Contents

ACKNOWLEDGEMENT

The success and final outcome of this project required a lot of guidance and assistance from many people. We are extremely fortunate to have got this all along with the completion of our project work. Whatever we have done is only due to such guidance and assistance and we would not forget to thank them.

It is a matter of great pleasure for us to submit the project report on "LearnSBAR", as a part of our curriculum.

First and foremost, we would like to thank our H.O.D. **Ms. Swati Nadkarni** and Principal **Dr. Bhavesh Patel** for giving us an opportunity to do the project work. We want to thank our teachers for their valuable guidance and advice. They inspired us greatly to work on this project. Their willingness to motivate us contributed tremendously to our project.

And last but not least a special thanks goes to my team members, who helped me to assemble the information and gave suggestions to complete our project.

ABSTRACT

The SBAR (Situation-Background-Assessment-Recommendation) technique provides a framework for communication between members of the healthcare team about a patient's condition.

A Web Based Application was made in this project for nurses to practice and learn SBAR communication technique.

Nurses register an Account within the application to access numerous scenarios and track their progress.

Each Scenario acts as a test case for the nurses in which they'll record their responses to the scenarios and self-assess their recording.

Finally, an explanation video for the given scenario is provided, which nurses can use as a reference.

INTRODUCTION

SYSTEM PURPOSE

The purpose of our project is to create and deploy a learning platform (web app) for nurses to learn SBAR communication techniques which in turn helps them to have an efficient and on point conversation with the doctor during the time of crisis.

SCOPE

The scope of this project can be extended to similar systems which can be used for training other engineers, marketers and other professionals as well. Few of them are:

- It can be used by small associations which can't afford big and expensive systems which are already available.
- It is faster and efficient than the traditional method of learning.
- It is a systematic way to increase the skill level of the users and it can also be used to keep track of user's progress.

FEATURES

- Secure.
- Easy to use.
- Reliable.
- Easy to expand and add functionality.

LITERATURE SURVEY

Sr. No.	Title	Author	Aim of the paper	Link	Remarks
1.	"**Implementation of the SBAR Communication Technique in a Tertiary Center**", August 2008, Journal of Emergency Nursing 34.	Lorna J. Woodhall, Lisa Vertacnik , Maribeth McLaughlin .	Especially in high-stress settings like the emergency department, intensive care unit, and operating room, nurses, doctors, and other healthcare professionals frequently find themselves in situations demanding precise and timely communication.	Implementation of the SBAR Communication Technique in a Tertiary Center	By reading it we got to know the importance of implementing the system and the need of it.
2.	"**How to design an effective e-learning course for medical education**", International Institute of Health Management, 2008.	Supten Sarbadhikari	Medical education has traditionally been imparted and learned inductively, and has been seen as challenging to both impart and assimilate.	How to design an effective e-learning course for medical education	By reading this paper we planned the steps to create our learning SBAR platform.
3.	"**How the focus on Assessment Can Help Overall Course Design**", Canadian Journal of Higher Education, July 2011.	Richard S. Ascough	Post-secondary teachers may become perplexed about the nature and purpose of "learning outcomes" due to the demand for quantitative assessment from internal and external administrators, as	Learning About Outcomes How the Focus on Assessment Can Help Overall Course Design	By reading this paper we prepared our assessment page's content and planned it's working.

			well as afraid due to the demand's association with the growing corporatization of the university system.		
4.	"**Overview of Serverless Architecture Research**", Journal of Physics Conference Series, January 2020.	Lizheng Jiang, Yunman Pei, Jiantao Zhao.	Serverless computing, also known as function as a service (FaaS), is thought to be the next step in the evolution of cloud computing.	Overview Of Serverless Architecture Research	By reading this paper we planned our Back-End using AWS Lambda Functions.
5.	"**Progressive Web Apps: A Novel Way for Cross-Platform Development**", Saint Louis University, September 2020.	Patrick Mole	The development of mobile web applications has matured as a result of recent advances in web technology.	Progressive Web Apps A Novel Way for Cross Platform Development	By reading this paper we decided the technologies which would be used to create the web-App.
6.	"**User Interface Design**", University of Texas, January 2006.	Andrew Dillon	Software developers face the challenging task of creating user-friendly, simple-to-learn computer interfaces.	User Interface Design	By reading this paper we got to know the importance of UI design and we created the UI by its guidelines.
7.	**"Impact of Structured Clinical Handover Protocol on Communication and Patient Satisfaction",** Journal of Patient Experience.	Ghosh, Sayani & Ramamoorthy, Lakshmi & Biju Pottakkat(2021).	In order to maintain continuity in patient care, the handover procedure is a crucial component of clinical practise on a daily basis.	Impact of Structured Clinical Handover Protocol on Communication and Patient Satisfaction	By reading this paper we got to know the importance of communication for nurses during critical times.

8.	**"Effectiveness of handover guideline in prevention of nursing errors",** International Journal of Applied Research.	Thokchom Kiran Singh, Mosphea Khanam, Anita Sonowal.	Important information gaps, omissions, errors, and patient harm can result from ineffective and inefficient handoffs.	Effectiveness of handover guideline in prevention of using errors	By reading this paper we got to know about the general errors caused by the nurses while communicating with the doctor.

COMPARATIVE ANALYSIS

Current resources and tools available to learn and practice SBAR include Live training courses such as SBAR Technique Online Course | Vubiz , written material like Articles , Blogs , Research Papers and visual material like Udemy courses and Youtube videos .

These resources have some disadvantages, live training courses are expensive and written material doesn't provide engaging practice

Our software has the following advantages over current system

- It's cheaper and easy to use
- Interactive Practice provided by the application helps learners learn effectively

DESIGN DETAILS

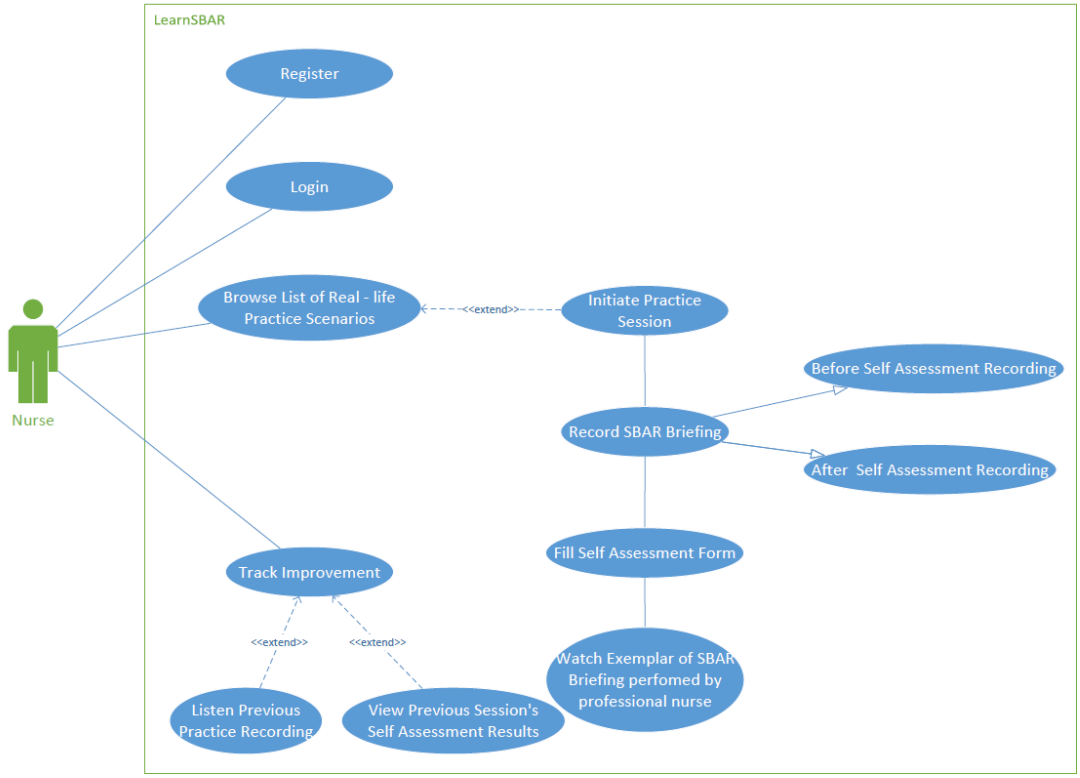
OVERVIEW

THIS APPLICATION HAS TWO MAIN PARTS:

1. Front End
    a) Registration Page:
    - Login.
    - Sign-up.

    b) Homepage:
    - Contains multiple scenarios:
        i. Scenario Description.
    - Record your response:
        i. Self-Assessment.
        ii. View previous recordings.

2. Backend
    - Allows for communication between the DOM and react component.

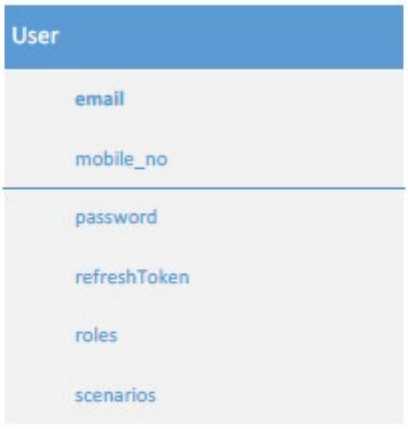


(Use Case Diagram - LearnSBAR)

TECHNOLOGIES USED

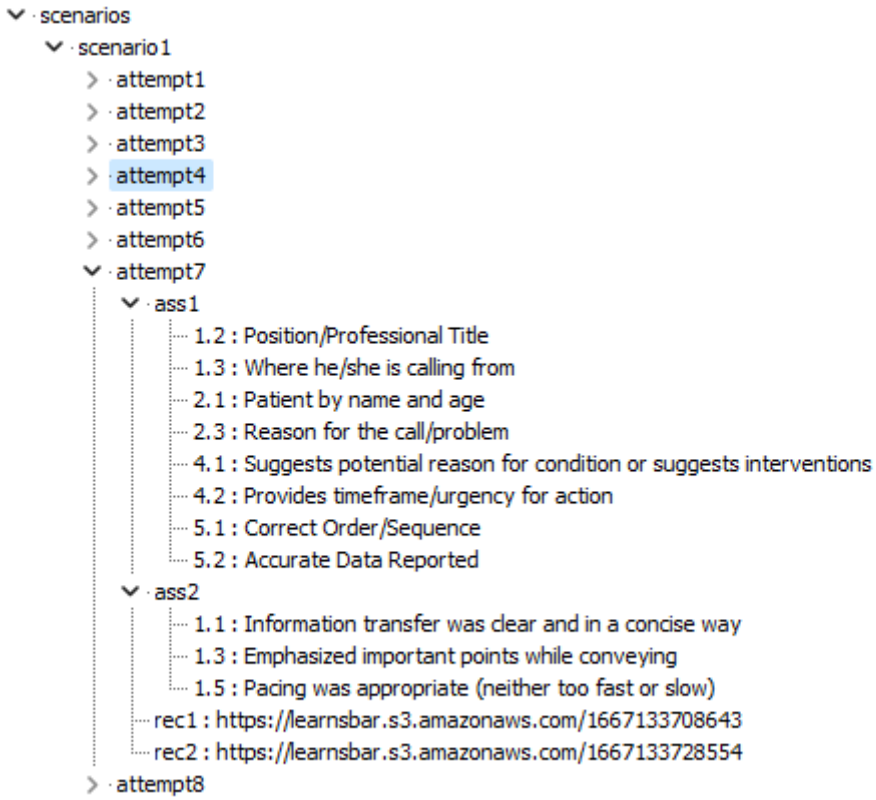
- Frontend:
  - HTML5
  - CSS
  - ReactJS version 18.2.0
- Backend:
  - ExpressJS version 4.15.2
  - NodeJS 16
- Version Control:
  - Git
- Database:
  - AWS DynamoDB (NoSQL Database)
- Hosting:
  - Frontend CDN (Content Delivery Network) - Cloudflare Pages
  - Backend - AWS Lambda function (Serverless Function)

DATABASE DESIGN



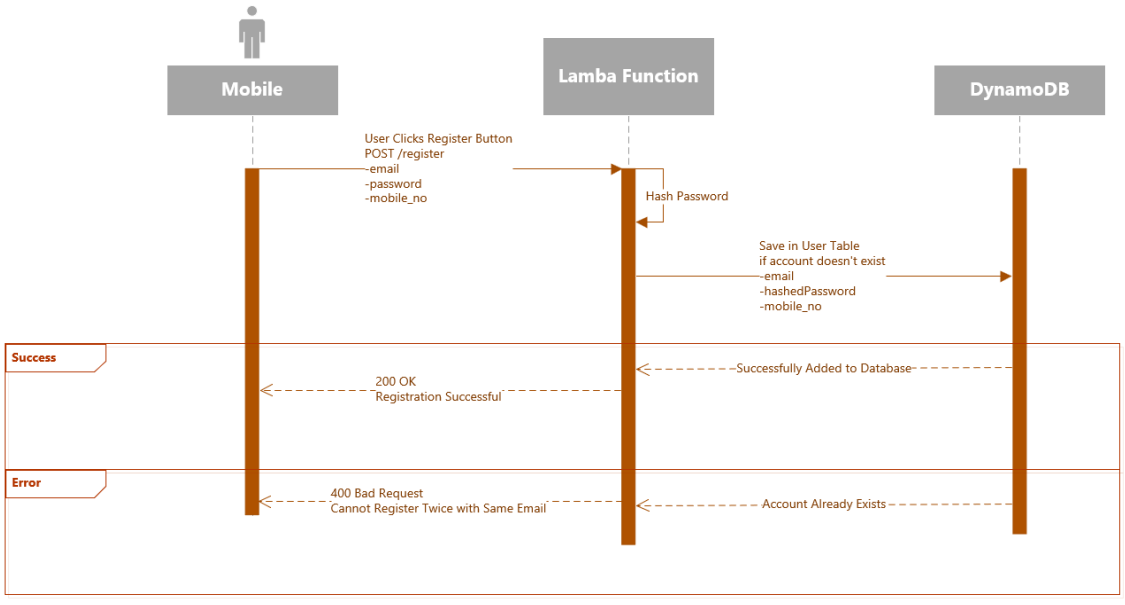
DynamoDB Database Design - User Table

(DynamoDB Database Design – User Table)



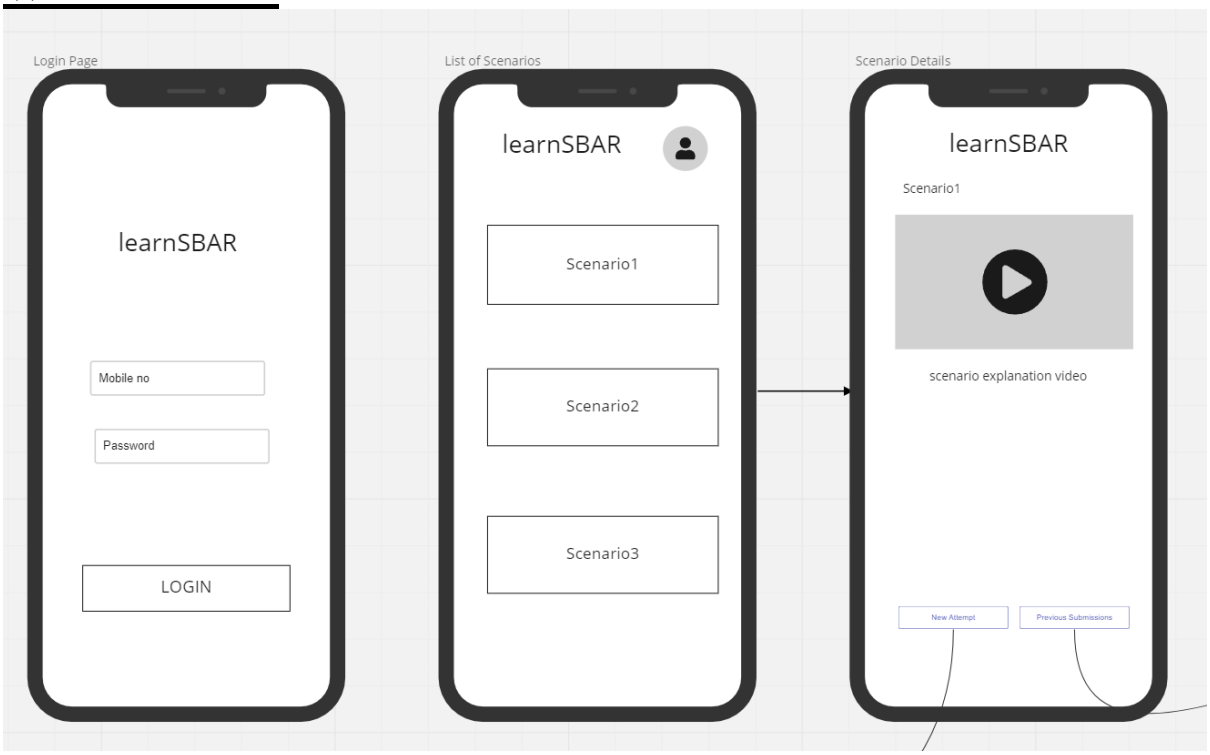
(visualization of scenario json object stored in scenarios field of DynamoDB Database)

API DESIGN

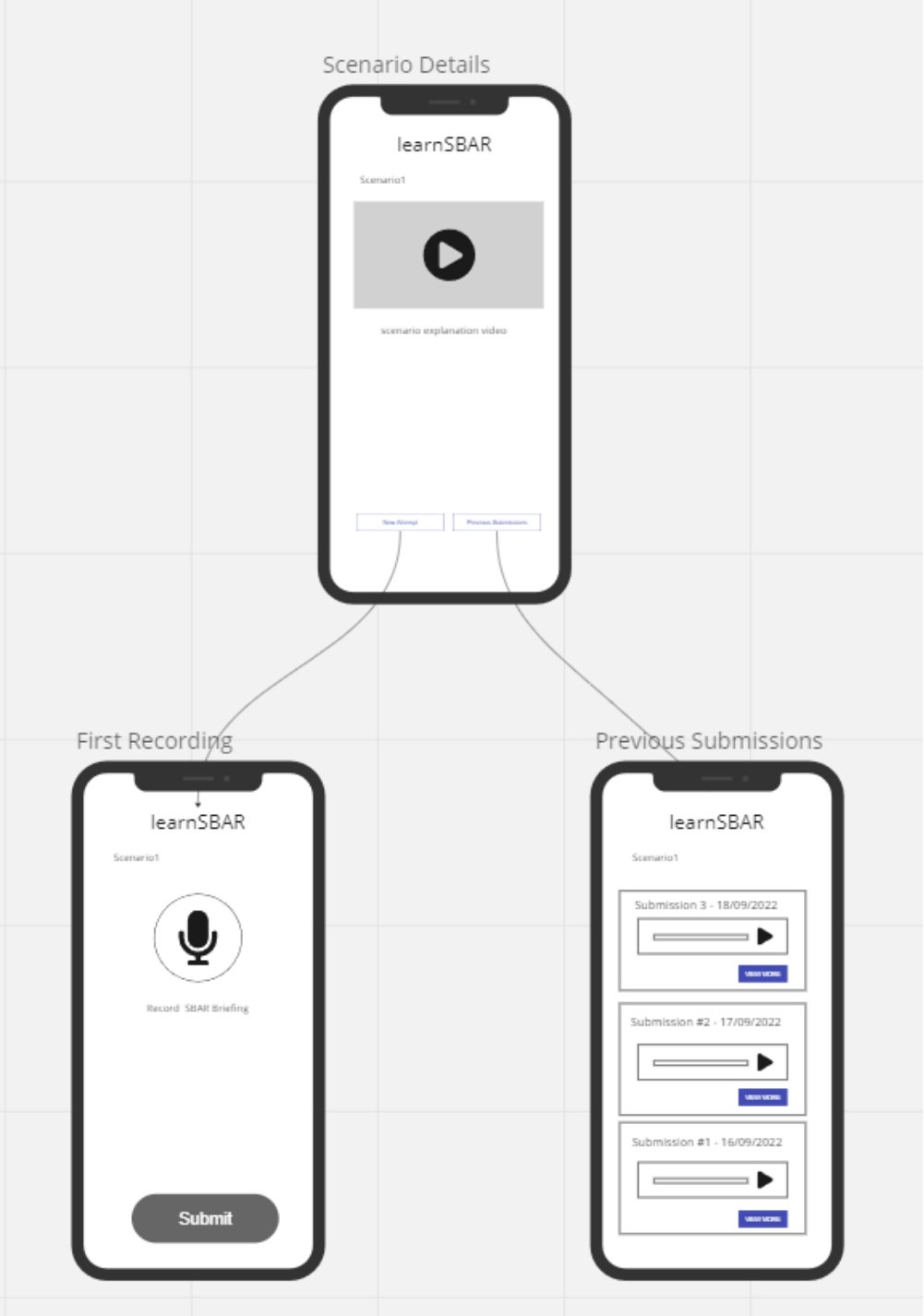


(UML Sequence Diagram for Register API)

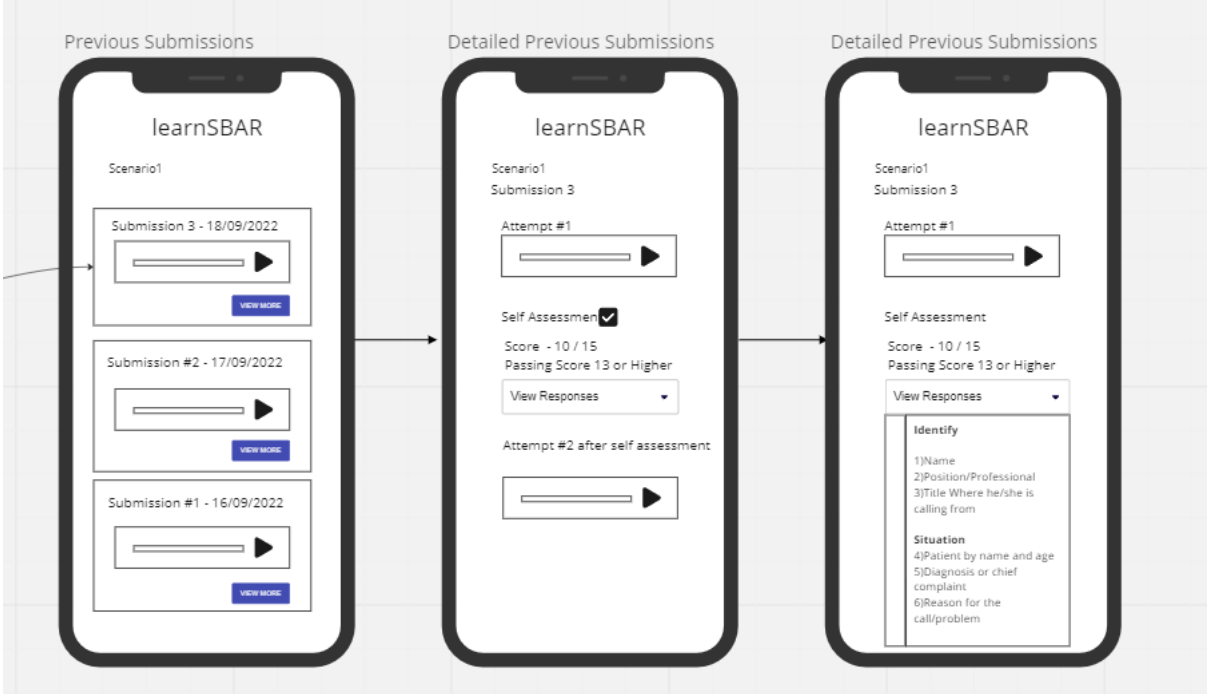
WIREFRAME



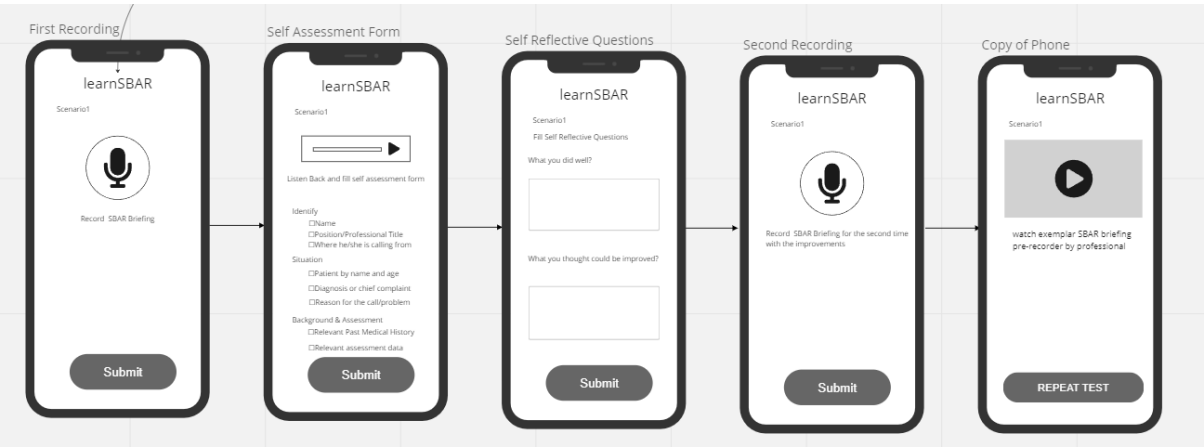
(Wireframe for Login, Scenario List and Scenario Pages Respetively)



(Flow diagram of Scenario Page with basic Interfacing)

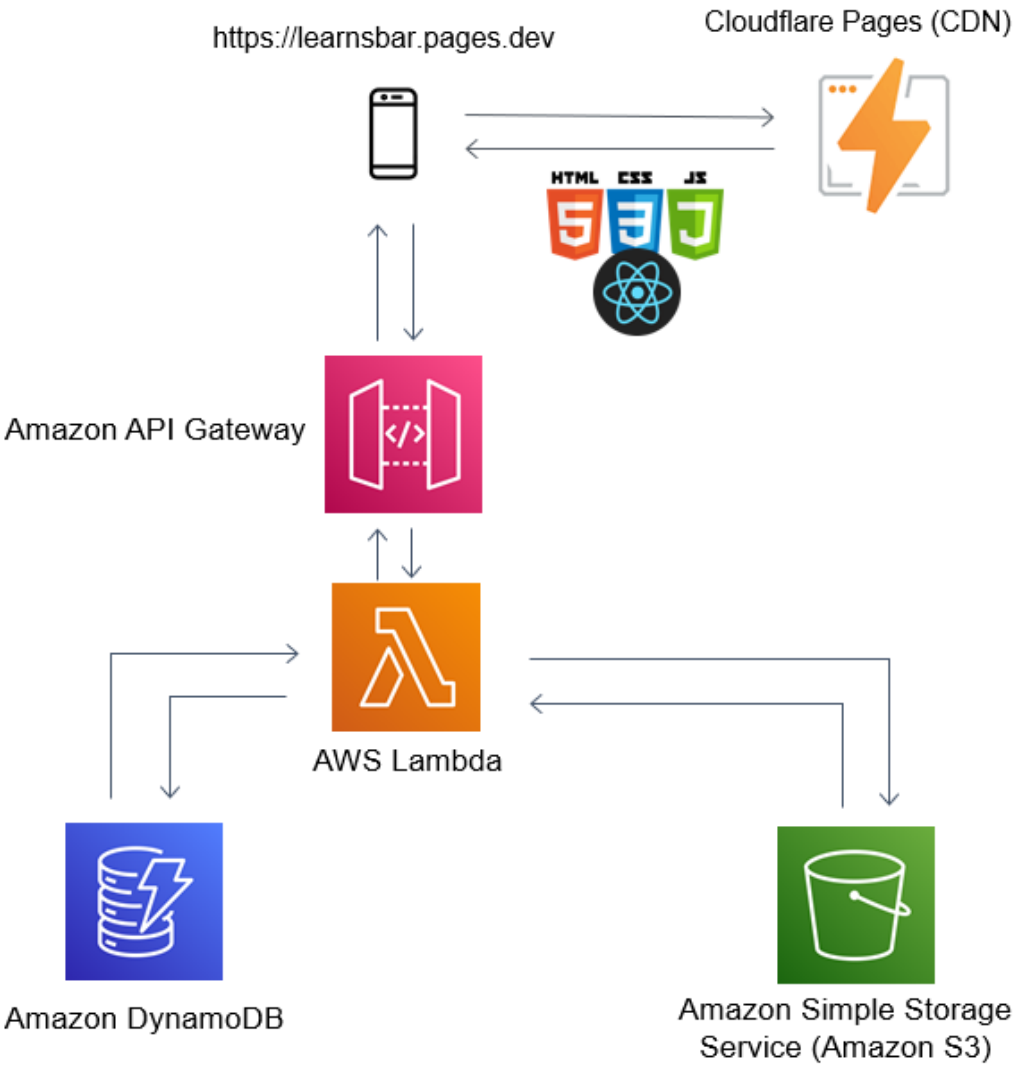


(Flow of Submission Page)

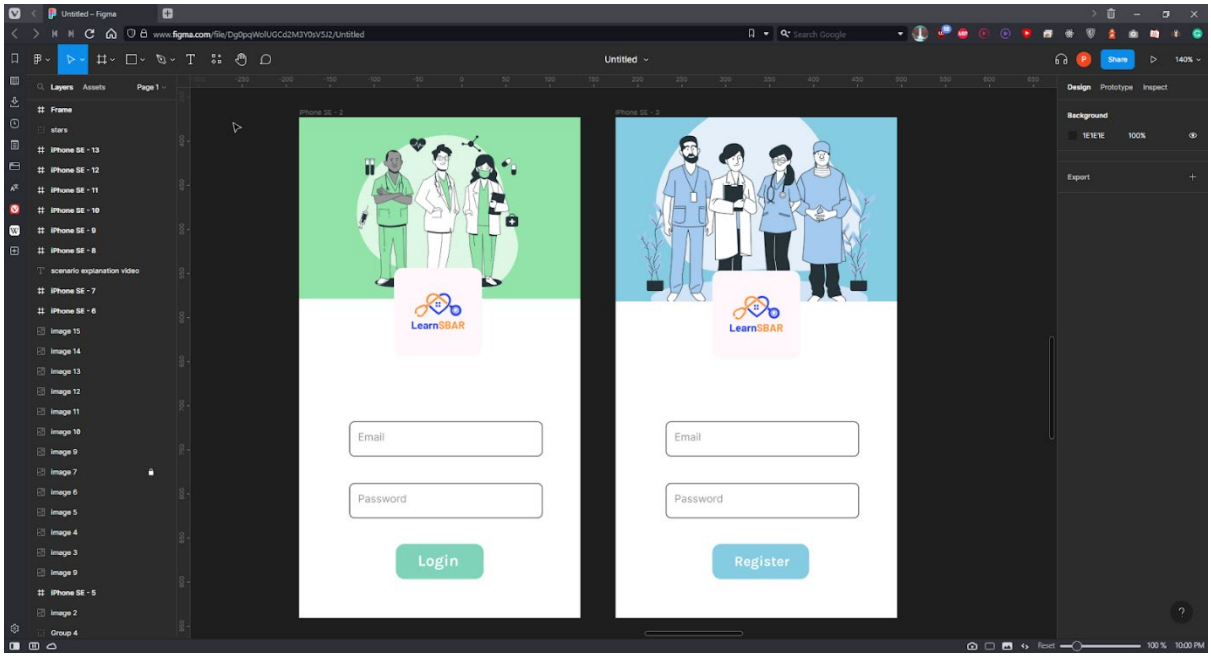


(Flow of the Practice Session)

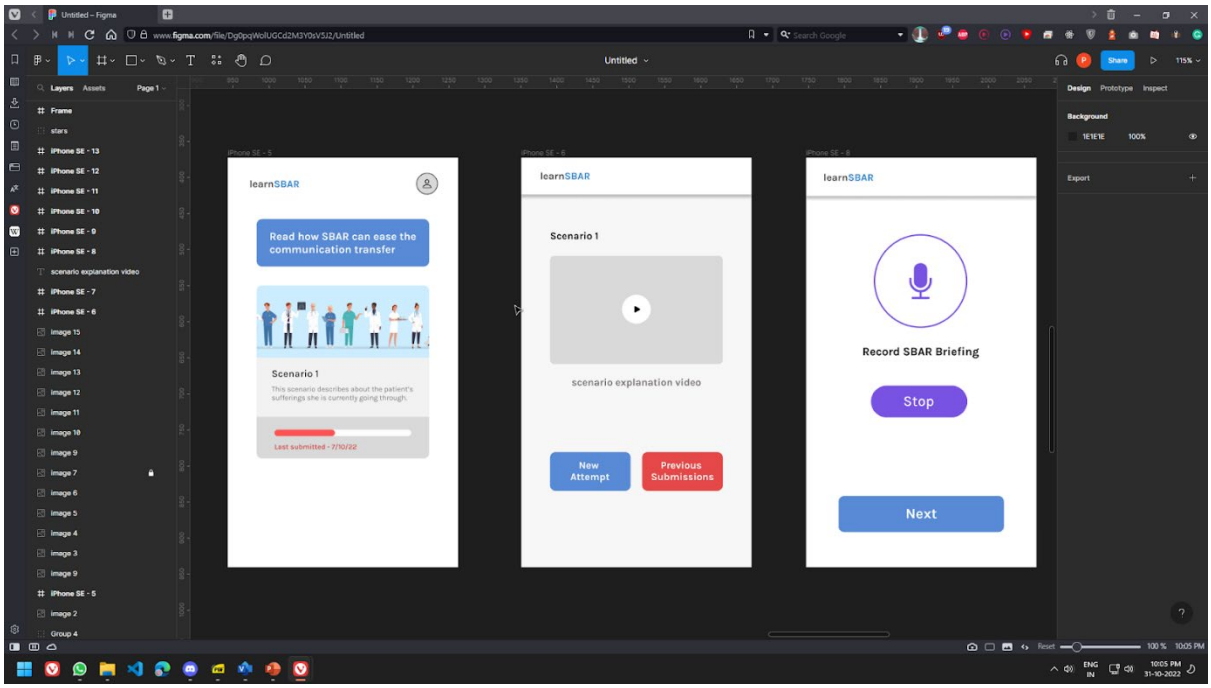
IMPLEMENTATION



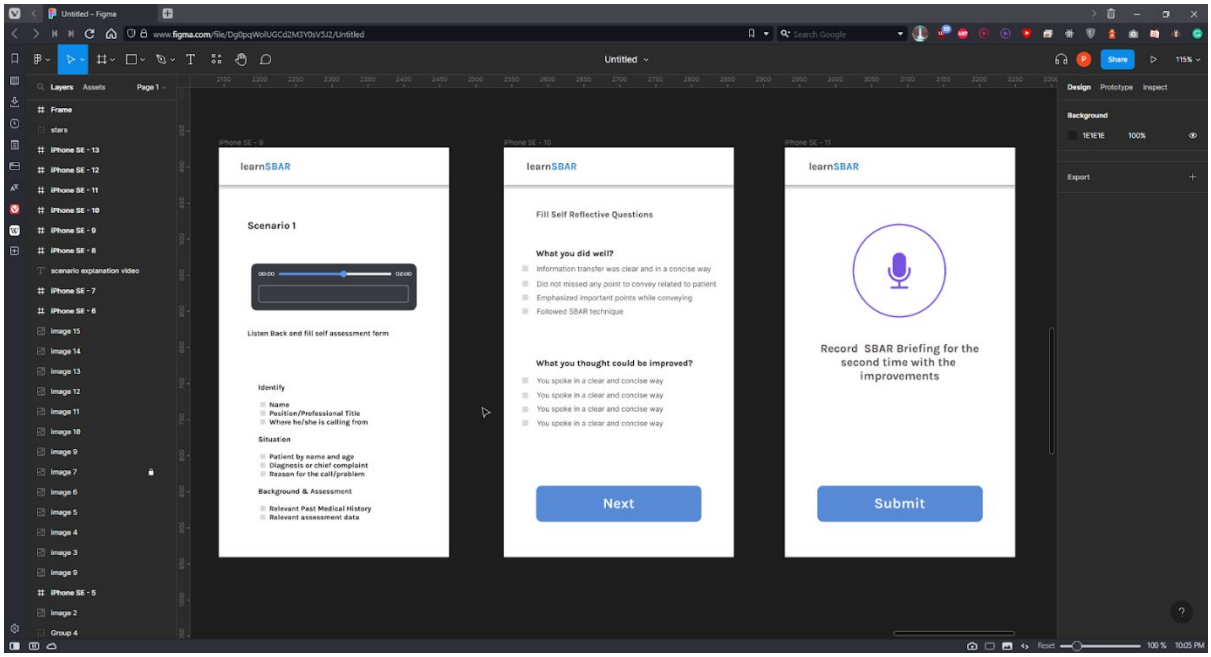
(System Architecture)



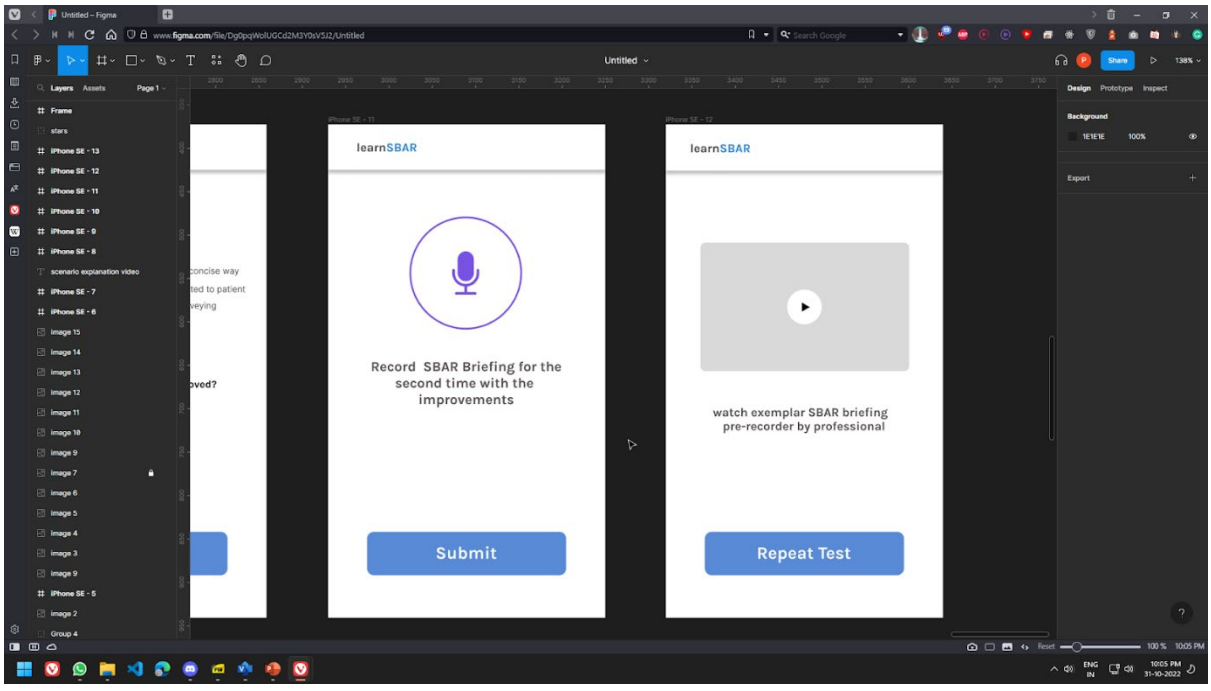
(Login And Register Page Design in Figma)



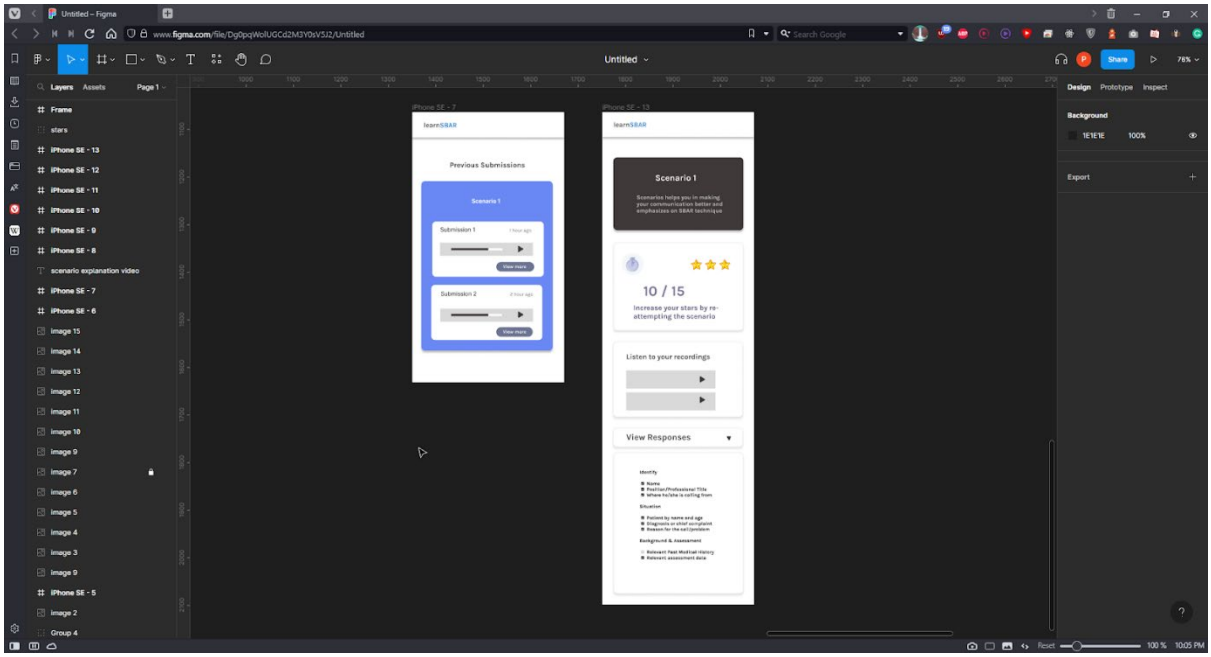
(Figma Design of other interfacing pages)



(Design for Scenario, Assessment and Recording Page)



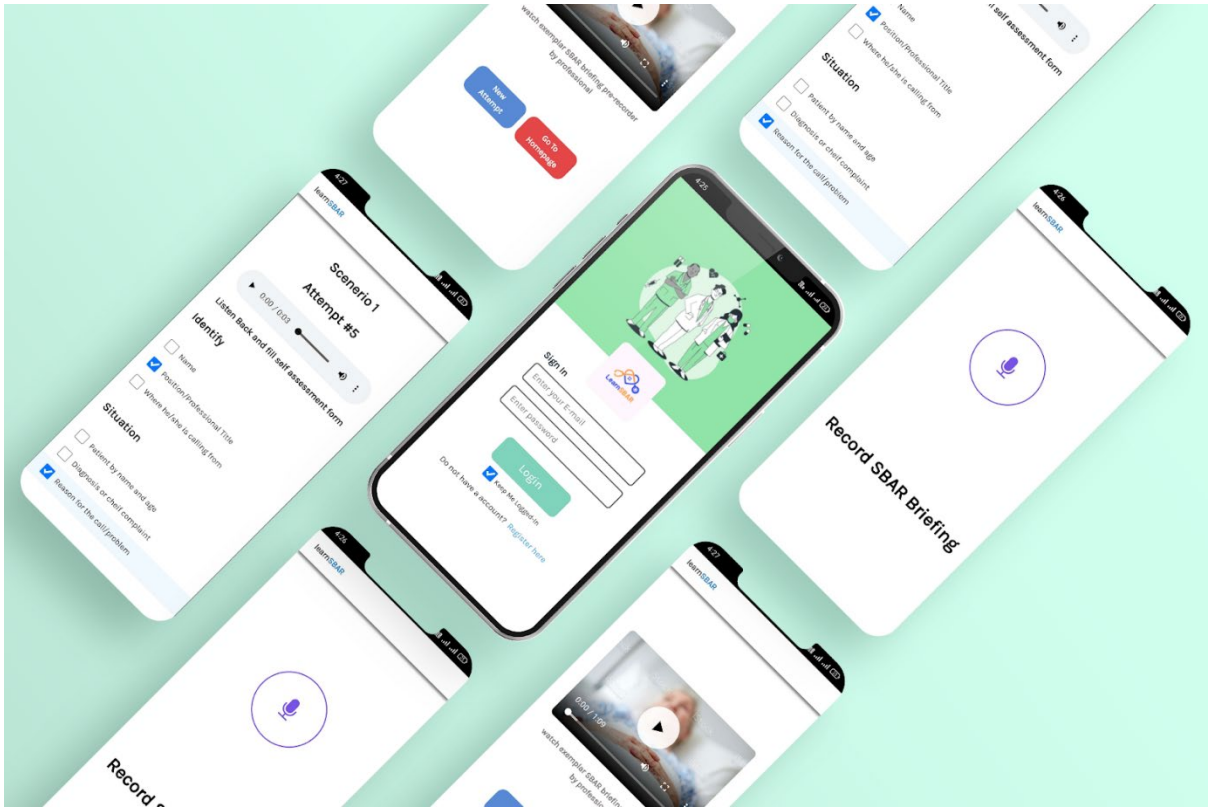
(Design for Repeat Test)



(Design for Final Assessment)

RESULTS

Hence by using multiple technologies and using Web-Development concepts with an understanding about the SBAR communication technique we were able to create the “LearnSBAR” app which satisfies the aim of out project.



CONCLUSION

The LearnSBAR is developed using web-development tools like HTML, CSS, ReactJS and many more which fully meets the objective of the system for which it was developed. The webapp has reached a steady state where all bugs have been squashed. The webapp is operated at a high level of efficiency and all the teachers and users associated with the system understand its advantages. The webapp solves the problems it was intended to solve for the required specification.

REFERENCES

1. Lorna J. Woodhall, Lisa Vertacnik , Maribeth McLaughlin, “Implementation of the SBAR Communication Technique in a Tertiary Center”, August 2008, Journal of Emergency Nursing 34.
2. Supten Sarbadhikari, “How to design an effective e-learning course for medical education”, International Institute of Health Management, 2008.
3. Richard S. Ascough, “How the focus on Assessment Can Help Overall Course Design”, Canadian Journal of Higher Education, July 2011.
4. Lizheng Jiang, Yunman Pei, Jiantao Zhao, “Overview of Serverless Architecture Research”, Journal of Physics Conference Series, January 2020.
5. Patrick Mole, “Progressive Web Apps: A Novel Way for Cross-Platform Development”, Saint Louis University, September 2020
6. Andrew Dillon, “User Interface Design”, University of Texas, January 2006

FUTURE SCOPE

Our project can be expanded in multiple ways like:

- Add more scenarios related to the SBAR.
- Integrate more things to learn using similar practice.
- Improve UI.
- Automate the assessment process.
- Provide live support for bug fixes and app improvements.
- Integrating with different hospitals to increase the awareness about the importance of communication.
- Feedback from the users .
- Provide mentor support for the users.