

Sri Lanka Institute of Information Technology
BSc (Hons) Information Technology Specializing in Software
Engineering

Research Project - IT4010



IT19954974

Priyanka PDMK

Research Logbook

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Research Logbook

DECLARATION

I declare that this is my own work, and this proposal does not incorporate without acknowledgement any material previously submitted for a degree or diploma in any other university or Institute of higher learning and to the best of my knowledge and belief it does not contain any material previously published or written by another person except where the acknowledgement is made in the text.

Name	Student ID	Signature
Priyanka PDMK	IT19954974	<u>Modeesha</u>

Signature of the Cover-up Supervisor

Date

(Mr. Jagath Wickramaratne)

.....

....15-05-2023.....

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Monthly Summary

July 2022	
Week 1	Brainstormed Research Ideas with Group Member [Figure 3.2] Surveyed on topics and finding potential ideas
Week 2	Discussed regarding hearing impaired child education with a teacher. Prepared Topic Assessment Document Reviewed topic assessment document with the supervisor [Figure 2.1]
Week 3	Research regarding education of hearing-impaired children Added more content to the Topic assessment document based on the feedback and research outcomes
Week 4	Reviewed the Topic Assessment Document and finalized. Submitted the Topic Assessment Document

August 2022	
Week 5	Literature Survey on vocabulary development methods for hearing-impaired children Prepared a questionnaire for the field visit at Ratmalana deaf students 'school
Week 6	Visited Ratmalana Deaf Students' School [Figure 4.2] Visited Ratmalana Audiology Centre Met with co-supervisor with new updates and ideas [Figure 2.2]
Week 7	Discussed field visits with supervisor and co-supervisor. Literature Survey on vocabulary development at early childhood
Week 8	Discussed with supervisor and co-supervisor regarding the progress of the research. Contacted a teacher from Anuradhapura Deaf Students' School
Week 9	Planned proposal presentation with group members. Discussed regarding the proposal presentation with co supervisor

September 2022	
Week 10	Started to work on Proposal Report Meeting with co supervisor to get more understanding regarding proposal report
Week 11	Visited Ratmalana Deaf Students' School [Figure 4.2] Worked on individual component diagram
Week 12	Discussed the learning process of students with a teacher from Anuradhapura Deaf Students' School Compared the details obtained from Ratmalana and Anuradhapura Schools
Week 13	Researched about adaptive learning systems that are existing. Worked on writing the proposal report. Meeting with supervisor to discuss progress of the project

October 2022	
Week 14	Survey regarding level determination of deaf Students Worked on proposal report. Meeting with supervisor with all the updates
Week 15	Visited CEHIC – Centre for Education of Hearing-Impaired Children [Figure 4.1], [Figure 4.3] Gathered content for the vocabulary development
Week 16	Worked on creating the proposal presentation. Proposal Presentation
Week 17	Gathered content for the quiz development. Visited Twinkle Stars preschool to gather words

November 2022	
Week 18	Discussed application flow with group members. Meeting with supervisors with latest updates
Week 19	Did modifications to the component with supervisor comments. Searched about the models to be used in level determination
Week 20	Started developing the quiz river. Visited Twinkle stars preschool to collect more content for the quiz
Week 21	Worked on fixing bugs that occurred in the quiz river. Research on how to develop a model to evaluate deaf students' performance
Week 22	Visited CEHIC to go through the teaching materials. Made changes to the quiz with the data gathered from CEHIC

December 2022	
Week 23	Added a new level Sounds to the quiz. Worked on developing the quiz
Week 24	Collected images to be used in the quiz based on five categories. [Section 5] Finalized the images according to the final set of words to be used in the quiz
Week 25	Collected audio files to be used in the quiz. Gathered images according to the additional audios that got discovered at this stage
Week 26	Finished Developing the quiz river with basic functionality. Started working on the backend of the quiz river

January 2023	
Week 27	Collecting dataset to be used in model using the quiz river. [Section 5] Researched a model to work on developing the Model for Level Determination
Week 28	Finalized the dataset with over 1000 records. [Section 5] Started working on developing the Random Forest Model for Level Determination Progress Checked by Co-Supervisor [Figure 2.3]
Week 29	Worked on hyperparameter tuning for the model. Worked on developing the Random Forest Algorithm for the Model
Week 30	Visited CEHIC with the updates of the project so far. Went through the available materials at CEHIC and Visited the school to observe teaching methods used [Figure 4.4]
Week 31	Worked on developing the model Prepared Progress Presentation 1 Prepared Status Document 1

February 2023	
Week 32	Prepared for the Progress Presentation 1 [Figure 3.1] Progress Presentation 1
Week 33	Discussed the panel comments with supervisors. Planned on how to build the component further
Week 34	Surveyed on the ways that can improve the level determination model. Started training the model
Week 35	Worked on fixing issues occurring in the Random Forest Model Improved the User Interfaces of the Quiz River feature [Figure 6.1]

March 2023	
Week 36	Worked on testing the model with test data. Started on development of Progress Map
Week 37	Developed backend for the application and tested the model using the quiz data. Fixed bugs identified at this stage
Week 38	Worked on writing the research paper. Worked on coming up with accuracy curves and graphs for the model according to another set of data and training the model [Figure 7.1]
Week 39	Worked on coming up with a progress determination logic for the progress map. Finalized the Progress Map development [Figure 6.2] Status Document 2

April 2023	
Week 40	Making appropriate changes to the research paper according to the co supervisor feedback Finalizing the research paper
Week 41	Worked on finalizing the Quiz River and Progress Map implementations. [Figure 6.1], [Figure 6.2] Fixed bugs with the help of an expert
Week 42	Prepared for Progress Presentation 2 Submitted research paper to conferences. Progress Presentation 2
Week 43	Finalizing the existing literature available for the component Started working on the final thesis draft

May 2023	
Week 44	<p>Worked on implementing the changes suggested by the panel at progress presentation 2</p> <p>Tested the application with implemented changes</p>
Week 45	<p>Worked on connecting the application with the react application.</p> <p>Tested the application with implemented changes.</p> <p>Fixed bugs identified</p>
Week 46	<p>Logbook submission</p> <p>Final Presentation and Viva</p>

2. Some Online Meeting Evidence

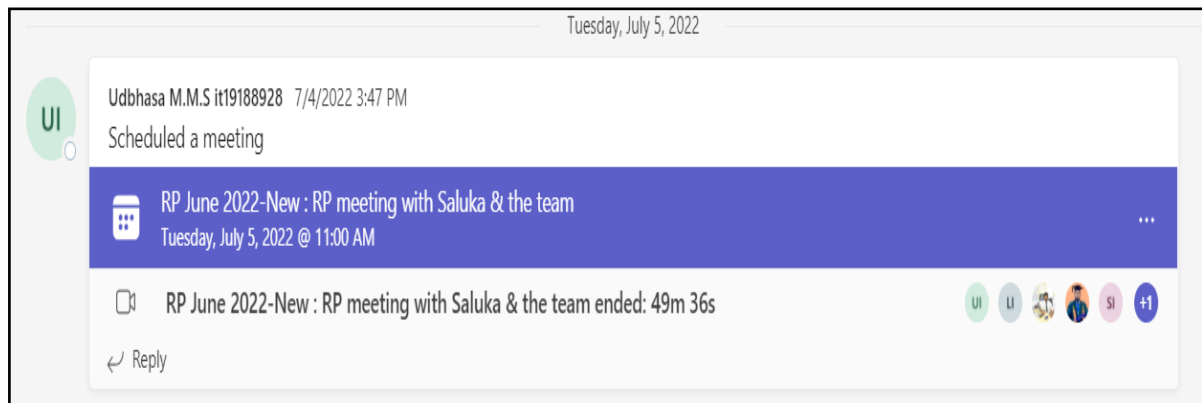


Figure 2.1 - Online Meeting Evidence 1

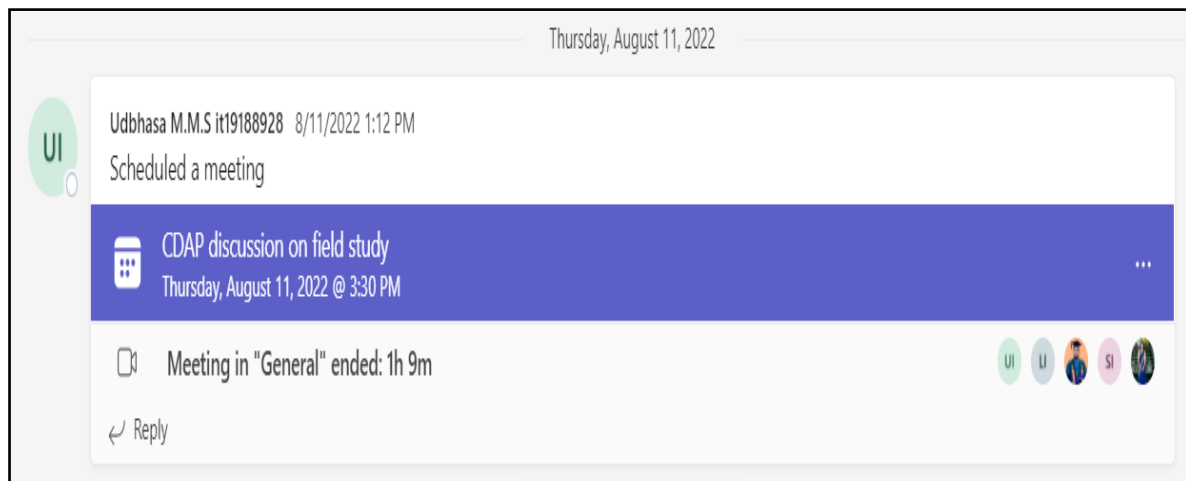


Figure 2.2 – Online Meeting Evidence 2

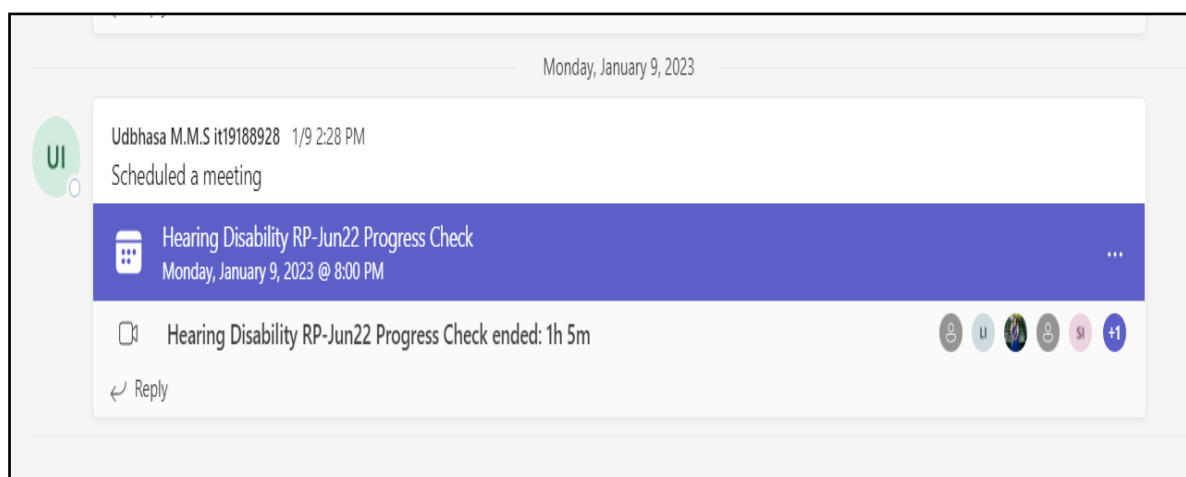


Figure 2.3 – Online Meeting Evidence 3

3. Physical Meeting Evidence



Figure 3.1 Supervisor Meeting

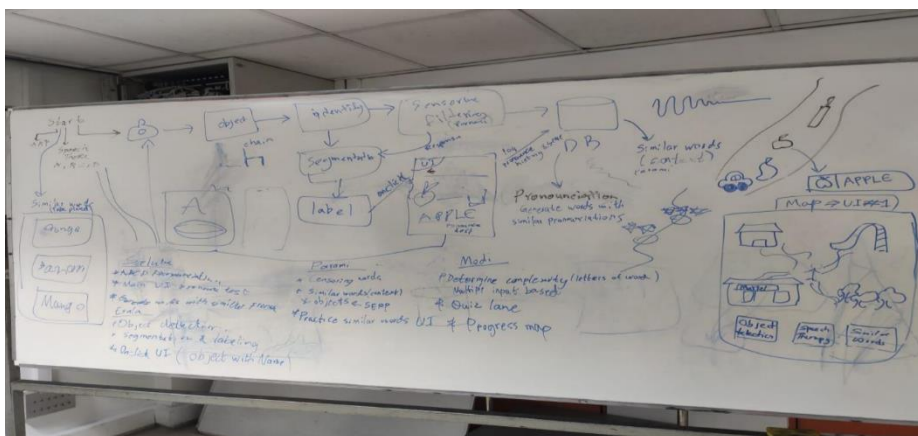


Figure 3.2 A Brainstorming Session Outcome



Figure 3.3 A physical meeting day

4. Field Visits



Figure 4.1 Going through the teaching materials at CEHIC



Figure 4.2 Ratmalana Deaf School Visit



Figure 4.3 Meeting the Board of CEHIC



Figure 4.4 Meeting with the foundress of CEHIC

5. Data /Content Collection

This PC > Local Disk (C:) > Research > Gathered Data > Audio Clips

Name	Date modified	Type	Size
3 Letter	1/15/2023 11:22 PM	File folder	
4 Letter	1/15/2023 11:22 PM	File folder	
5 Letter	1/15/2023 11:23 PM	File folder	
Compound Words	1/15/2023 11:23 PM	File folder	

Figure 5.1 Categories of Content Gathered



Figure 5.2 Some of 3 Letter Word Images Used



Figure 5.3 Some of 4 Letter Word Images Used



Figure 5.4 Some of 5 Letter Word Images Used

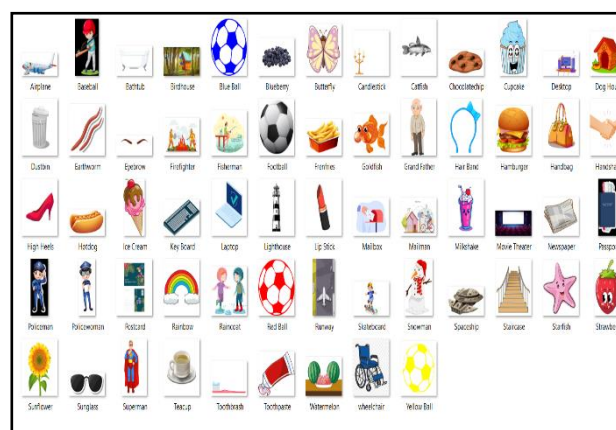


Figure 5.5 Some of the Complex Word Images Used

6. Application Development



Figure 6.1 Quiz River



Figure 6.2 Progress Map

7. Model Development

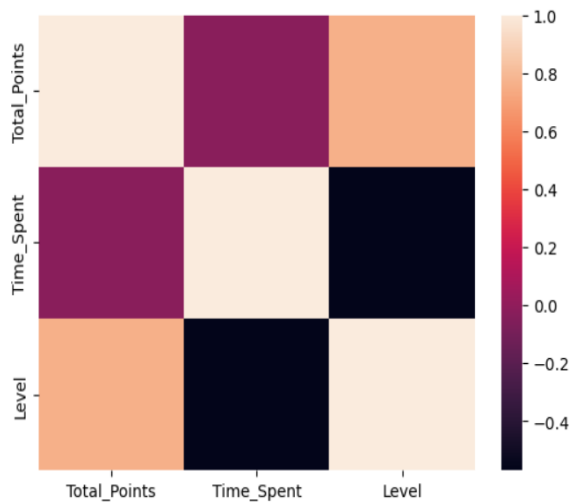


Figure 7.1 Co-relation matrix

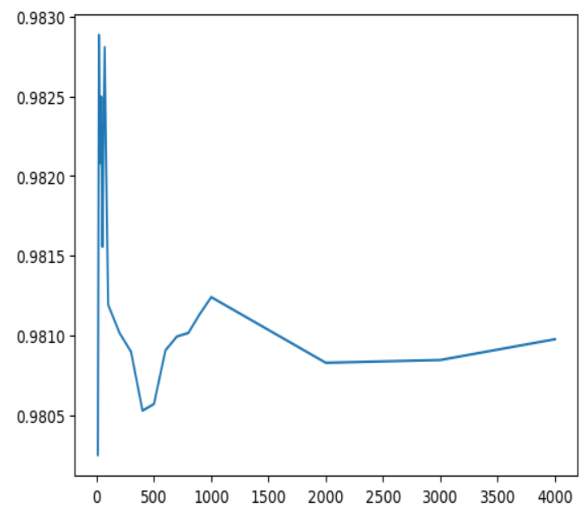


Figure 7.2 n_estimator tuning

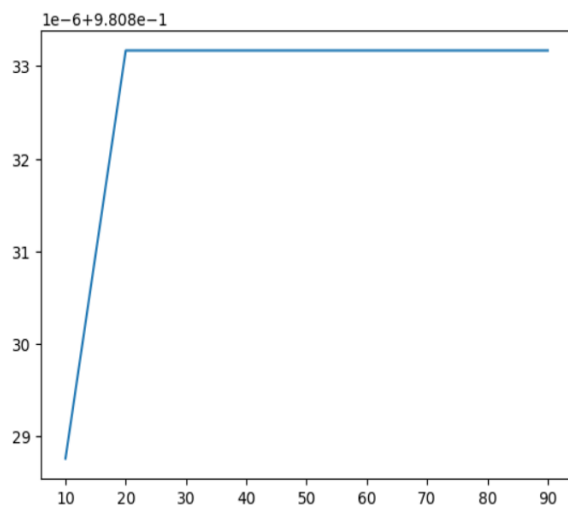


Figure 7.3 max_depth tuning

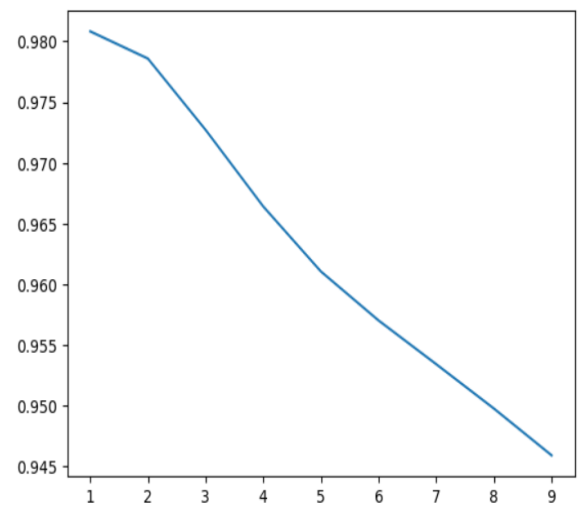


Figure 7.4 min_sample_leaf tuning

8. Gantt Chart

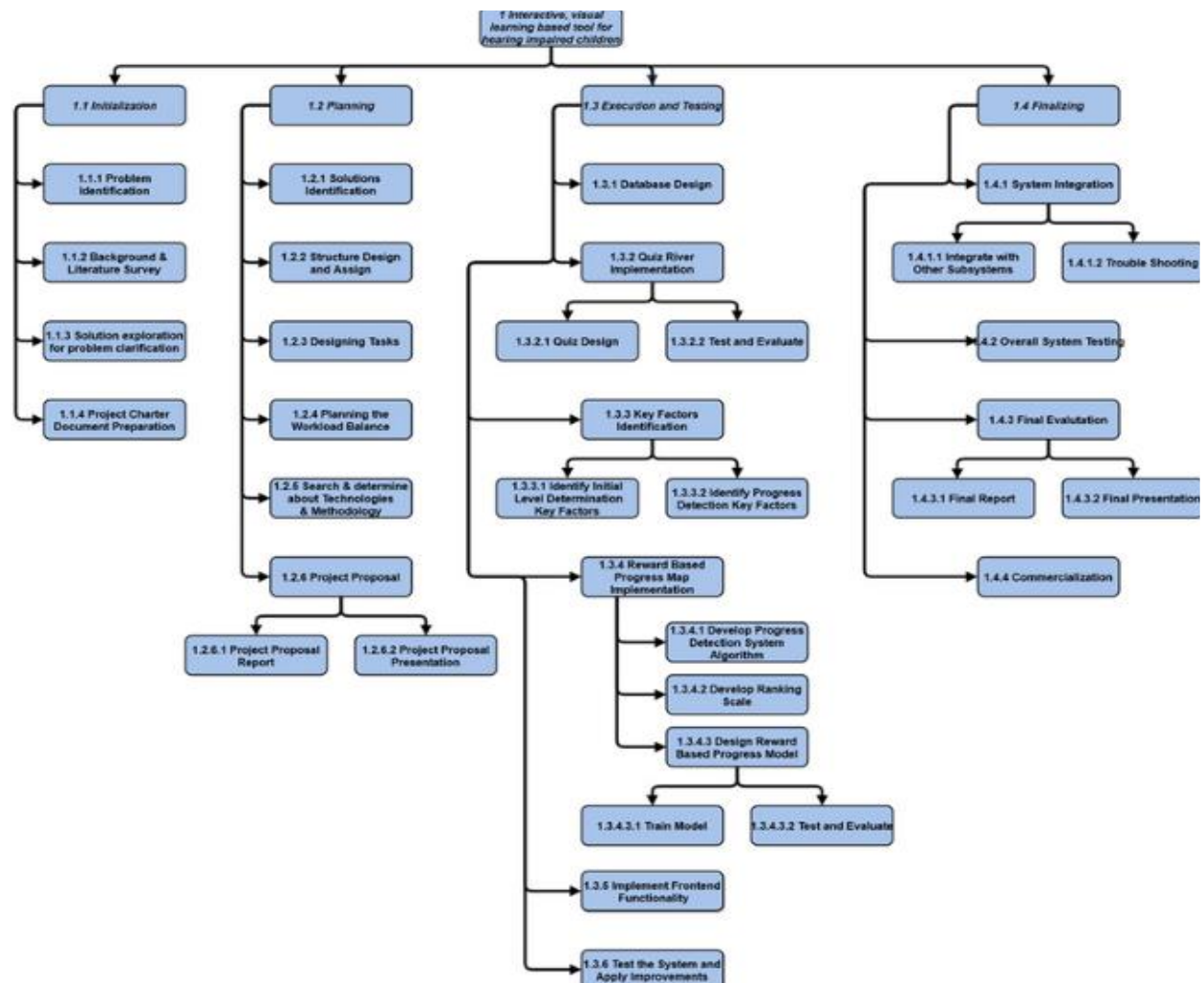



Figure 8.1 Gantt Chart

 = Completed

-End of the Document-