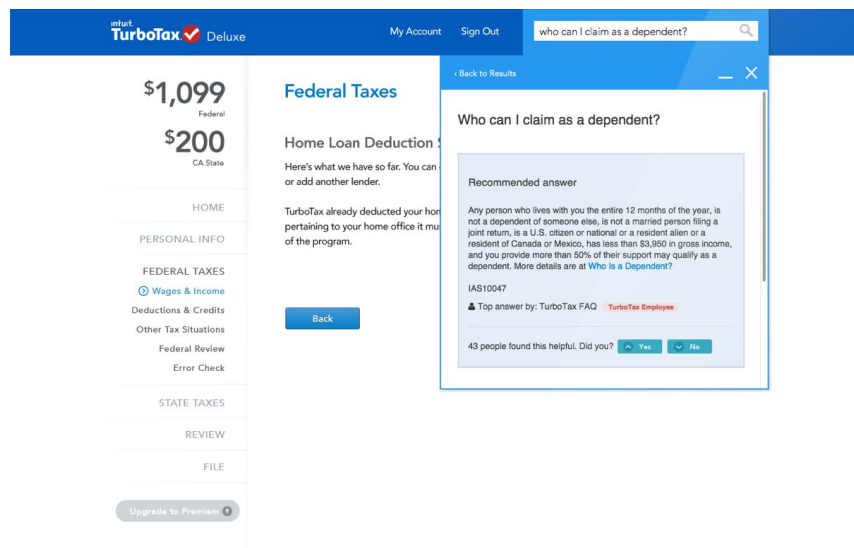


Digital Family Histories 2 - Generate

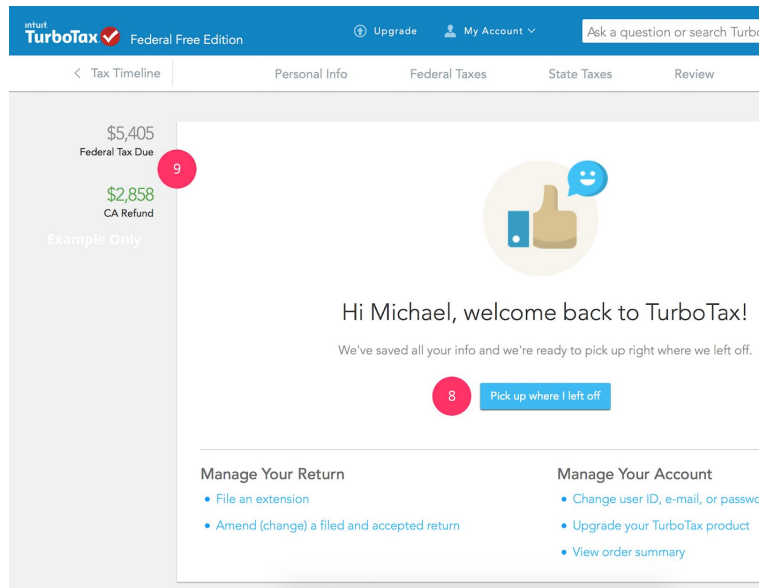
1. **Demos/Screenshots:** of inspirational products or solutions, headlines, and descriptions of a few sentences.
 - a. TurboTax (<https://turbotax.intuit.com/>)
 - i. This is an online tool used for taxes. This was a good product to look at for quality of life/ease of use. Turbotax has a lot of features that make it easy on the user when it comes to questions they have and what to do next. It also has a very pleasing UI to look at and one that is easy to understand. There is even a nice landing page where users can pick up and continue their progress

Searching for questions



a.

Landing Page



- b. MeTree (<https://metree.familyhistory.duke.edu/demo/login>)
- i. Selecting diseases

About Your Diseases & Conditions

Have you been diagnosed with any of the following diseases or conditions?

- ☐ Abdominal Aortic Aneurysm
- ☐ Blood Clots/Clotting Disorder +
- ☐ Brain Disorder +
- ☐ Cancer and Adenoma (Non-Cancer Tumor) +
- ☐ Cardiovascular Disease/Heart Disease/Artery Disease +
(Not Stroke - Stroke is under Brain Disorder)
- ☐ Diabetes +
- ☐ Digestive Disorder +
(i.e. Esophagus, Stomach, Small Bowel, Colon)
- ☐ Eye Disorder +
- ☐ Hereditary Cancer Syndrome +
(You must have had a positive genetic test for the genes listed)
- ☐ Hereditary Cardiovascular Syndrome +
- ☐ High Cholesterol +
- ☐ Hypertension
- ☐ Kidney Disease +
- ☐ Liver Disease +
- ☐ Lung Disease +
- ☐ Lupus
- ☐ Malignant hyperthermia susceptibility

- ii. Selecting Family Members to fill info for

iii. Reports

The screenshot shows the meTree Risk Assessment interface. At the top, there's a header with the meTree logo, 'RISK ASSESSMENT', and user options like 'En español', 'Edit Account', 'Change Password', and 'Logout'. Below the header, there's a navigation bar with 'CONDITIONS' and 'DEMONSTRATION'S FAMILY HEALTH HISTORY'. The main area is titled 'Family Summary Report' and contains a table with columns for 'Adverse', 'COPD / Chronic Bronchitis / Emphysema', 'High Cholesterol', 'Lung Disease', 'Diabetes', and 'Unknown Lung Disease'. The table lists family members: 'You (Demonstration)', 'P Grandmother (daughter)', 'P Grandmother (sister)', 'M Grandmother (sister)', 'M Grandmother (sister)', 'Father (sister)', and 'Mother (sister)'. A 'Done' button is at the bottom right. A bottom navigation bar includes 'Getting Started', 'About You', 'Parents & Grandparents', 'Other Family Members', 'Patient Reports', 'Risk Profile', and 'FINISHED'.

- c. March of Dimes Family Health History Form - [LINK](#) (Brent Younce)
- i. This alternate form allows for using a single list of diseases for recording diseases for the entire family

	Yes	No	Don't know	Tell us as much as you know about the person, such as the relationship to you and the person's age when the condition started.
Example: High blood pressure	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	My dad's sister, 45 years old
Autism	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Birth defects, including heart defects or spina bifida	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Blindness from birth or before age 40	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

- d. Healthy Women Family Health History Form - [LINK](#) (Brent Younce)
- i. This alternate form groups family members by logical relational groupings (parents, grandparents, etc) and allows entering information for the group at once. This may follow a structure more similar to the structure users would be gathering information in.

ALL ABOUT YOUR PARENTS

Fill out the forms below with your biological (birth) parents' information (living and deceased).

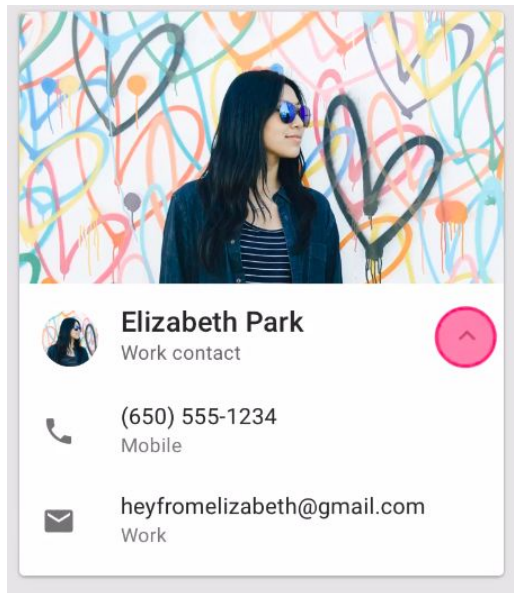
<p>Name: _____ Relationship: _____ Date of birth: _____ Blood type: _____ Ethnic origin: _____</p> <p>Known health problems: _____ Onset age: _____</p> <p><input type="checkbox"/> Alcohol and/or drug abuse <input type="checkbox"/> Allergies <input type="checkbox"/> Asthma <input type="checkbox"/> Cancer If yes, what kind? _____</p> <p><input type="checkbox"/> Depression <input type="checkbox"/> Diabetes <input type="checkbox"/> Heart disease <input type="checkbox"/> High blood pressure <input type="checkbox"/> High cholesterol <input type="checkbox"/> Mental Illness <input type="checkbox"/> Stroke <input type="checkbox"/> Other _____ <input type="checkbox"/> Other _____ <input type="checkbox"/> Other _____</p> <p>Does he or she smoke? <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Is he or she deceased? <input type="checkbox"/> Yes <input type="checkbox"/> No If yes, at what age? _____ If yes, of what cause? _____</p>	<p>Name: _____ Relationship: _____ Date of birth: _____ Blood type: _____ Ethnic origin: _____</p> <p>Known health problems: _____ Onset age: _____</p> <p><input type="checkbox"/> Alcohol and/or drug abuse <input type="checkbox"/> Allergies <input type="checkbox"/> Asthma <input type="checkbox"/> Cancer If yes, what kind? _____</p> <p><input type="checkbox"/> Depression <input type="checkbox"/> Diabetes <input type="checkbox"/> Heart disease <input type="checkbox"/> High blood pressure <input type="checkbox"/> High cholesterol <input type="checkbox"/> Mental Illness <input type="checkbox"/> Stroke <input type="checkbox"/> Other _____ <input type="checkbox"/> Other _____ <input type="checkbox"/> Other _____</p> <p>Does he or she smoke? <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Is he or she deceased? <input type="checkbox"/> Yes <input type="checkbox"/> No If yes, at what age? _____ If yes, of what cause? _____</p>
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e. Form Design UX - [LINK](#) (Brent Younce)

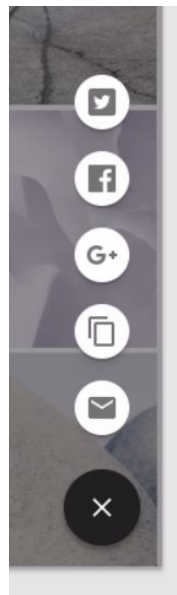
- i. Large list of ideas of best practices for improving UX for large web forms, inspiring ideas such as inline list expansion (for the single list idea) and icon grids on a sidebar for drag-and-drop.

f. Material Design Guidelines - [LINK](#) (Brent Younce)

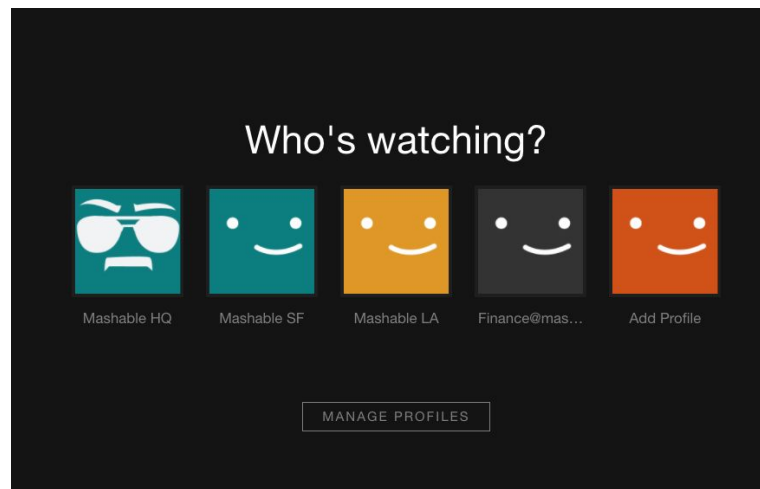
- i. By utilizing material design UI components, we can improve usability due to the ubiquity of material design in mobile environments. Additionally, several of these components would provide clear and efficient displays of several types of information common in MeTree. For example:
- ii. Cards for each family member would allow for displaying summary information, and could be expanded on click (or mouse-over) to display a full list of disorders/diseases that have been added to this family member



- iii. Floating Action Buttons (FABs) are familiar UI components which we could use in a consistent way throughout MeTree, to provide a simple and consistent interface. By taking advantage of related action stacks (below), we could add custom options for each page (e.g. adding new types of family members or disease categories)



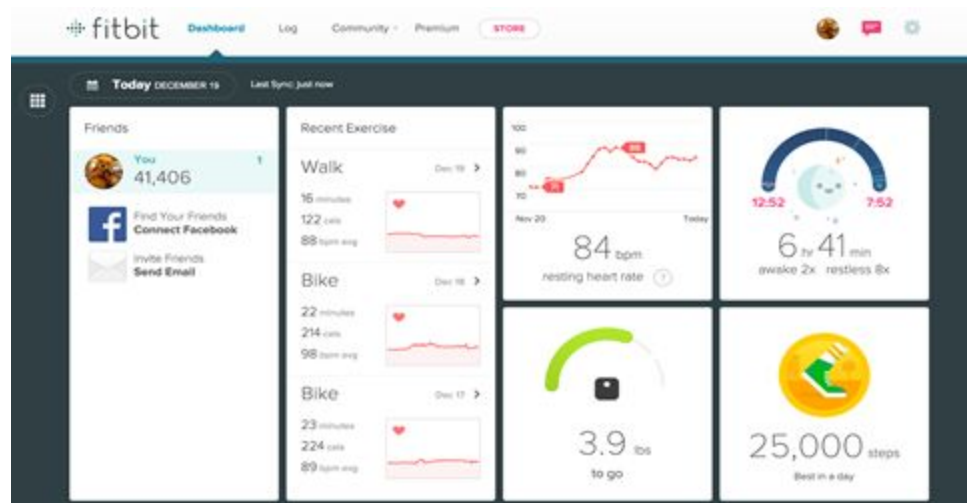
- g. Netflix
 - i. Has a shared account with many profiles



1.

h. Fitbit

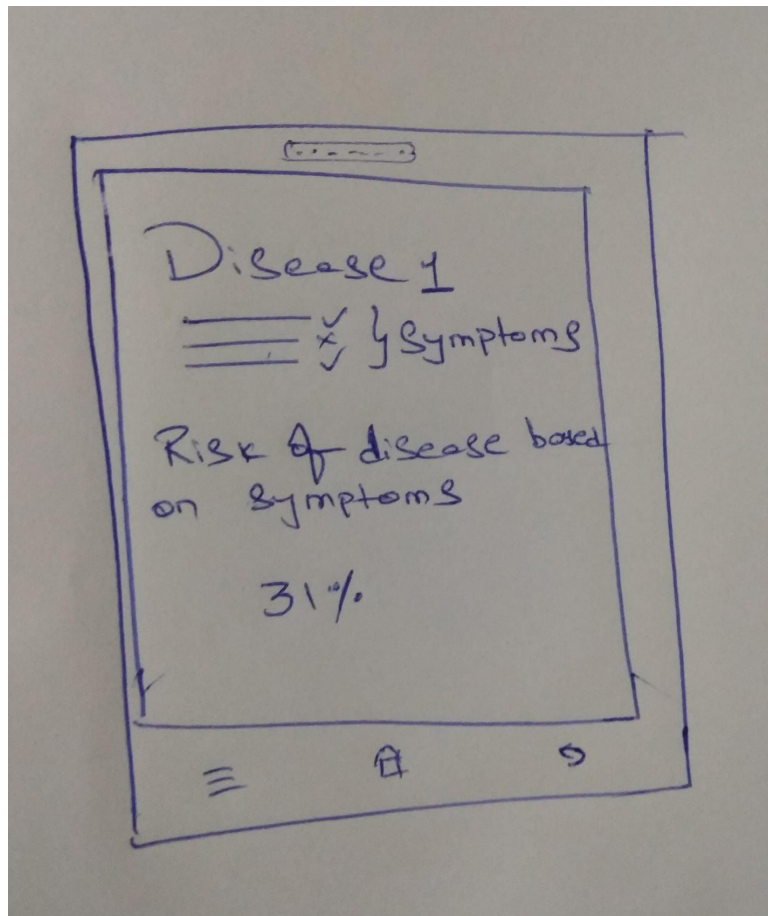
i. Dashboard



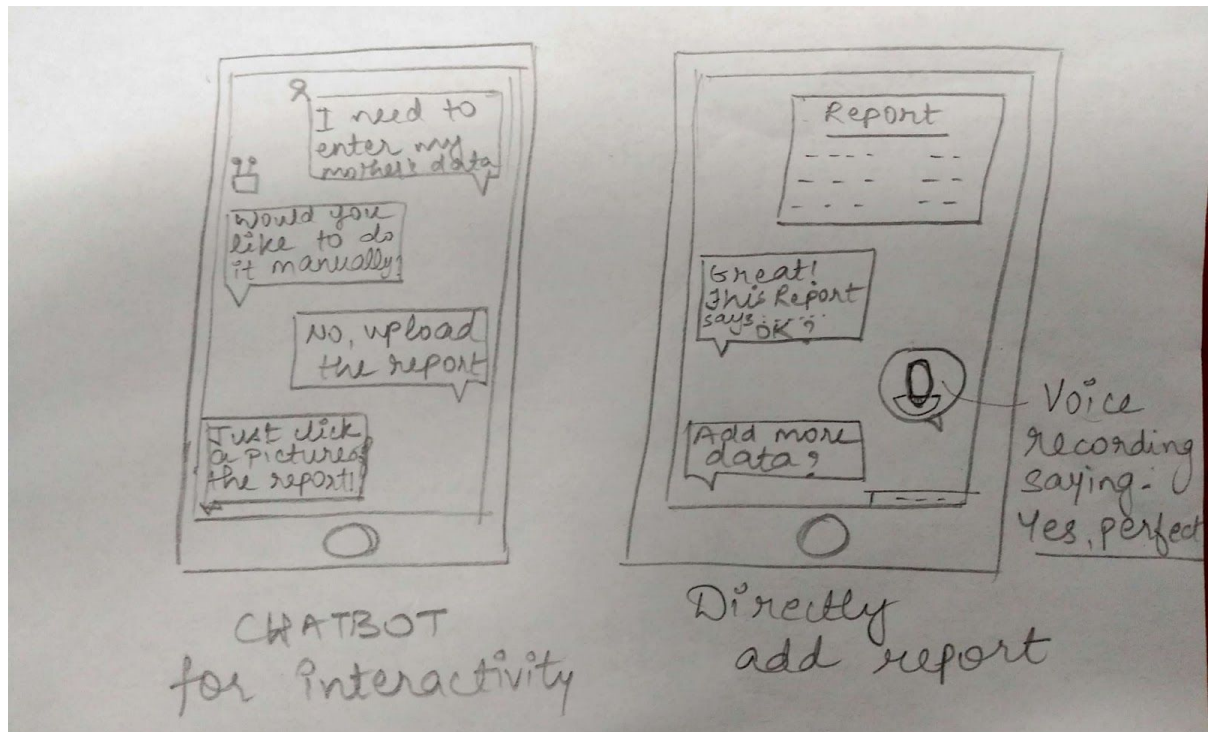
1.

2. **Demo Sketches:** Based on above inspiration sources

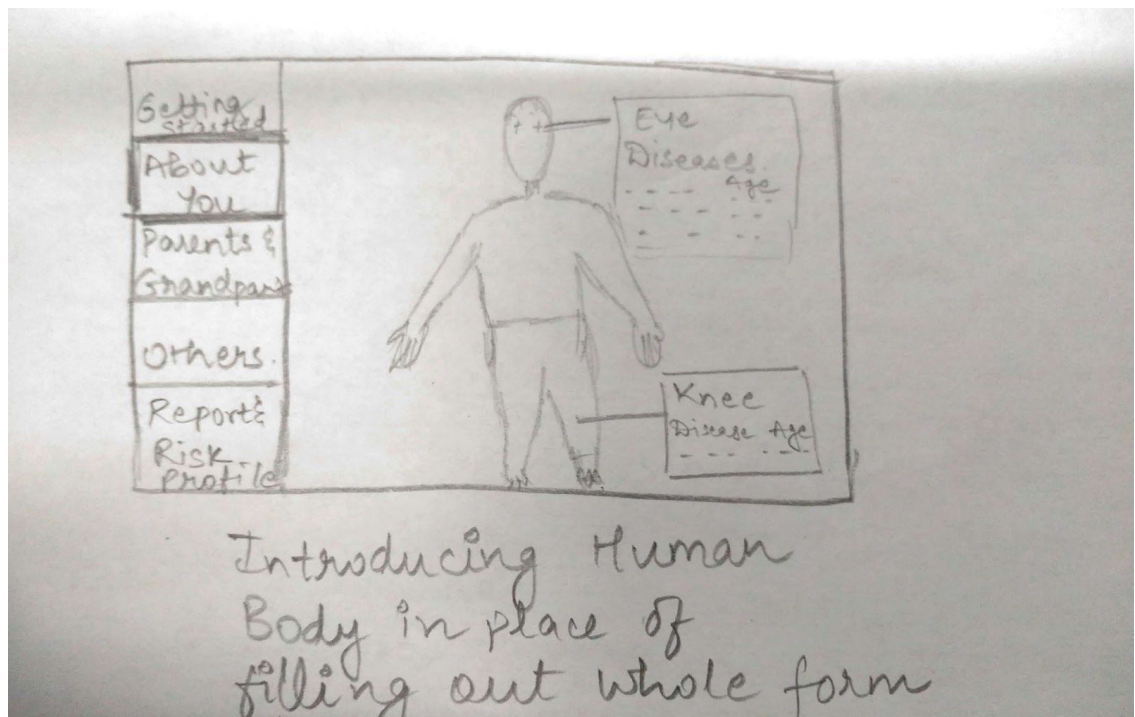
a. Select symptoms



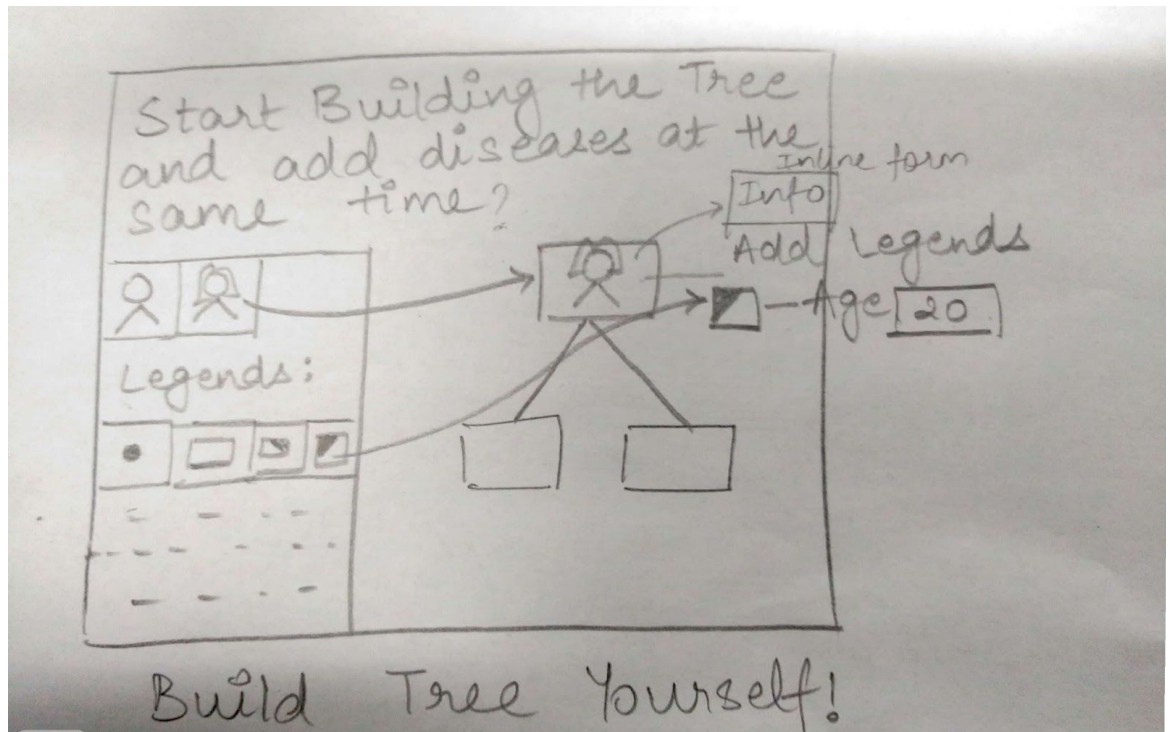
b. Inspired from Geisinger: The Chatbots (Urvi)



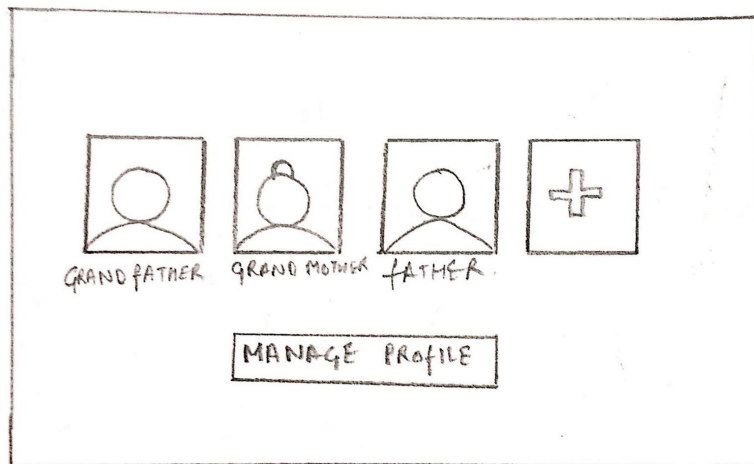
ii. A thought for ease of use. Introducing a human body for selecting diseases



iii. Inspired from Geisinger : Design the Pedigree tree directly! For inputting diseases

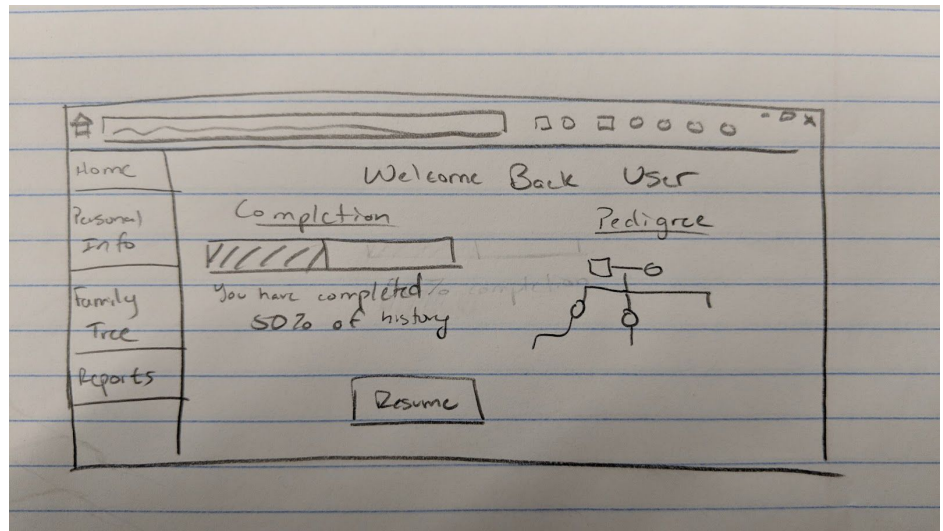


C. Family account home page inspired from Netflix

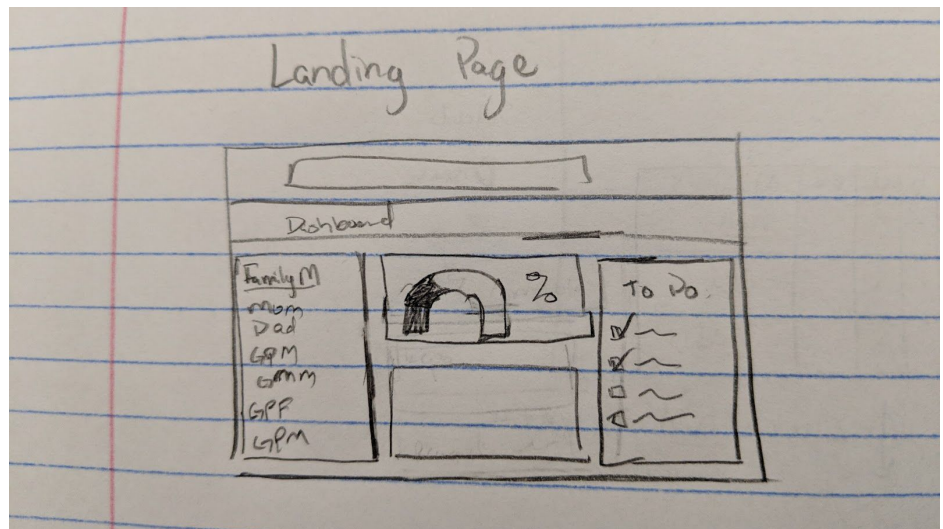


D.

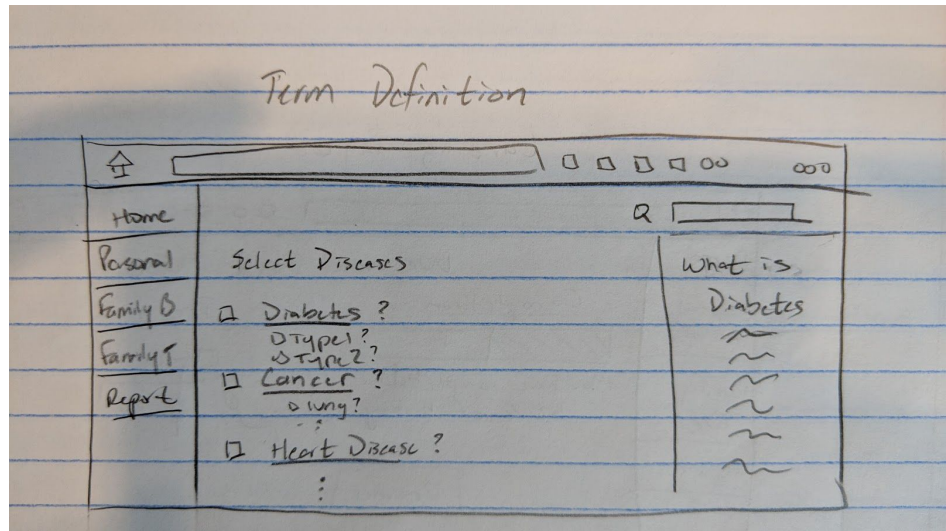
i. Landing Page inspired from Turbotax (Hasham)



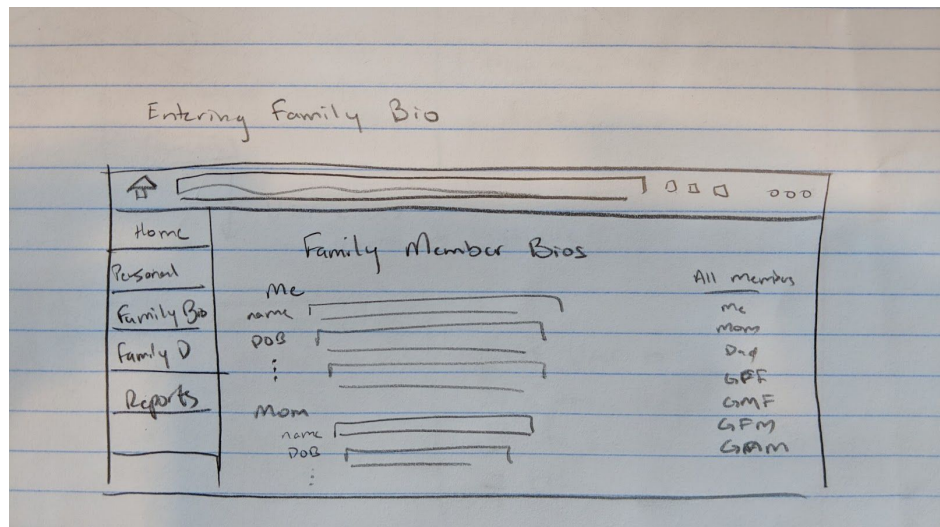
Dashboard inspired from fitbit



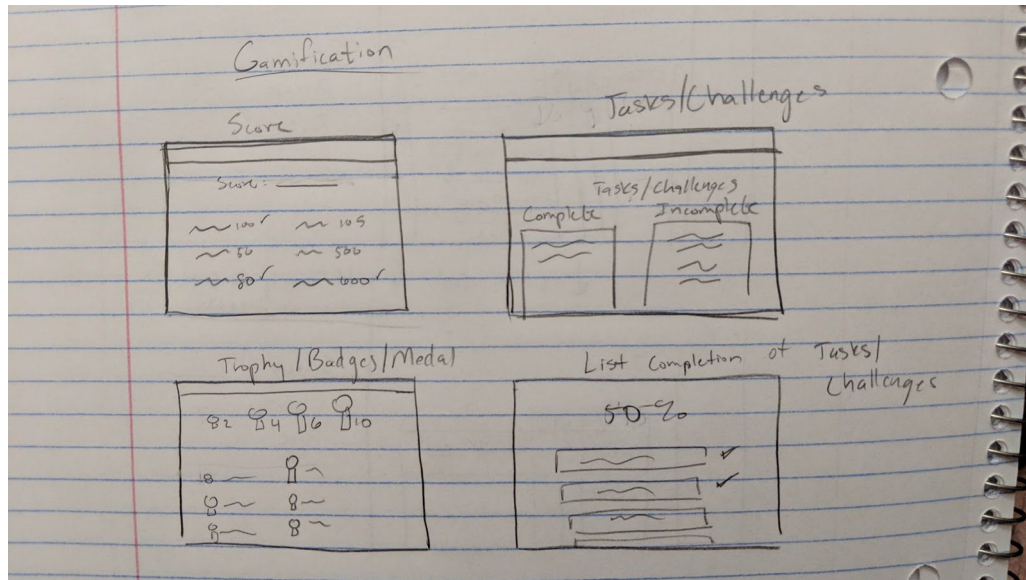
ii. Term Definition inspired from Turbotax



E. One Page for entering family bios



F. Gamification Sketches



3. **Ideas:** lists, one for each team member
 a. Multiple Team Members / Optum

Category	Inspiration	Idea	Description
Platform Options	Mobile-first, cross-platform design	General Accessibility Principles	Any new version of this site should be designed to support mobile as a first-class citizen, and have a simple, unified interface that allows interaction via touch on small screens to via mouse on larger screens
Platform Options	Export templates, import results	Experience with other tools	Users may be much more proficient or comfortable with other tools (Word, Excel, etc.) than with some new site. Having an option to export a template (Word doc, spreadsheet, etc.) and then re-import this may make the process more comfortable for some users. (Optional feature that could be added on to the system).
Ease of Use	Multiple websites	Gender specific filtering	Instead of having all gender specific listed from start, only relevant diseases could be shown on based on select gender. E.g. Male would not need to process and ignore pregnancy, breastfeeding related issues
Family Bios	Multiple	Connect	Allow linking of accounts of family

	websites	between users	members, to allow them to fill out their own parts, or import previously entered data on another account
General (Optum)	Games	Gamification	Have some sort of achievement/trophy or score system to keep track of a user's progress. Get points/awards for completing things like logging in, filling out person info, filling out a family member's info, etc.

b. Brent Younce

Ease of Use	Multiple website	"No one in my family does"	For some questions, like does this person smoke, a person in a lot of families may have to respond "No" for each individual person (many times). Possibly, having a third option (Yes, No, No: No one in my family does), and having that third option set defaults for the rest of the family may save time.
Ease of Use	Autofill, Autocomplete	Variation of above	For known genetic disorders, when entering that for one family member, we could allow for a quick checkbox list for other family members who have that disorder.
Disease History	March of Dimes form	Combined disease list for everyone	In MeTree, you must fill out a large, identical disease form for yourself and for each family member. Instead, we could have a single list with a button/box allowing you to choose which person had that disease (see inspiration). To improve the UX, on click, that box would expand and allow the user to click the icon of the family member who had the disease, and enter basic info such as date of diagnosis. When collapsed, you could see icons for each family member who has that disease, and maybe info such as date of diagnosis
Disease History	Healthy Women form	Combined disease list for groups	As a middle ground from MeTree to the above idea, we could have combined forms for groups such as siblings, parents, or grandparents
Disease History	Form Design UX	Visual, Drag-and-drop disease entry	Instead of having long lists of diseases, we could enter diseases by drag-and-drop. On the MeTree page which displays icons for each family member,

			we could add a sidebar with a list of icons that represent each disease category. Dragging one of these icons onto a person would open a small popup asking questions such as diagnosis date, and would then add the disease to that family member's bio page (for review later). This would also aid usability by requiring only a single type of interaction (as compared to dropdowns, multiple button types, etc.
Disease History	Material Design Guidelines	Variation of above	Instead of displaying a simple icon representing each family member, a material design Card could be used. These could be expanded on click to easily and intuitively allow for the display of all diseases already added to a family member. Additionally, on mobile devices, we could use a FAB instead of a sidebar with disease icons, to allow for adding of new diseases. In that case, however, we would need a fairly small number of categories, and we would need to make heavy use of modals.

c. Hasham Mukhtar

Category	Inspiration	Idea	Description
Ease of Use	TurboTax	Term Definition	Diseases or other medical terms are highlighted or have a little icon (maybe a ?) that brings up a popup or sidebar explaining that disease
Ease of Use	TurboTax	Search/Help Feature	Have a search and help section on the screen at all times that allow users to search for terms or ask for questions. There can also be questions that already appear on the page that users can click to read (What is family health history?)
Ease of Use	TurboTax	Using icons	Maybe we can use icons instead of text when selecting family members or when choosing diseases. This also makes it easier if the application was on mobile
Ease of Use	MeTree, TurboTax	Have info on family history not	Instead of having a dedicated box explaining what family health history is on the page when you log in,

		on landing page when you log in	it should be moved somewhere before you login (like on the login page itself or the homepage of the website the app belongs to). If you have logged in then you already know what family health is or know enough to get started. This info can also be put into the help section.
Landing Page	Many websites and apps	Have a more useful/interesting landing page	The landing page when a user logs in can have a status section. It can show how much you have done and what you have left (completion bar or circle). It can also show a semi completed pedigree as another way to show you progress. There can be a resume button that takes you to where you left off, etc. There can also be an encouraging message about your progress that can get users to finish and feel more engaged.
Family Bios	Brent's Combined disease list for everyone	Entering all of your family's basic info at once	A user can specify all the family members that they will input data for and have their empty bio (name, age, gender, etc) forms shows on one page. Then the user can fill it out the basic info all at once. Then they can focus on diseases as a separate action. The family members and you still your own page that has bio and diseases to look at as well. This is just for initial input.

d. Urvi Luhana

Ease of Use	FHIR	Autofill with uploaded documents	To grasp the user's interest till the end of the form, we can give them a unique way for entering their family health history. They can upload the scanned reports of their diseases and our application will automatically fill up the form for them.
Ease of Use	Multiple Websites	Security	The feature which MeTree lacks is the doubt on the patient's data stored. So, we can show a message that your data is secured with us. And under this particular law, we will not leak your data. The patient can get that trust while using our application.
Disease History	Multiple Websites	Interactive Human Model for disease list	Instead of showing a long form in the very beginning, the user can be showed a 3D model of a human body. He/She can just click on the organ of

			the model to fill in the details about the diseases. For e.g. to write about the disease like macular degeneration, glaucoma in eyes, the user should click on the eye in the human model and then he/she will be able to see the dropdown lists of the diseases.
Disease History	LINK	Chatbot	Chatbots can make the boring task of filling a form, quite interesting! We can create chatbots to ask for the diseases, the age of diagnosis for the user and his/her family members. And we can also upload the Report. The backend takes care of the form filling part!!
Disease History	LINK	Interactive Tree with drag and drop	We can directly start by providing the tree. The user can design the tree based on the legends used for diseases.

e. Pranav Anumula

Ease of Use	Multiple Websites	Symptom List	An extra feature that enables users to sort diseases based on the age group they fall in and check the probability of them having that disease by analyzing the symptoms (User selects observed symptoms and gets the probability).
Disease History	Multiple Websites	Updating list	If a disease is not listed, user should have an option to leave feedback (like "don't-see-your-disease?" link) which can be reviewed by the technical team to update the list.

f. Abhilasha Saini

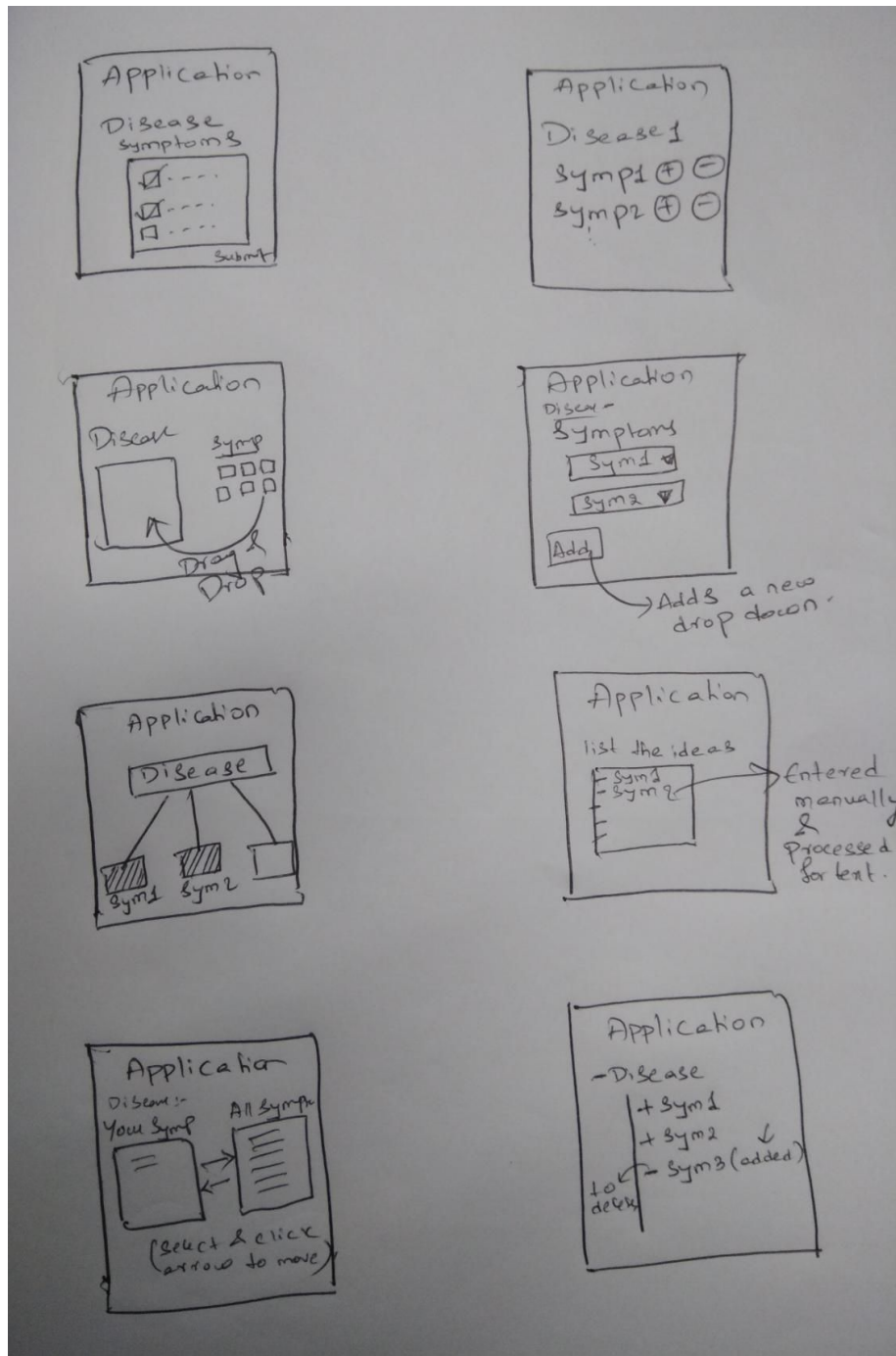
Ease of Use	Netflix	Shared Family Account	Instead of creating multiple accounts, a central family account can be created that has every user's profile, hence enabling a synchronized view for all family members.
Ease of Use	Multiple Websites	Internationalization	The page can have a localization option for other languages like Chinese, Japanese, Hindi etc for the immigrants' convenience of using the application.
Ease of Use	Multiple	Contact dev team	There is no way to reach the Metree team, it would

Use	Websites	feature	be helpful if there are contact details present such as "Contact Us" in footer.
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4. **Variations:** crazy eights, one for each team member

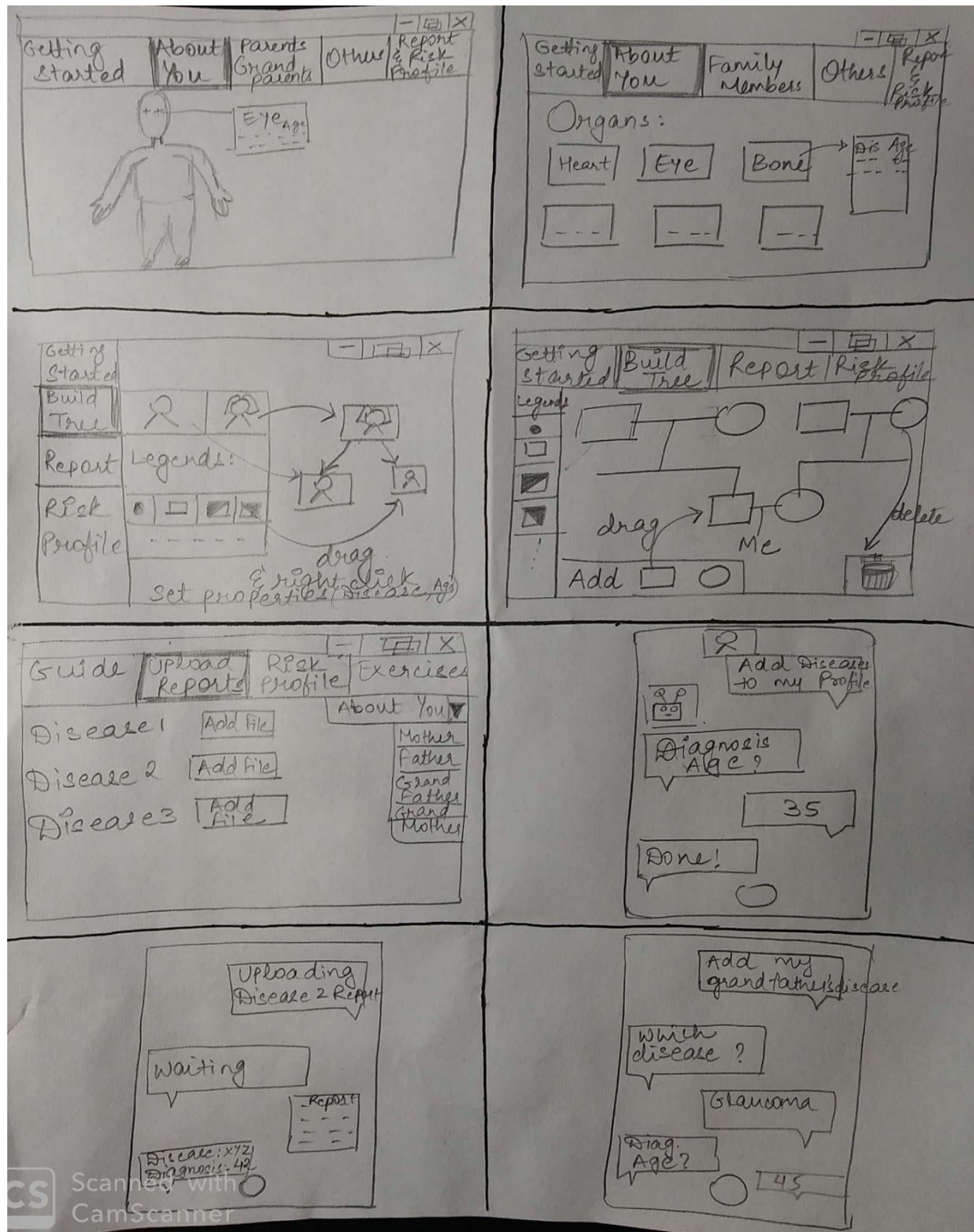
a. Pranav

I. Select Symptoms Interface

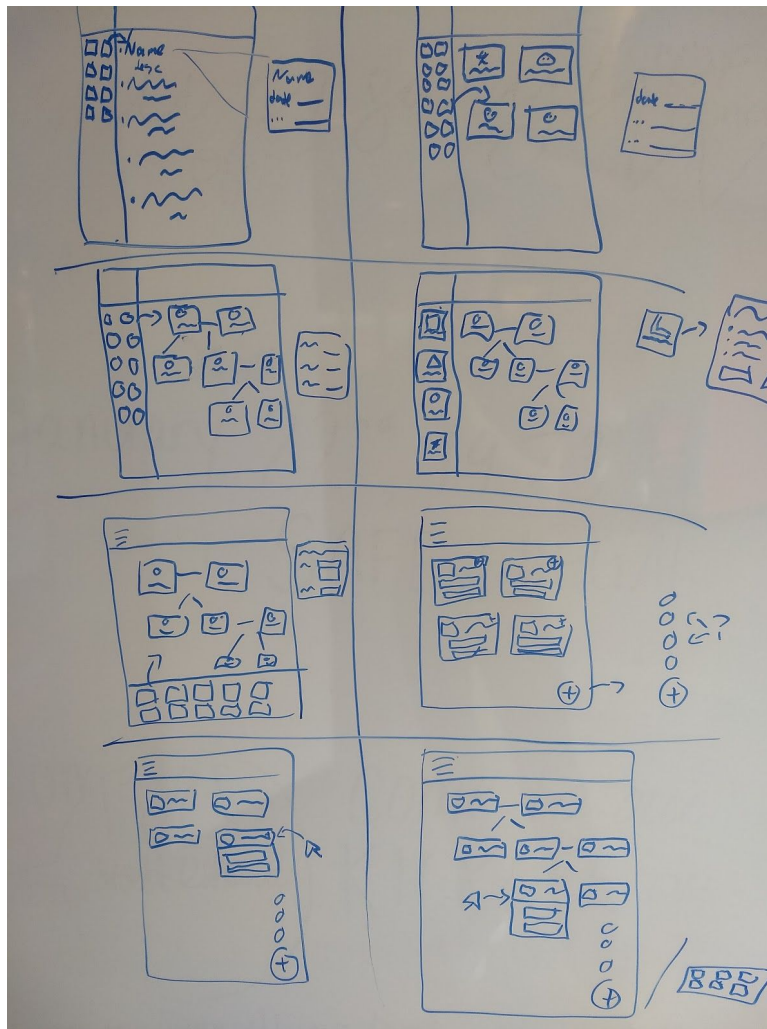


b. Urvi

Crazy eights for Entering Diseases:

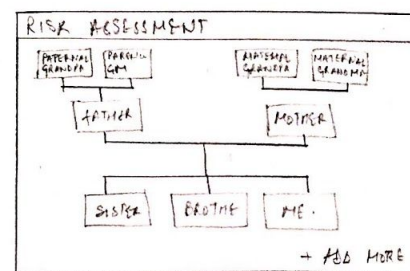
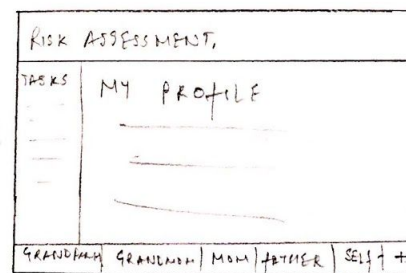
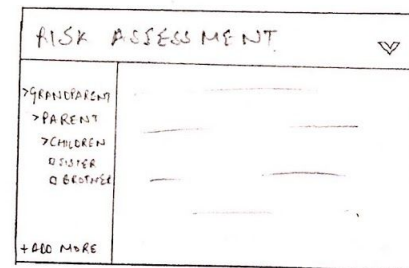
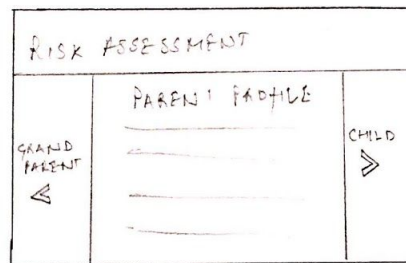
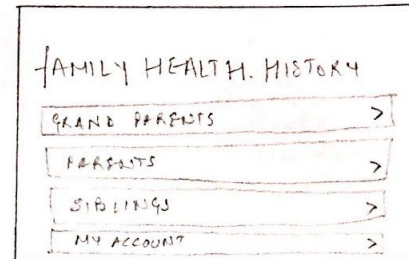
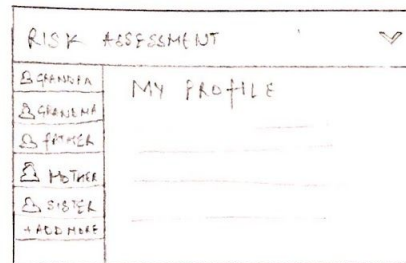
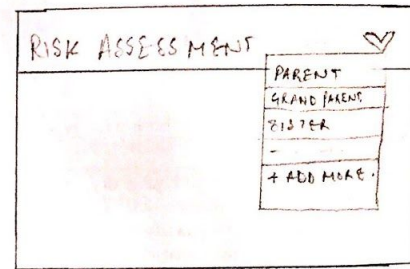
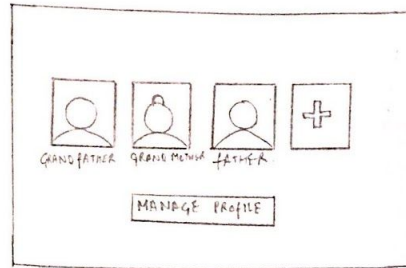


- c. Brent
- Drag-and-drop family disease interface

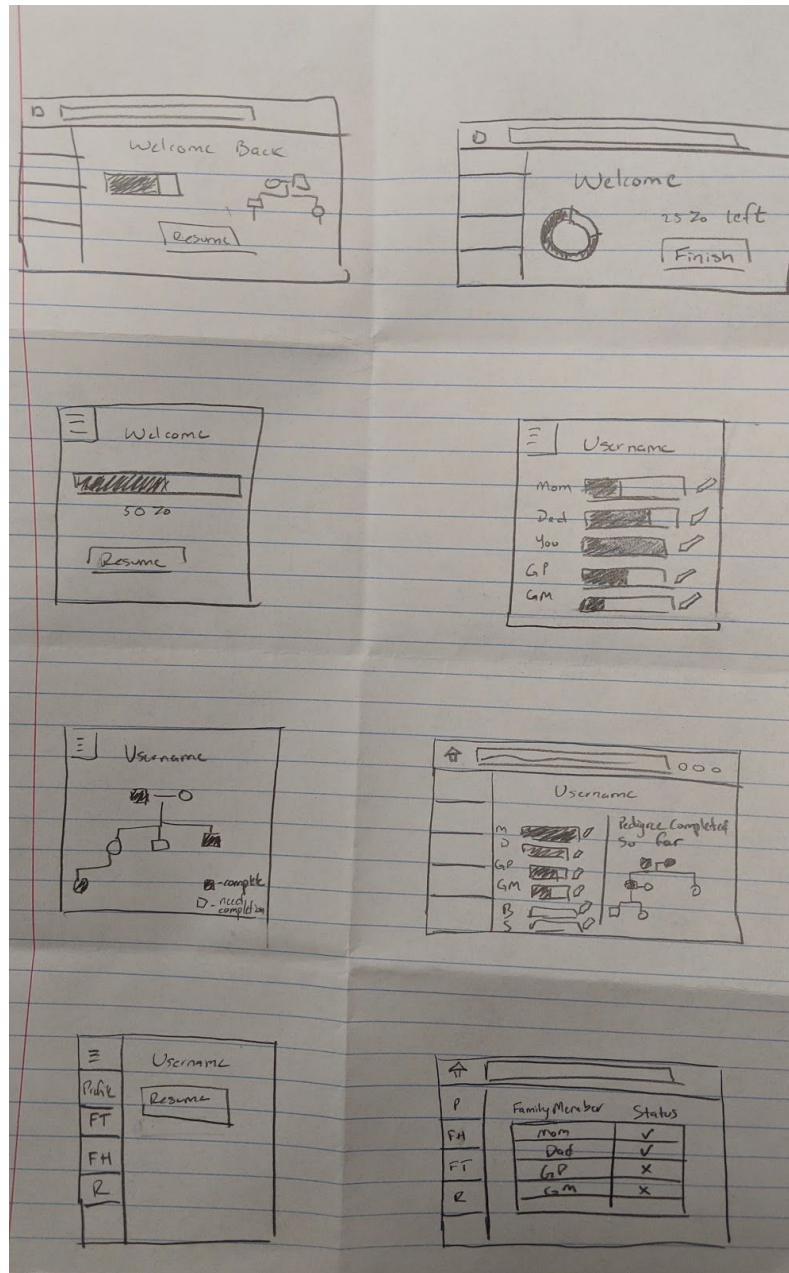


d. Abhilasha

Create Family account interface



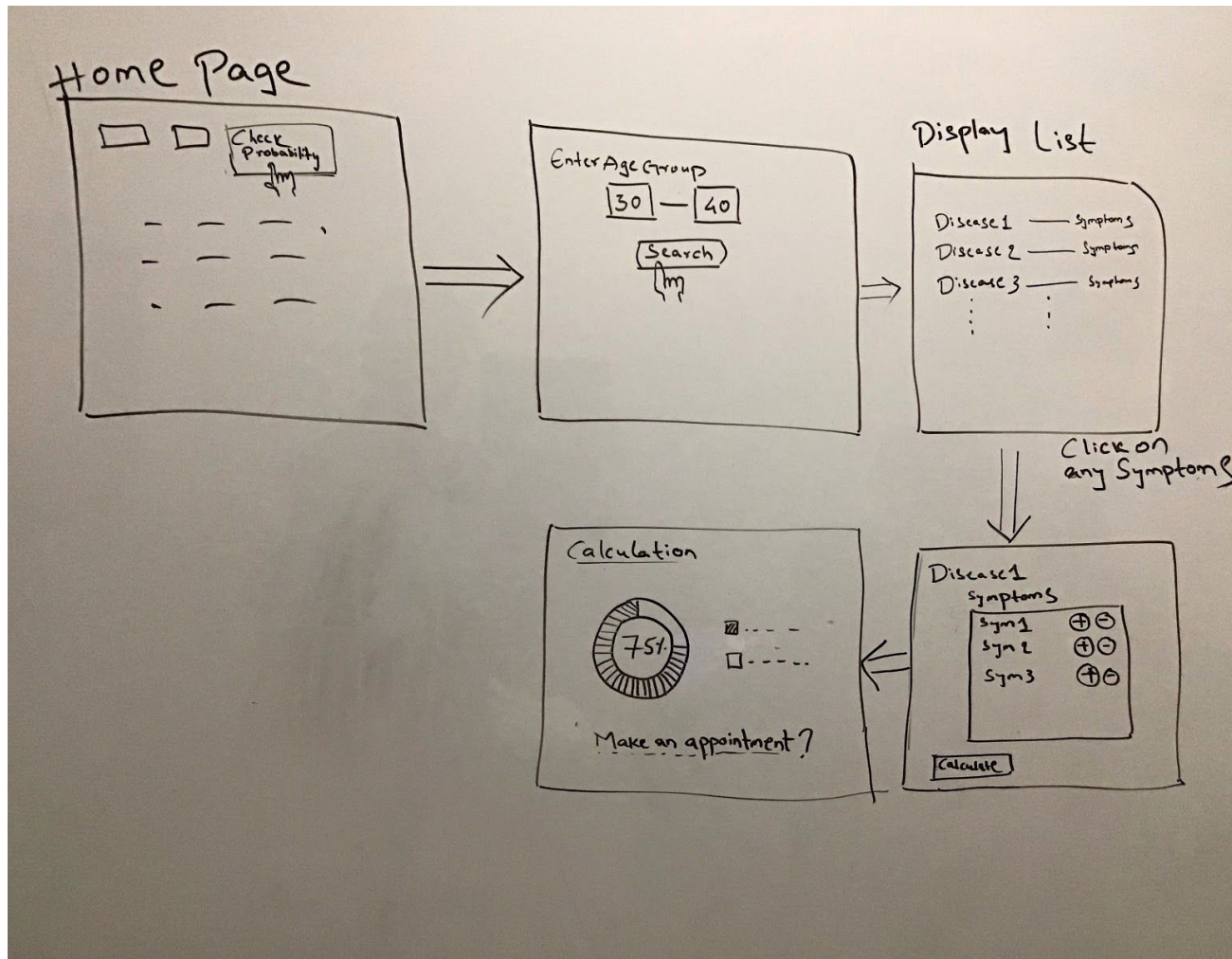
- e. Hasham
- i. Landing page when users log in



5. **Storyboards:** one for each team member.

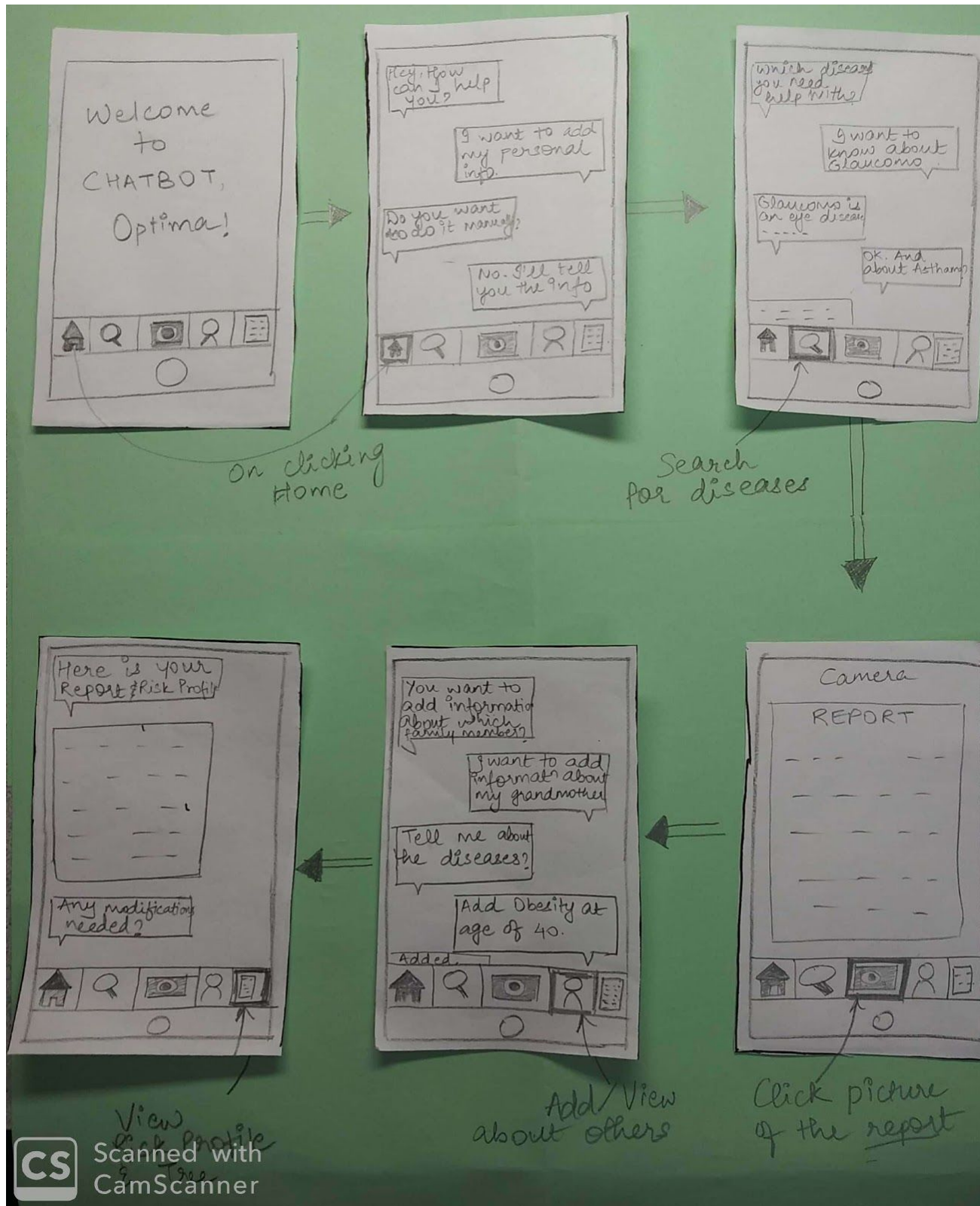
a. Pranav

Analyzing symptoms and predicting the chances:

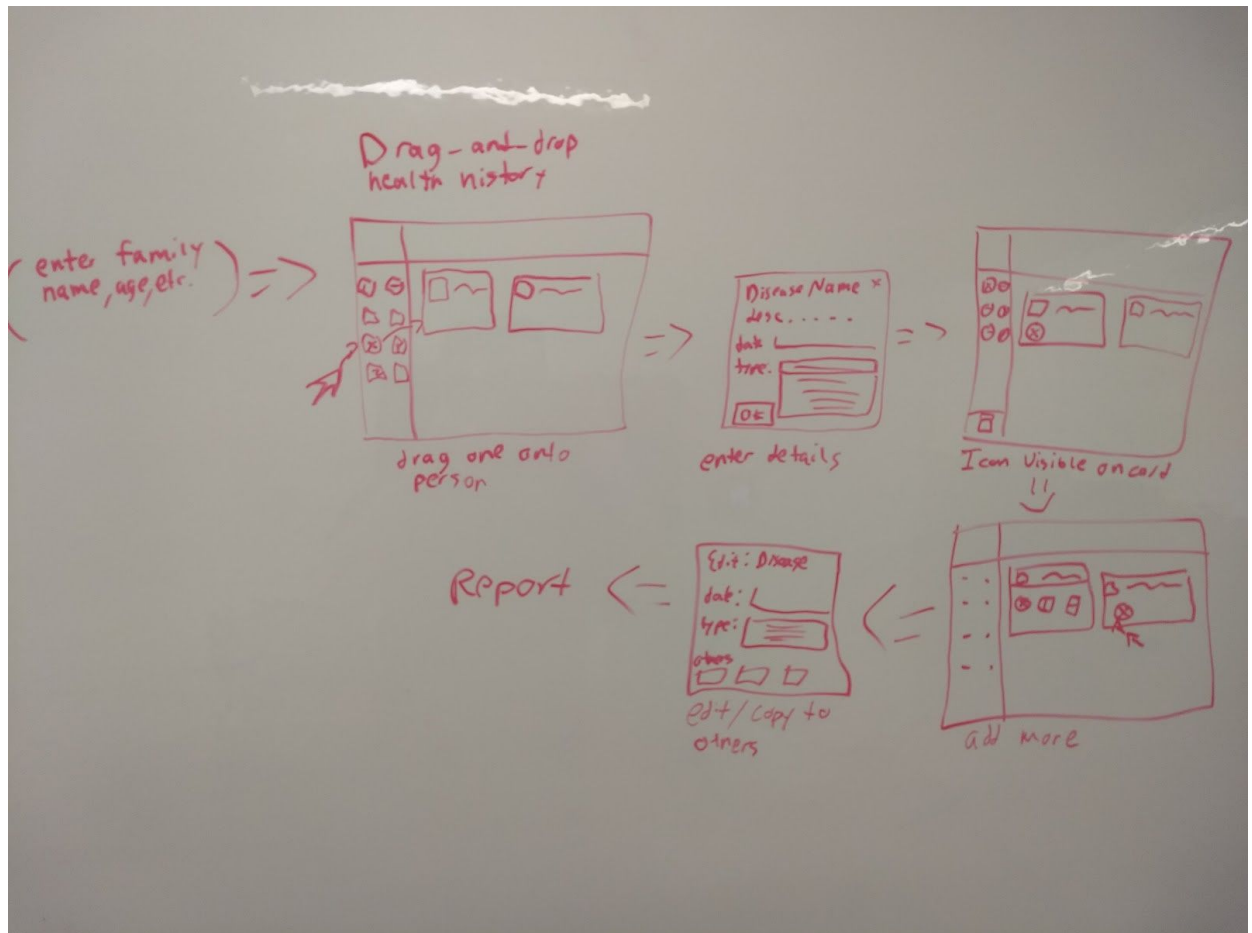


b. Urvi

Creating Chatbot for user interactivity and ease of use

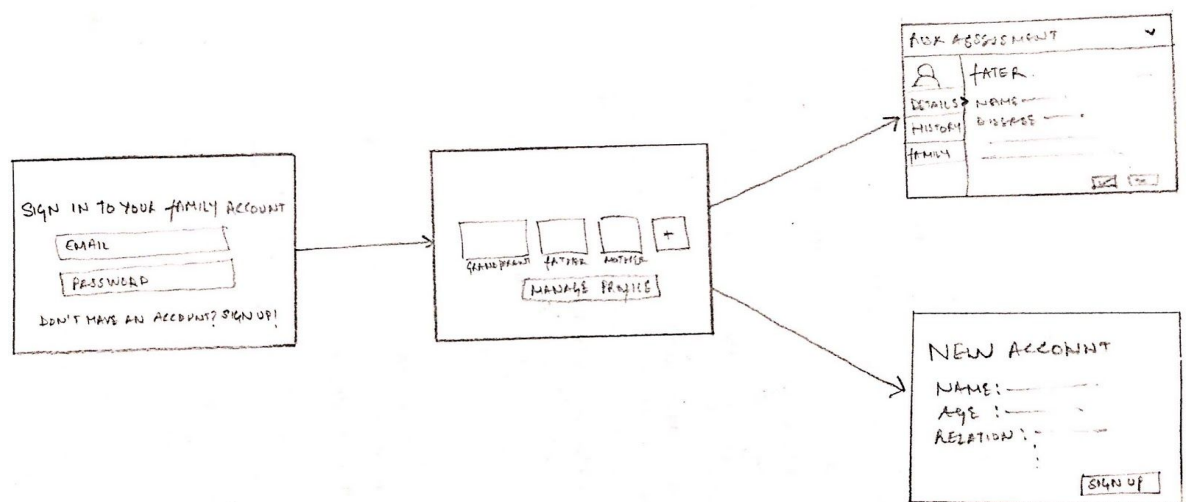


c. Brent - drag and drop health history



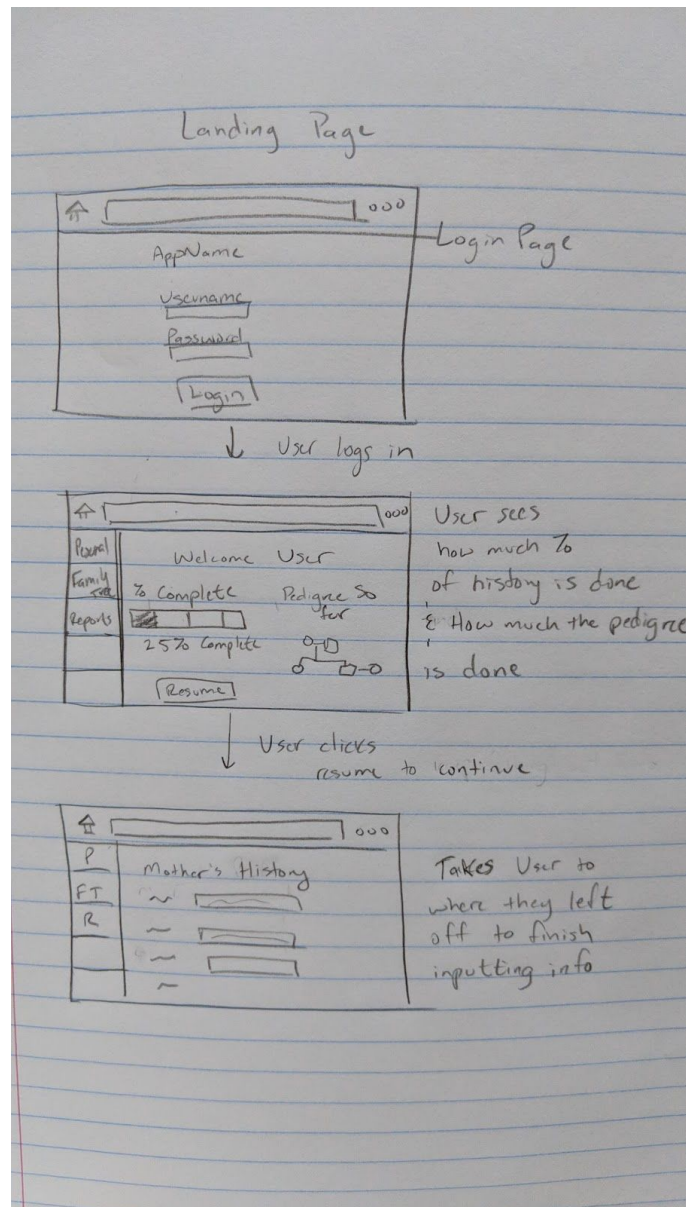
d. Abhilasha

Signing into a family account



e. Hasham

i. Landing Page



ii. One Disease List for all members

One Disease List

Diseases				
Name	Y	N	DX	Members
Cancer	✓			Add
Diab		x		Add
Heart		z		Add

Select

Disease

Page

↓ Click Add to enter a member's info

Diseases				
Name	Y	N	DX	Member
Cancer	✓			Name <input type="text"/> Age <input type="text"/> Onset Age <input type="text"/> Type <input type="text"/> Family Member Type <input type="text"/> Add

Select

Disease

Page

↓ Click Add to add family for that disease

Diseases				
Name	Y	N	DX	Members
Cancer	✓			Mom ✓ Add
Diabetes				

Select

Disease

Page