



Knight Foundation School of Computing and Information Sciences

School of Computing and Information Sciences

Spring 2024 Senior Design Project

Auditory Training App

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PROBLEM

The primary challenge identified was the lack of engaging and varied auditory training exercises in existing applications for cochlear implant users. These limitations hindered user engagement, making the training process monotonous and less effective. Furthermore, outdated and non-intuitive user interfaces compounded the issue and could have resulted in an unwelcome user experience and decreased regular use of the app.

CURRENT SYSTEM

Audio Memory Mini-Game:

- The game featured a new aspect mini-game with audio memory tasks to improve word-recognizing skills.
- Developed a four-level structure for the game that increases in difficulty for users to challenge themselves with as their skills progress.

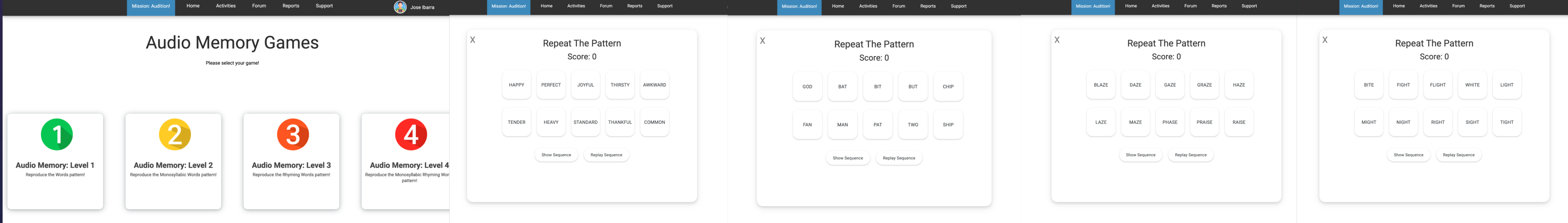
Comprehension Activity:

- Incorporated a newly investigated sophisticated project concerning audio interpretation.
- The exercise had three different levels, which were aimed to be increasingly challenging and enable the users to acquire auditory comprehensive skills.

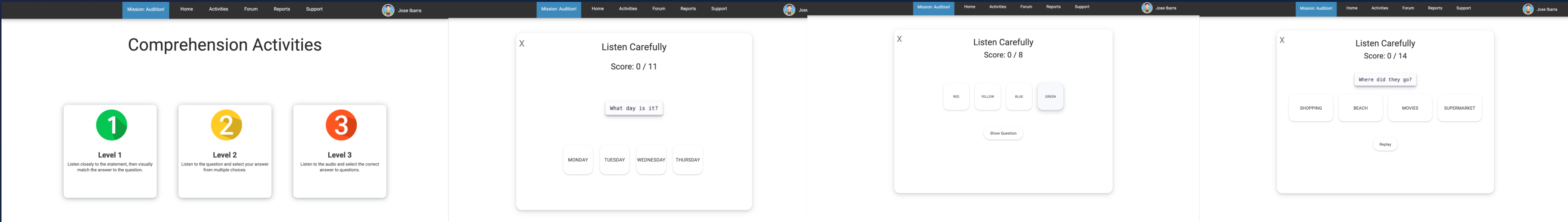
User Interface (UI) Redesign:

- Total redesign of the GUI of the app with the sole purpose of enhancing user experience.
- Redesigned major components including:
 - Home page
 - Navigation bar
 - My profile page
 - Settings page
 - Sign In and Sign Up pages
 - Games and activities page
 - UI that is more intuitive, accessible, and visually pleasing.

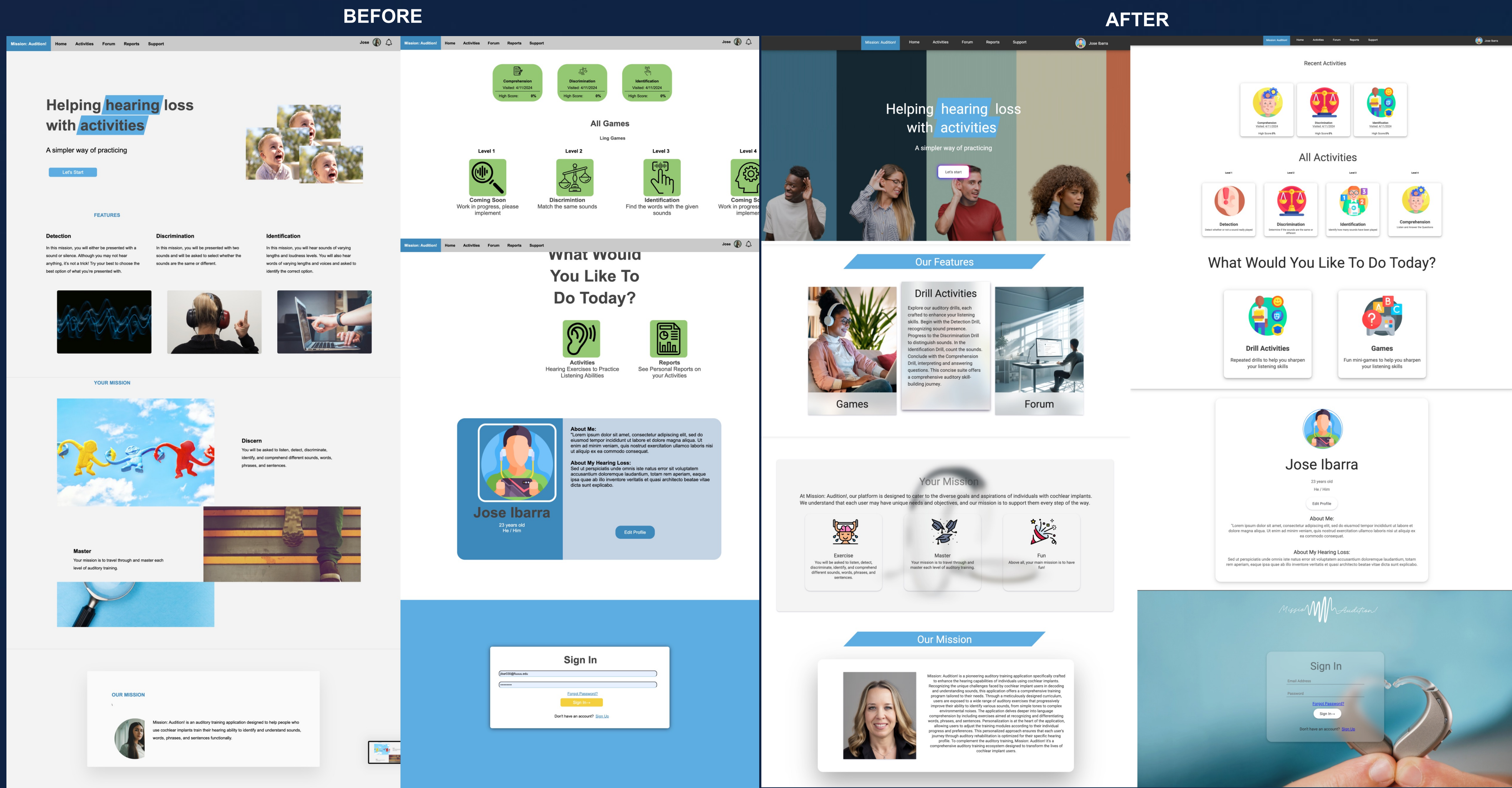
GAME DESIGN



ACTIVITY DESIGN



APP UI REDESIGN



REQUIREMENTS

To address these challenges effectively, the project required a robust development platform capable of supporting advanced audio processing and interactive game design.



User-End :



VERIFICATION

- Worked in close collaboration with the product owner to ensure all new features and redesigned UIs adhered to the desired specifications of the project and the requirements of the users.
- Conducted comprehensive testing sessions with the product owner to validate the functionality, usability, and accessibility of:
 - The recently added audio memory game.
 - The comprehension activity
 - The redesigned user interface (UI)
- Regularly incorporated product owner's suggestions into the ongoing process of improving and perfecting each part of the app by iteration means.
- The final confirmation following all the product feature changes with the product owner was obtained on the basis that all these changes are in line with the project overall objectives and user expectations.

SUMMARY

All the efforts put into this project were crucial for the further development of audio training applications for users with cochlear implants. These improvements are expected to be huge in terms of helping the users to have their listening skills taken to the next level, encouraging participation, and ensuring that they enjoy using the app. The new activities were built, intentionally, with this purpose in mind: to make them both challenging yet enjoyable, so that users shall feel pleased as they progress in improving their auditory abilities. The graphical user interface (GUI) was thoughtfully created to be intuitive and easy to use even by people who may not be tech-savvy. The design is simple, user-friendly, and aesthetic, which eases the user in taking a course and keeping track of their progress.



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ACKNOWLEDGEMENT

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