SENIOR FIRST

Collaborating Accessibility with user-centered-design











By Praveen Kumar Ningappa & Arshaan Shariff



SENIOR FIRST

Collaborating
Accessibility with
user-centered-design

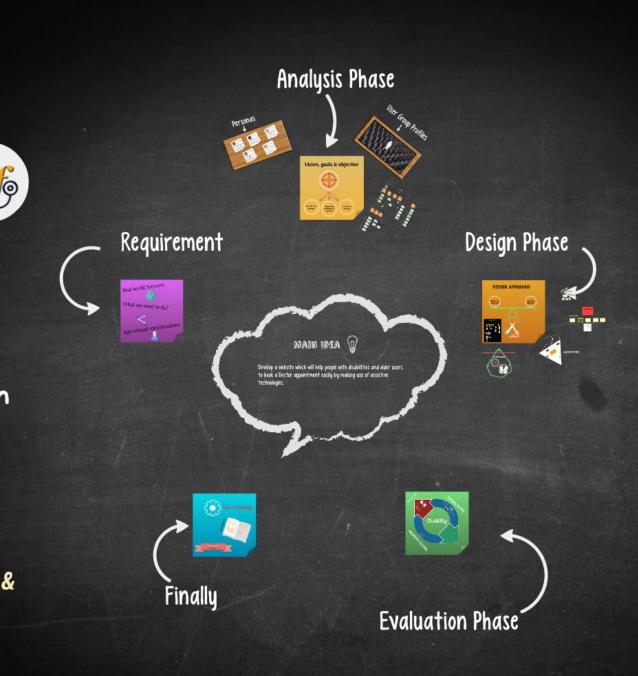


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Develop a website which will help people with disabilities and older users to book a Doctor appointment easily by making use of assistive technologies.





Requirement

What we need to do?

Age-related considerations

Real world Scenario



What we need to do?

PROBLEMS!







Most websites have accessibility barriers that make it difficult or impossible for many people with disabilities to use them. And most web software tools are not sufficiently accessible to people with disabilities, making it difficult or impossible for them to contribute to the Web.

People have different disabilities: visual, auditory, physical, speech, cognitive, and neurological and many have multiple disabilities.





Real world Scenario

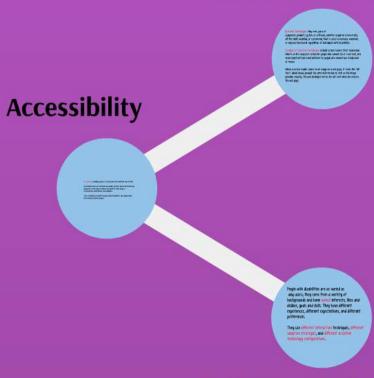


What we need to do?



Age-related considerations

Assistive Technologies



Individual Differences



Accessibility is designing products so that people with disabilities can use them.

Accessibility makes user interfaces perceivable, operable, and understandable by people with a wide range of abilities, and people in a wide range of circumstances, environments, and conditions.

Thus accessibility also benefits people without disabilities, and organizations that develop accessible products.

Assistive Technologies: Any item, piece of equipment, product, system or software, whether acquired commercially off the shelf, modified, or customized, that is used to increase, maintain, or improve functional capabilities of individuals with disabilities.

Examples of assistive technologies include screen readers that read aloud what's on the computer screen for people who cannot see or read text, and voice-input software and switches for people who cannot use a keyboard or mouse.

When a screen reader comes to an image on a web page, it reads the "alt text", which should provide the same information in text as the image provides visually. The web developer writes the alt text when she creates the web page.

People with disabilities are as varied as any users; they come from a variety of backgrounds and have varied interests, likes and dislikes, goals and skills. They have different experiences, different expectations, and different preferences.

They use different interaction techniques, different adaptive strategies, and different assistive technology configurations.

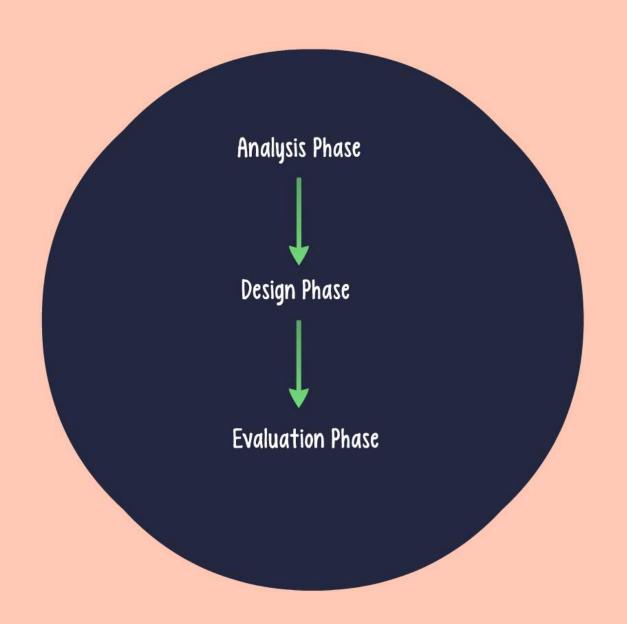
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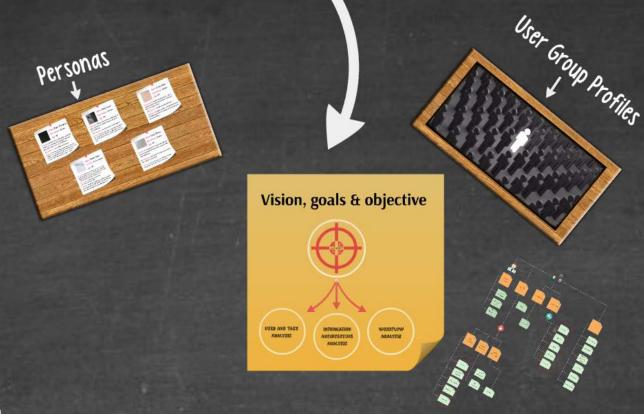
Age-related considerations

Age-related macular degeneration (amd) is the most common cause of blindness and vision impairment in Americans aged 60 and older. More than 1.6 million Americans over age 60 have advanced amd.

- Cataracts are the leading cause of blindness in the world.
 Cataracts affect nearly 20.5 million Americans age 65 and older.
- Vision changes in the elderly often result in increased susceptibility to glare and decreased contrast acuity.
- Neurological symptoms in the elderly are common, such as decreased cognitive or intellectual functions including impairment of memory, deterioration of mobility, decreased sensory input, (visual, auditory) and autonomic nerve system imbalance.
- Decreased muscle mass, bone density and lubrication of the joints cause stiffness of the joints, osteoporosis, fractures of the hip are common and bone/joint functional impairment.



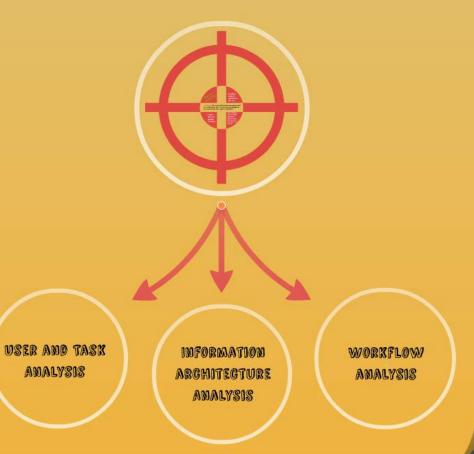
Analysis Phase



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GOALS & OFINES

 Accessible to people with disabilities and older users

Usability Goal: "Senior citizens should be able to book an appointment with doctor within 3 minutes the first two times they use the web application and I minute thereafter, with no support or documentation."

Provide a
 better user
 experience
 for all users

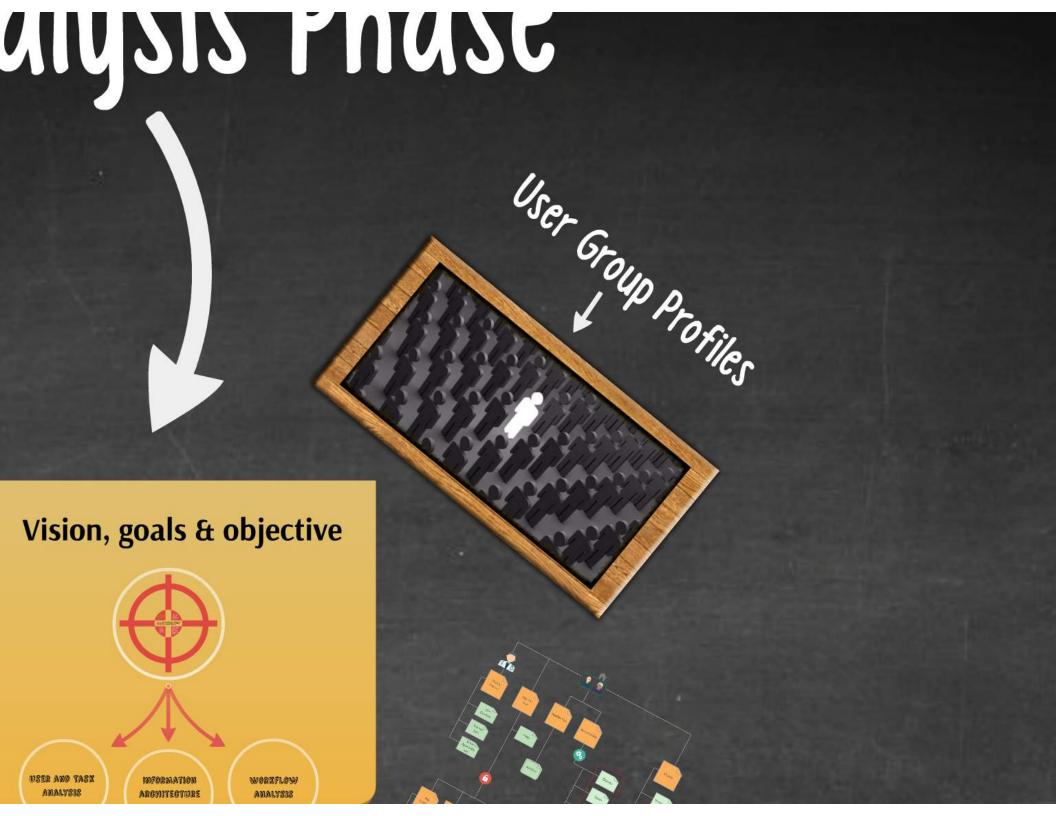
 Improve the website, software, hardware, and consumer products to make them more useful to more people in more situations.



user and task analysis

information architecture analysis WORKFLOW ANALYSIS

USER AND TASK ANALYSIS



DEMOGRAPHICS

User Group Profile: Retirees, Senior citizens, people with disability

ENVIRONMENT

Many senior citizens who uses a computer, complain of glare on the monitor because of overhead fluorescent lights.

A high percentage of people in this user group have difficulty using the mouse, especially for small targets close together (such as a list of text links and groups of option buttons or checkboxes). Some use keyboard shortcuts when they can.

An informal survey of senior citizens who uses web applications showed that some have difficulty using some aspect of the application due to their functional limitations (mostly vision-related), yet only a few have software modifications to help them address the problems:

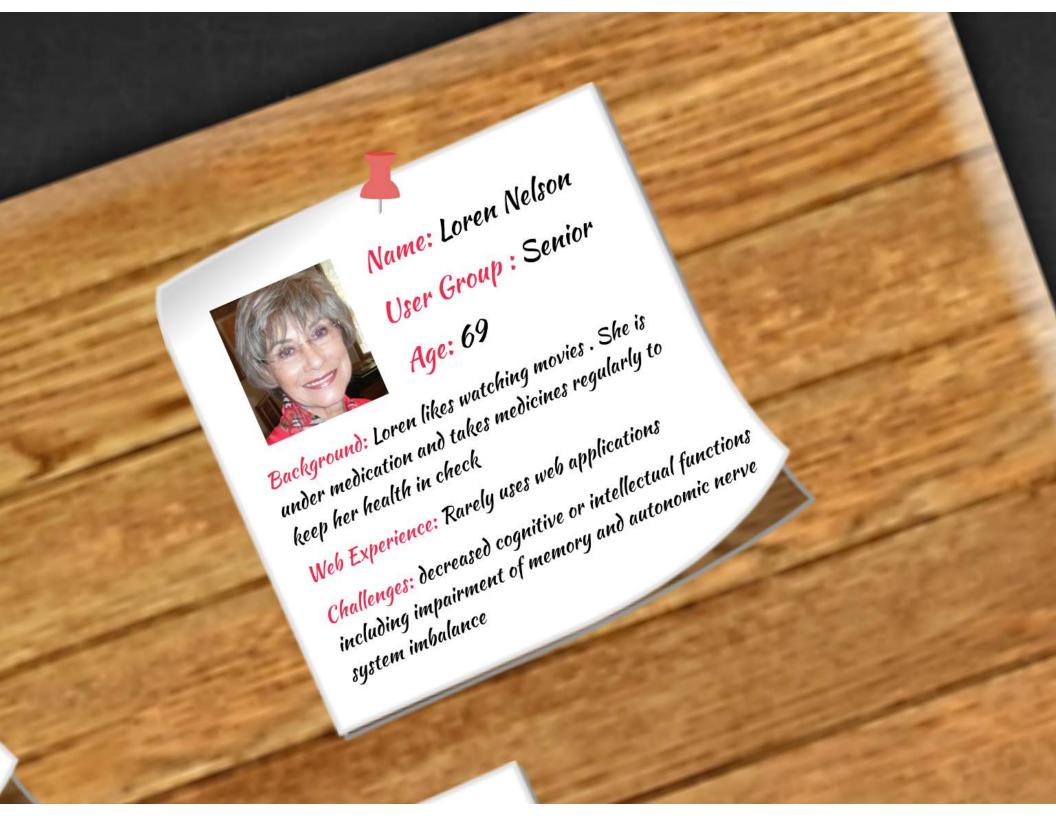
- 3 had large fonts selected in their operating system, but not the browser (in all
 three cases, someone else had set the os for them and they didn't know that they
 could also set it in their browser)
- 2 had set the text size to largest in the browser but not in the os
- I had screen magnification software

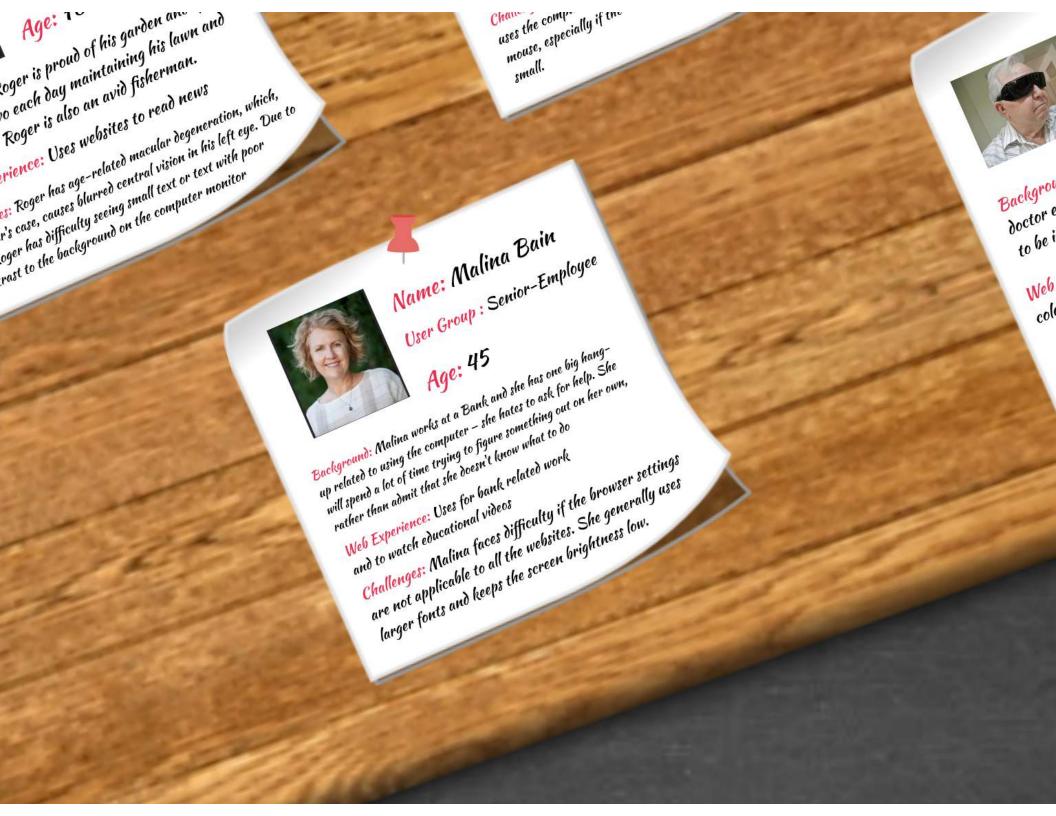


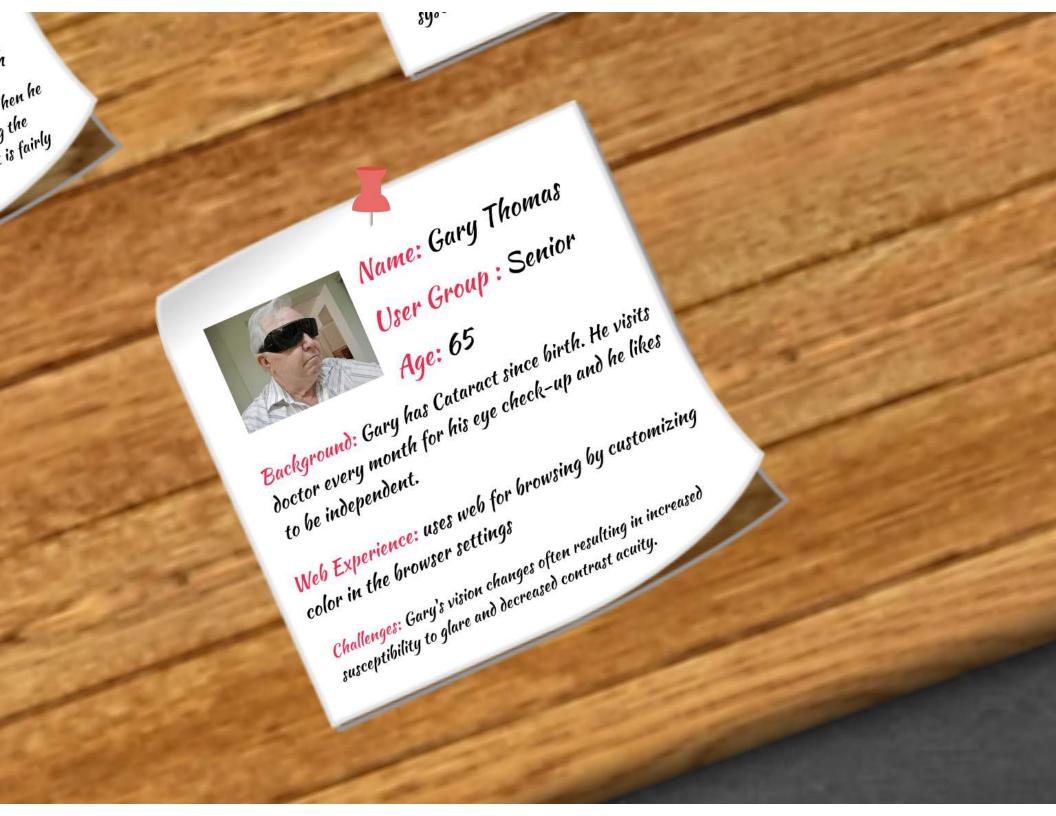
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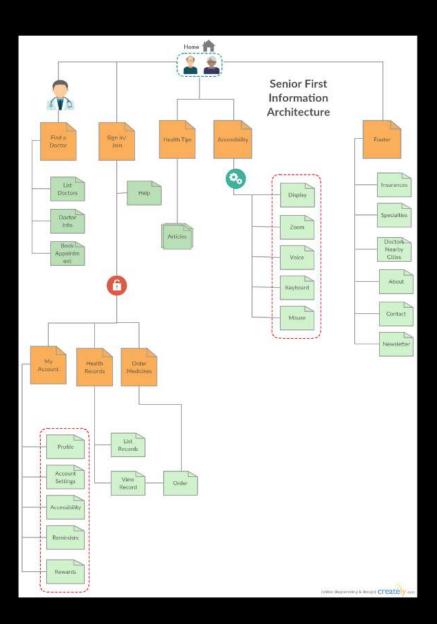








INFORMATION ARCHITECTURE ANALYSIS



WORKFLOW ANALYSIS

Scenario

Poor user-experience

Background

Mr. Roger is working on his home computer on Wednesday morning. He has about an hour before his tea time, so he decides to book an appointment with doctor which he is obligated to do every month. Roger opens Mozilla firefox. He clicks Favorites and selects doctor appointment portal.

When the portal home page is loaded, Roger enters his username and password. He could click the GO button but instead he presses Enter to continue.

Roger clicks the Find doctor near locality button.

The search screen brings up a list of all the doctors to Roger. He will feel difficult to read the screen, and Roger realizes that his wife must have set the text size to medium. Roger clicks View on the toolbar. He presses the down arrow key to highlight Text Size and presses Enter. Largest is automatically highlighted, so Roger presses Enter.

Roger needs to scroll down to see the list of doctors, but he has now lost track of the cursor. He moves the mouse around but cannot find the pointer. So he presses the page down key several times until the Doctor he is looking for is displayed.

He opens book appointment tab. The calendar titles have not been resized to larger text. Roger has trouble finding the required date and wonders if he should bother to open his screen magnification software. He decides that it's too much trouble, and simply leans closer to the screen. He finds the date he wanted and clicks on it and books an appointment.

The confirmation screen appears. There are two buttons: View appointment and Logout. Roger clicks Logout.

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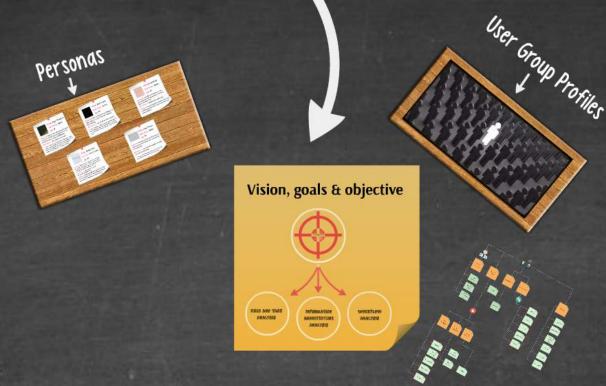
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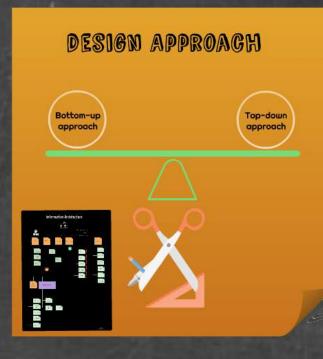
Analysis Phase



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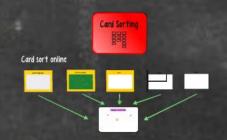
Design

Design Phase



Guidelines







PROTOTYPING

DESIGN APPROACH

Bottom-up approach

Top-down approach

Information Architecture



Senior First

5 Planes

Strategy Plane: User objectives— Senior citizens should be able to use web platform to book medical appointments & access their health records. Business goal— more users.

Scope Plane: The site should be able to provide accessibility features comprising Display, voice, mouse, keyboard settings. The site UI should be developed keeping the seniors in mind.

Structure Plane: The IA of the website should be simple with multiple entry points. Seniors should be able to access health records and order prescriptions under 3 clicks. Error Prevention and correction should be taken care.

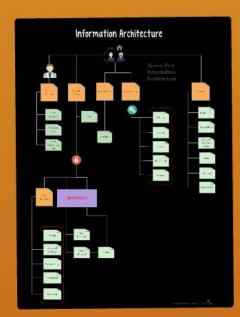
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Surface Plane: The user interface should follow color theory and typography rules that are helpful for senior citizens

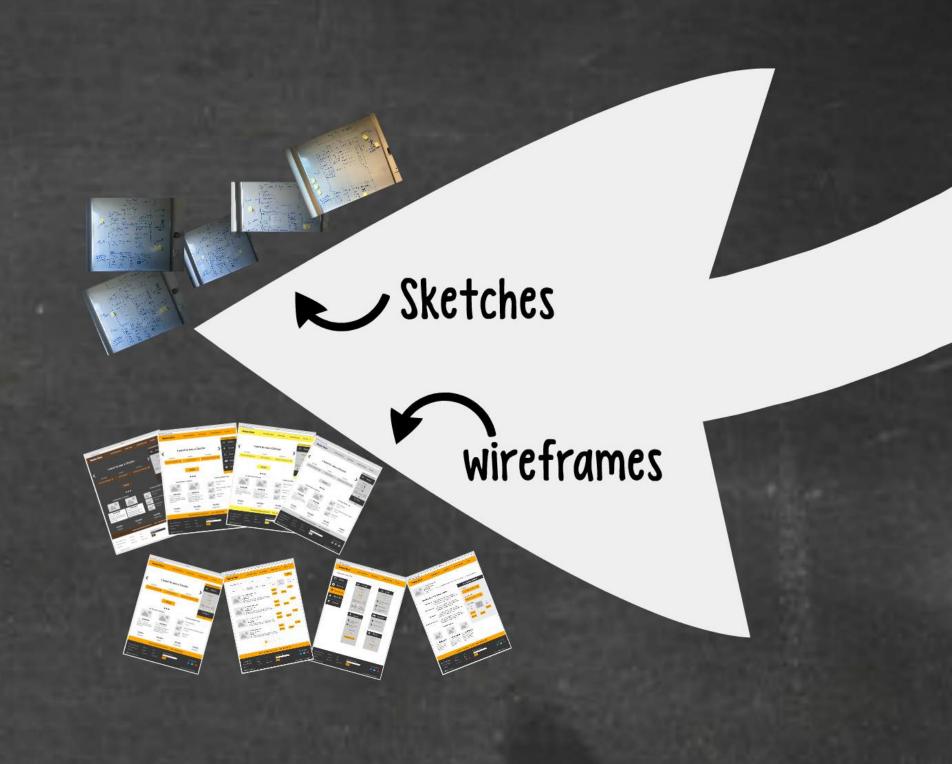
DESIGN APPROACH

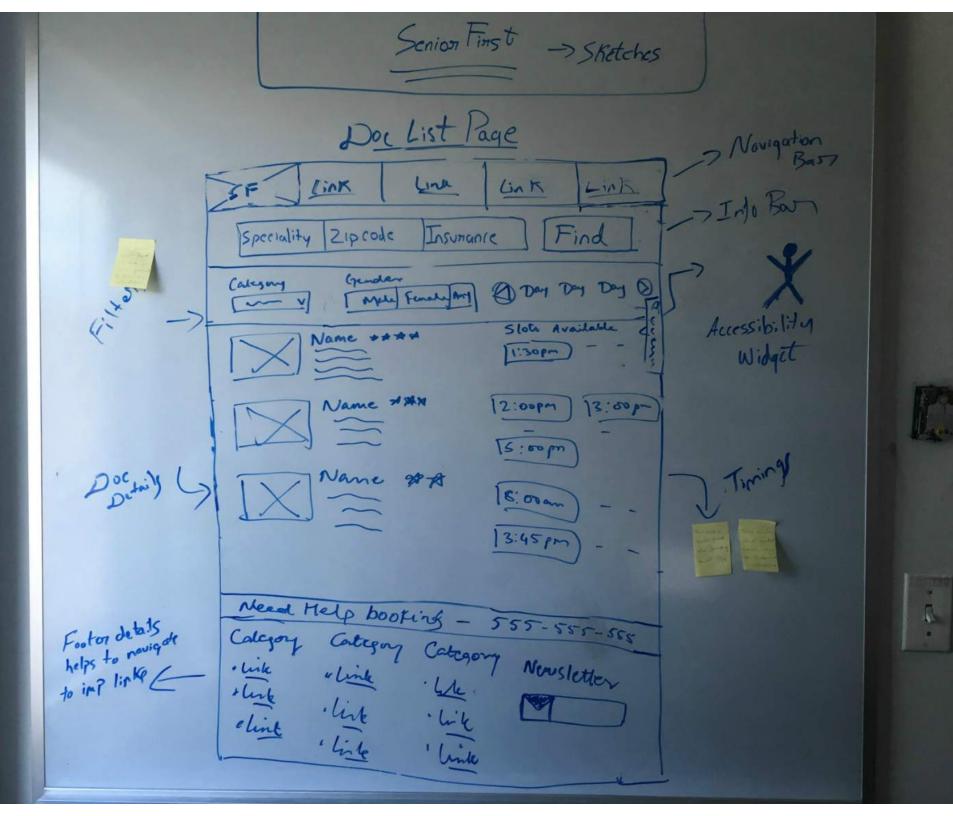
Bottom-up approach

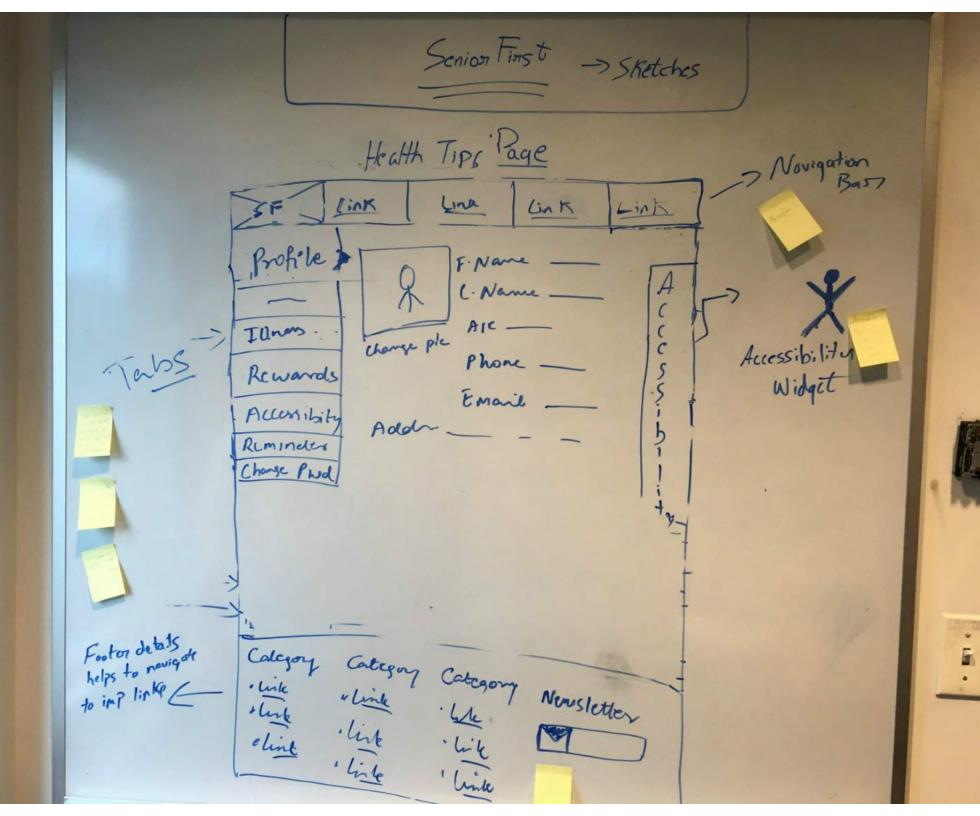
Top-down approach

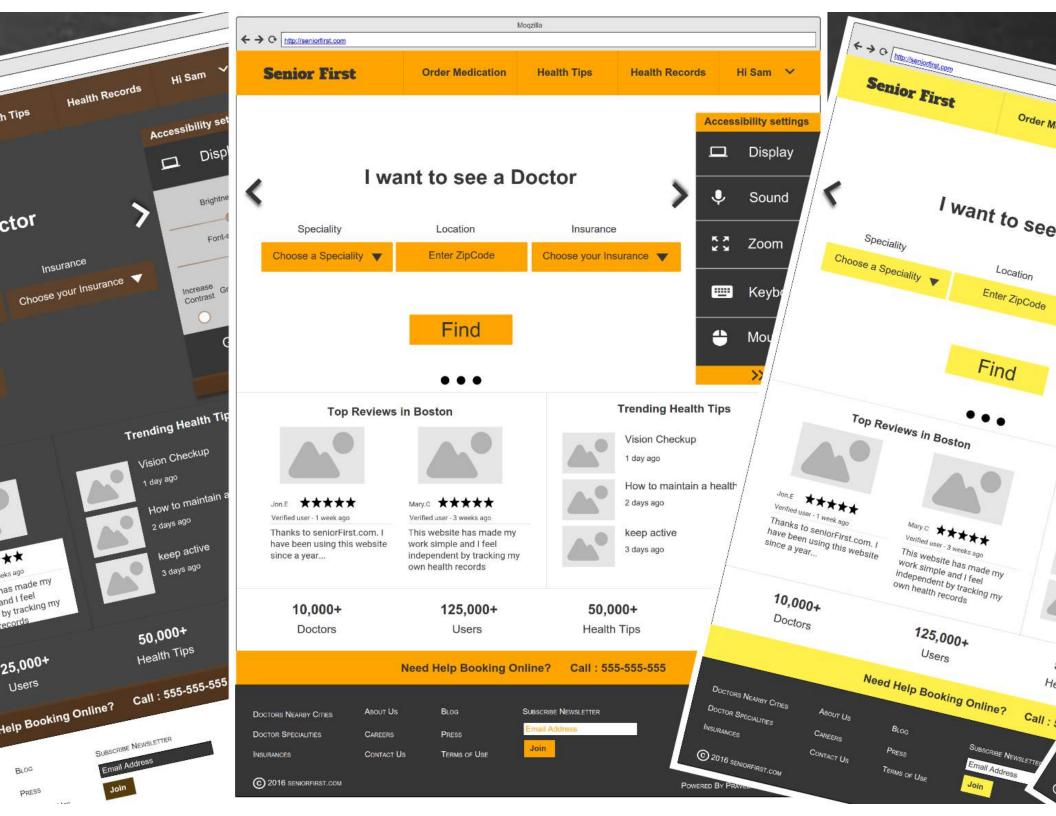


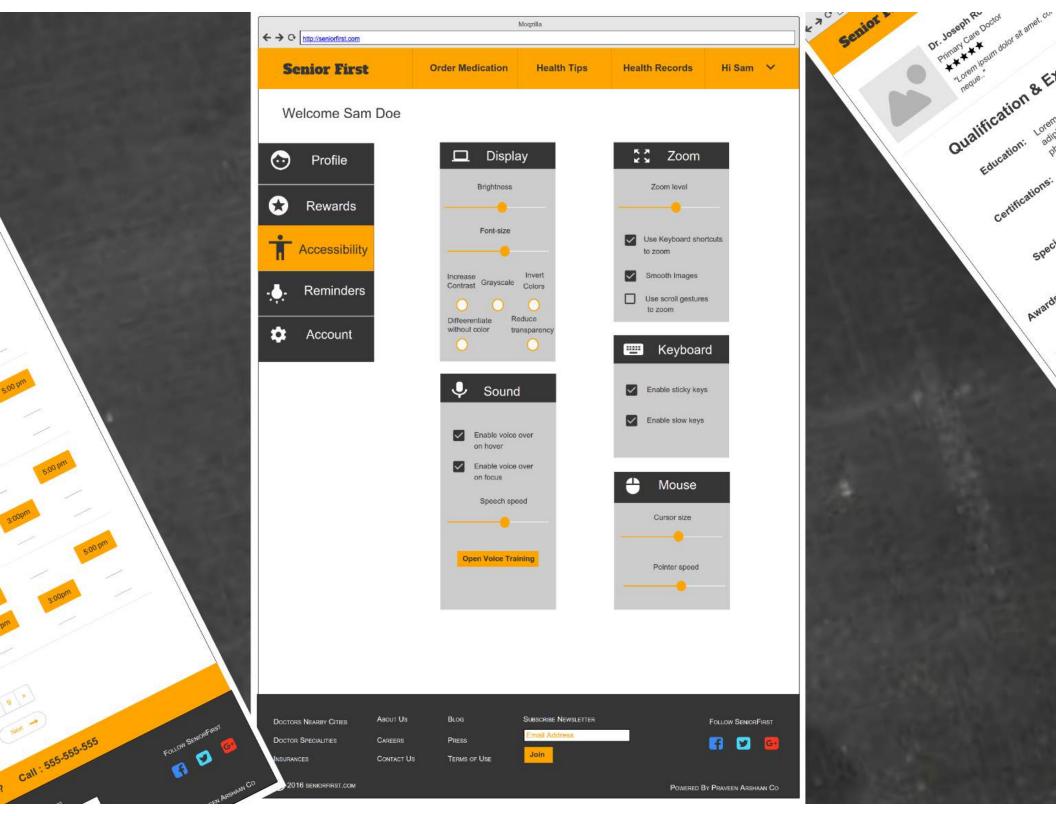








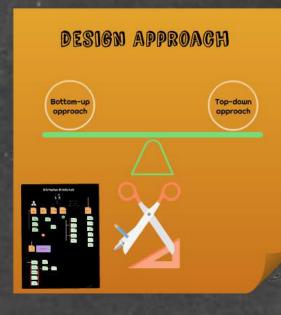




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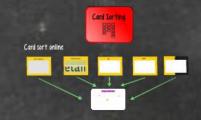
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Design Phase



BUIDELINES





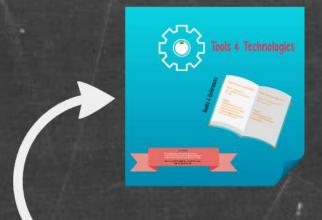


PROTOTYPING









Finally



Tools & Technologies



Conclusion

With Accessibility features at the moment might be difficult to incorporate in all the websites. But with the improving technology and concepts future with accessibility as a web standard is not for away.

Web Accessibility might be essential for some, but it is useful for all



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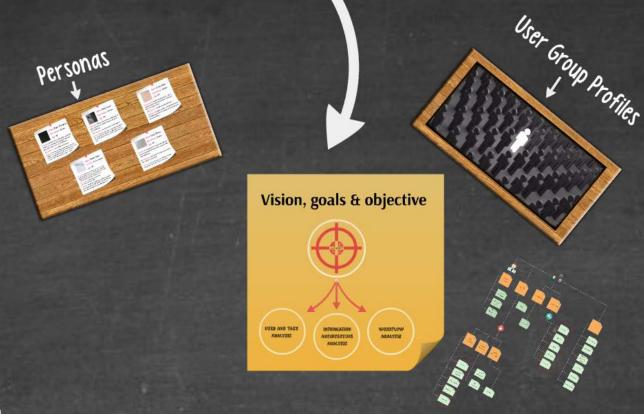


Requirement

What we need to do?

Age-related considerations

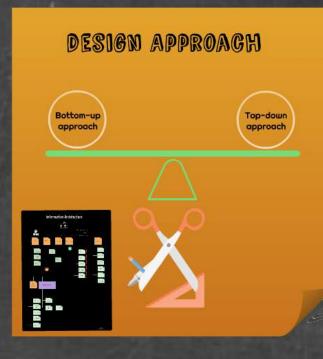
Analysis Phase



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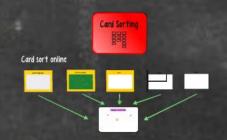
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Design Phase



Guidelines







PROTOTYPING





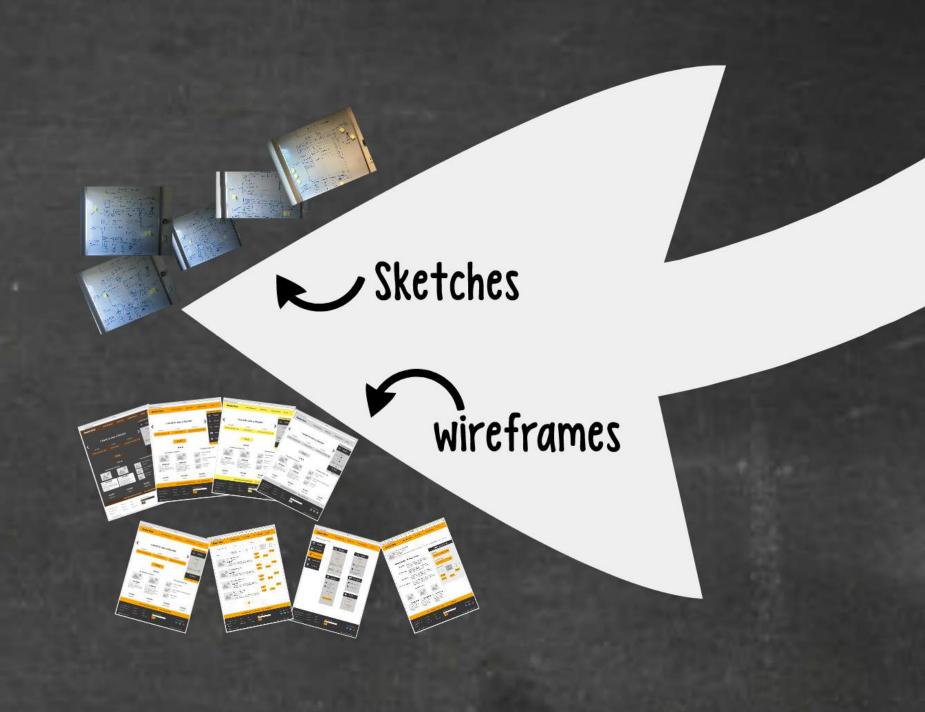
GOALS & OSTIVES

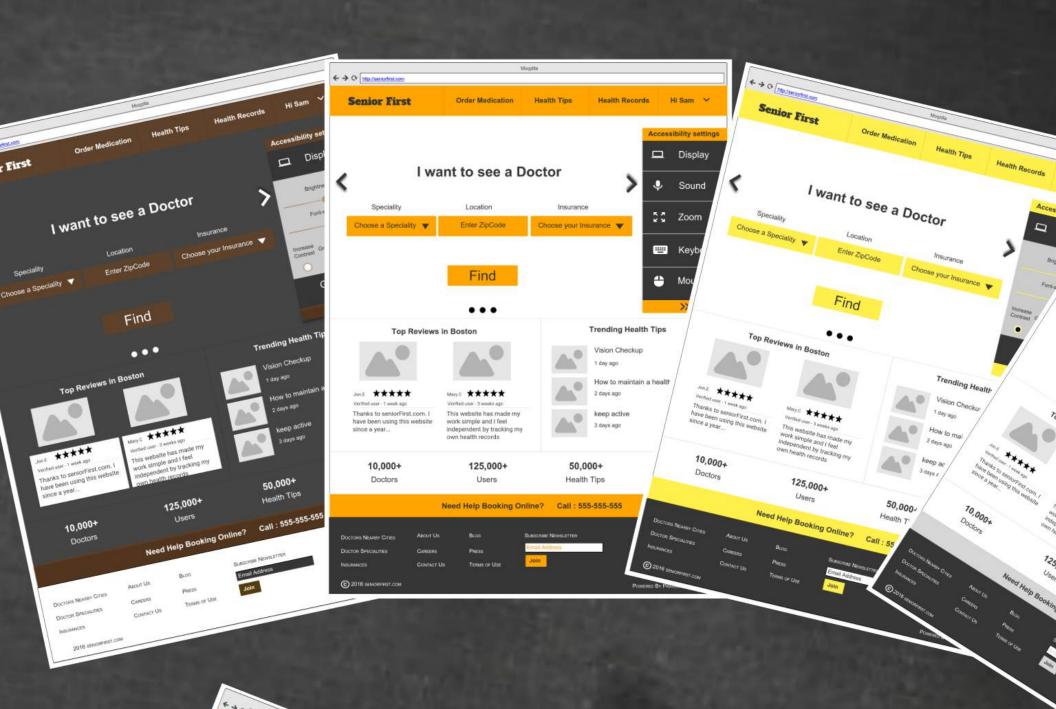
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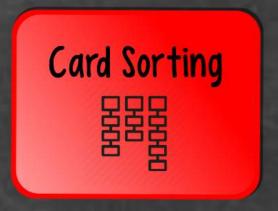
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Provide a
 better user
 experience
 for all users

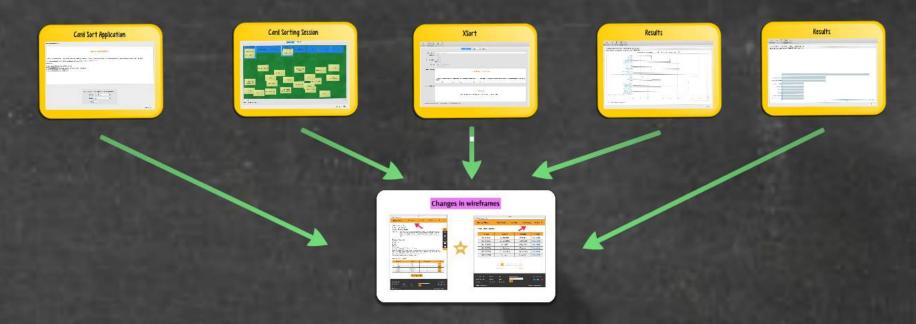
 Improve the website, software, hardware, and consumer products to make them more useful to more people in more situations.







Card sort online



Card Sort Application

seniorFirst.com website

seniorFirst.com website

Thank you for cooperating with us in the process of seniorFirst.com website construction. We appreciate your help very much, and believe that this session will contribute positively for the quality of our work.

This is an application which helps Engineers and designers to provide better user Experience to the website

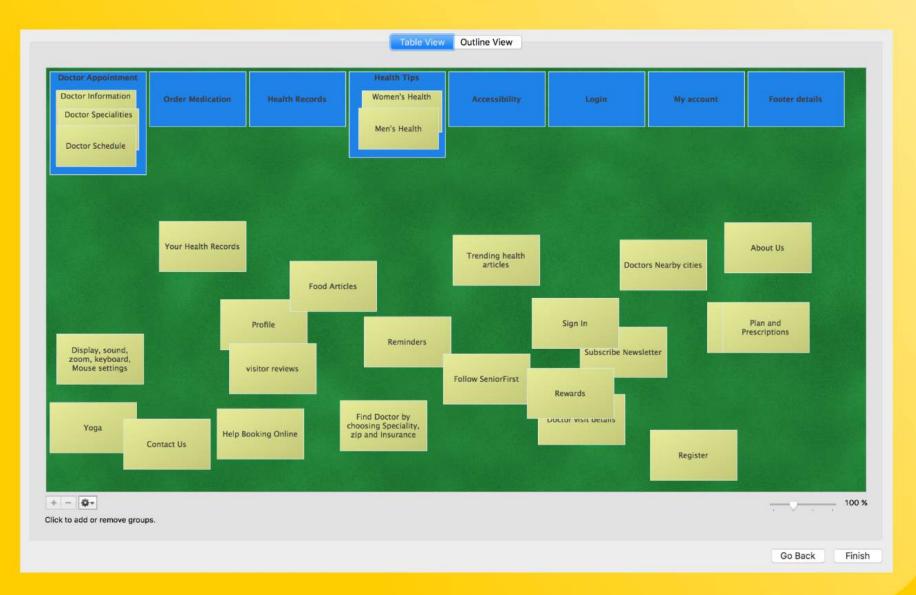
Instructions:

- 1. Select customer Profile, Gender and Enter your Age
- 2. Click Start Session button
- 3. Group the cards which you think are similar and goes well if they are in one category.
- 4. After sorting all the cards click on Finish button
- 5. Save the session to send your results to us

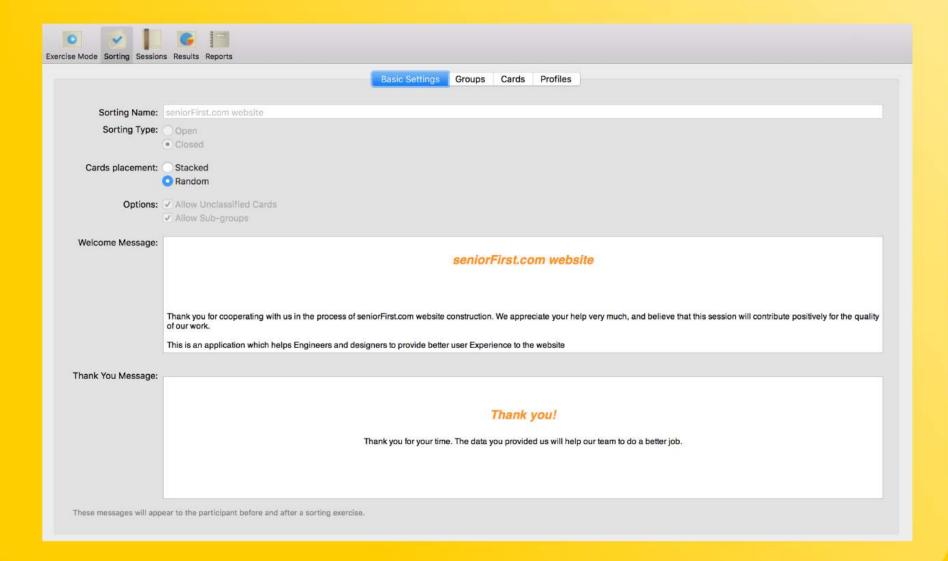
Profile:	Senior Citizen	0
Gender:	Male	

Start Session

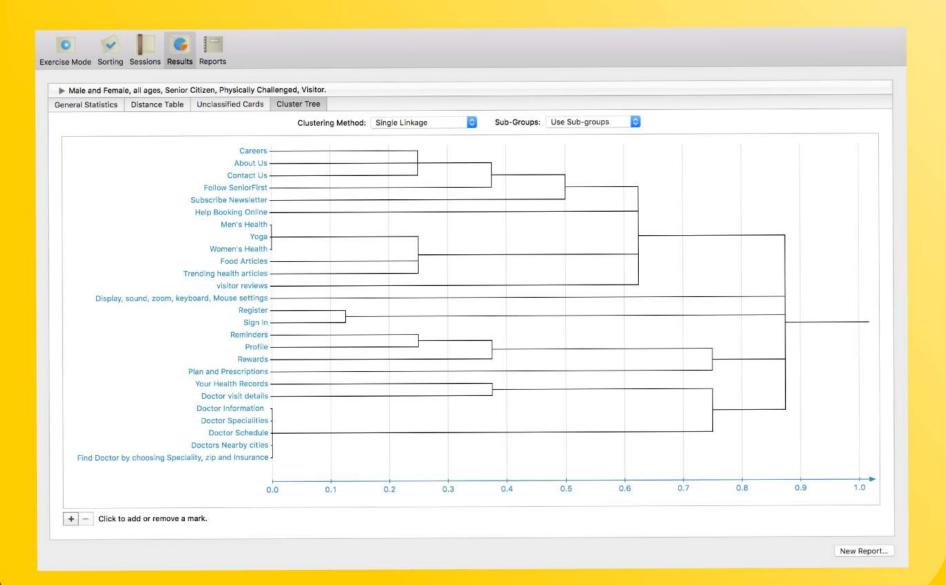
Card Sorting Session



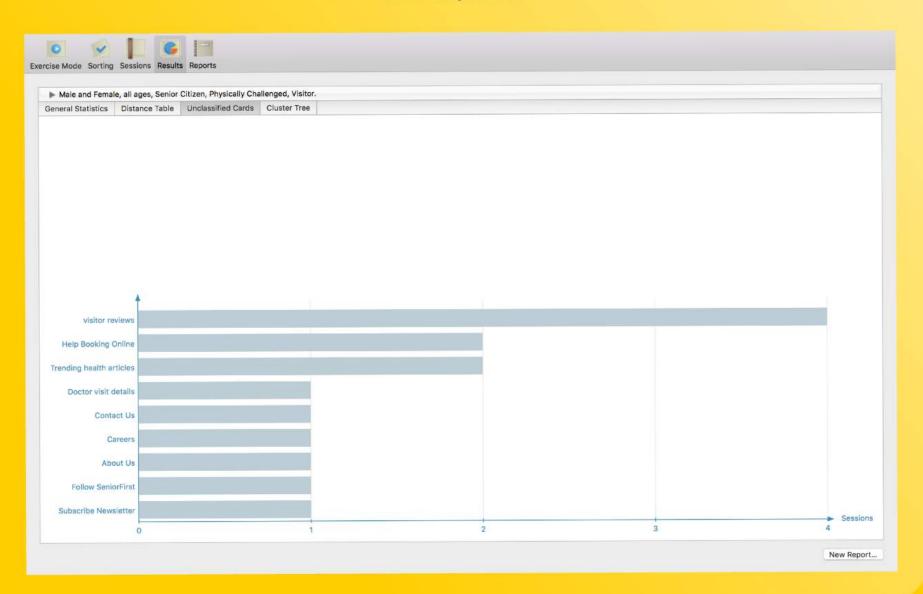
XSort



Results



Results



Cart Sorting Report

6/27/16, 2:56 AM

Problem Information

Name: seniorFirst.com website

Type: Closed

Unclassified cards: Yes

Sub-groups: Yes

Number of cards: 26

Number of suggested groups: 8

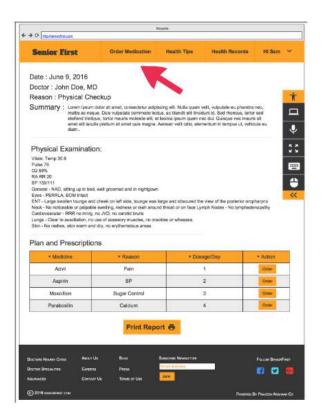
Number of sorts: 8

Number of profiles: 3

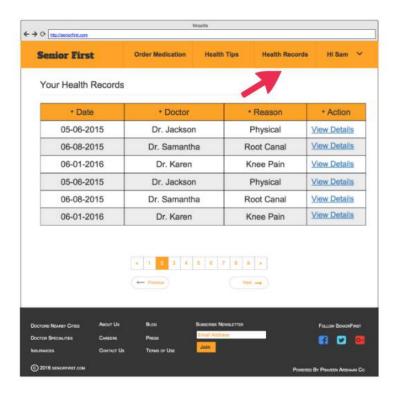
Cards

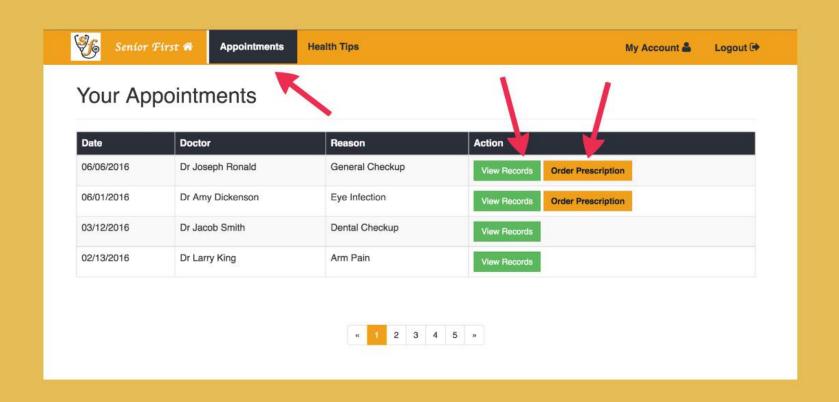
- Find Doctor by choosing Speciality, zip and Insurance
- Help Booking Online
- About Us
- Careers
- Contact Us
- Subscribe Newsletter
- O Doctors Nearby cities
- Doctor Specialities
- Follow SeniorFirst
- O Display, sound, zoom, keyboard, Mouse settings
- Sign In
- Register
- O Doctor Information
- Doctor Schedule
- Yoga
- Men's Health
- Women's Health
- Plan and Prescriptions
- Doctor visit details
- Your Health Records
- Profile
- Rewards
- Reminders
- visitor reviews

Changes in wireframes



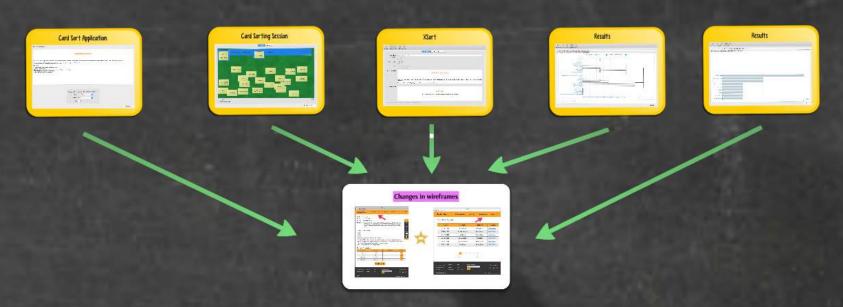








Card sort online



5 Planes

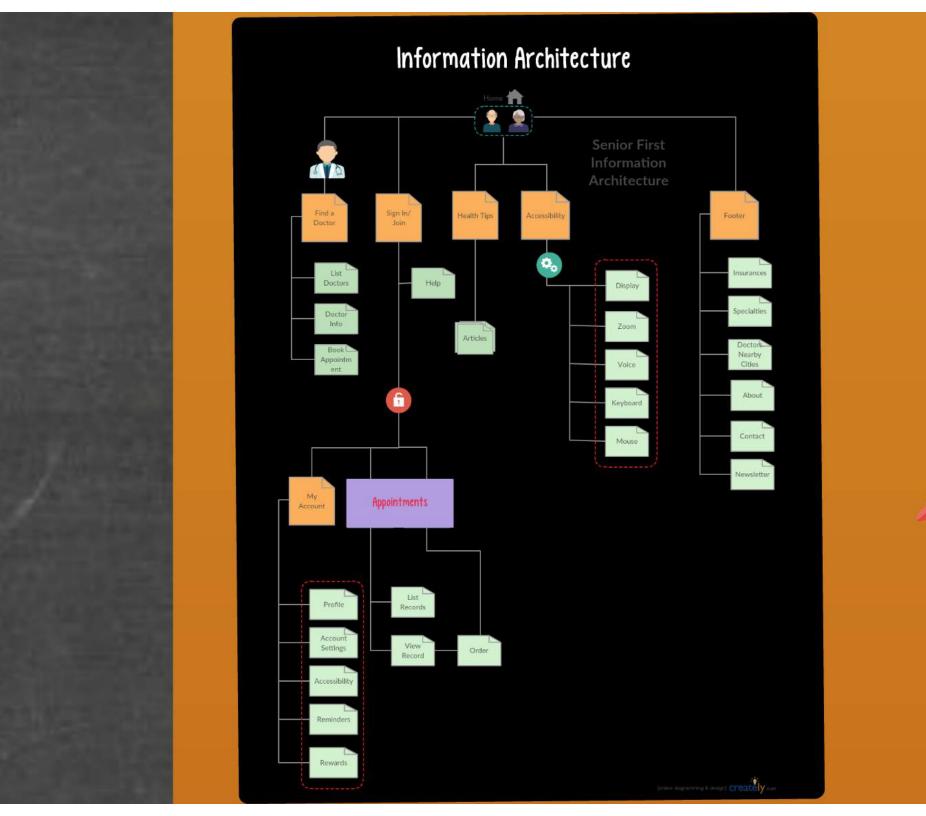
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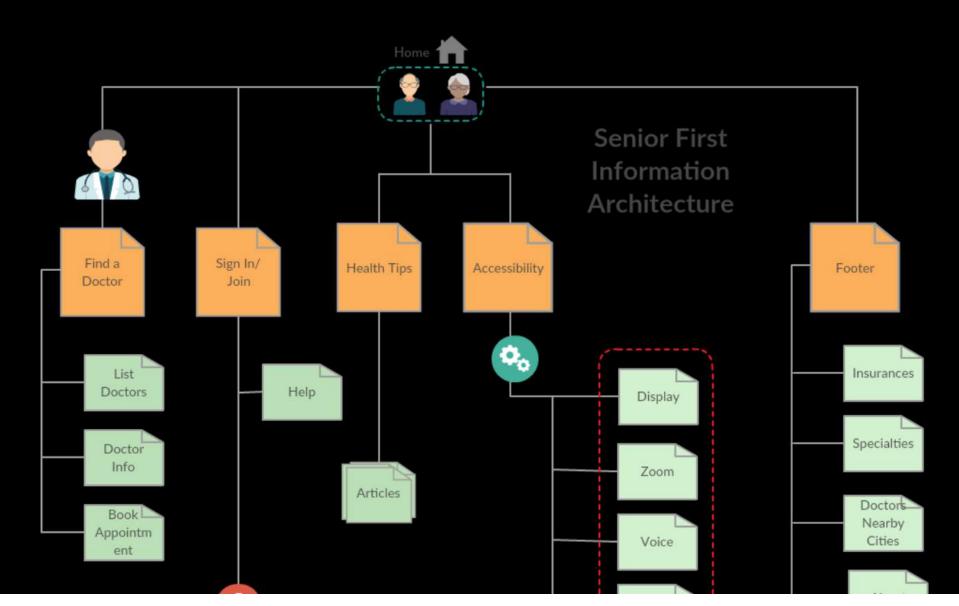
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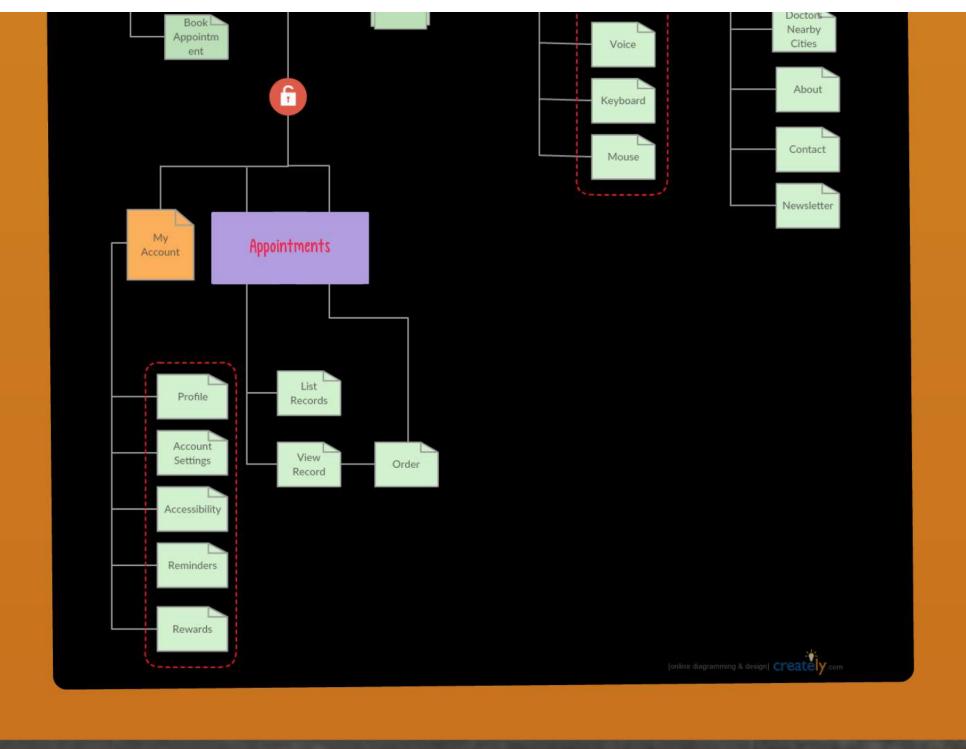
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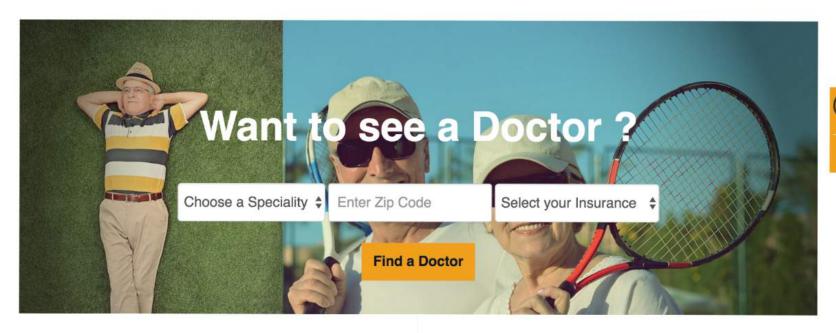
Information Architecture







PROTOTYPING



WHAT OUR VISITORS SAY ...

TRENDING BLOG ITEMS



Social Life

Laudantium totam tempore optio doloremque laboriosam quas, quos eaque molestias odio aut eius animi. Impedit temporibus

Read More...



WHAT OUR VISITORS SAY ...





James Cooper - Boston *****

Lorem ipsum dolor sit amet, consectetur adipisicing elit. Quidem, veritatis nulla



TRENDING BLOG ITEMS



Social Life

Laudantium totam tempore optio doloremque laboriosam quas, quos eaque molestias odio aut eius animi. Impedit temporibus

Read More...





Care for each other

Laudantium totam tempore optio doloremque laboriosam quas, quos eaque molestias odio aut eius animi. Impedit temporibus

Read More...



Helping helps?

Laudantium totam tempore optio doloremque laboriosam quas, quos eaque molestias odio aut eius animi. Impedit temporibus

Read More...

10,000+ Doctors

125,000+

Patients

50,000+ Health Tips 75,000+

Reviews





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Laudantium totam tempore optio doloremque laboriosam quas, quos eaque molestias odio aut eius animi. Impedit temporibus

Read More...

10,000+ **Doctors**

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50,000+ Health Tips 75,000+

Reviews

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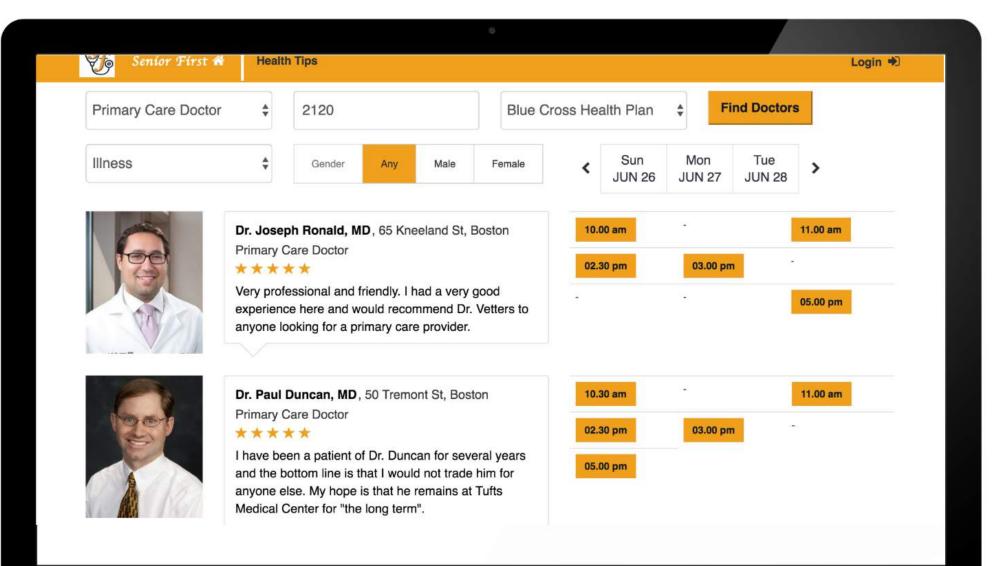






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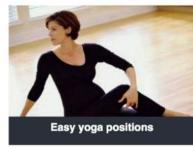


Browse Articles













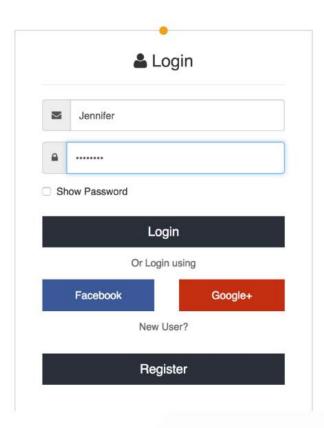




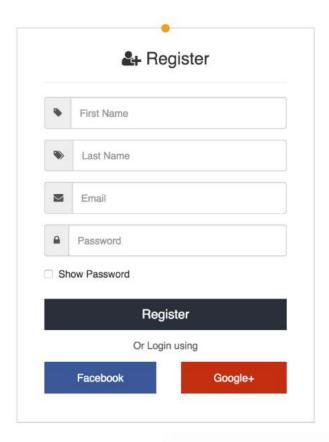






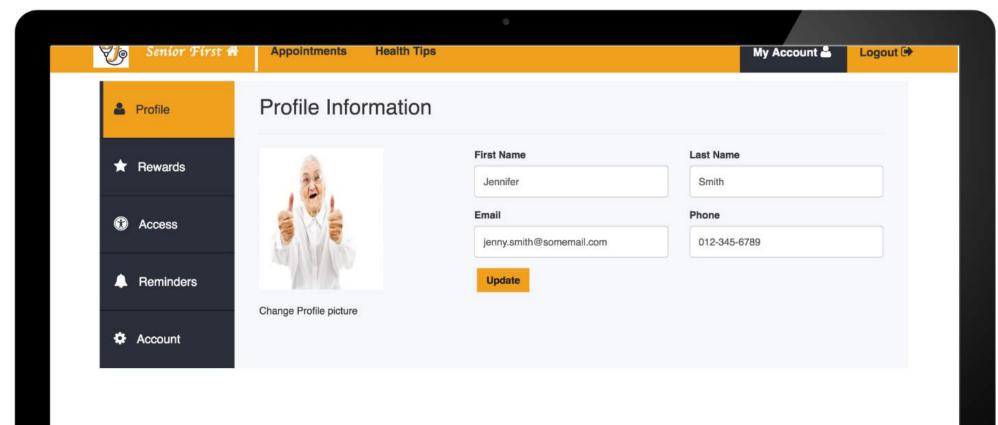




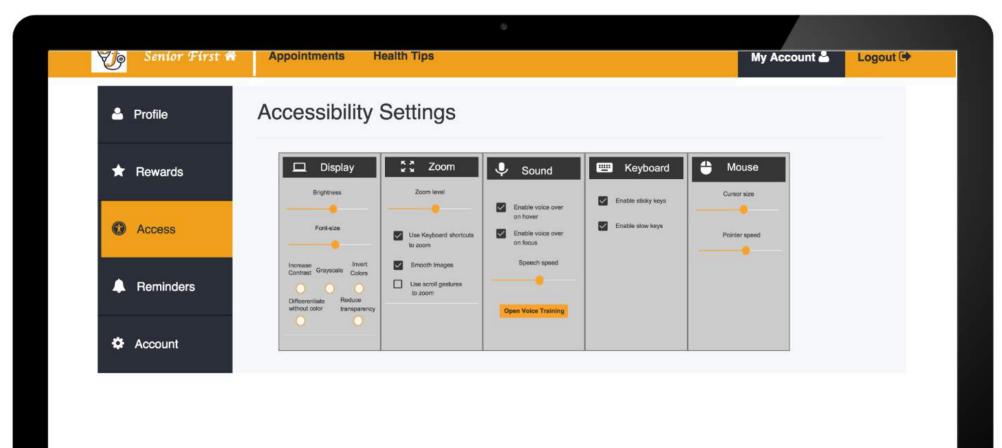


Login →











Your Appointments

Date	Doctor	Reason	Action
06/06/2016	Dr Joseph Ronald	General Checkup	View Records Order Prescription
06/01/2016	Dr Amy Dickenson	Eye Infection	View Records Order Prescription
03/12/2016	Dr Jacob Smith	Dental Checkup	View Records
02/13/2016	Dr Larry King	Arm Pain	View Records

« 1 2 3 4 5 »



Physical Examination:

Vitals: Temp 35.9

Pulse: 76 O2: 98% RA: RR 20 BP: 159/111

General: NAD, sitting up in bed, well groomed and in nightgown

Eyes: PERRLA, EOM intact

ENT: Large swollen tounge and cheek on left side, tounge was large and obscured the view of the posterior oropharynx Neck: No noticeable or palpable swelling, redness or rash around throat or on face Lymph Nodes No lymphadenopathy

Cardiovascular RRR no m/r/g, no JVD, no carotid bruits

Lungs: Clear to auscitation, no use of acessory muscles, no crackles or wheezes.

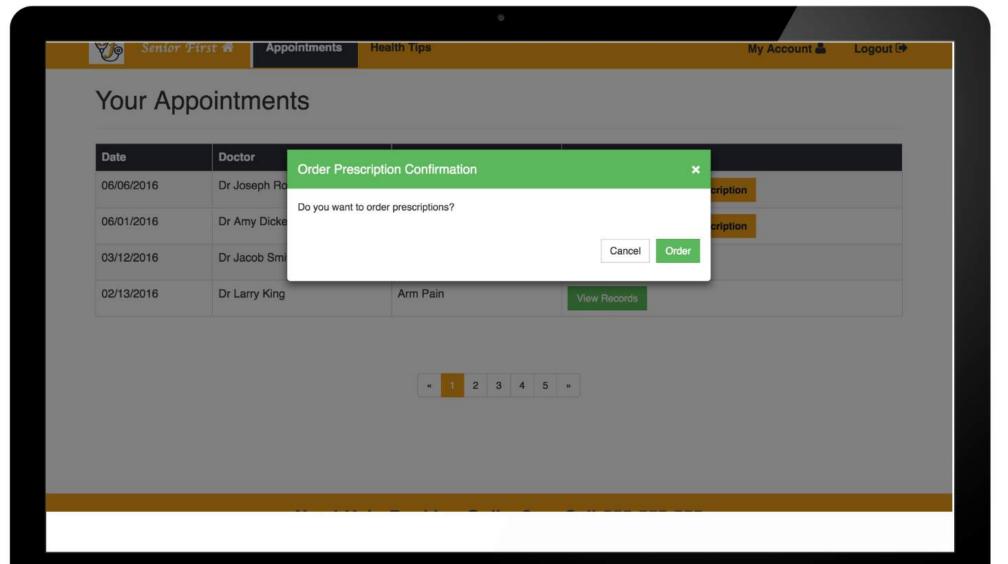
Skin: No rashes, skin warm and dry, no erythematous areas

Plan and Prescription

Medicine	Reason	Dosage/Day	Action
Advil	Pain	1 after lunch	Order
Asprin	BP	2 after lunch and dinner	Order
Moxillin	Sugar	1 after breakfast	Order

Print Report 🖨









PROTOTYPING



GUIDELINES

Accessibility guidelines

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I have the install capable state, have it.



Accessibility guidelines

- (a) Operable without vision. Provide at least one mode that does not require user vision.(b) Operable with low vision and limited or no hearing. Provide at least one mode that permits operation by users with visual acuity between 20/70 and 20/200, without relying on audio output.
- (c) Operable with little or no color perception. Provide at least one mode that does not require user
 - (d) Operable without hearing. Provide at least one mode that does not require user auditory perception.
- (e) Operable with limited manual dexterity. Provide at least one mode that does not require user fine motor control or simultaneous actions.
- (f) Operable with limited reach and strength. Provide at least one mode that is operable with user
- limited reach and strength.

 (g) Operable without time-dependent controls. Provide at least one mode that does not require a response time. Alternatively, a response time may be required if it can be by-passed or adjusted by the user over a wide range.
 - (h) Operable without speech. Provide at least one mode that does not require user speech.
- (i) Operable with limited cognitive skills. Provide at least one mode that minimizes the cognitive,



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Icons



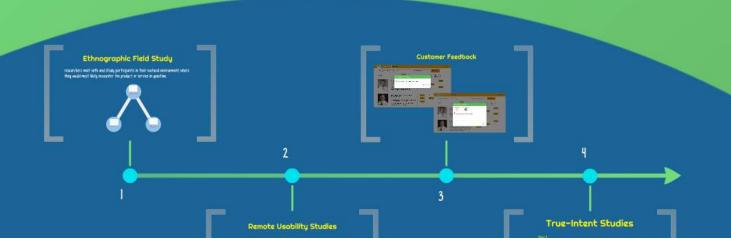


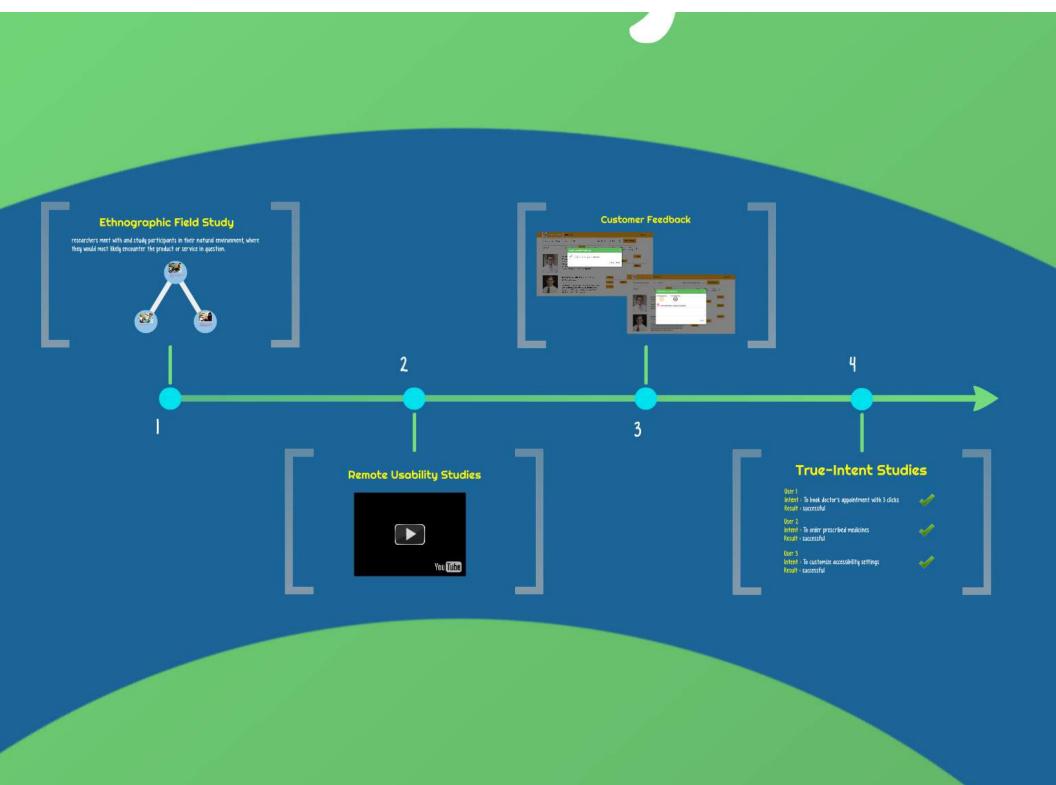






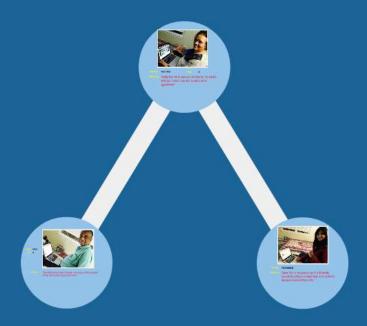
Usability testing





Ethnographic Field Study

researchers meet with and study participants in their natural environment, where they would most likely encounter the product or service in question.





Profile : Senior Citizen 65

"Really liked the Ul, and color selection for the website.

With just 3 clicks I was able to book a doctor appointment"

Profile Retiree

Age: 68



Remarks:

"Accessibility features help lot of people. I can easily customize my account settings and also check my past prescriptions"



Professional

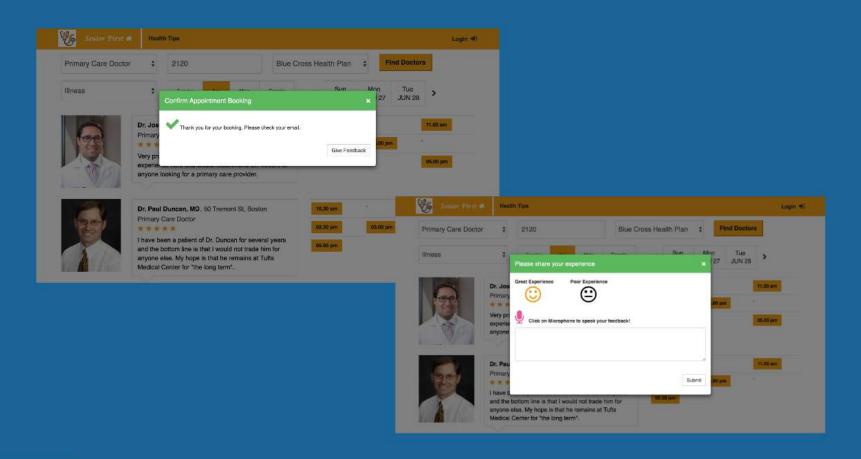
"Senior First is very easy to use, It is UI friendly.

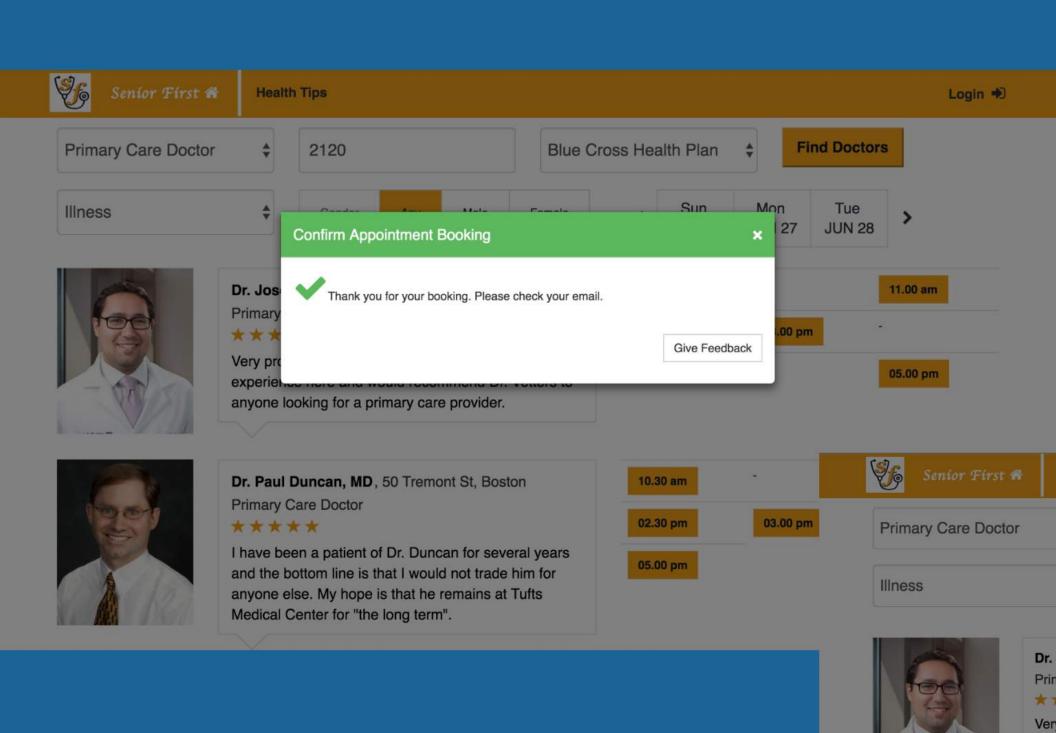
Accessibility setting as a widget helps me to customize display and sound settings easily"

Remote Usability Studies

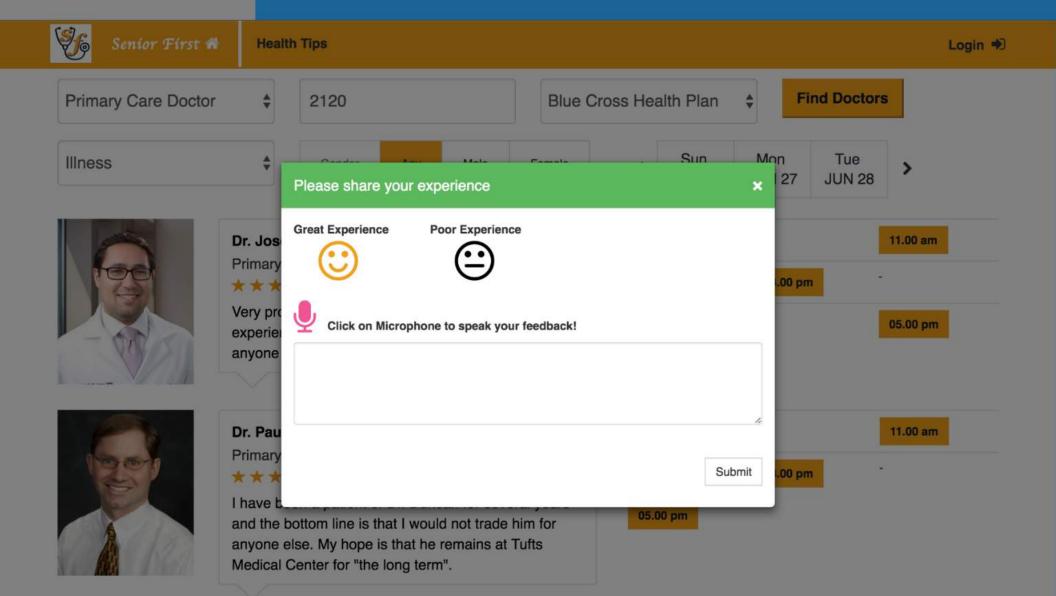


Customer Feedback





exp



True-Intent Studies

User I

Intent : To book doctor's appointment with 3 clicks

Result : successful



User 2

Intent: To order prescribed medicines

Result : successful



User 3

Intent : To customize accessibility settings

Result : successful



Automation Testing

Test cases

Test suites

Scheduler

Test Cases includes

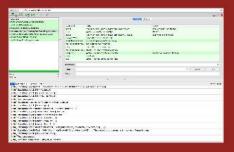
- Logging in with username and Password
- checking the appointment booking flow
- · Presence of valid Elements
- Ordering Prescriptions
- · Viewing Health records
- Myaccount validations
- Login Error Validations

Test Suite includes

 All the test cases to check the functionality and UI Elements on the website

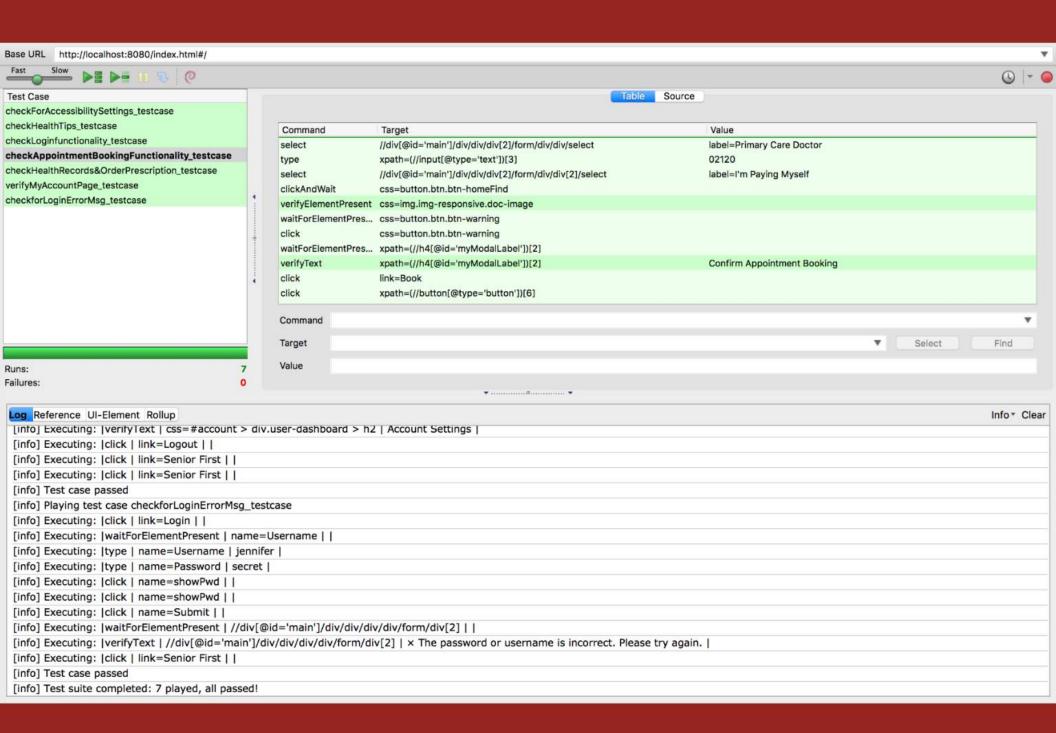
Job Scheduler

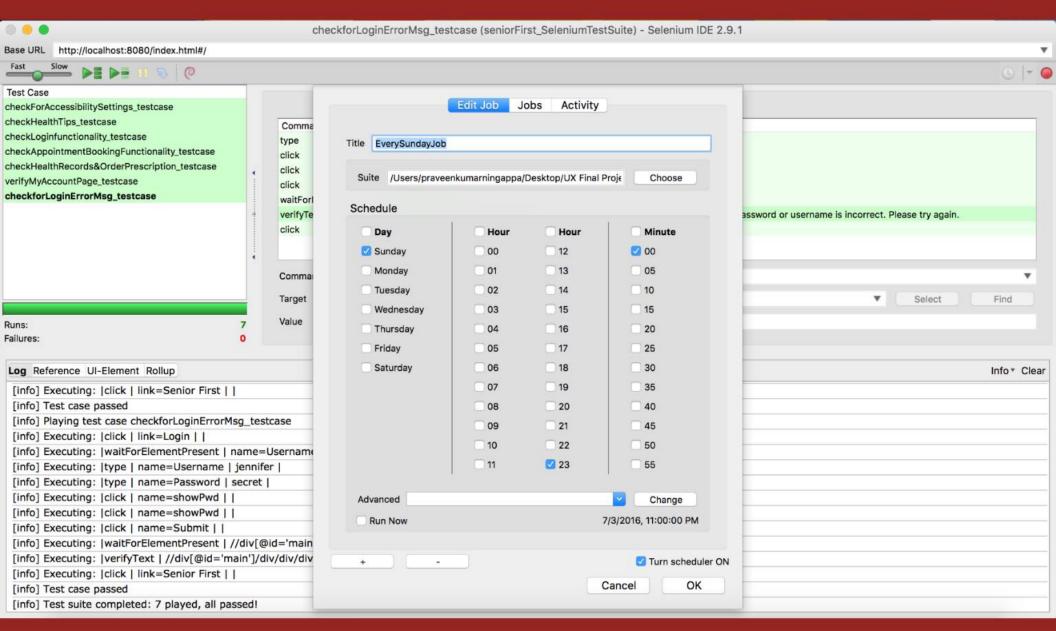
 Runs the Test suite Every Sunday at II.00 pm

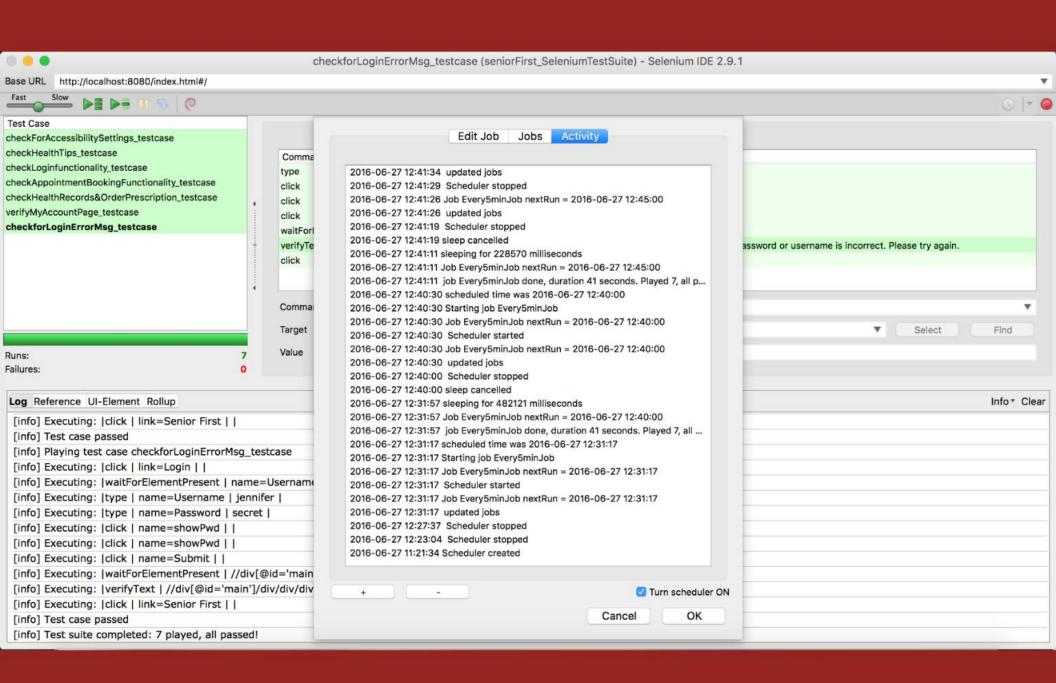












Heuristic evaluation

Nielsen's heuristics

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Nielsen's heuristics

Visibility of system status: -website always keeps users informed about what is going on, through appropriate feedback within reasonable time.

Match between system and the real world: This website speaks the users' language, with words, phrases and concepts familiar to the user, rather than system-oriented terms. It follows real-world conventions, making information appear in a natural and logical order.

User control and freedom :- Users can easily leave the unwanted state without having to go through an extended dialogue.

Consistency and standards:- Users will not wonder whether different words, situations, or actions mean the same thing. This site follows platform conventions.

Error prevention:- This site has error correction technique in place while validating forms.

Recognition rather than recall:— This site tries to minimize the user's memory load by making objects, actions, and options visible. The user will not have to remember information from one part of the dialogue to another. Instructions for use of the system is visible or easily retrievable whenever appropriate.

Flexibility and efficiency of use :- Presence of Accelerators or dual presence -- unseen by the novice user -- often speed up the interaction for the expert user such that the system can cater to both inexperienced and experienced users.

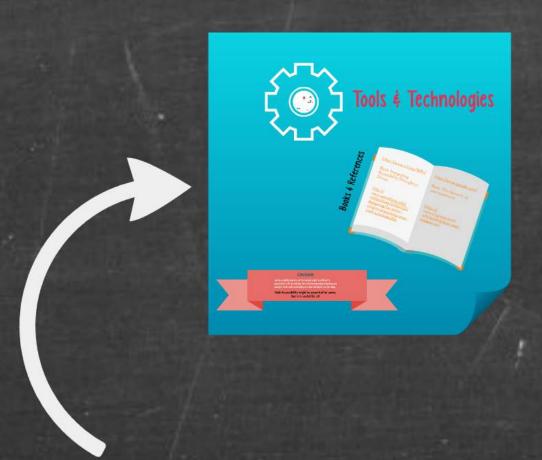
Aesthetic and minimalist design :- Site does not contain any information that is irrelevant or rarely needed.

Help users recognize, diagnose, and recover from errors :- Error messages are expressed in plain language (no codes), precisely indicate the problem, and constructively suggest a solution.

Help and documentation:- Help to book appointments online is provided on all the pages. Navigation tools helps the users to achieve their requirement.







Finally



Tools & Technologies

Book Integrating
Accessibility Throughout
Book The elements of
User experience

Wash water and ordered and ordered

Conclusion

Web Accessibility Features at the rement might be difficult to incorporate in all the websites. But with the argroving technology and concept future with accessibility or a web standard in not fee issue.

Web Accessibility might be essential for some, but it is useful for all

























https://www.w3.org/WAI/

Book: Integrating Accessibility Throughout Design

http://
www.uxmatters.com/
mt/archives/2010/05/
designing-for-seniorcitizens-organizing-yourwork-schedule.php

https://www.google.com/

Book: The elements of user experience

https:// www.nngroup.com/ articles/definition-userexperience/

Conclusion

Web Accessibility features at the moment might be difficult to incorporate in all the websites. But with the improving technology and concepts future with accessibility as a web standard is not far away.

Web Accessibility might be essential for some, but it is useful for all



Praveen Kumar Mingappa

Arshaan Shariff

SENIOR FIRST

Collaborating
Accessibility with
user-centered-design



By Praveen Kumar Ningappa & Arshaan Shariff

