**Domains:**
- ➢ Collecting Items: I like to collect Funko Pops and have been creating a large collection of them over a couple of years.
  - ○ I have been collecting Funko Pops for years now and have collected enough that I'd like to manage all their information from a more organized place instead of a note page. This will be helpful when purchasing new ones or when I decide to sell some.
- ➢ Colognes: I like to try different colognes and usually get a different one each time I run out
- ➢ Cooking: On my floor, I cook for about thirty people every other week, and I spend a lot of time calculating how to scale up normal recipes
  - ○ Cooking for large groups in my dorm is a fun experience with sufficient planning, but it is difficult to manage ingredients before cooking. When trying to make triple or quadruple what a normal recipe makes, it is not as simple as getting three or four times the number of ingredients.
- ➢ Music with Friends: Sometimes I'd like to recommend music or albums to friends, but I currently rely on word of mouth
- ➢ Pausing movies: I typically don't have time during the semester to watch entire movies, and have to come back to movies after periods of time.
- ➢ Clothes: I typically struggle to buy certain pieces of clothing because I'm not sure if they will fit with the rest of my closet
- ➢ Planning with Friends: With a larger friend group, it can be hard to plan times for everyone to hang out, as people are usually travelling/busy.
- ➢ Classes: Throughout college and more as a senior, I've had trouble selecting classes that would be the most helpful post-grad, as most of my friends are students
- ➢ Improving a language: I grew up speaking Spanish around my family, but as time goes on, away from my family, I would like to practice my skills to avoid forgetting.
  - ○ There are a lot of resources for people looking to learn a new language from scratch, but these are of little to no help to someone who already speaks the language. I would like a resource that is meant for people who don't need to learn more of the language but are more interested in practicing at an advanced level.
- ➢ Outfits for concerts: It can be hard to dress up for specific one-time events like concerts or themed events

**Problems:**
- ➢ Collecting Items
  - ○ Purchasing a collectible that I already had - Too small a scope
  - ○ Wanting to sell one of my collectibles, but not having all the information on it
    - ■ Collectible Database: People collecting items usually want to have basic information on the items they're collecting, such as age, condition, version, etc. Having one organized place to find this information would be a lot more helpful than my current plain text file, which collects this information in a very unorganized way. Comparing with other collections

is also difficult because of the different methods of storing this information.

- Not knowing the best methods to store collectibles - This problem could be addressed by online forums, and doesn't justify a whole new software.

➢ Cooking
- Scaling recipe ingredients to fit a certain number of people
  - Scaling recipes: Certain ingredients scale differently when making a larger version of a recipe. This can be difficult, for example, when making seasonings, and if you scale a certain seasoning by too much, it will overpower the dish. Some methods of cooking are also less effective at scale.
- Adjusting recipes to fit multiple dietary restrictions - This might be too simple to justify an app and could cause legal issues in the case of allergic reactions.
- Figuring out how to effectively cook recipes under various constraints - This would require too much user input and not enough generalization.

➢ Improving a language
- Using resources that teach skills instead of refining them
  - Refining language skills: I have used apps like Duolingo that will try to teach me the very basics of a language I'm trying to refine, not learn. On the other extreme, I have attempted to learn by reading news articles that are too advanced for me. I would like to find a place where I can find resources in another language at the level that I want to practice at.
- Trying to read books, but they end up being too difficult or too easy - Too subjective to justify a software project.
- Finding new music in the language I'm trying to improve - This is mostly already solved by current music streaming applications like Spotify.

**Stakeholders:**
➢ Collectible Database: The main stakeholders in this would be collectors who have their own large collections of certain items and want a dedicated space to store that information. In addition, workers at stores could also utilize this software to organize specific collections. For those not fully into collecting, they could simply view others' collections to see if there's anything they're interested in.
- Collectors - Regular people who collect things like toys or coins
- Pawn shop workers - Stores with a larger inventory of specific collectibles
- People interested in a certain item - People not necessarily collectors, but who want to find a certain item in other people's collections

➢ Scaling recipes: This software could be very flexible, as this problem affects very different people. Recipes online can be very strict with the number of servings, so people cooking for their family or just for themselves can scale certain recipes up or down. On a more professional level, chefs could use this to experiment with how to change recipes.
- Family dinner cooks - Those who need to cook for a larger number of people, that normal recipes don't usually account for
- Chefs - Professional chefs who want to experiment with new recipes

- Personal cooks - People who want to cook for one but only have recipes for multiple people
- ➢ Refining language skills: Anyone learning a language could use this software, but it is specifically for those at an intermediate level of learning. Those in that range will determine how effective the app is.
  - Heritage learners - Those who grew up around a language but have not practiced it recently
  - Intermediate learners - Those who have learned the basics of a language and want to practice more advanced skills
  - People moving to a new country - Immigrants or others visiting a country who need an intermediate understanding of a language quickly.

**Evidence:**
- ➢ Collectible Database
  - [Collections Database](): This database application seems helpful for things like books, but not specifically collectibles.
  - [Arctos](): This seems like a very professional version of an art collection website, but it doesn't seem as easy to use for the average person.
  - [Airtable](): Helpful for certain collections, but not as easy to see others' collections.
  - [iCollect](): Better UI, but not as easy to explore collections similar to yours without the need to already be connected to them
  - [Apple Discussion](): One of many forums discussing the need for organizing collections
  - [Facebook Forum](): This Facebook forum discusses how some people use basic forms of databases, like pictures of Excel sheets
  - [MongoDB](): This database could be a good candidate for the underlying software of the project
  - [CLZ](): This shows how most current collections databases are for non-physical items like movies or video games
- ➢ Scaling Recipes
  - [Reddit](): This forum thread shows how people do manual scaling through tools like Excel
  - [Inch Converter](): This converter will simply multiply the number of ingredients by the scale factor you give it, but will not take into consideration the ingredient
  - [Blog](): This blog exemplifies the exact problem that scaling recipes is not easy
  - [Webstaurant](): This converter has a better UI, but it is still a bit difficult to add each ingredient manually
  - [Article](): This article on how to scale up/down recipes has an asterisk at the end that explains that this is not exact and there are other factors to consider. A software can implement these changes with enough context.
  - [Quora](): This forum goes over a lot of tips that can be included in the software
  - [Blog](): This blog brings up a good point that the software should include a feature for baking, as that also has many considerations

- - [Facebook Forum](#): This forum discusses the exact problem that spices specifically cannot be normally scaled.
- ➢ Refining language skills
  - ○ [Case study](#): This forum discusses how many people get stuck at an intermediate level of learning a language and why we need more resources for them
  - ○ [Blog](#): These are some tips on how to study a language when at an intermediate level that can be used to design the software
  - ○ [Tool](#): This is an example of a learning tool for intermediate users, but this tool currently has a bad UI
  - ○ [Quora](#): This thread speaks about the lack of tools for intermediate language learning and what features these people are looking for.
  - ○ [Blog](#): This blog goes over how a lot of the current software options for practicing at an intermediate level are not free
  - ○ [Article](#): This article emphasizes how most intermediate apps out there utilize AI to determine the user's level. This could help design my software.
  - ○ [Langua](#): Langua utilizes AI to create a Chatbot that can create natural conversations with the user.
  - ○ [Tandem](#): This application utilizes an interesting feature as it simulates a text conversation. This could be useful for people who do not have time to sit down and focus on an app.
  - ○ [HelloTalk](#): This software connects users of different native languages, which could be helpful, but might run into legal issues.

**Features:**
- ➢ Collectible Database
  - ○ Social Network Feature - This feature could be used in two ways: for someone to explore what other collectors have up for sale, or for one person to simply show another their collection. The use case here is clear for collectors, but this can also be used by novices who simply want to shop for a certain item. This feature can be created with those novices in mind by connecting users with other users who are physically close in order to facilitate those in-person connections.
  - ○ Physical feature collection - The main usage of this software would be a simple and elegant way to collect as much information as the user wants on their collectibles. They could enter as many fields of information as they desire, and have some recommended to them based on popularity. Various methods of organization could be presented based on user input.
  - ○ Image gallery upload - As part of the feature collection, users should be able to upload images to their database for a quicker lookup of an item. For example, a user could take a picture of an item and verify whether or not that item is already in their collection. This could be expanded to include unique identifiers like barcodes.
- ➢ Scaling recipes
  - ○ Recipe scaling up/down - This feature would work by manually entering or uploading a recipe to scale up or down. This might use the original recipe to

clarify how certain ingredients are used to determine how to scale each ingredient.

- ○ Recipe database - A database that contains recipes that have been used before when scaling up/down. This would solve the problem of cooking for larger groups or for 1-2 people. This database should also contain recipes that apply to certain dietary restrictions, as these are more common with larger groups.
- ○ Recommendations on cooking strategies - When scaling up recipes, tips on how to cook larger amounts of food are necessary. These could range from how to create seasonings for larger portions or how to best utilize ovens/stoves to maximize your space. This feature could start as a blog/user-recommended tips, but could become personalized with more data.
- ➢ Refining language skills
  - ○ Curated articles/literature - This feature would scan online literature from other learning resources and determine at what difficulty level the reading is to recommend it to the user. At the end of each resource, the user could also fill out a survey so the software could determine if the next recommendation should be more or less difficult.
  - ○ Conversational mode - This could be a conversational bot powered by some LLM combined with text-to-speech. This feature would automatically adjust to the user's speaking level based on an entry survey. This bot would be used to generate an average conversation when the user cannot achieve that in real life. This would allow the user to practice at their level while the chatbot adjusts to push their language skills wherever needed.
  - ○ Intermediate vocabulary - For one of the most basic features, this would again be based on an initial placement test to determine how extensive the user's vocabulary is. This feature would present the user with new vocabulary whenever prompted, which would stay within an intermediate level but would be applicable for day-to-day situations. This feature could also slowly increase in the difficulty of vocabulary as time goes on.