# 2. Analysis

## **2.1. Sale Item**

When forming our start-up, our team was considering several different products. We wanted to sell a product that was useful to everyone in the population and also easy to organize and categorize so that our website would be simple to navigate. After some brainstorming, we determined that clothing fit this description fairly well. The only problem is that clothing is an extremely broad topic for such a small team. How would we be able to keep up with all the new trends and fashions for shirts, pants, ties, dresses, and everything else? So we narrowed down our topic, and joined the $52 billion dollar shoe industry.[5]

After choosing to create an online shoe store, we began looking at competing companies to see what type of information for sales items. Starting more general, we observed that items being sold on Amazon provided a name, description, price, image, company name, delivery information, availability (sometimes including number in stock), and reviews.[1] Then, while looking at ebay, we found additional important details, like current bid amounts, and condition of the product.[2] This gave us a general idea of what information we needed to store for each sales item, but we to get more specific.

Next we began looking directly at the competition, and began browsing shoe sites. We noticed that stores like Designer Shoe Warehouse allowed you to search for shoes based on category, brand, size, and color. [3] Then, from Famous Footware, we found that shoe stores often sell other products like socks, backpacks, and shoe care items.[4] With this information obtained, we decided on the entities and attributes for the sales item, and picked what products we wanted to sell.

The most general entity is the sales\_item entity, which can be identified by it’s unique key (item\_id). Every sales item also has a name and description, so users can identify the product. A brand attribute was also added so users can browse for products by their favorite brand. Also, each sales item has two price recorded, the list\_price, and the reserved\_price. The list\_price is the price one pays for the product without participating in an auction, while the reserved\_price is invisible to the use and describes the minimum price an item can be sold at during an auction. Our team also decided to create a paid membership option, which gives you discounts on certain items. Those items that have a discount can be identified by their has\_discount attribute (see section 2.x). Next, the keywords attribute, helps the user retrieve their item when searching (see section 2.x). So if a person types in terms in the search bar that match one of the keywords in the product, then the product will be retrieved. Finally, there is a count attribute for keeping track of the number of items left.

But like other shoe stores, our company didn’t want to just have a single product. So our team decided that we would also sell bags, sunglasses, care items, socks, and shoes. While bags, sunglasses, and care items can be fully described by the normal sales\_item entity, socks and shoes require additional information. So the footware entity was created to account for these missing fields, which includes the size attribute (for sock and shoe size), as well as a footware\_id unique key. Lastly, shoes also require a width description, so a shoe entity was required as a sub-entity of the footware entit,, and contains the width attribute and the shoe\_id unique key.

In addition to these attributes, sales\_items require additional descriptive information, which includes an address (describing where the item is shipped from) and images. The address was created as a separate entity, because attributes may be reused for other entities, such as users and shipping. Note that every sales\_item is required to have at least one address. Every attribute of the address is part of the unique key, which includes the street\_address, app\_num (appartement number), city, state, and zip\_code. The other separate entity is the image entity. Every sales\_item is required to have one image minimum, which will be displayed on each products webpage. Each image has a unique img\_id, as well as an image attribute, which holds the actual photo data. But the image entity also has an attribute called color. This attribute allows the user to filter out products when searching or browsing, based on the color of bag, shoe, or sock that they desire (See sections 2.x and 2.x).

## **2.2. Custom Item**

Unlike most sites, our team decided to create a custom shoe feature, in which the customer can create their own custom shoes. When deciding to add in this feature, our team looked at the Nike custom shoe making process for guidance.[6] First, the user will click on the custom shoe feature. Then, they can pick between a men’s, women’s, boy’s, or girl’s shoe. After that, they can pick a particular category of shoe, such as athletic, casual, etc. and then pick a subcategory, such as running shoe or cleat. From there, the user has several features they can choose from a multiple choice list. These features include the size of the shoe, the width of the shoe, the side, back, and front image, the shoe style, tong style, the shoe sole style, the types of laces, and the coloring of the shoe.

The way the custom shoe information is stored is in the custom shoe entity. This entity is a sub-entity of the shoe entity, containing several additional information for the customize process. This includes a side, back, and front image labels, a tong style, a shoe style, a sole style, a laces style. It also has a custom\_shoe\_id for the unique key. In our database, we will store every possible combination of shoes we will allow the user to make as a custom\_shoe entity. Then, during the creation process, as the user selects new attributes, different custom shoes will be displayed on screen, based on the default selections and the user selections.

# 5. Sources

1. Amazon: https://www.amazon.com
2. Ebay: http://www.ebay.com
3. Designer Shoe Warehouse: <http://www.dsw.com>
4. Famous Footware: <http://www.famousfootwear.com/>
5. <http://www.statisticbrain.com/footwear-industry-statistics/>
6. Nike: http://store.nike.com/us/en\_us/product/roshe-two-id/?piid=42982&pbid=503278350#?pbid=503278350