* **Product descriptions:**
* We found 8 products related to our concept, including mobile apps and websites. Each product provides us with some positive lessons (marked in green) and some negative lessons. Even though they have covered almost all the functionalities we came up with, there are important pieces missing in each of them. Some of them have bad user experience and interfaces; some of them do not have a comprehensive enough database; some of them are very difficult to use for non-experts; some of them are too scientific for users to enjoy using while hiking or enjoying a day in the nature.
* **Project Noah**
* Features:
  + Spotting:
    - take a photo of an encountered wildlife and upload it with its name, type, description, tags, mission and so on
    - one can also upload an unknown spotting, asking others to help identify it
    - after a spotting is saved, it can be uploaded later when there is internet (can be used offline)
  + Mission:
    - There are many missions to spot different kinds of animals and plants worldwide. Each mission has a detailed info page with lots of pictures (spottings) that people have uploaded.
  + Patches:
    - Cute patches of different levels, categories and missions to encourage spotting, identifying and other user interactions
* Pros: It has a very nice UI design and a great combination of features to promote its concept and educational purpose. It is fun to play with and the idea of spotting for a mission makes it more interesting and captures attention. It is also a vibrant community (it has a web component) where a lot of users have put up lots of high quality pictures of wildlife and are actively identifying spottings that other users put up.
* Cons: However, without a more guided and systematic display of people’s spottings, it is hard for one to browse and actually learn much about the wildlife that other people have found.

**Leafsnap:**

Features:

* + snap it – photo identification of a leaf
    - rigid requirement of the photo, a leaf on a white background
    - not very accurate, only recognize plants in certain region
    - requires internet
  + browse by first name, last name, scientific name of plants
    - high resolution pictures from many different angles
    - detailed information in text
    - more information on EOL (awkwardly embedded web page)
    - It requires the users to know a lot about the plants. But many users might not even know the names so browsing might be used efficiently. No option for not so informed users.
  + collection displays the leaf images collected using snap it.
    - Shows the leaf’s corresponding information and the location where it is collected
    - Only shows the plants that were snapped. No way to learn and review other plants.
  + Games: Green Sweep and Leaf Challenge
    - Visually comfortable, Green Sweep has some pretty cool effects
    - The game is too hard for ordinary people and is not designed for people to learn about leaves
    - No reward system to keep track of scores and history and provide incentive
* **Florafolio:**
* Features
  + for iPhone
  + Easy to use, photo based browsing.
  + Multiple photos for each plant make it easy for identification.
  + Descriptions, care tips, growing instructions, and habitat notes are written in useful, approachable terms.
  + Catalogue is searchable by common name and latin name.
  + Includes in-application notebook for creating custom journals.
  + Large and ever expanding library of plants.
  + All library updates are FREE.
* Pros: Acts as a good field guide for your experienced gardener/plant enthusiast. Areas where the plant grows in a state or region are specified. You can search for a plant in multiple ways with an assortment of different pictures (i.e. by growing conditions, flower color, wildlife benefit, and use (edible, cut flowers, etc.)). And you can create a list of favorite plants.
* Cons: Only covers 23 states/regions and has a relatively small inventory of plants. You do not have the ability to add plants to the inventory. Doesn’t have an iPad version. Apparently it does not identify plants very well (according to user reviews). Does not work very well for the newbie gardener/hiker who wants to identify what’s in front of them without any prior knowledge. It costs $3.99 (many users complained it wasn’t worth the money, should have been free).
* **Plant Pictures:**
* Features:
  + Over 25,000 plant names
  + Perfect for gardeners/landscapers that are at the nursery or home improvement store looking at 1 quart containers of plants wondering what they’ll look like in 3 years
  + Perfect for landscape contractor/designer trying to show the home owner what you’re planting in their front yard
  + Plants are searchable by scientific/botanical and common name
  + If you start typing in name, suggestions will appear
  + Uses Google images to see hundreds of pictures of one plant
  + Favorite’s list for quick retrieval
  + iPhone/iPad
* Pros: Very large database. Simple app allows for easy use. Works pretty well for plants that are more common.
* Cons: Doesn’t tell you how to garden nor help you plant your garden. It also doesn’t help you find the right plants for the environment you’re in. Many plants have been misidentified according to many users. Since it is using Google images, anything can appear for the plant that you’re looking for. Since it’s using Google images, it’s just as useful to just Google what plant you’re looking for instead of using the app. Ok when it works, frustrating when it doesn’t. Must be connected to the internet to search (because it’s using Google).
* **Virginia Tech Tree Identification app for Android**
* Features:
* Fact sheets for 969 woody plants throughout North America, with photos, range maps, and detailed descriptions of all plant parts for each species
* Can get user’s location and elevation from GPS, network, or inputted address to narrow down species (or can choose to ignore location)
* Can search by key word or by answering series of simple questions (with pictures to show what’s being asked)
* Navigate between species through buttons
* Can send tree questions to “Dr. Dendro,” a tree expert in VTech’s Dept. of Forest Resources and Environmental Conservation
* Pros:
  + clear, easy-to-use interface
  + color photographs at every step—makes identifying attributes easier
  + provides list of species tailored to user’s location
  + detailed fact sheets about each plant, with photos of different parts of the tree (i.e., leaves, twigs, whole tree, etc.)
  + can send pictures or description of tree to expert for help identifying
  + credible, since it’s affiliated with a legitimate university
  + free!
* Cons:
  + only for woody plants and not helpful outside of North America
  + only for Android (although there is a web version, and apparently an iPhone app is coming soon)
  + no way of saving any information
* **Arbor Day Foundation’s What Tree is That? app:**
* Features:
  + step-by-step identification guide with descriptions and botanical illustrations of tree features
  + lists of trees by common and scientific names
  + glossary of tree terms
  + iPhone edition, online edition, and mobile version
  + database of ~250 of most common American trees
  + iPhone version apparently allows users to keep track of trees that they’ve identified (using GPS) and **share the locations on Twitter**
* Pros:
  + simple and easy-to-use: each step of the identification process just has a few questions, user selects the closest option
  + the botanical illustrations accompanying each question clarify what each attribute is
  + glossary, if users are unfamiliar with some of the tree terms
  + ability to save locations and species of “My Trees” (only on the iPhone version)
  + iPhone version has classy graphics
* Cons:
* -only for trees, and only 250 types at that
* -iPhone version costs $4.99 (customer review says not worth the money)
* -doesn’t use actual images of trees; botanical illustrations might not always be helpful
* -the online and mobile version only provide the identified trees’ common name, scientific name, illustration, and hardiness—no additional information (may be better for iPhone app)
* **USDA's "PLANTS" - database**
* -Official US Dept. of Agriculture online plant database for personal use
* Pros:
* -Extremely thorough database, with lots of info for each plant
* -Easy to look up related plants by many categories, like genus, location, etc.
* -Includes maps to show what areas of country the plant can be found in
* -Includes the identification hierarchy (Kingdom, Division, Class, etc) for each plant so you can easily move up and down levels when exploring around the site
* Cons:
* -EXTREMELY scientific. Not really for use by someone that doesn't know scientific names of plants or at least general facts about the plant itself.
* -Clunky database interface. Very similar to a really bad library book system... it's bad.
* -Only for US states and territories.
* -No non-scientific info such as how to grow, different colors.
* This database is pretty much for the hardcore gardener that already knows their stuff. It seems like almost no effort was made in the user interface, and you basically need to know the name of the plant to find it. (Though, there is a really thorough checklist you can search through including "edibility" and things like that.)
* [**http://www.walterreeves.com/name-that-plant/**](http://www.walterreeves.com/name-that-plant/)
* Pros:
* -Easy to use: simply take a picture, post it with any extra info you want to add, and wait for the replies to come in!
* -Aesthetic layout: Easily browse through either whole posts or pictures only to see if you want to check out any of the IDs.
* -No anonymous commenting, so I haven't run across any spam or trolls yet! (Wowowow!)
* -Ability to post more than one picture of the plant in the same post for multiple angles.
* Cons:
* -This is a small site, so I don't know how the interface would work if there were huge amounts of users. How does spam or unrelated commenting get moderated?
* -After a plant is ID'd, it doesn't really move to another category, it just sits on the page. It would be nice if ID'd plants moved off to a separate directory so that unidentified ones were more likely to be looked at and ID'd.
* Improvements and potential functions:
  + **Identify by searching key words**
    - This is a basic function that is supported by most similar products and it is useful and intuitive for non-experts.
  + **Identify by answering a series of questions**
    - This is also a very easy to use way for non-experts to identify their plants and we can also consider combining it with the key word search to make the process easier and faster
  + **Option to use GPS location to narrow down identification results**
    - This is a useful and cool function that can save the users time and make the process even simpler. It is also very practical since GPS is built into smart phones.
  + **Favorite list / collection**
    - Users can keep track of what they see and when they like so they can come back to them. Collecting also motivates users to collect and explore more plants.
  + **Browse**
    - A function supported by many similar products. It provides a way for users to explore and learn about other plants.
    - Needs user input:
      * How often do users browse and find plants searching the names (the most common and traditional way that other products use)?
      * Can non-experts use this name search browsing?
      * In what other way would they want to browse plants? Popularity? Plant of the day? Locations? Any other systematic or non-systematic ways?
  + **Ask others to help identify a plant**
    - This makes the experience more social and can potentially provide a platform for plant-lovers to communicate and share.
  + **Photo identification**
    - This is definitely an awesome function if the technology is mature enough since it will make the identification process really easy. However, we might not be able to implement such function at this stage.
  + **Offline usability**
    - Plant Identification is the most useful and timely when the users are outdoor or on-the-go with the plants. However, when users are hiking, they might not have internet access. It is useful and user-friendly to have local library and to save posts as drafts and upload them when the device reconnect with internet. The practicability depends on how large the libraries are and if we can store them locally.
  + **Make it fun!**
    - Missions/goals/scavenger hunt/games
    - Rewards/patches/levels/scores
    - Sharing to social networks
    - This could be an important differentiator between our product and existing products. Most of the functions above are achieved or partly achieved by existing products. But they are not attracting more customers because most of them are tools, but not fun and educational tools.
  + **Glossary**
    - This function is also provided by some of our competitors. It helps non-experts to understand some scientific terms.
  + **Extensive and comprehensive database/libraries**
    - Many existing products are only confined to certain areas or types of plants so users can just find one great product and use it all the time.
  + **Nice user-interface!**
    - Many of our competitors have great databases and some have great functions, but their last-century user-interface make them less attractive and very hard to use.

Questions:

* + How to accommodate users with poor knowledge and those with expertise and make it attractive for both groups?