# kidlete

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Kidlete

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# Client Description

Kidlete is an entrepreneurial company whose goal is to create a one stop shop to connect experienced coaches with new coaches and parents to exchange knowledge. The Gear and training industry for young athletes is lacking in certain areas and Kidlete aims to fill the void. This is the first iteration of Kidlete with no previous framework or software. It is the first of its kind to brave into this new realm of online sport training shopping software. Another important element of Kidlete is the relationship it has with various non-profit leagues through the use of portions of the proceeds going to various leagues, schools, and charities.

# Product Vision

Kidlete will be creating a marketplace for the following:

(1)     Parents and coaches that desire to learn best practices and practice plans for young athletes (i.e. Kidletes) based upon sport, age and skill level (Coaches paying coaches)
(2)     Parents looking for high quality, reasonably priced used and new gear for Kidletes based upon sport, age, and size
(3)     Parents and coaches looking for leagues, races, and tournaments organized by sport, age, and location
(4)     Parents, coaches and athletes desiring to create blogs, forums, bulletin boards sports, coaching and other relevant topics

The vision for Kidlete is to fulfill all these roles as a trusted cornerstone for the industry.To do so, Kidlete must appear safe and attractive to its new users and have a strong community of knowledge merchants. The optimal design for Kidlete as a website will satisfy these needs, the needs of parents and new coaches, and will complement the expertise of its merchants.

# Requirements

## Functional Requirements

The website must enable users to buy and sell goods with a checkout mechanism. Also the website must store and serve user's content securely.

*Website*
- Home Page
  - Unregistered / Not Logged in User
  - Registered User
- Browse / Search Page
  - The website must allow users to browse all available content and products

without registration
- ○ Searching content must have advanced options to filter by sports related fields, such as age group
- ○ Needs to show both training material and gear
- Registration Page
- Checkout Page
  - ○ Buyers may purchase training material that has been verified and deemed appropriate by the website.

*Database*
- Store user account information
  - ○ Must maintain addresses and invoices, invoices will provide authorization to view a product's purchase page
  - ○ Maintain list of products being sold by a user
- Store user uploaded content
  - ○ Digital content for training material (videos and documents)

## Non-Functional Requirements
- Use C#
- .NET with Visual Studio
- Must use a SQL Server database system
- Research best practice for material and security
- Must be tested with several test users
- Must go through multiple iterations of test users
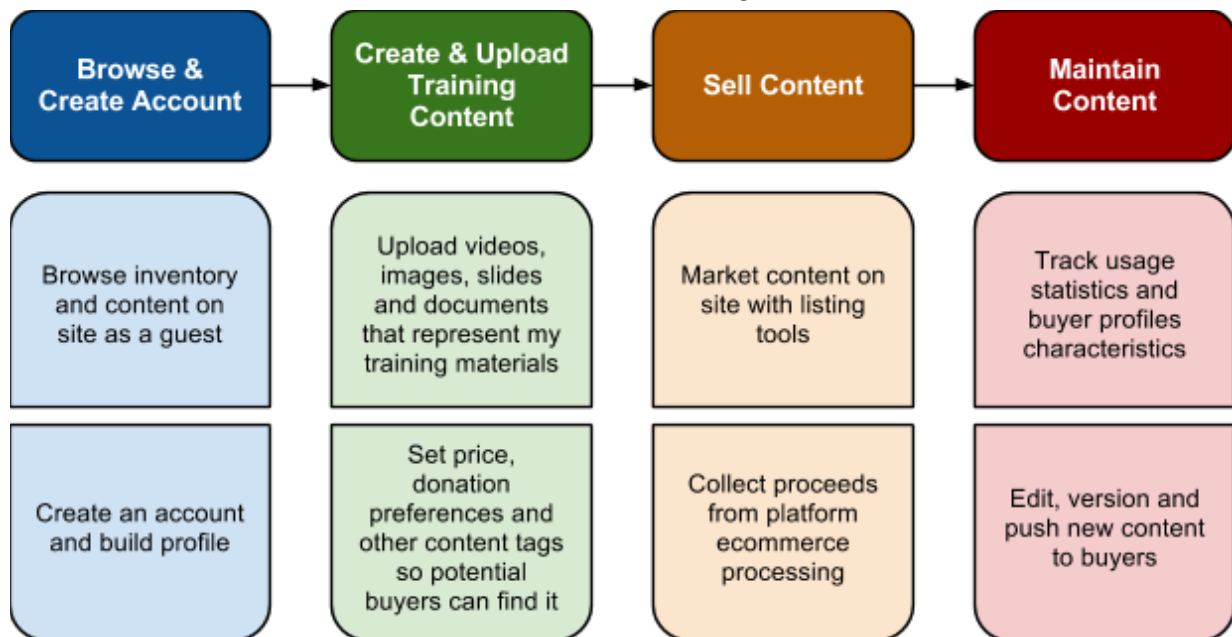- User needs to be able to use site without training

| Browse & Create Account | Create & Upload Training Content | Sell Content | Maintain Content |
|---|---|---|---|
| Browse inventory and content on site as a guest | Upload videos, images, slides and documents that represent my training materials | Market content on site with listing tools | Track usage statistics and buyer profiles characteristics |
| Create an account and build profile | Set price, donation preferences and other content tags so potential buyers can find it | Collect proceeds from platform ecommerce processing | Edit, version and push new content to buyers |

Figure 1

# System Architecture

The high level architecture of Kidlete is simple and can be referred to in Figure 1.

Users are allowed to browse and create an account with Kidlete for free. Browsing includes shopping for training by sport, then age and competitive level. Browsing the website returns training documentation and videos. Once an item is selected during browsing the user is directed to the product page. The product page displays the product, product description, seller, price, and any sample media for the product. From here the user can continue to their shopping cart and checkout before they are required to create an account or provide their PayPal information. Creating an account with Kidlete is purposefully simple and easy. It only requires the user's name, email, and password.

Once a user has an account they are allowed to manage their account by changing their password or updating their addresses. Registered users can also look at their order history and add a description of their self for others to access and view.

Any user is allowed to upload content to sell. When content is uploaded the user is asked for the content type, price, description, and the user's credentials (for training verification). When content is uploaded the user is asked for they describing features such as sport, age, and competitive level so that buyers can search for the content by those features. Monetary transactions are carried out by a third party e-commerce platform such as PayPal.

All of the above pages and their functionality are handled through simple SQL database queries.

## Technical Design

Our project can be broken into two distinct parts: the database and web application. At this time, the web application will exclusively interact with the database. The web application will utilize a object relational mapping library to help abstract the details of the database.

Our time was split evenly between user experience design and web application development, see Figure 2 for a detailed breakdown. The design process began with a week long iteration of user experience design involving web page wireframe design. The wireframe designs were presented to a series of coaches, with their feedback we went into a second week long iteration of user experience design involving HTML mock pages. Again these HTML mock pages were presented to a series of coaches, with this last feedback the web application development began.
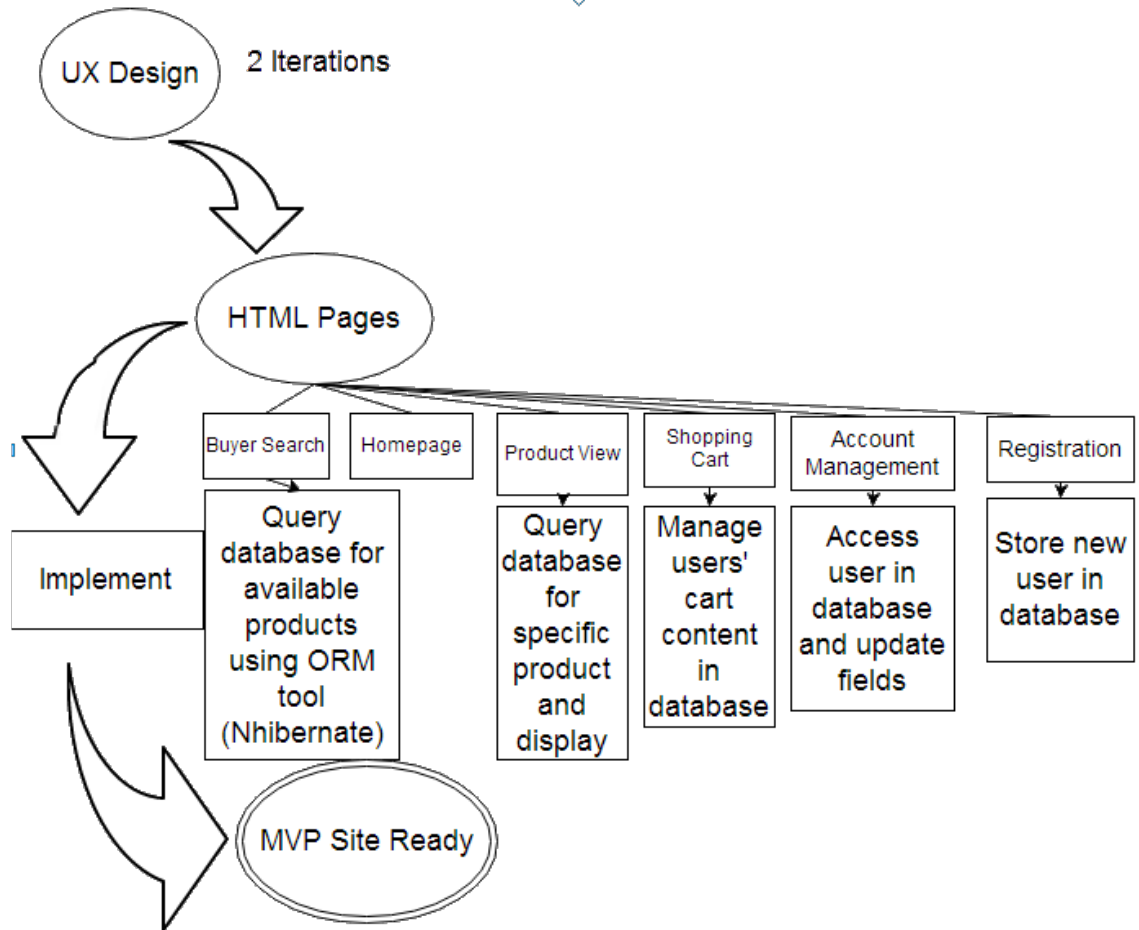
Figure 2 - Design Architecture

## Web Application

Figure 3 illustrates the sitemap that was followed when designing web pages. The web application allows a user to search for products, view products with optional preview content, add to cart and proceed to checkout. An authenticated user may add/remove addresses, change password, view order history, and view purchased pages for content that the user has an invoice for.
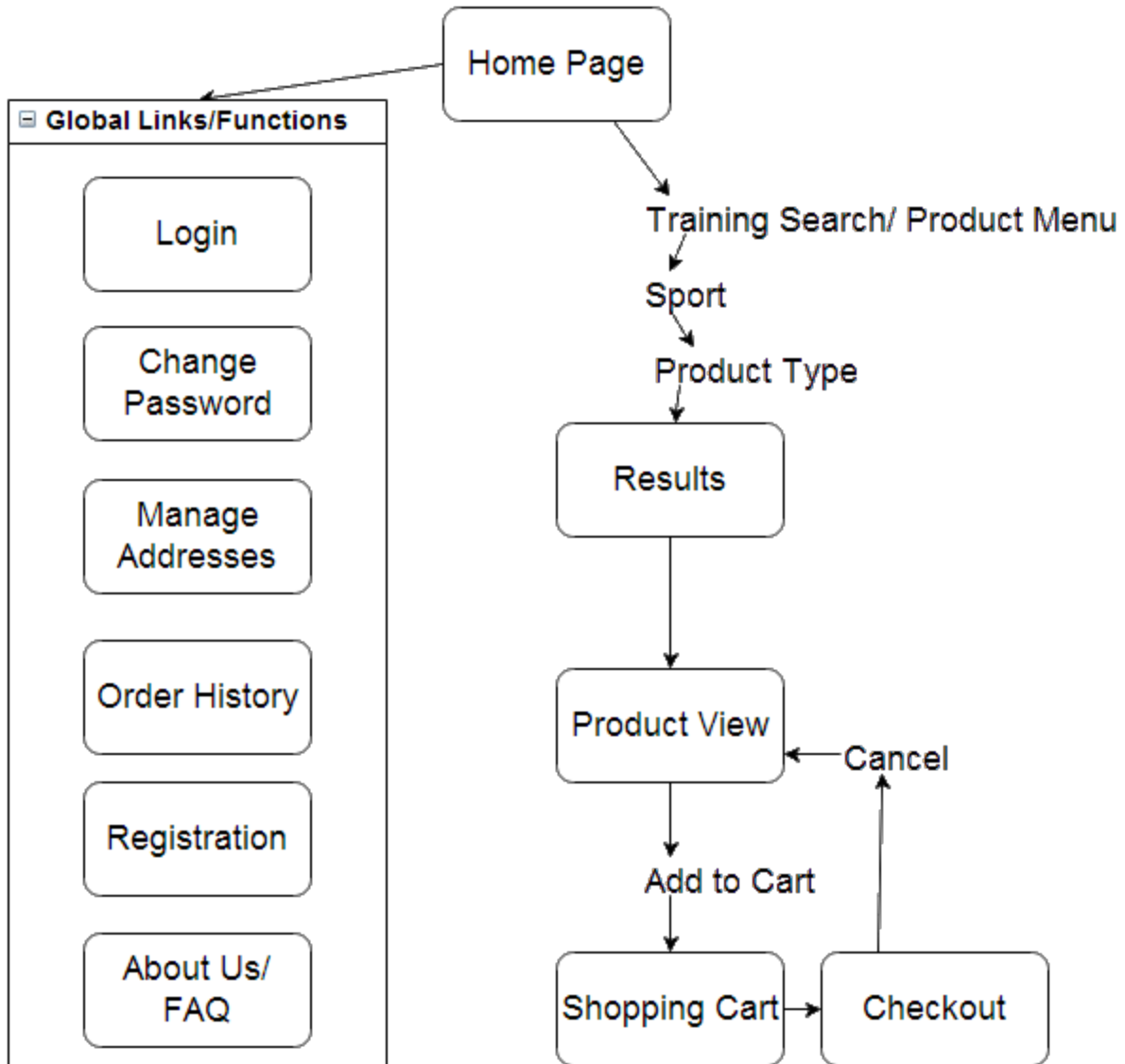
Figure 3 - Sitemap

To authorize a user to see the purchased page for a product the web application must first authenticate the user, then determine if the user has a invoice and transaction for the specific product. When the user has a confirmed purchase of the product, the user will be redirected from the product details view to the product purchase view, upon which purchased content for the product is rendered.

## Database

The given database schema had to be integrated with when writing the web pages, see Figure 4 for the database schema. The object relational mapping library, NHibernate, handles all interactions between the database and web application. A benefit of using NHibernate is the ability to abstract vendor specific SQL queries into Hibernate Query Language (HQL). By using HQL queries, the web application is database-agnostic allowing the website to change database

systems as the website load changes. NHibernate facilitates mapping of database tables to .NET classes, thereby allowing us to query and populate objects which can be used server-side to populate web pages.

When prototyping a query, we found it necessary to write and test a query in SQL before attempting the query in HQL. When converting a SQL query into a HQL query, we discovered that the ability to write a query against mapping objects significantly reduces the length of the query. The Order History page is populated by a list of all items sold and a list of all items purchased by the user. To complete this query we found it necessary to access the Invoice, Invoice_Product_Junc, and Product tables; by chaining object map references we were able to do this concisely in HQL.
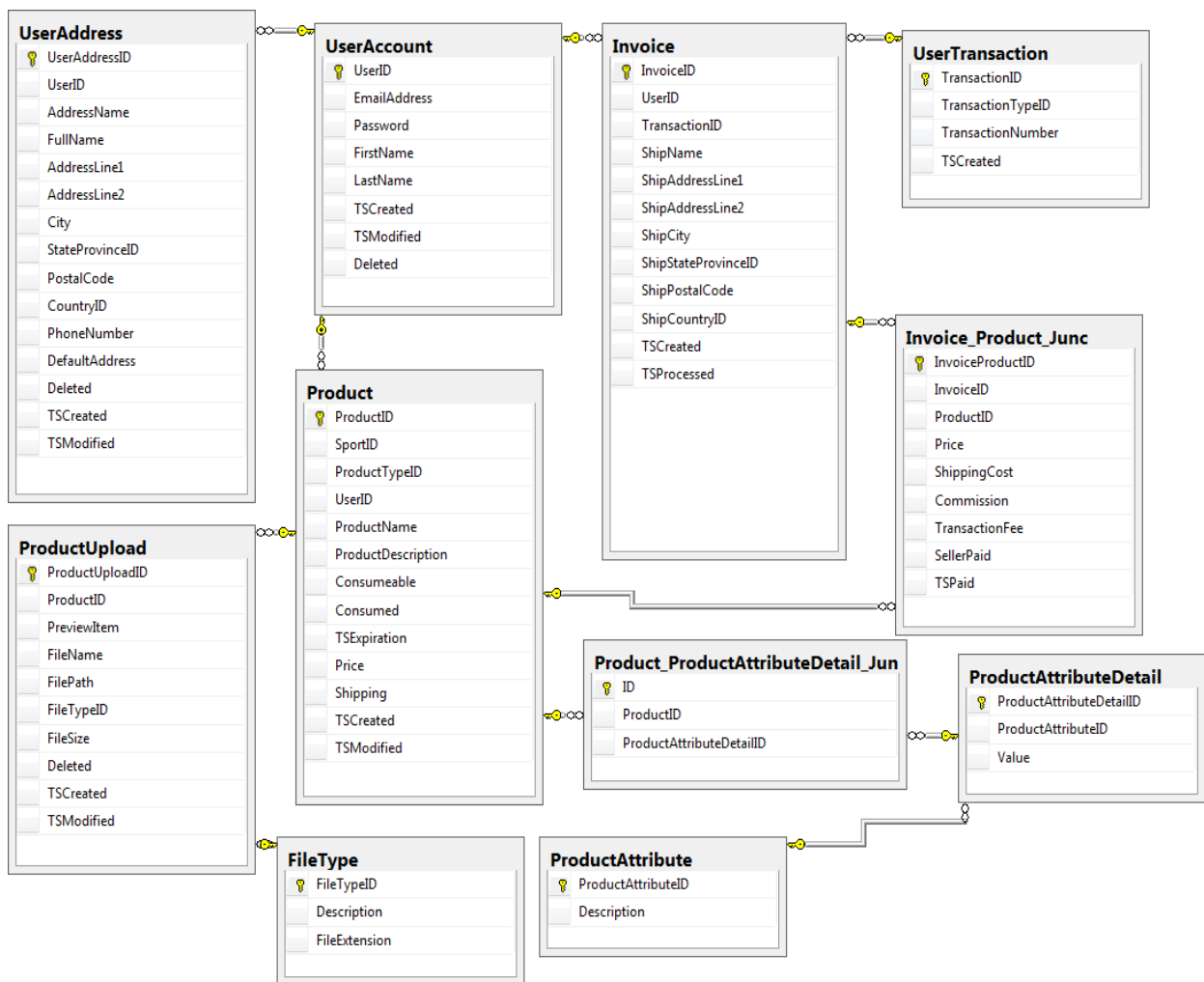


Figure 4 - relevant tables in the provided database schema

# Design & Implementation Decisions/Lessons Learned

## Designing for the User

This project had a strong focus on User Experience Design or UX design. This is where the user really shapes how the product looks and feels. Since this product's success is reliant on how users react and use this site, our team felt it was the most appropriate way to proceed. We went through two iterations of UX design to make sure we got plenty of feedback to proceed when we developed this product. If we had more time, we would have liked to have devoted more time with additional design cycles. Our first cycle was spent on creating wireframes which act like a website blueprints. With the use of Balsamiq and Mockflow, we created three different layouts and brought them in front of a select users. These different wireframes can be seen in appendix figures A-1 through A-14. With copies of each layout in front of the users, we were able to record comments and ideas on how to improve the layout of the site and how users interact with them.

After that first week, we went back to design and created a simple HTML document that incorporated the input from the users. By using HTML, we were able to add color and some functionality to give the website a better look and feel to how it would operate in the real world. We also developed two different search pages to give some more diversity in the website and present the user with two options and feels. We then took these HTML pages and gave them to another set of users. Here we employed the talk aloud testing method. This is when we place the product in front of a user and give that user a broad task with little to no instruction. The user tries to complete this task while talking aloud about what he/she is thinking and the reasoning behind every action taken. We recorded this information and took notes that we later took and used to improve our website.

## Implementation Decisions

### JWplayer

We decided to use JWplayer for a few reasons. The reason we first looked at JWplayer was at the request of the client. They have used it in the past and felt it was appropriate for this project. JWplayer was easy to incorporate into our project with a free demo version. To download and install, it is just an easy sign up and a download of a few javascript files to insert into our project. It allows for the user to easily add video either through local files, videos in the cloud, or on a local machine. The cost and the convenience of JWplayer made it an easy choice for us.

To add security within our website, and prevent users from accessing the materials before purchasing them, we decided to break up the material. To users searching for material, we offer a preview. This preview is a separate file from the full content. If a user downloads a preview or tries and view the source code, they will only have access to the preview and will not be able to view the full content without purchase.

### Twitter Bootstrap

Twitter bootstrap was a way for us to use existing css and javascript to push the layout, look, and feel of our website to a more modern day and elegant website. With all the existing css out there, we chose Twitter bootstrap because of the success of Twitter. This creates some familiarity with our website even without ever using it before. Another reason why Twitter bootstrap was a popular choice among our group was the cost. Twitter bootstrap is a free open source tool that is easy to download and use.

## Lessons Learned

### Managing User Testing

Throughout the first two weeks of this project, we focused heavily on user experience design (UX design). But this came with a huge learning curve due to the fact that we all had little to no experience dealing with actual users. We found that without a wide range of users or an adequate amount of users, it was hard to get consistency in our feedback on how to improve the site.

Another issue was the number of users in a room at a time. With only having one user at a time, we got much more detailed and personalized feedback. With a group of users, there was more of a bandwagon effect where one user would say something and all the others would agree which raised some concern due to the fact that when we had one-on-one user testing, we received better feedback.

Our last lesson learned on managing user testing was how to actually test. We found that think aloud testing worked the best but we had to be very careful with ourselves as not to hold the user's hand too much. We had the issue of trying to explain every step as the user went along rather than waiting to the very end of the think aloud before going ahead and addressing the users' concerns.

### UX design lessons

When making our design we learned some rules to follow to make our website stronger and more appealing. The first rule we followed in our design was the 6 click rule. This rule is meant to insure that the whole website can be accessed within 6 clicks. This allows for easy navigation anywhere in the site.

Another lesson learned was the focus on the home page. The home page is the first thing the user see when he/she gets to the website and for a new user this is a very important step. First impressions are key especially to a new type of website like this. Our first attempt of the homepage was just some pictures of kids playing sports, but this lead to some confusion of what Kidlete really is. We needed to express that this website was intended to be a one stop shop for training material. So we had to change the images to convey a shopping site, such as

products with prices on them and sales.

# Results

One goal of Kidlete was to create a trustworthy website that attracts a large user base. The site has not been deployed as of yet so the user base could not be measured. However, the site is trustworthy by all of the accepted standards of marketplace websites of its kind. No information of the user is asked until it is absolutely necessary, and products are protected to an acceptable degree. Products are not viewable until purchase, but samples can be provided to guests, which turned out to be an attractive feature with our test subjects.

Another goal of Kidlete was to follow the Six Click Rule. The Six Click Rule requires that any part of the site can be accessed from any other part of the website in six clicks or less. This rule is used as a standard to ensure that users of websites do not get lost or lose interest due to slow connection. Not only does Kidlete fulfill the Six Click Rule but goes beyond. For the majority of the website, each page is one to two clicks away, and the entire website is accessible by four clicks. This feature makes Kidlete extremely usable and straightforward.

**Future Work**

Future work for Kidlete is extensive due to its wide range of vision. The uploading of content is mostly finished but needs to allow for users to upload the product and the samples of the product. The gear and equipment portions of the website have been designed, but not implemented. The forum has not been implemented either. The forum should be tested with a potential user base before implementation can begin.

As of now, the only training products that are handled by our pages are PDF or videos. In future work, more file types should be handled, such as PowerPoint and Word Documents.

**Known Bugs**

- JW Player does not play for certain versions of Google Chrome, and this inconsistency varies across versions of Flash Player as well. Further investigation is advised.
- When using Internet Explorer to browse, Twitter Bootstrap is only compatible with versions 8 & up.
- Videos can only be uploaded in .mp4 format.

# Appendix
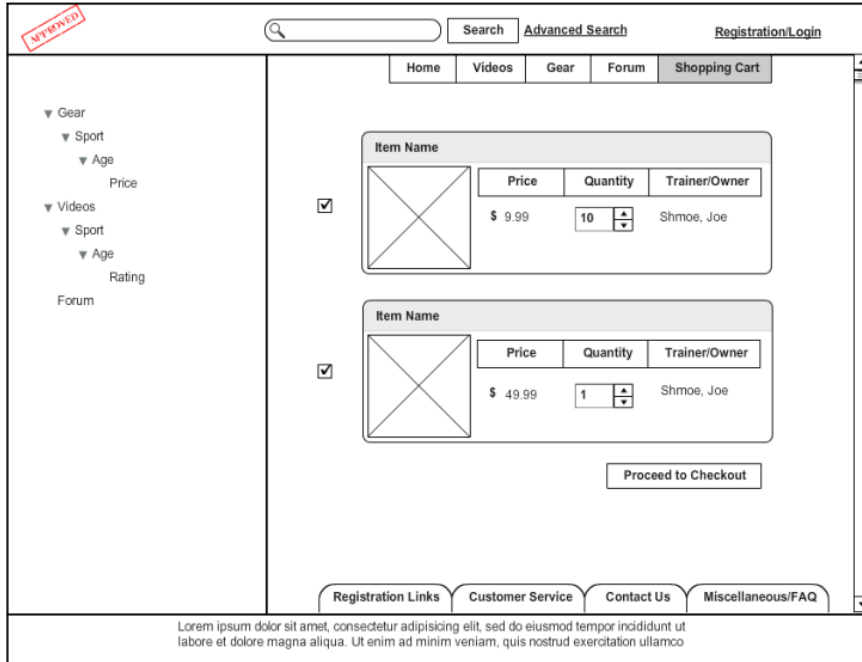


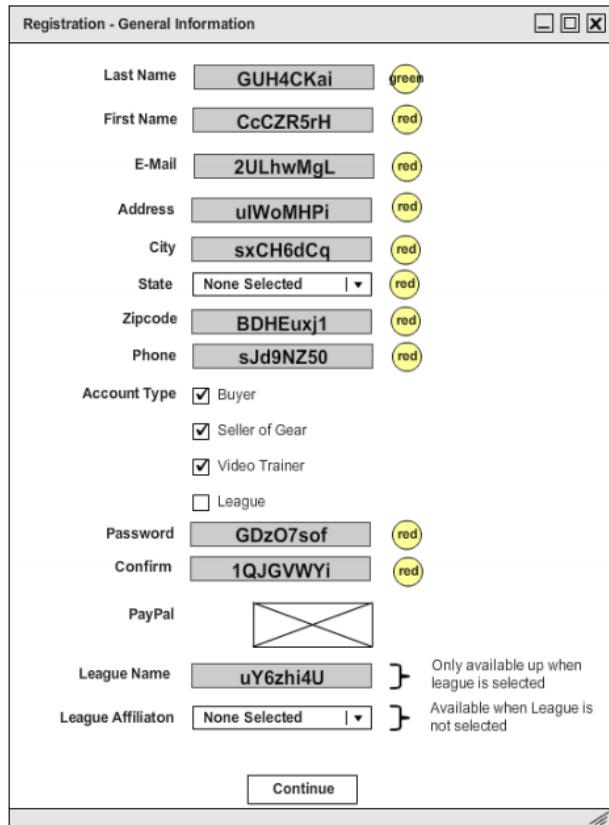Figure A-1 Wireframe results (Arnold Set)
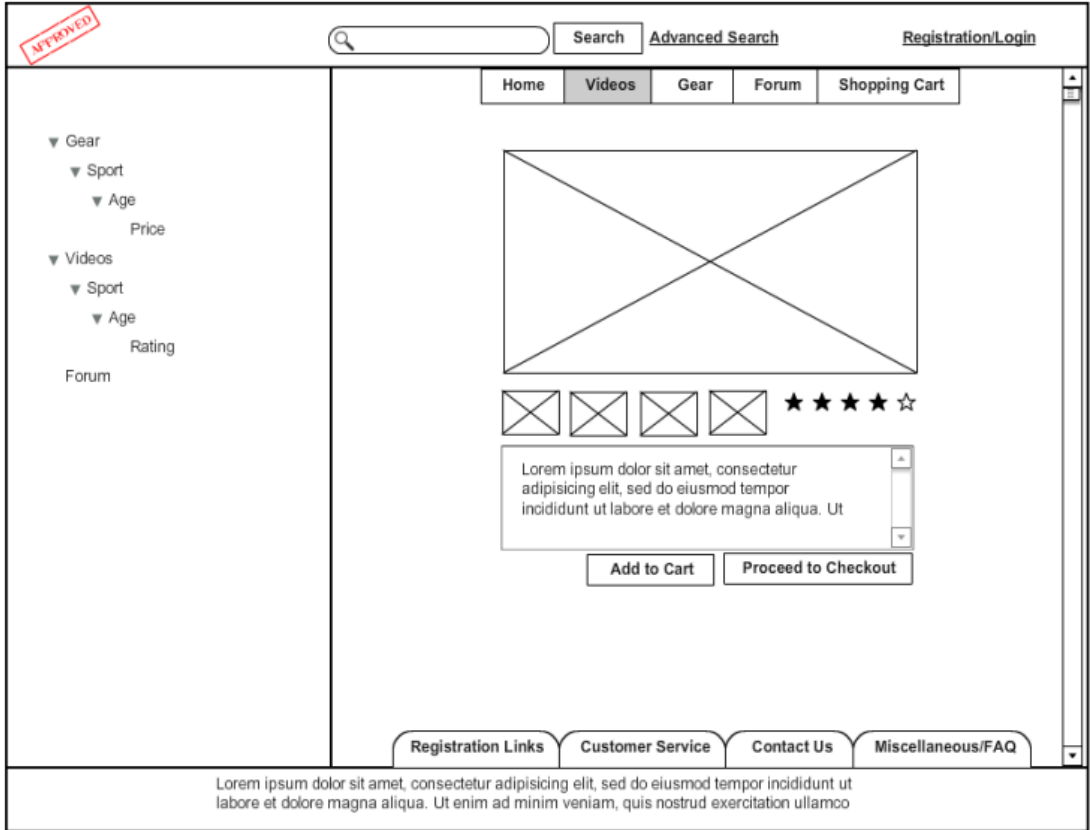


Figure A-2 Wireframe registration (Arnold Set)
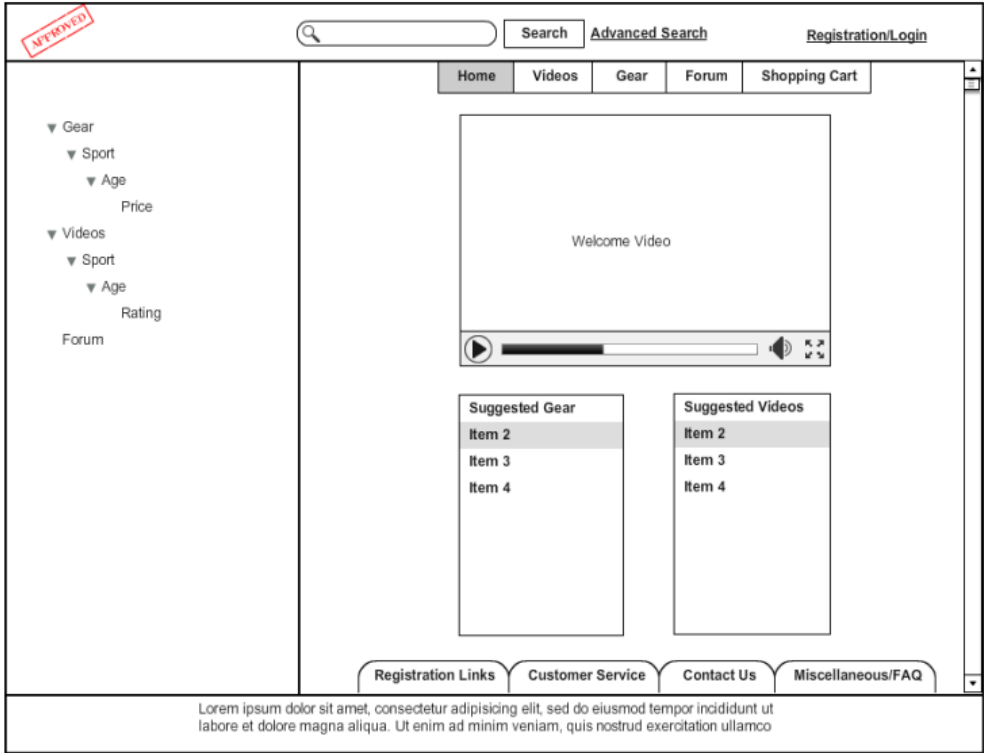
Figure A-3 Wireframe Product Page (Arnold Set)



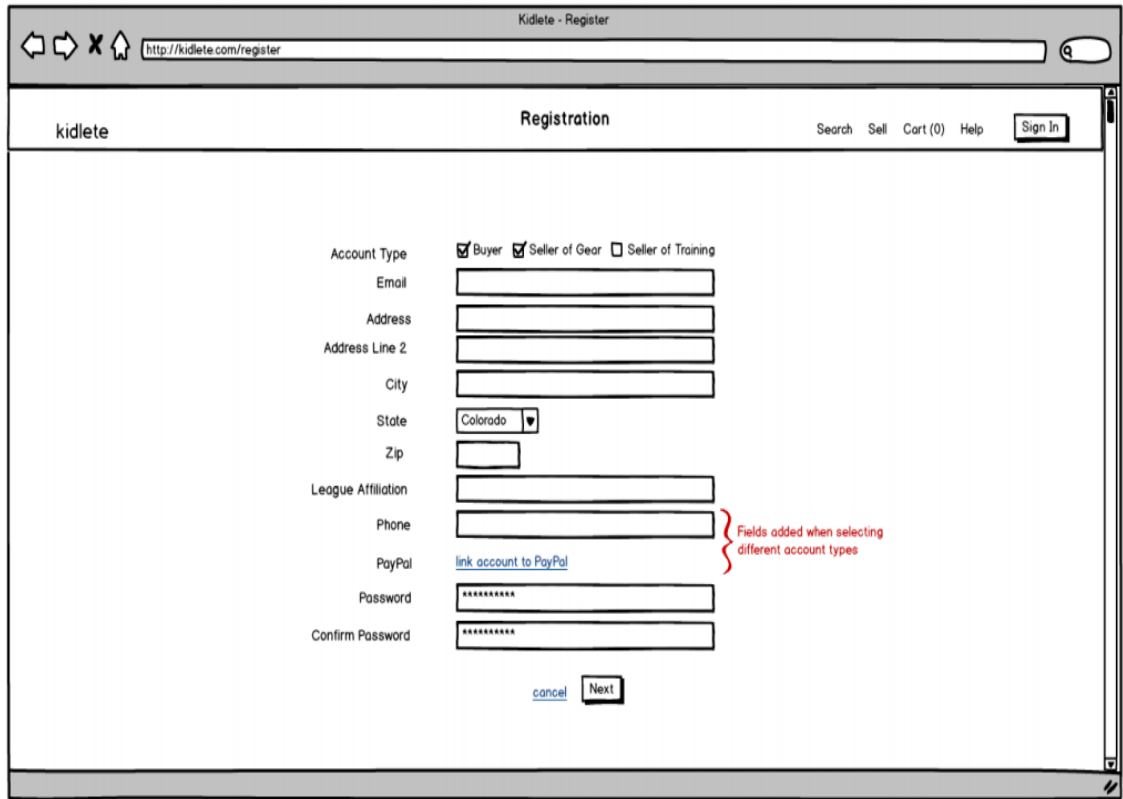Figure A-4 Wireframe Homepage (Arnold Set)

13

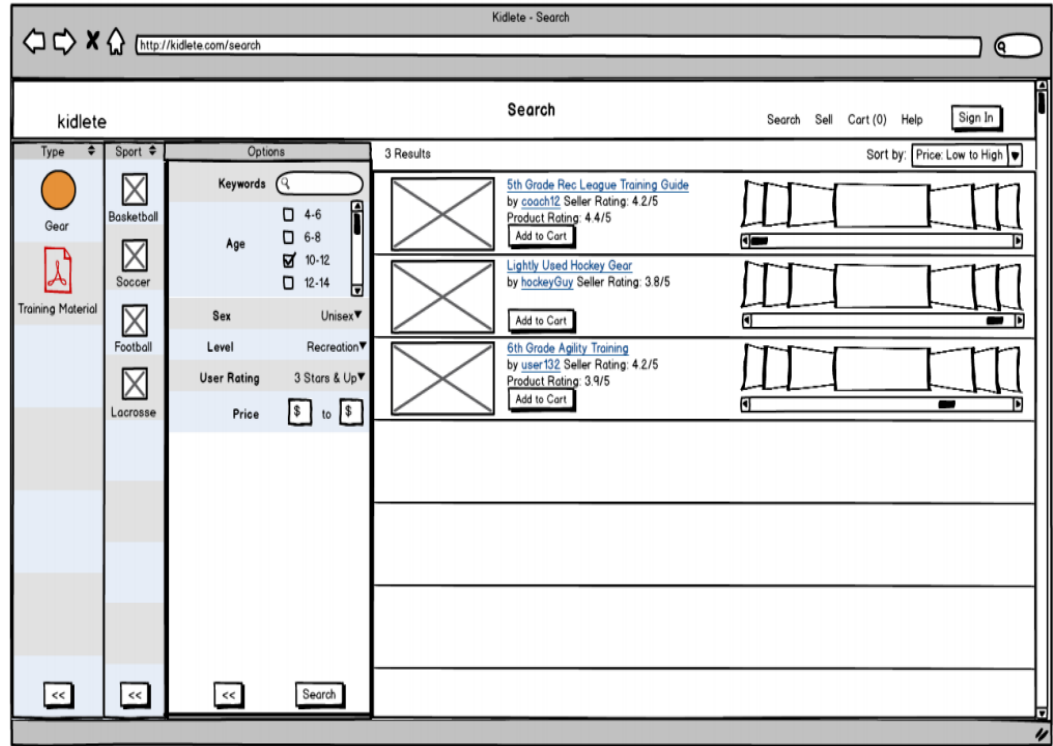Figure A-5 Wireframe Registration (Vander Set)
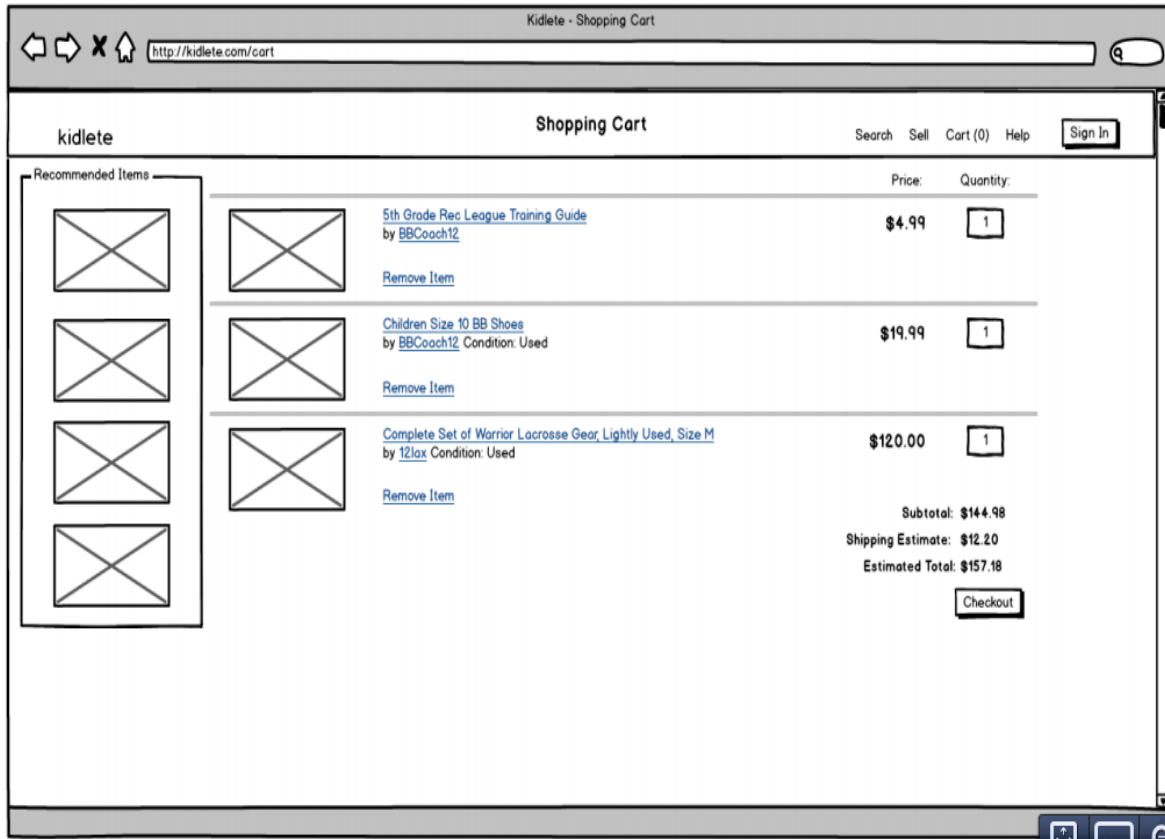


Figure A-6 Wireframe Search (Vander Set)
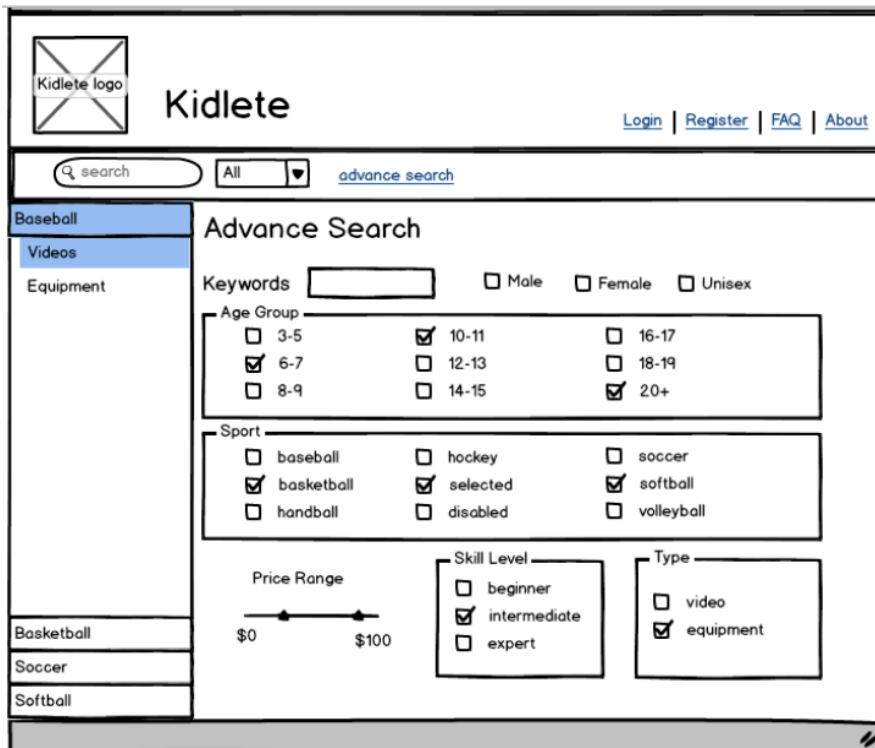
Figure A-7 Wireframe Shopping Cart (Vander Set)
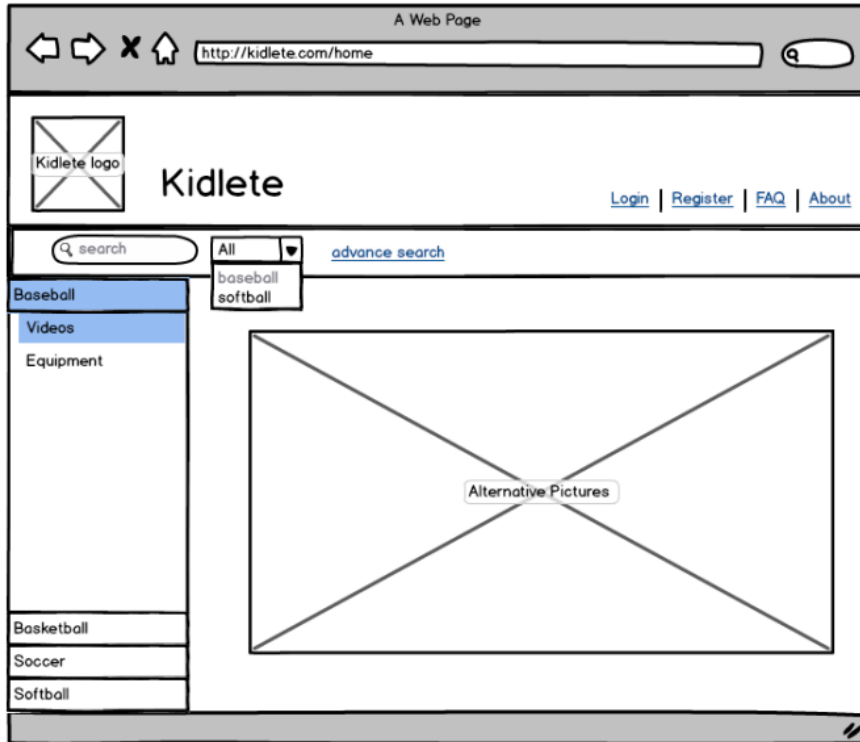


Figure A-8 Wireframe Advanced Search Option (Vander Set)
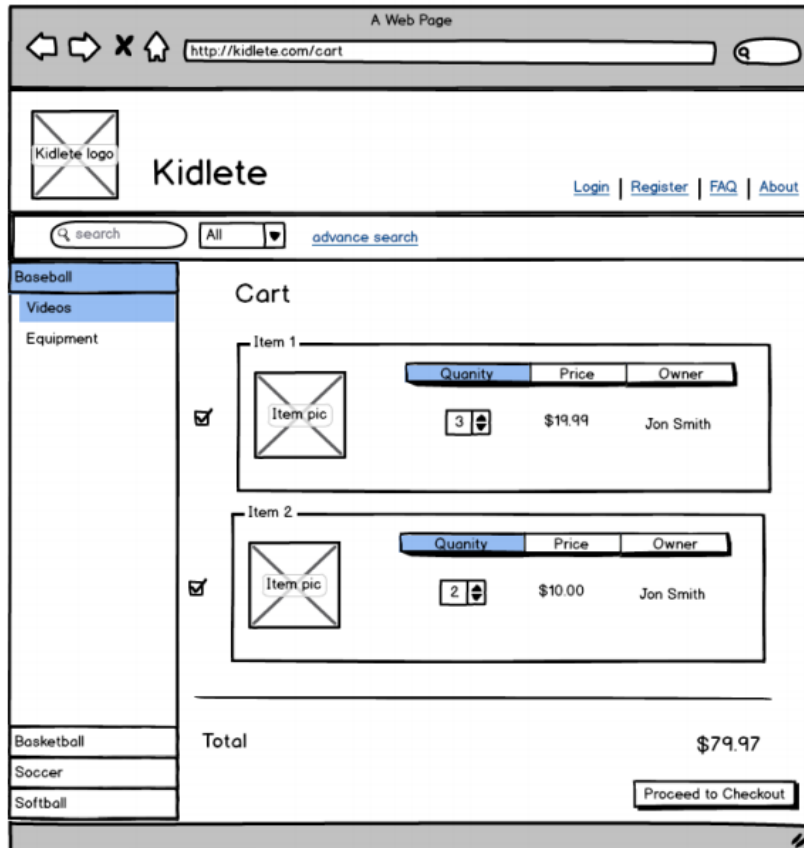
Figure A-9 Wireframe Homepage (Waldow Set)



Figure A-10 Wireframe Shopping Cart (Waldow Set)

Figure A-11 Wireframe Registration (Waldow Set)
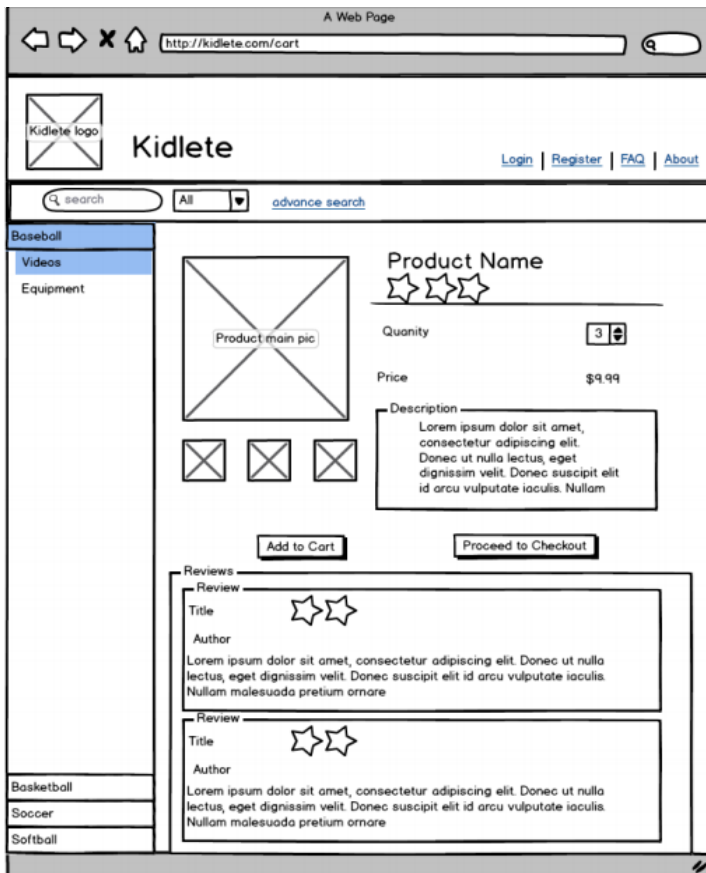


Figure A-12 Wireframe Product Page (Waldow Set)
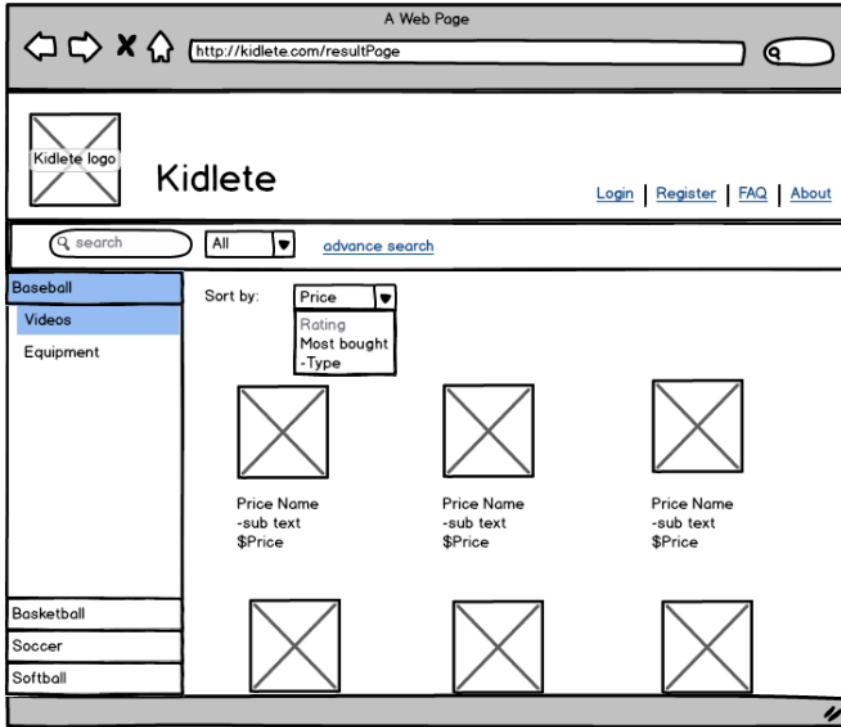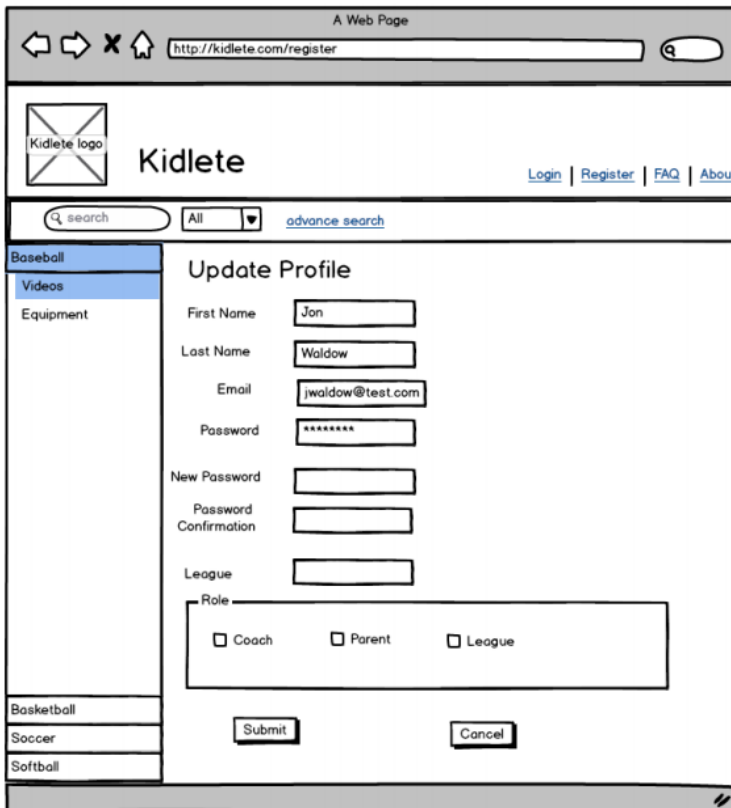
Figure A-13 Wireframe Results Page (Waldow Set)



Figure A-14 Wireframe Update Profile Page (Waldow Set)

Figure A-15 HTML Mockup Homepage