. List of contracts
      b. Subtotal
      c. Tax
      d. Total
      e. transactionStatus (in progress/complete)
10. Receipt
      a. PayTo
      b. PayFrom
      c. Subtotal
      d. Tax
      e. Total
      f. Amount paid

Initial list of functional requirements

1. **Login and Registration (Priority 1)** - A very important feature we want is the ability for the user to register and login into Drillshare such that they can rent out their items or rent an item from another user. We plan to use lazy registration, which will allow for the user to browse our product without having to log in, until they want to rent or rent out an item.
    a. Create a renter account
    b. Create an owner account

2. **List an item (Priority 1) -** Once users are registered and logged in, they have the option to list an item/product for sale and other users can buy them or checkout their listings.

3. **Rent an item (Priority 1) -** Users also have the option to rent or put an item of theirs for rent. They can specify the rate per hour or day.

4. **Return an item (Priority 1) -** Buyers will be allowed to return items they have purchased if the item they received doesn't match the owner's description or if the time period for the item is reached.

5. **Delete an item (Priority 1) -** Renters can delete their listing if the equipment is not available, damaged, or simply doesn't want to rent it out to others

6. **Searching for an item (Priority 1) -** Users will be able to search for a certain item/product or search for a certain category of products.

7. **Order History (Priority 2) -** Users will be able to view their order history and all the items they have purchased as well as items they have listed before and were sold or rented.

8. **Filtering item (Priority 2) -** There will be an option for filters on a certain page for a certain item to make search easier on users and only return the items they are looking for.

9. **Messaging (Priority 3)-** Owners and buyers/renters will be able to chat with each other to ask questions or discuss any inquiries regarding a certain listing.

10. **Notifications (Priority 3) -** Users will get notifications for new updates and for new listings for a certain item they were looking for or if someone buys/wants to rent their item, or if they get a message from buyer/seller/renter.

11. **Reviews (Priority 3)-** Users will be able to give reviews for each other. Buyers and sellers will be able to give ratings and reviews based on their purchase experience.

12. **Recommending Items (Priority 3)-** Users will have items recommended for them based on their frequent searches and interests.

List of non-functional requirements

1. **Platform Compatibility (Priority 1)** - Our application delivery for Drillshare will target desktop users so that it can work on any browser, including Google Chrome, Safari, Mozilla Firefox and more with the exception of Internet Explorer; however, Drillshare will also be responsive such that Drillshare works on mobile devices as well.
2. **Availability (Priority 1)** - The code on the master branch on Github shall be maintained and guaranteed to be working at time.
3. **Storage (Priority 1)** - Data will be stored using MongoDB on our AWS EC2 server.
4. **Security (Priority 1)**- User credit card data must be stored in a secure, salted database.
5. **Security (Priority 1)**- User transactions shall be executed using a secure internet connection (HTTPS).
6. **Usability (Priority 1)**- Application will be simple and efficient to use by all users, regardless of experience, by taking feedback from users' input so that tasks such as searching / renting / returning / posting an item will be in 3 - 4 steps .

Competitive Analysis

Turo:	Drillshare:
- Car Rental - Star ratings - Priced per day - Favorite Post - All-Star Host - Book by Location - Filter Make/Model	- Star Ratings - Price Per Day/Week/Month - Favorite - All-Star Owner - Filters & Custom Search
Home Depot: - Tool & Truck Rental - Tool Purchase - Tool Repair - Curbside - Many Stores/Employees - Huge Warehouse Inventory	**Drillshare:** - No Warehouse - Few Employees - Delivery Handled By Owner/Renter - Rental Only for now
United Rentals: - Popular Items - Daily/Weekly/Monthly Cost - QuickView on Searched List - Huge Inventory/Warehouse	**Drillshare:** - Daily/Weekly/Monthly - No Inventory, Share between people - QuickView
Sunbelt Rentals: - 24/7 Support Line & Staff - Store Locations - Custom Solution Help - QuickView - Safety & Training	**Drillshare:** - Minimal Support Staff - No Stores - No Custom Solutions - No Safety Training - QuickView
AirBNB: - Housing Rental - Ratings & Reviews - Superhost - Home Type - Amenities - Check Availability - Report Listing - Contact Host - Cancellation Policy	**Drillshare:** - Tool Rental - Ratings - Tool Filters - Check Availability - Contact/Messaging - Cancellation - Report Post

Competitive Analysis Summary - The planned features we have for Drillshare are focused on simplicity. The advantage of including ratings rather than reviews will speed of & simplify the

development process while not adding too many elements to the page. Peer to peer rental enables Drillshare to minimize overhead, inventory & property to the absolute minimum by allowing the customers to store their own equipment. Representing the price in multiple options, daily, weekly, or monthly, enables the owner to establish their own discounts for long term rentals. Filters will also be focused on customizing the experience for every user's needs.

High-Level Requirements

1. **Platform Compatibility:** Our application delivery for Drillshare will target desktop users so that it can work on any browser, including Google Chrome, Safari, Mozilla Firefox and others with the exception of Internet Explorer. Drillshare will also be responsive such that Drillshare works on mobile devices as well.
2. **Github:** We will be using Github to store, collaborate, and divide our tasks together, while efficiently pushing to our branches, and merging our work together. We have created separate branches to work individually with the main/master branch being served onto the server.
3. **MongoDB:** We are using MongoDB to hold all our data information in the future. It is connected on Cloud Atlas and connected to our AWS Server IP. We can connect remotely on our individual devices to make modifications to the data. We can either use Robo 3T to access the data collections, MongoDB Compass or the Cloud Atlas online.
4. **Express:** We will be using the express framework to build our application. It will allow us to connect our routes and give our application functionalities required to make the site work properly.
5. **React:** We are using the React library in our application to help make our site easier to interact with. Part of building a website is User Interface and with React, it will help us build a simple and more interactive site.
6. **Node.js:** We are using Node.js to build our server. This will help us connect to the server to access our application.

7. **Amazon AWS:** We are using Amazon AWS as our main server. Our application is being deployed through AWS and is connected to a certain IP address which is accessible to the public to use our website.
8. **Caddy:** We are using caddy to serve our site. We can restart caddy and launch our server to refresh any new changes we make to our application.
9. **Material UI (MUI):** We are using Material UI for most of our CSS and responsive framework. It has many features that allow our user interface to look good and easy to use and even make ease of use updates in the future.
10. **Bulma:** We are using the Bulma framework for a little of our CSS. It is a simple framework that will help us keep our interface simple and easy to use.
11. **Algolia Elasticsearch:** We will be using Algolia and Elasticsearch for searching through our database for user searches. It will easily help us return the searched items.
12. **ExpressJS Auth0:** Auth0 will help simplify authentication setup. Additionally salts user passwords to ensure that user information is safe even in the event of a full database leak.
13. **Figma:** We are also using Figma in order to help us layout and design our application. It will come to use when we decide how we want our interface to look for user use and simplicity.

Team
Tyler Heslop (Team Lead)
Trevor Henrich (Front-End Lead)
Saksham Manandhar (Back-End Lead)
Kevin Karmacharya (Scrum Master)
Arsany Attalla (Github Master)

Technologies Lead
- **Bulma, Caddy —> Tyler**
- **MongoDB   —> Saksham**
- **Figma   —> Kevin**
- **React   —> Trevor**
- **Github   —> Arsany**

Checklist
- **DONE** 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
- **ON TRACK** Team ready and able to use the chosen back/front-end frameworks.
  - For each technology (front/back-end/DB/cloud) , 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
- **DONE** Team lead ensured that all team members read the final M1 and agree/understand it before submission