



# **LEARNING PLATFORM FOR DYSLEXIA, DYSGRAPHIA AND MEMORY**

**BE PROJECT REPORT**

**SUBMITTED IN PARTIAL FULFILLMENT OF THE  
REQUIREMENTS IN COMPUTER ENGINEERING**

**BY**

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**2019-20**



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**BE Project Report**

**Submitted in partial fulfilment of the requirements of the Degree of  
Bachelor of Engineering in Computer Engineering**

By

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## CERTIFICATE



*This is to certify that the project entitled “Learning Platform for Reading, Spelling and Memory” is bonafide work of Dhwani Kirti Patel, Kajol Rajesh Shah, Krina Uday Shah and Viraj Atul Trivedi submitted to University of Mumbai in partial fulfilment of the requirement for the award of the degree of Bachelor of Engineering in Computer Engineering.*

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# **PROJECT APPROVAL FOR B. E.**

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## **Declaration**

We declare that this written submission represents my ideas in my own words and where others' ideas or words have been included, we have adequately cited and referenced the original sources. we also declare that we have adhered to all principles of academic honesty and integrity and have not misrepresented or fabricated or falsified any idea/data/fact/source in my submission. we understand that any violation of the above will be cause for disciplinary action by the Institute and can also evoke penal action from the sources which have thus not been properly cited or from whom proper permission has not been taken when needed.

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DATE:

## **ACKNOWLEDGEMENT**

Before presenting our seminar work entitled “ **Learning Platform For Dyslexia, Dysgraphia And Memory** ” we would like to convey our sincere thanks to many people who guided us throughout the course for this seminar work.

First, we would like to express our sincere thanks to our beloved Principal **DR. SURESH K. UKARANDE** for providing various facilities to carry out this report.

We would like to express our sincere thanks to **PROF. NISHA VANJARI** for her guidance, encouragement, co-operation and suggestions given to us at progressing stages of report.

Finally, we would like to thank our H.O.D. **PROF. SARITA AMBADEKAR** and all teaching, non-teaching staff of the college and friends for their moral support rendered during the course of the report work and for their direct and indirect involvement in the completion of our report work, which made our endeavor fruitful.

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## **ABSTRACT**

Everyone struggles with the limits of working memory sometimes forgetting an item from a shopping list or drawing a blank when you're trying to remember the rules of a new game. But for people with actual learning disabilities, working memory is often a more significant problem. Kids with learning struggles often overload their working memory capacity because they need to consciously break down and perform processes that other kids do automatically, a large amount of their "Cognitive Workspace" is occupied. Our software will be focusing on analyzing and helping children in excelling in the areas of Spelling, memory and speech. The level of puzzles will increase as per the report generated by the machine. As the correctness and accuracy of the puzzle increases the difficulty level of the puzzle will be increased. The application software will boost the confidence, attentiveness and response time of the children. Learning Disability includes Reading, Writing and Memory related difficulties, the severity can vary (Low - High). A report of their progress will be generated monthly/weekly and send via SMS or email to the parents, teachers.

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# **CHAPTER 1**

## **INTRODUCTION**

### **1.1 INTRODUCTION**

#### **1.1.2 WHAT IS LEARNING DISABILITY?**

“Learning Disability is a specific learning disability that is neurobiological in origin. It is characterized by difficulties with accurate and/or fluent word recognition and by poor spelling and decoding abilities. These difficulties typically result from a deficit in the phonological component of language that is often unexpected in relation to other cognitive abilities and the provision of effective classroom instruction. Secondary consequences may include problems in reading comprehension and reduced reading experience that can impede growth of vocabulary and background knowledge.”

Having a child diagnosed with Learning Disability can be a traumatic experience. While Learning Disability can make reading more difficult, with the right instruction, almost all individuals with Learning Disability can learn to read. Many people with Learning Disability have gone on to accomplish great things. Among the many Learning Disability success stories are Thomas Edison, Stephen Spielberg, F. Scott Fitzgerald and Charles Schwab.

Learning Disability is a neurological condition caused by a different wiring of the brain. There is no cure for Learning Disability and individuals with this condition must learn coping strategies. Research indicates that Learning Disability has no relationship to intelligence. Individuals with Learning Disability are neither more nor less intelligent than the general population. But some say the way individuals with Learning Disability think can actually be an asset in achieving success.

In public school settings where many teachers are not knowledgeable about this condition, students with Learning Disability may be considered stupid or lazy. Parents who have children diagnosed with Learning Disability should seek out reading instruction that is based upon a systematic and explicit understanding of language structure, including phonics.

#### **1.1.3 FACTS ABOUT LEARNING DISABILITY**

Fifteen percent of the U.S. population, or one in seven Americans, has some type of learning disability, according to the National Institutes of Health. Difficulty with basic reading and language skills are the most common learning disabilities. As many as 80% of students with learning disabilities have reading problems. Learning disabilities often run in families. Learning disabilities should not be confused with other disabilities such as autism, intellectual disability, deafness, blindness, and behavioral disorders. None of these conditions are learning disabilities. In addition, they should not be confused with lack of educational opportunities like frequent changes of schools or attendance problems. Also, children who are learning English do not necessarily have a learning disability. Attention disorders, such as [Attention Deficit/Hyperactivity Disorder](#) (ADHD) and learning disabilities often occur at the same time, but the two disorders are not the same.

#### **1.1.4 PROBLEMS FACED BY STUDENTS WITH LEARNING DISABILITY**

Learning Disability can lead to a number of problems, including:

- **Trouble learning.** Because reading is a skill basic to most other school subjects, a child with Learning Disability is at a disadvantage in most classes and may have trouble keeping up with peers.
- **Social problems.** Left untreated, Learning Disability may lead to low self-esteem, behavior problems, anxiety, aggression, and withdrawal from friends, parents and teachers.
- **Problems as kids.** The inability to read and comprehend can prevent a child from reaching his or her potential as the child grows up. This can have educational, social and economic consequences.

#### **1.1.5 SYMPTOMS**

Signs of Learning Disability can be difficult to recognize before your child enters school, but some early clues may indicate a problem. Once your child reaches school age, your child's teacher may be the first to notice a problem. Severity varies, but the condition often becomes apparent as a child starts learning to read or it could include biological inheritance.

- **School age**

Once the child is in school, Learning Disability signs and symptoms may become more apparent, including:

1. Reading well below the expected level for age
2. Problems processing and understanding what he or she hears
3. Difficulty finding the right word or forming answers to questions
4. Problems remembering the sequence of things
5. Difficulty seeing (and occasionally hearing) similarities and differences in letters and words
6. Inability to sound out the pronunciation of an unfamiliar word
7. Difficulty spelling
8. Spending an unusually long-time completing tasks that involve reading or writing
9. Avoiding activities that involve reading

## **1.2 LEARNING PROCESS FOR READING**

Reading is defined as a process which includes word recognition and identifying the word in order to explicate the given text. Reading is a process which involves thinking. It ensures that the reader uses what they have been already knowing also called prior knowledge. Findings from Neuroscience says that during the learning process the physical structure of the brain undergoes changes, in other terms it alters the functional organization of the brain. Learning is a process in which each individual gain new knowledge or alters the knowledge, during this nervous system and behavior of an individual undergoes certain changes which vary how an individual thinks and acts.

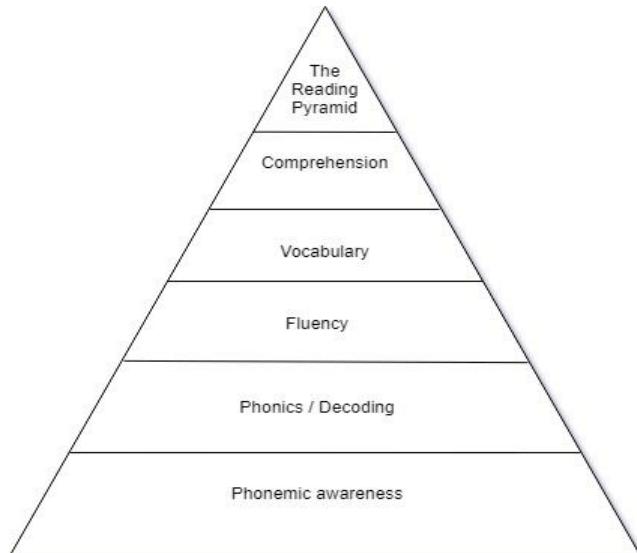


Fig.1. Summarization of Learning Process

### 1.3 LEARNING PROCESS FOR SPELLING

Many researches show that the process to learn spelling involves understanding the relationship between reading and spelling. Reading and spelling depends on the foundation of representation of the same word. Fluency of reading is built strong when the spelling of a word is known prior. In fact, Ehri and Snowling found that the ability to read words “by sight” (i.e. automatically) rests on the ability to map letters and letter combinations to sounds.



### 1.4 LEARNING PROCESS FOR MEMORY

Memory is a logical process which has the ability to store and encode the various events.

Learning process and memory are interrelated, as learning is the process of achieving a vast set of skills and whereas memory ensures how the brain stores the data/information and also retrieves it. Weak memory sums up to difficulty in learning. However, there is no single/global memory which contributes to the entire memory system. There are different types of memory which develop a memory system which contains different types of information. Various types of memory are namely, procedural memory, semantic memory, episodic memory. Working memory is vital for learning it involves memorizing static data/information. Working memory involves two components namely verbal and visual-spatial short-term memory stores. Verbal short-term memory holds information that can be expressed in numbers, words, and sentences. Visual-spatial short-term memory holds images, pictures, and information about location in space.

### **1.5 NEUROLOGICAL ASPECT OF LEARNING DISABILITY.**

In terms of neurological aspects of dyslexia, the people suffering from developmental dyslexia have a complex deficit of impaired reading procurement, although they have sufficient sensorial and neurological conditions, as well as normal IQ and education opportunities. Despite getting the fruitful results of suspecting genes of dyslexia, the underlying origin pathway for it has not yet been understood. Imaging–genetics integration has been attempted by a few scholars to find the underlying biological aspect of dyslexia but the outputs are not significant to describe the complexity of the reading circuit. Up to 5 to 12 % of the population finds reading extremely difficult. From the magnetic resonance imaging (MRI) that has been studied, it gives us insight into various functional, morphological and structural brain abnormalities. Also, functional MRI was considered to know how the brain reacts when at rest and during any specific task given. The test was conducted on two groups, one group of children that were found dyslexic and another pre-reading child who was at risk of dyslexia. The pathway of how brain circuits work in both groups indicate an early risk of dyslexia in pre-reading children. This kind of detection can help pre-reading children who are at risk of dyslexia an early aid for potential academic remedy.

### **1.6 TEACHER'S PERSPECTIVE ON DYSLEXIC CHILDREN**

Previously researchers and professors considered dyslexia occurred due to visual deficits and that it was marked by letter and word reversals. It is now universally admitted that dyslexia is not an optical issue and that reversals are characteristic of developing readers. In an analysis of dyslexia study printed between 1960 and 2011, Lopes (2012) discovered that the top 10 most published authors of dyslexia research were physicians, psychologists, and neuropsychologists;[4] none were teachers. Thus, when teachers, teacher educators, and other education stakeholders seek knowledge about dyslexia, they will essentially find views from researchers who typically have no direct acquaintance or experience in teaching. Professors are generally represented as lacking awareness and insight for students with dyslexia. Despite the ambiguity and conflicting state of knowledge about dyslexia, researchers who have analyzed teacher knowledge have employed close-ended surveys that include assumptions about the definition, characteristics, and treatment for dyslexia as if they are rightly understood and accepted upon. The teachers constructed complex, uniquely personal opinions about LD from multiple sources, including expert and popular lectures, life experience, and education experience. Even if our educators wanted to know more about dyslexia and help their studies more, they expressed disappointment because of a lack of information and transparency about the dyslexia identification as well as interference policies and methods in their schools and districts. It was not shocking, then, that our educators were uncertain about their capacity to work with students recognized as dyslexia, even though they felt certain to provide effective reading guidance to students with other reading difficulties. Some clear methods are there that can make the professor clear about the characteristics, origins, and identification of dyslexia, but the researchers have not yet identified a structured study program for children suffering from dyslexia. Thus, educators can gain knowledge about what exactly dyslexia is and what their symptoms are and by themselves can act upon their studies in a personalized way. Knowing what is understood and what is not yet known may give educators and mentor educators the confidence to engage in conversations that currently take place often without their input in this kind of matter.

#### **1.7 PARENT'S PERSPECTIVE ON DYSLEXIC CHILDREN**

Dyslexia could be prevented if detected at an early stage. It becomes extremely important because in case of dyslexic children, the most important role-playing people in their life are

parents. How parents persevere their children is the key playing factor onto how the world will persevere with them. Early stages will be detected by the parents, in case if the child lags a command over reading by the age of 3-4 years then he could be potentially suffering from dyslexia. In this case the parents should get in touch with the teacher and take the necessary steps. Parental support can be a protective factor that may positively or negatively impact self-esteem. It is very important for parents to set realistic targets for their child, keeping in mind their condition, setting an educational expectation and academic target. After setting achievable targets for the child, his/her parents act as a wall of support for this child. More often it is seen that parents who are mentally powerful help their child achieves a lot more than those parents who fall weak after knowing about their child's condition.

Parents need to understand that it is healable in the initial stage if they reach out to the right set of people in the field. The right first person of contact should be the class teacher. Later on, proper consultation from experts can be taken to check the severity of the child. Huge time and money are invested in these procedures. There is a set of govt. Bodies which are responsible for checking the level of understanding in the child. This body conducts a 12-15-hour checkup keeping various factors in mind and provides certification which acts as legal proof of the child suffering from dyslexia.

Since a lot of time and mainly money investment is required, people from lower socioeconomic backgrounds cannot really afford these procedures. There are non-profitable organizations working closely with dyslexic children on it. Right parental support brings a feeling of being understood amongst the children and a sense of being accepted by the people around them. This will intern bring confidence and signs of improvement could be observed in their attitude towards studying and overall performance.

## **1.8 DETAILED STATEMENT OF PROBLEM**

Not all children are of equal intelligence. The application software focuses on motivating the children (age 5-9) to cope up with their disability and help them in excelling in their academics. The application software will be testing the level of Severity in a particular child with the help

of different pre-requisite quiz along with a parent/teacher questionnaire made in an interactive and interesting way. The software will be focusing on the analysing the level of understanding in the children and then accordingly generate a report by passing on the data to the analyser. The major problems faced by the children suffering from learning disability is Reading, Spelling, memory. Spelling is difficult for many people, but there is much less research on spelling to tell us just how many people spell poorly or believe they spell poorly. Poor spellers have trouble remembering the letters in words because they have trouble noticing, remembering, and recalling the features of language that those letters represent. Most commonly, poor spellers have weaknesses in underlying language skills including the ability to analyse and remember the individual sounds (phonemes) in the words, such as the sounds associated with j , ch, or v, the syllables, such as la, mem, pos and the meaningful parts (morphemes) of longer words, such as sub-, -pect, or -able. These weaknesses may be detected in the use of both spoken language and written language; thus, these weaknesses may be detected when someone reads and writes. Everyone struggles with the limits of working memory sometimes forgetting an item from a shopping list, or drawing a blank when you're trying to remember the rules of a new game. But for people with actual learning disabilities, working memory is often a more significant problem. Kids with learning struggles often overload their working memory capacity because they need to consciously break down and perform processes that other kids do automatically, a large amount of their "cognitive workspace" is occupied our application software will be focusing on analysing and helping children in excelling in the areas of Spelling, memory and speech. The level of puzzles will increase as per the report generated by the machine. As the correctness and accuracy of the puzzle increases the difficulty level of the puzzle will be increased. The software will boost the confidence, attentiveness and response time of the children in dyslexic children. The major problems faced by the children suffering from dyslexia is Reading Continuous prose reading is a far more complex task than is often appreciated. In monitoring continuous reading, we expect the pupil to read with fluency, with reasonable speed, with accuracy and with full comprehension. However, all four of these aspects of continuous reading are interdependent and a problem with any one can negatively affect the act of continuous reading. Reading accuracy will increase with word identification skills and practice in reading in context. Most

pupils with dyslexia will require specific help in developing ability in fluency and comprehension. Reading speed will increase with the improvement of reading accuracy, speed and comprehension. Developmental reading Shared Reading provide opportunities for the pupil to practice reading skills in context and to develop accuracy and fluency on materials that are at an appropriate level of difficulty.

### **1.9 MOTIVATION**

- Interest to do something in the Medical Domain.
- Project Guides motto behind helping students with Learning Disability.
- Meeting with the CEO of Maharashtra Dyslexic Association.

### **1.10 AIM & OBJECTIVE**

The main objective behind developing this system is to stitch the thinking gap between a normal and a dyslexic student in a fun interactive way. To observe changes work on their personal growth and provide the aid they require. The aim is to gather real-time student data using a questionnaire that the parent and teacher would be completing before the student starts with the learning enhancement module. The student will also play a quiz before starting the learning enhancement module. We will determine the student's level to provide the necessary motivation along the path way to learning.

## **CHAPTER 2**

### **REVIEW OF LITERATURE**

We have done theoretical study of various papers; we understood the need to have an assistive technology for LD students. There are various Parameters that affect a special child, these parameters cause them lose their emotional stability and so we have made a survey about emotional coping strategies as well.

Literature survey consisted of study of a number of papers published in reputed journals related to the topic as well as some peripheral topics to give us better knowledge and clarity of the domain. A lot of informative material was found on the internet which helped us learn more about object tracking.

#### **2.1 COMPUTER BASED SCREENING FOR DYSLEXIA**

It is used as a marking schema to detect the severity of learning disability. There are many types of learning disabilities whose characteristics coincide with each other and thus a test is taken to determine which type of learning disability an individual suffers from. The decision tree algorithm is used in this classification system. Since the decision tree is a rule-based (if-then rule) algorithm they are easier to understand and is also computationally easy as it performs classification with less computational time. It also helps to provide a clear indication of important fields for classification. It is used in this system for the sole purpose of deciding the level of dyslexia, dysgraphia, and memory in an individual. In each category, it classifies the skills of an individual and depending on that a decision is generated. Learning Disability affects Up to 10 percent of the population are affected by specific learning disabilities, such as dyslexia, dysgraphia, and memory. This system diagnoses these different types of Learning Disabilities by using some simple cognition. Following table is just example of E-learning system. It shows how system will work on disability and how it grabs the understanding level of child. Some time it requires more repetition but it will be helpful for the child.

No.	Task	Category
1	Word Count	Dyslexia
2	Correct the spelling	Dysgraphia
3	Card Comparison	Memory

## **Use of Computer system for LD child remediation**

**1. Dyslexia:** Word Counting, in this task, the series of sentences are given in a particular order and some sentences and words are jumbled. The difference in speed of recognizing the words and sentences of both patterns is calculated. The cognitive functions noticed here are knowledge of the words, decoding of words, the arrangement of proper sentences, attention and visual memory.

**2. Dysgraphia:** Correct the Spelling In this task, incorrect words will be provided to the children with a guess limit as well as words will be given with missing alphabets and children are expected to complete the words with the provided choices of the alphabets. This checks their working memory, decoding of words, and enhances their vocabulary.

**3. Memory:** Card Comparison In this task, two cards will be drawn out of the 8 cards and children are supposed to select 2 cards look at them and then select the third card, when the third card is selected the previous two selected card are turned over and the children are supposed to think and match the third card with one of the previously selected cards. This checks their working memory and attention.

## **2.2 Overview**

### **2.2.1 ALEXZA: A MOBILE APPLICATION FOR DYSLEXICS UTILIZING ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING CONCEPTS.**

Dyslexia can be explained as a neurological learning disability which causes difficulties in reading, word decoding, comprehension, short-term memory, writing, spelling, and speaking. People who are diagnosed with dyslexia tend to show signs of low self-esteem and anxiety since they can't interact with the society in a way that their peers do. Many applications available in this domain help them by correcting their issues by playing games and reading some hard-coded texts or pdf books. This correcting process takes time and dyslexics become helpless when coping with their day-to-day activities. This paper describes results of an evaluation of a prototype mobile application which helps the dyslexic users to deal with their reading difficulties in real life successfully, while they are receiving proper treatments. This prototype can identify the texts around them and read it loudly so that user can understand and will be allowed to customize the chunking, scrolling and highlighting of words according to their disability levels. By integrating dictionary support with the phonic and morphological structure of the word, the user will be able to comprehend difficult and complex words easily. In addition, the study also explores the use of a machine learning approach to improve the effectiveness of the learning dyslexic complex words.

## **2.2.2 STUDENT-CENTERED DIGITAL GAME-BASED LEARNING: A CONCEPTUAL FRAMEWORK AND SURVEY OF THE STATE OF THE ART.**

Student-centred learning forms a major driver behind educational policy and practice in the modern day. With a drive towards embracing the possibilities of technology within the classroom, especially digital video games, it is vital to have an understanding of where such games are delivering and where their potential has yet to be explored. With this in mind, it is important to survey the existing literature to establish the level to which the promise of student-centred learning is being delivered through digital video games. This study presents a conceptual framework based upon a systematic literature review of developments in student-centred digital game-based learning, and seeks to establish the extent to which all tenets of student-centred learning and principles of digital game-based learning are embraced within such applications. A thematic analysis identifies the common themes of game and intervention design while integrating and conceptually linking the key concepts of student-centred learning and digital game-based learning. This leads to the development of a conceptual framework allowing classification of the literature according to common themes. Inclusion criteria include the presence of student-centred learning concepts, with a game-based focus including specifically digital video games. In order to fully embrace the possibilities offered by student-centred digital game-based learning, it is important not to neglect lessons learned in the development of student-centred learning to its current state. Aspects such as peer-based learning and building relationships between students and teachers have been found important in traditional learning and must be investigated and adapted to new media, including games, as new technologies enter the educational mainstream. Further research into the effects of designing games around these multiplayer aspects, and better defining the role of teachers and educational staff in digital game-based learning, may demonstrate ways to develop and create educational experiences that better engage and prepare students.

## **2.2.3 INTERACTIVE WEB BASED DESIGN FOR LEARNING DISABLED CHILDREN**

Learning disabilities is one of the most difficult problem that is faced by the school going children or kids and recovering process is relatively slow. Computers and educational multimedia courseware have the strength to help these children in their education and also for self-development and will help them for motivation as well. We have developed a web portal that helps the dyslexic children to solve their respective problems and as a result it helps the child to grow individually and boost their confidence as well.

The web portal is viable enough to help the dyslexic children by providing them basic knowledge about primarily important topics, without dealing with a much more complex interface. It is also much more fun to use this project to help the lower age groups, to educate them as children these days are more inclined towards the technologies. To make the whole module interactive instead of having static quizzes, the module will load randomly quizzes from the predefined database. The system will also help the student to boost self-confidence and help each and every student to grow individually. It will be a remedial solution for those students who have learning disabilities and who require special attention from their teachers, because it aims at providing fun with learning.

### 2.3 REVIEWED MODELS

1. **“TheCure”** was published in the year 2018. Target users are dyslexic students from English medium backgrounds facing difficulties in Reading, Handwriting. It uses the following algorithms to build a model Convolutional neural network (CNN), Automatic Speech Recognition (ASR), TensorFlow source tree, Euclidean distance K-means clustering. It gave an accuracy of Heuristic Evaluation model: reasonable substance mean of 4.52 / 5, letters acknowledgment strategy mean of 4.64/5 and reasonable multisensory approach mean of 4.4 / 5. It has quite a lot of limitations like it was highly depended upon confusing words recognition only; No audio, Limited animation.
2. **Mobile App for reading practice & Dyslexic Diagnostics** was published in the year 2016. Target users are dyslexic students from Portuguese background facing difficulties with Reading. It uses the model based on Voice Recognition(Dragon Mobile SDK), gives an accuracy where the normal endeavor by Dyslexic was 3.46 / 5 and non-Dyslexic was 2.54 / 5 youngsters. This app was limited to students from Portuguese background and the user read properly what the screen display but factors like surrounding noise affects the accuracy, user with a non-native accent may spell right, but it is not correctly identified by the system.
3. **ALE(Adaptive E-learning)** was published recently in 2019. Target users involved students diagnosed with Dyslexia and Dysgraphia using base language as English. The model used was a Rule-Based System using PHP, HTML, XML, WAMP Server in the development of a web based system. They studied 100 people using 16000 .wav (audio file). Found out the accuracy after 70,000 record sound files of different voices those who don't suffer from dyslexia got percentage level that lies between 80-90 while those who suffer from dyslexia got percentage level that lies between 30-40. This model was limited to a Rule-Based System and was not found to be very flexible. It was web based

so it restricted a lot of students who wished to use tablets and smart devices as a platform.

4. **Mylexic** was published in 2009. Focused mainly on Dyslexic and Autism students struggling with Reading, Spelling and Writing with base language as Malay originated from Malaysia. They used Dual coding Theory, Scaffolding, Teaching Strategy. They reached out to students using a Courseware (CD). Their learning module mainly focused on Alphabets, Syllables and Words. Though it used the dual coding theory the model was very static and did not provide an accurate statistical interface on the development of the student.
5. **Dyslexia Baca** was published in 2013. It focuses mainly on dyslexic students facing difficulty with alphabet recognition but having a strong command on Malay. They used a Multisensory Approach and included the memory theory. They came up with a mobile application which focused mainly on confusing alphabets. The application was not platform independent and was not compatible with any web browser. It used a limited Letter Recognition pattern and the level of the letters was also extremely simple.
6. **IASD** was published in 2013. It is a standard one software system for children/adults with dyslexia facing difficulties with Phonology, Reading, Writing. The model is built on Machine Learning (HMM), Game Visualization principles. The data was gathered using pre/post test experimentation on the target users. This app mainly focused on the Syllables, Rime, Phoneme, Reading and Writing. The base of the model is not very clear in terms of the approach and structure used.
7. **YUSR** was published in 2014. It is a software developed for the dyslexic children struggling with Phonic, Reading and Spelling. The model uses Machine Learning, Vision and Speech recognition as its key components. Multiple students were considered during the interview and questionnaire was given to evaluate the weak areas. This software was developed in the Arabic Language. It lagged in its accuracy of voice recognition but works really well with Alphabets, Words, Sentence Framing and similar formation of words. Example: Bad, Cad, Mad.
8. **DysEggxia** was published in the year 2014 by Rello & Bayarri. They worked closely with dyslexic children to develop a mobile application which would help dyslexic children learn spellings in a more interactive and fun method. It used a Gamification

method to provide games using the error-based method. Key languages of development mainly focused on the Spanish and English Languages.

9. **E-Talk** was published in 2014 with the intention to promote Phonological Awareness on Communication Training. The target is to assist people facing articulation disorder with the help of a talking pen. The learning module included Phoneme, Tone awareness as you slide the pen over the book it guides you and reads out the sentences and images for you. It was a proper device and was limited to the book that came along with it. It only works in the mandarin language.
10. **Jolly Mate** was published in 2007 with an intent to help students in the early stage of their dyslexia. This was a classroom experiment which was performed under observation using a Digital Notepad. The approach was a multisensory approach and used machine learning(K-NN & NN model). The base language was english and focused mainly on Phonic and writing. The learning module included visual of six letters at a time and writing letters. This experiment was limited to the digital notepad provided by the company Jolly Mate.

## 2.4 Scope of the Project

As of this semester we have implemented two modules. In the upcoming semester we will be providing them reinforcement learning where the learning will be given according to the child level of understanding and we will be using machine learning techniques as well to model building will be done with the sufficient data that will be collected in order to get good accuracy which will help us when a new child is logged in the system and using our prediction we will be able to figure out the severity and in which area the child needs improvement.

## **CHAPTER 3**

### **REQUIREMENT SPECIFICATIONS**

#### **3.1 INTRODUCTION TO SYSTEM SPECIFICATION**

To be used efficiently, all mobile application needs certain hardware components or the other software resources to be present on a computer. These pre-requisites are known as system requirements and are often used as a guideline as opposed to an absolute rule. Most software defines two sets of system requirements: minimum and recommended. With increasing demand for higher processing power and resources in newer versions of software, system requirements tend to increase over time. Industry analysts suggest that this trend plays a bigger part in driving upgrades to existing computer systems than technological advancements.

#### **3.2 HARDWARE REQUIREMENTS**

The most common set of requirements defined by any operating system or software application is the physical computer resources, also known as hardware. A hardware requirements list is often accompanied by a hardware compatibility list (HCL), especially in case of operating systems. An HCL lists tested, compatibility and sometimes incompatible hardware devices for a particular operating system or application. The following sub-sections discuss the various aspects of hardware requirements.

##### **Hardware requirements for present project:**

PROCESSOR: Intel i5 or above.

RAM: 8 GB or above

HARD DISK: 160 GB

OR

TABLET/ MOBILE PHONE: With active internet connection.

#### **3.3 SOFTWARE REQUIREMENTS**

Software Requirements deal with defining software resource requirements and pre-requisites that need to be installed on a computer/mobile to provide optimal functioning of an application. These requirements or pre-requisites are generally not included in the software installation package and need to be installed separately before the software is installed.

**Software requirements for present project:**

OPERATING SYSTEM: Windows XP and above, Ubuntu v12.04 and above.

BROWSER: Google Chrome, Internet Explorer.

MOBILE: Android 9.0.2. Microphone, Speakers

## CHAPTER 4

### ANALYSIS

#### 4.1 PROJECT TIMELINES AND TASK DISTRIBUTION

A timeline represents the flow of the working of the project with its list of events in chronological order, also known as a project artefact. It is a graphical design that shows the dates with the tasks completed on their sides. The highlighted areas indicate the period of time wherein they were completed.

Phase	Task	Months (Jan 2019 – April 2020)														
		J	F	M	A	M	J	J	A	S	O	N	D	J	F	M
1	Problem															
	Definition															
	Rigorous study &															
	Analysis															
2	Project planning															
	Designing															
	Data															
	Collection															
3	Implementation of Proposed System															
4	Testing															
	Modifications															
5	Deployment															

The task distribution table is given below. It is distributed view of the individual subtasks of the entire project and the group member(s) who have completed them. The 1-year plan has been broken down into manageable parts and helps us set measurable goals that are realistic and can be accomplished easily in small amounts of time. Table 4.2 shows this required data.

Task List	Assigned to	Status
Problem Selection	Dhwani Patel Kajol Shah Krina Shah Viraj Trivedi	Completed
Requirement Gathering	Dhwani Patel Kajol Shah Krina Shah Viraj Trivedi	Completed
Project Analysis	Dhwani Patel Kajol Shah Krina Shah Viraj Trivedi	Completed
Image Gathering (Dataset Requirements)	Dhwani Patel Kajol Shah Krina Shah Viraj Trivedi	Completed
Data Pre-Processing	Dhwani Patel Kajol Shah Krina Shah Viraj Trivedi	Completed
Algorithm Selection (Improvement)	Dhwani Patel Kajol Shah Krina Shah Viraj Trivedi	Completed
Model Designing and Testing	Dhwani Patel Kajol Shah Krina Shah Viraj Trivedi	Completed

Statistical Evaluation	Dhwani Patel Kajol Shah Krina Shah Viraj Trivedi	Completed
Deployment	Dhwani Patel Kajol Shah Krina Shah Viraj Trivedi	Partially Completed
Documentation	Dhwani Patel Kajol Shah Krina Shah Viraj Trivedi	Completed

**Table 4.1.2 Task Distribution**

## 4.2 EXISTING SYSTEMS

1. **Easy Spelling Aid** is a spelling, reading, Learning Disability and translation helper to use when a user encounters problematic words and is communicating in another language.
2. **Hang Art** is an IOS with an Android version, is based on the classic word game Hangman. Kids use the building blocks of spelling, writing, and drawing to boost vocabulary.
3. **Endless Spanish** offers "Spanish Immersion" for native Spanish speakers and advanced learners, and "Spanish with English Translation" for most native English speakers.
4. **Endless Learning Academy** is an early learning app with the Endless monster crew. Some sounds were identified as lacking accuracy.
5. **Newsela** is updated with a writing prompt both on the web and in the app. Newsela builds reading comprehension by delivering relevant, daily articles from trusted news sources with a choice of five reading levels, embedded assessments, and curriculum alignment information.

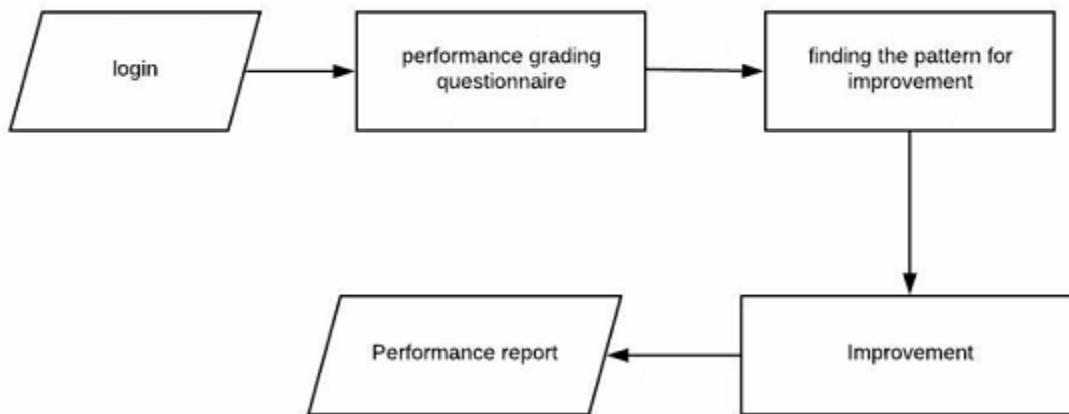
6. **Claro Scan Pen** has users take a photo of a printed text document, letter, or exam paper so that they can then select text using a finger (or stylus) and hear it spoken aloud instantly. No internet connection is required.
7. **Voice Dream Reader** adds a visual bookshelf in this update, along with a pronunciation dictionary so users can correct inaccuracies. A new setting can be used electively for word tracking/pacing/spot tracking by struggling readers.
8. **Co:Writer** Universal for Google Chrome uses grammar- and vocabulary-smart word prediction to help students express their ideas in writing with a built-in speech recognition aid. The app is available now for individuals by subscription so families don't have to rely on schools. The app works with a third-party keyboard. Topic dictionaries support writers by providing listings of specific vocabulary words.
9. **ModMath** is virtual graph paper developed by a parent and offering a free basic version for iOS with in-app purchases for higher math. In a major update during the last school year, there is a cleaner look and numeric keypad that aligns math problems. A new camera feature allows for pictures of math problems that can be inserted into the virtual paper and shared.
10. **Photomath** reads and solves mathematical problems by using the camera of a mobile device in real-time. A reveal feature shows users how to solve math problems.
11. **Whink** productivity tool for iOS devices offers a gel ink pen and smart eraser to help make handwriting smooth and flawless. Jot down notes by typing, recording or sketching. Mark up documents and organize notes easily. This app uses two apps at the same time to take notes on an iPad while reading or watching a video and more.
12. **Squid** productivity tool for Android devices helps users take handwritten notes using an active pen, passive stylus, or a finger. Markup PDFs to fill out forms, edit/grade papers, or sign documents. Import images, draw shapes, and add typed text to notes. Select, copy/paste, and move content between pages and notes. Organize your notes within notebooks.

#### **4.3 PROPOSED SYSTEM**

The proposed system will help the students and parents/teachers to know the students progress as and when he/she starts the learning enhancement module according to the pattern generated

by the quiz. The system will generate a mail, on the basis of the progress made by the student, which will be sent to the parents to keep them updated about the performance. The system will provide at most accuracy.

## Proposed System



(Fig 4.3. Proposed System)

### 4.4 FEASIBILITY STUDY

Feasibility study is an important phase in the software development process. It enables the developer to have an assessment of the product being developed. It refers to the feasibility study of the product in terms of outcomes of the product, operational use and technical support required for implementing it. Feasibility study should be performed on the basis of various criteria and parameters. The various feasibility studies are:

1. Economic Feasibility
2. Operational Feasibility
3. Technical Feasibility

#### 4.4.1 ECONOMIC FEASIBILITY

It refers to the benefits or outcomes we are deriving from the product as compared to the total cost we are spending for developing the product. In case of our project, using set of computer commands/shell. So it becomes feasible for most of the users to access the data and understand the logic behind it. Mobile application brings along with its own pros and cons, pros being it's mobility and cons being restricted screen ratio. As it is a terminal based project so there will not be any economic cost associated with it. Economic analysis is the most frequently used method for evaluating the effectiveness of a new system.

#### **4.4.2 OPERATIONAL FEASIBILITY**

It refers to the feasibility of the product to be operational. In case of our project, it has been developed in such a way that it becomes very easy even for a person with little knowledge to operate it. This software is user friendly and does not require any prior technical knowledge to operate. Thus, in this way the project is operationally feasible.

#### **4.4.3 TECHNICAL FEASIBILITY**

It refers to whether the software base that is available in the market fully supports the present application. Technical Feasibility in the proposed system deals with the technology used in the system. It deals with the hardware and software used in the system whether they are of latest technology or not. It studies the pros and cons of using particular software for the development and its feasibility. In case of our project, using set of computers commands/shell and mobile/tablet-based application. Thus, our project can be handled by any of the user who is technically sound. Hence, our project is technically feasible.

### **4.5 DEVELOPMENT METHODOLOGY**

The development strategy of our project is divided into the following phases:

➤ **Phase 1: Problem definition**

Initial phase where we finalized the problem statement.

➤ **Phase 2: Analysis**

We went through the research paper regarding the aim for which we were building the system; the study included, the collection of data Parents/Teachers, building the model using Deep learning techniques, Machine Learning, suitable algorithm, criticality, testing procedures, etc.

➤ **Phase 3: Data Collection**

The procedure for data sample collection was started, where we started to look out for data that was readily available over the web. Sample of that was collected for the training purpose.

➤ **Phase 4: Designing**

Our group along with our project guides, will start the designing phase including the analysis of various E-Learning Platform and scheduling algorithms and selecting the suitable ones. We will also design the GUI for interfacing the system. Lastly the logo was designed.

➤ **Phase 5: Implementation**

Once we get the desired accuracy, we will start building models for detecting the severity and level of training required from the Learning Enhancement Platform. After that scheduling algorithms will be applied. Simultaneously, GUI (Desktop Application) development will also be done. The Learning Model were prepared according to the standard of the Student.

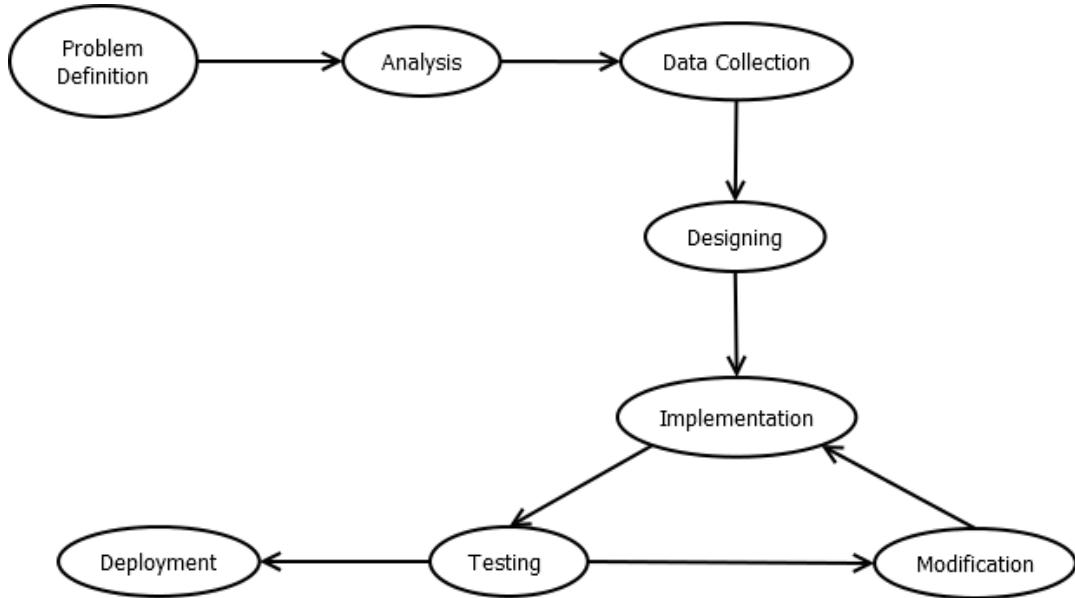
➤ **Phase 6: Testing**

After each model implementation, rigorous testing will be done for improving the accuracy and reliability of the system.

➤ **Phase 7: Modification**

After each testing, some or the other modifications will be done, either for the model or the desktop application interface.

➤ **Phase 8: Deployment**

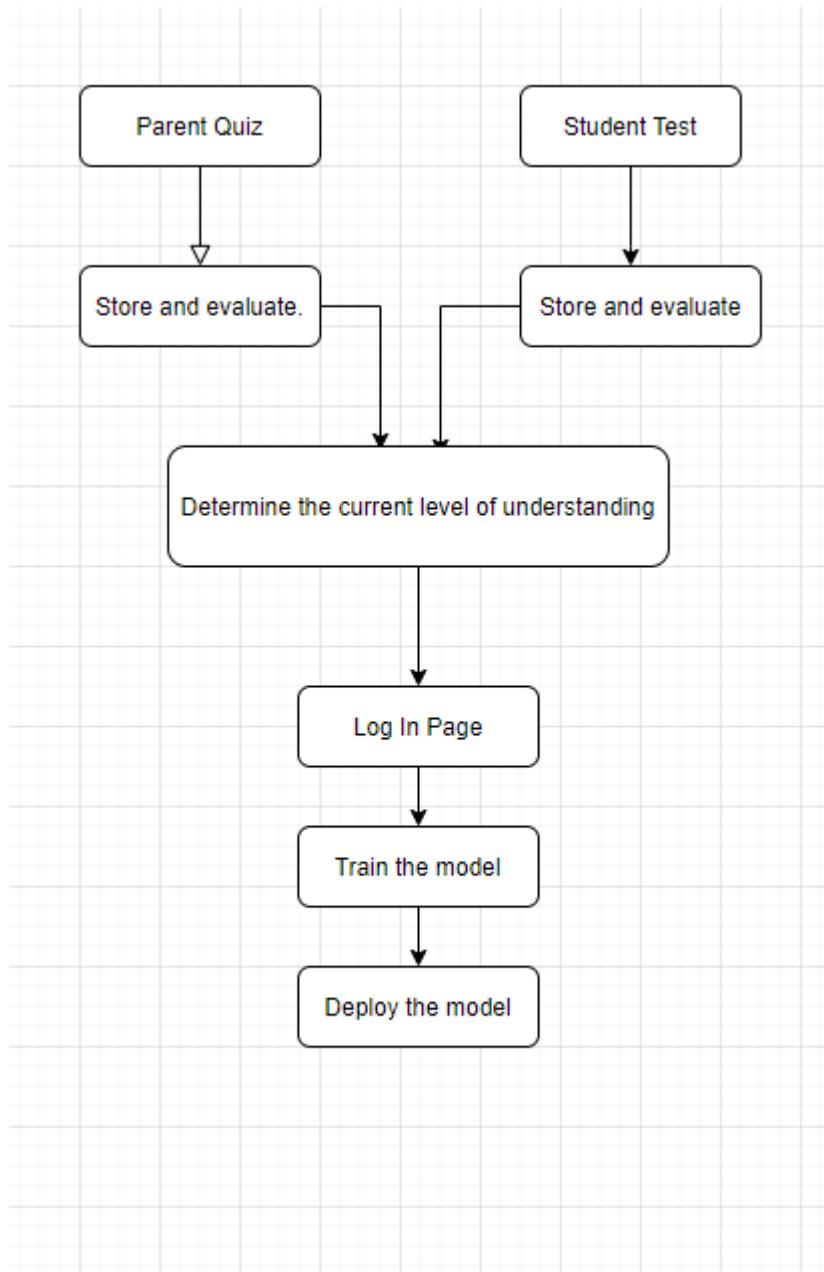


#### **Fig 4.5.1 Development Methodology**

## CHAPTER 5

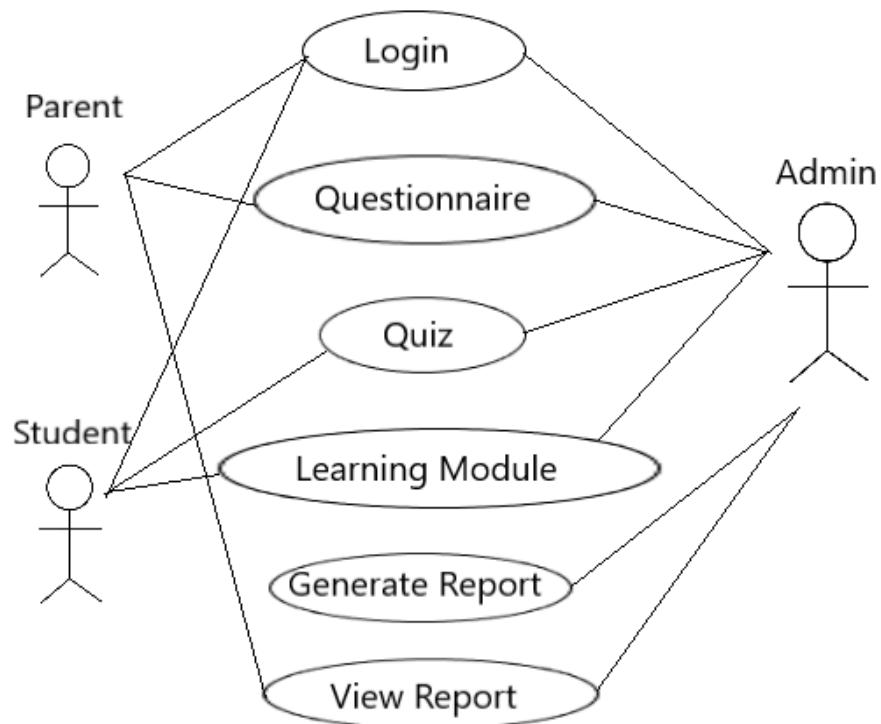
### DESIGN

#### 5.1 FLOWCHART:



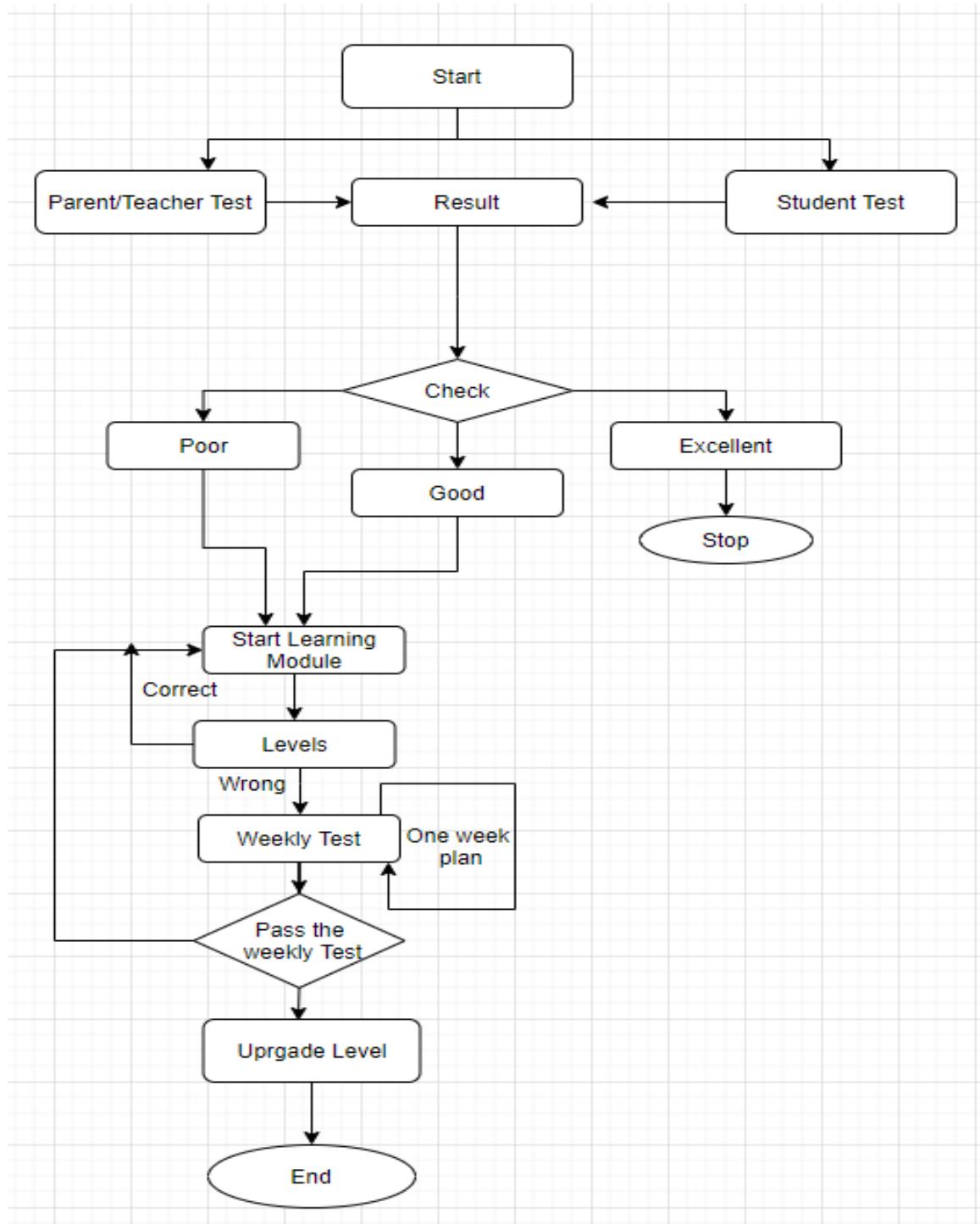
(Fig 5.1. Flow Chart)

## 5.2 Use Case Diagram:



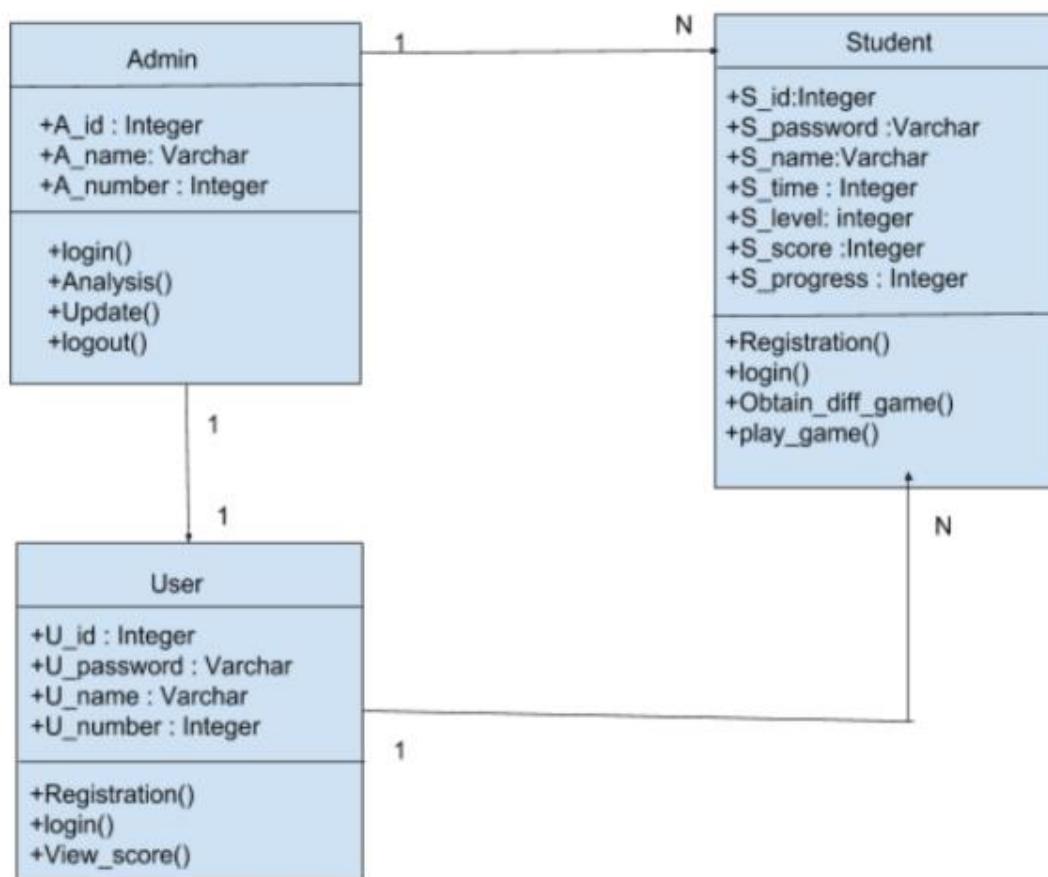
(Fig 5.2. Use Case Diagram)

### 5.3 SYSTEM ARCHITECTURE:



**Fig 5.3. System Architecture**

#### 5.4 Class Diagram:



(Fig 5.4. Class Diagram)

# CHAPTER 6

## IMPLEMENTATION

### 6.1 Teacher/Parent Questionnaire

**READING**

Student's Name : Viraj Atul Trivedi

Check the answer to each multiple-choice question, and click on the "Send Form" button to submit the information.

Q1) Is the child able to cope up with reading according to his grade level?

- Excellent
- Good
- Poor

Q2) Is the child able to read common printed words :

- Excellent
- Good
- Poor

Q3) Is the child able to pronounce the words correctly :

- Excellent
- Good
- Poor

Q4) Is the child able to understand what he/she reads:

- Excellent
- Good
- Poor

Q5) Is the child able to read without skipping lines & omitting letters:

- Excellent
- Good
- Poor

Q6) Is the child able to read when the new paragraph is made :

- Excellent
- Good
- Poor

Q7) Rate the reading of the child:

- Excellent
- Good
- Poor

**MEMORY**

Student's Name :

Select the answer to each question, and click on the "Submit" button to submit the information.

Q1) Rate the memory of the child.

- Excellent
- Good
- Poor

Q2) Is the child able to recall the past events ?

- Excellent
- Good
- Poor

Q3) Is the child able to remember names but forgets the faces of relatives and classmates ?

- Excellent
- Good
- Poor

Q4) Is the child able to remember face but forgets the name of relatives and classmates ?

- Excellent
- Good
- Poor

Q5) Remembers the things practically done by him not the things seen or heard ?

- Excellent
- Good
- Poor

Q6) Is the child able to follow higher order of thinking problems ?

- Excellent
- Good
- Poor

Q7) How is the child's semantic memory ?

- Excellent
- Good
- Poor

**SPELLING**

Student's Name :

Select the answer to each question and click on the "Submit" button to submit the information.

Q1) Rate the spelling formation.

- Excellent
- Good
- Poor

Q2) Is the student able to break longer words into syllables(Example computer=come+puter) ?

- Excellent
- Good
- Poor

Q3) Does the child write down the words they see/feel is right ?

- Excellent
- Good
- Poor

Q4) Is the child able to differentiate some word with different meaning ?

- Excellent
- Good
- Poor

Q5) Is the child able to get the correct answer of the same question twice ?

- Excellent
- Good
- Poor

Q6) Is the child able to understand the words that starts with a silent letter(Example-Honest) ?

- Excellent
- Good
- Poor

Q7) Is the child able to follow when given several instructions at once ?

- Excellent
- Good
- Poor

A survey of Parents/Teachers will be done as they are the ones closest to the child and will help us in getting a rough idea about the child's situation.

**(Fig 6.1.1. Parent/Teacher Feedback)**

## 6.2 Student Quiz

The pictures given below are for STD 1 similar implementation is done for STD 2,3,4. The difficulty level of Quiz increases with the increase in standard

### 6.2.1 Standard One- Mathematical Operations

Welcome dhwanil  
LOGOUT

Mathematical Operation

5 + 2 =

15 -  9 = 6

Select Odd or Even.

5 =  EVEN  ODD

9 =  EVEN  ODD

Fig. 6.2.1 A glimpse of the Quiz that every student will be taking before starting with the Learning Module. The above Quiz is on Mathematical Operation.

### 6.2.2 Standard One- Spelling of Sound

Welcome dhwanil  
LOGOUT

Sound Of Spellings

1) My  is 13 years old. He likes to watch

2) I open my window and  the

3) She has  chocolates  me

Fig. 6.2.2 The above quiz is on Spelling of Sound where we will be checking their ability to comprehend the words only by listening to the word with the help of the provided audio.

### 6.2.3 Standard One - Picture Vocabulary

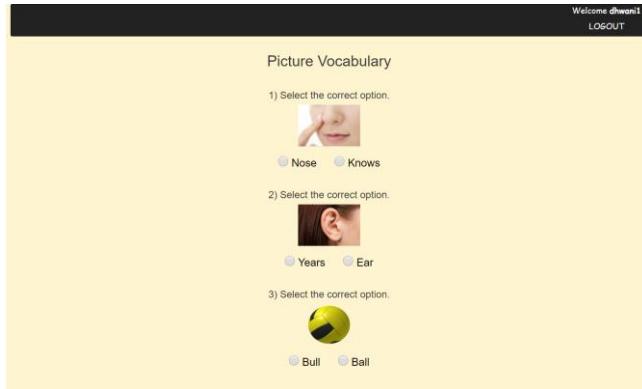


Fig.6.2.3 The above Quiz will determine the students ability to decode the meaning of the word and match it to the pictures given above. Here the student has to pick a word which defines the picture.

#### 6.2.4 Standard One – Reading Comprehension

Fig. 6.2.4 The student will read the above passage and fill in the answer to the comprehension. Here Logical Reasoning will be tested.

#### 6.2.5 Standard One- Sentence Reading

Fig. 6.2.5 The student will read the above given sentence using the start stop buttons with the help of the microphone. Hear the reading skills and pronunciation will be evaluated.

### 6.2.6 Standard One – Letter Word Identification

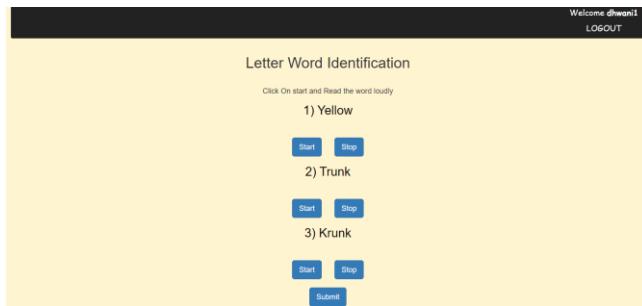
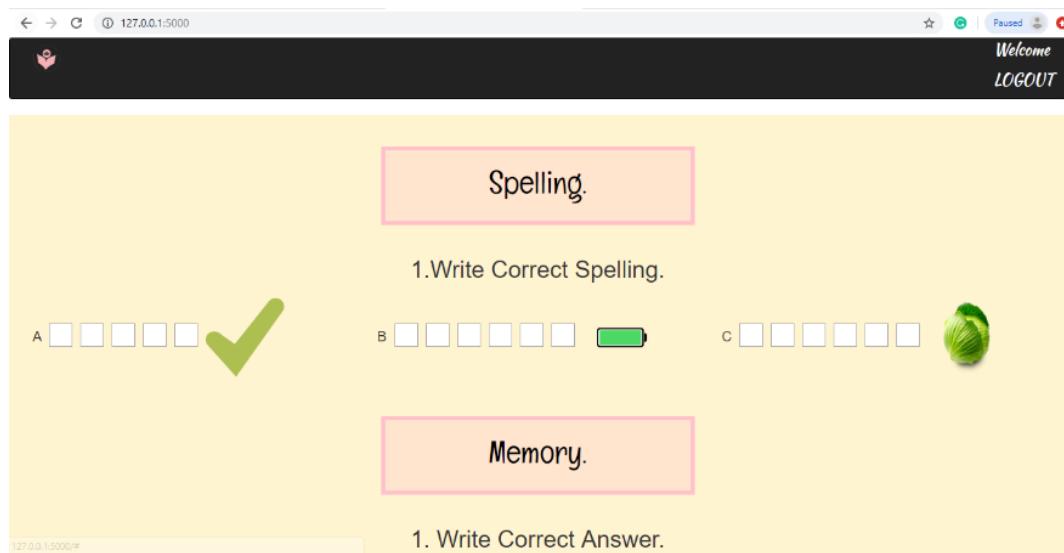


Fig.6.2.6 The student will be given some word, it could either be nonsense word or word with a meaning. The student is expected to pronounce it either way. Here the letter word identification skill is evaluated.

### Std 1-Week 1 Test Good



← → ⌛ ① 127.0.0.1:5000 ☆ 🔍 | Paused ⏸ ⏹

## Memory.

1. Write Correct Answer.  
Questions from "A Surprise For Grandma Story"

Who baked the cake for Manku ? Who bought some grapes ?

Jin.  
 Jenny.  
 Ducky and lucky.

## Reading.

1. Speak the given words.

← → ⌛ ① 127.0.0.1:5000 ☆ 🔍 | Paused ⏸ ⏹

Jin.  Jenny.  
 Jenny.  Ducky and lucky.

## Reading.

1. Speak the given words.

1)Parrot      2)Berrypie      2)Tomato

**Start** **Stop**      **Start** **Stop**      **Start** **Stop**

**Submit all Answers**

## Std 1-Week 1 Good:

127.0.0.1:5000

Welcome  
Logout

### Spelling Training.

Click on any alphabet.

A	B	C	D	E	F	G	H	I	J	K	L
M	N	O	P	Q	R	S	T	U	V	W	X
Y	Z										

Go next module

127.0.0.1:5000

Welcome  
Logout

### Spelling Training.

Click the button below to start.

Click me

Accept  Abroad  Activate 

Next

Go next module

The screenshot shows a web browser window with a dark header bar. In the top right corner, there are icons for a star, a person, and a play/pause button labeled 'Paused'. The text 'Welcome' is displayed above a user profile icon, and 'LOGOUT' is below it. The main content area has a yellow background. In the center, there is a pink-bordered box containing the word 'COLOURS.'. Below this, the text '1. Listen, repeat and sing.' is followed by a poem:

Green parrot, green peas,  
Green grass, green trees.  
Red apple, red tomatoes,  
Red chilly, red rose.  
White snow, white milk,  
White cotton, white silk.

The screenshot shows the same web browser window with a yellow background. The poem continues from the previous screen:

Green grass, green trees.  
Red apple, red tomatoes,  
Red chilly, red rose.  
White snow, white milk,  
White cotton, white silk.  
Blue eyes, blue berry pie,  
Blue sea, blue sky.  
Yellow lemons, yellow flowers,  
Yellow bananas, yellow stars.

A blue 'Next' button is located at the bottom center of the screen.

127.0.0.1:5000

Welcome  
de  
LOGOUT

## Surprise Birthday Party.

1. Listen and remember.

There was a monkey named Manku.  
Manku lived in a cave.



A lake was near the cave.  
Ducky, the drake and his sister Lucky lived in the lake.

127.0.0.1:5000/#

127.0.0.1:5000



A lake was near the cave.  
Ducky, the drake and his sister Lucky lived in the lake.  
Jin and Jenny, the cranes lived near the lake.  
All of them were Manku's friends. They loved to play together.

One day Manku became very happy.  
" Oh ! Tomorrow is Sunday and Sunday is my birthday.  
Ducky, Lucky, Jin and Jenny will come to say, Happy Birthday", thought Manku.  
Soon it was Sunday. Manku waited for a long time for hours and hours. But no one came. So he felt very sad.



Manku went to the lake. But no one was there.  
"So sadly Manku came back to his cave. Manku was



← → ⌂ ① 127.0.0.1:5000 ☆ | Paused



Manku went to the lake. But no one was there.

"So sadly Manku came back to his cave. Manku was surprised to see the cake on the table.

"Wow! A cake!" said Manku.


Ducky, Lucky, Jin and Jenny came out and shouted, "Happy Birthday to you... Happy Birthday dear, Manku."

We were waiting to give you a surprise", all said.

" I baked cake for you", said Jin.

" I bought you some grapes," said Jenny.

" And we have made this table for you", said Ducky and Lucky.

" It's really a surprise for me. Thanks, my dear friends. You all are really great ! I love you all," said Manku. Then they all danced together.

← → ⌂ ① 127.0.0.1:5000 ☆ | Paused



Ducky, Lucky, Jin and Jenny came out and shouted, "Happy Birthday to you... Happy Birthday dear, Manku."

We were waiting to give you a surprise", all said.

" I baked cake for you", said Jin.

" I bought you some grapes," said Jenny.

" And we have made this table for you", said Ducky and Lucky.

" It's really a surprise for me. Thanks, my dear friends. You all are really great ! I love you all," said Manku. Then they all danced together.

[Next](#)

## Std 1-Week 1 Test Poor

← → ⌛ ① 127.0.0.1:5000

LOGOUT

### Spelling.

1. Write Correct Spelling.

A     

B    

C       

### Memory.

1. Write Correct Answer.

← → ⌛ ① 127.0.0.1:5000

LOGOUT

### Memory.

1. Write Correct Answer.

Questions from "A Surprise For Grandma Story"

Grandma has been busy today because :  She has cleaned all the rooms and wiped windows.  She was reading newspaper.

What was a surprise gift for grandma ?  Mobile phone.  Television.

### Reading.

1. Speak the given words.

## Std 2-Week 1 Poor

A screenshot of a web-based reading activity. At the top, there are two input fields: the left one contains the text "She was reading newspaper." and the right one contains "Television.". Below these is a pink rectangular box containing the word "Reading.". Underneath the box, the text "1. Speak the given words." is displayed. Three items are listed: "1)Clap", "2)Together", and "2)Feet". Each item has a pair of blue "Start" and "Stop" buttons below it. At the bottom center is a blue "Submit all Answers" button.

A screenshot of a web-based spelling training interface. At the top, there is a user profile icon and a "LOGOUT" link. Below the header, the text "Spelling Training." is centered. A instruction "Click on any alphabet." is followed by a grid of 26 green squares, each containing a letter from A to Z. At the bottom is a blue "Go to Next Module" button.

← → ⌛ ① 127.0.0.1:5000

Welcome LOGOUT

## Spelling Training.

Click the button below to start.

[Click me](#)

Apple  Ace  Acid 

[Next](#)

[Go to Next Module](#)

← → ⌛ ① 127.0.0.1:5000

Welcome LOGOUT

## A HAPPY SONG

1. Listen, sing and act.

Clap, clap, clap, clap your hands.  
Clap your hands together.  
Tap, tap, tap, tap your feet.  
Tap your feet together.  
Walk, walk, walk, walk around.  
Walk around together.  
Jump, jump, jump, jump around.

← → ⌂ ⓘ 127.0.0.1:5000

Clap your hands together.  
Tap, tap, tap, tap your feet.  
Tap your feet together.  
Walk, walk, walk, walk around.  
Walk around together.  
Jump, jump, jump, jump around.  
Jump around together.

Next

← → ⌂ ⓘ 127.0.0.1:5000

 LOGOUT

### A Surprise for Grandma .

1. Listen and remember.

Sunday is a holiday, Sohan and Sweety are going to visit Grandma and Grandpa.

“Hello! Grandma.”  
“Hello! Grandpa.”





Grandma has been busy today. She has cleaned all the rooms, she has wiped all the windows.

“Are you tired, Grandma? Let’s give Grandma a rest today. Just sit and have a rest.”

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Paused

“ Come on Sohan! Come on Sweety!

Grandpa, Sohan and Sweety work in the kitchen. They are busy.



“Come to the kitchen, Grandma. Come and see.”

“Oh! Soup, sandwiches and salad, what a treat!”

“Grandma, do you like Banana Delight?”

“Oh! I love it!”



← → ⌂ ⓘ 127.0.0.1:5000

Paused



“And now there's a surprise for you! Grandma, open this parcel.”

“Oh! A mobile phone! What a surprise!

But ...!”

“Grandma, no buts, now. I know your problem.

You don't know how to use this. But don't worry, we will all help you.”

Next

## Std 2-Week 1 Good Test

127.0.0.1:5000

Welcome  
LOGOUT

### Spelling.

1. Write Correct Spelling.

A  B  C 

127.0.0.1:5000

Questions from "The Lion and the Mouse"

Did Lion ate mice ?  Yes  No

All the mice came together and nibbled the big net with their sharp teeth to ?  
 To bite lion  To save lion from hunter

### Memory.

1. Write Correct Answer.

### Reading.

← → ⏪ ① 127.0.0.1:5000 Paused

## Reading.

1. Speak the given sentences.

1)Duck can swim, Deep in the water and I can swim too.

2)Horses can run,In the forest and I can run too.

2)Bunnies can hop,On the grass and I can hop too.

Start Stop Start Stop Start Stop

Submit all Answers

← → ⏪ ① 127.0.0.1:5000 Welcome LOGOUT

## Spelling Training.

Click on any alphabet.

A	B	C	D	E	F	G	H	I	J	K	L
M	N	O	P	Q	R	S	T	U	V	W	X
Y	Z										

Go next module

← → C ① 127.0.0.1:5000

Paused

Welcome LOGOUT

## Spelling Training.

Click the button below to start.

Click me

Truth Thirst Teacher

Next

Go next module

← → C ① 127.0.0.1:5000

Paused

Welcome LOGOUT

### BIRDS CAN FLY.

1. Listen, repeat and sing.

Birds can fly, birds can fly,  
Up in the sky and I can fly too.  
Frogs can jump, frogs can jump,  
Very very high and I can jump too.  
Ducks can swim, ducks can swim,  
Deep in the water and I can swim too.  
Dogs can walk, dogs can walk,

127.0.0.1:5000/#

Up in the sky and I can fly too.  
Frogs can jump, frogs can jump,  
Very very high and I can jump too.  
Ducks can swim, ducks can swim,  
Deep in the water and I can swim too.  
Dogs can walk, dogs can walk,  
On the ground and I can walk too.  
Horses can run, horses can run,  
In the forest and I can run too.  
Bunnies can hop, bunnies can hop,  
On the grass and I can hop too.

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Welcome  
[LOGOUT](#)

### The Lion and the Mouse.

1. Listen and remember.

Once a lion was sleeping under a tree. A mouse saw him.  
He ran up the lion's tail and climbed on his back.  
He jumped all over his body.  
He started sliding down the lion's face again and again.



The lion got up. He got very angry.  
He caught the little mouse in his paw.  
He said angrily, " You naughty mouse, how dare you

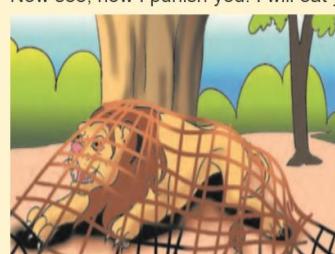


The mouse was afraid. He started trembling.

He pleaded, "O lion, the king of jungle, I am really sorry. Please forgive me. Please let me go. I will help you some day."

The lion laughed and said, "Oh really? you little mouse, how can you help me? That's so funny! Anyway go, get away from here." Then he set the mouse free.

"Thank you friend, thank you so much." said the mouse and ran away quickly.



The lion got up. He got very angry.  
He caught the little mouse in his paw.  
He said angrily, " You naughty mouse, how dare you disturb me?  
Now see, how I punish you. I will eat you."

A few days later, the lion was caught in a hunter's net.



"Thank you friend, thank you so much." said the mouse and ran away quickly.





A few days later, the lion was caught in a hunter's net.  
He was roaring loudly. The mouse heard it and ran to the lion.  
He saw the lion caught in the net. He called his friends. All the mice came together and nibbled the big net with their sharp teeth.  
They set the lion free. The lion said, "Thank you dear little mouse. You saved my life."

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## Std 3-Week 1 Poor Test

127.0.0.1:5000 | Paused | Welcome | LOGOUT

### Spelling.

1. Write Correct Spelling.

A       

B       

C       

### Memory.

1. Write Correct Answer.

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### Memory.

1. Write Correct Answer.

Questions from "The Visit to Grandmother"

What were the seat numbers ?

11,12,13,14.  
 11,12,13.

After how many hours did they reach grandmother's place ?

5 hours  
 4 hours

### Reading.

← → ⌂ ⓘ 127.0.0.1:5000 ☆ | Paused ⏸

4 hours

## Reading

1. Speak the given sentences.

1)Chick, chick, make it quick.      2)Mouse, mouse, build a house.      3)Kite, kite, good night.

**Start** **Stop**      **Start** **Stop**      **Start** **Stop**

**Submit all Answers**

← → ⌂ ⓘ 127.0.0.1:5000 ☆ | Paused ⏸

LOGOUT

## Spelling Training.

Click on any alphabet.

A	B	C	D	E	F	G	H	I	J	K	L
M	N	O	P	Q	R	S	T	U	V	W	X
Y	Z										

**Go to Next Module**

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## Spelling Training.

Click the button below to start.

[Click me](#)

**Yak**  **Yarn**  **Yoga** 

[Next](#) [Go to Next Module](#)

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## ANIMAL SONG

1. Listen, repeat and sing.

Hen, hen, count to ten.  
Goat, goat, get your coat.  
Mouse, mouse, build a house.  
Chick, chick, make it quick.  
Cat, cat, find your hat.  
Bear, bear, go upstairs.  
Kite, kite, say good night.

← → ⏪ ① 127.0.0.1:5000 ⏹ Paused ⌂ ⌚

Goat, goat, get your coat.  
Mouse, mouse, build a house.  
Chick, chick, make it quick.  
Cat, cat, find your hat.  
Bear, bear, go upstairs.  
Kite, kite, say good night.  
Sheep, sheep, go to sleep.

Next

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Logout

### The Visit to Grandmother.

1. Listen and remember.

We packed our bags.  
We went to the bus-stand.  
Our bus was ready.  
We boarded the bus.



We found our seats.  
Our seat numbers were 11, 12, 13, 14. I sat near the window.



We found our seats.  
Our seat numbers were 11, 12, 13, 14. I sat near the window.  
I saw some hills. I saw some trees passing by too.  
I saw markets full of people.

We reached Grandmother's home after four hours.  
She welcomed us and hugged us.  
We love our Grandmother.  
We love our Grandfather too.



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## Std 3-Week 1 Good Test

 Welcome  
[LOGOUT](#)

**Spelling.**

1. Write Correct Spelling.

A  

B  

C  

**Memory.**

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## Memory.

1. Write Correct Answer.  
Questions from "At the market"

The bubbles look so lovely ! who said this ?  
 Child.  
 Grandpa.  
 Grandma.

This variety is good. Don't worry about the price. It is not very costly. With whom the seller was talking ?  
 Grandpa.  
 Grandma.

← → ⌛ ① 127.0.0.1:5000 ☆ | Paused ⏸

## Reading

1. Speak the given words.

1)Where does the wind,When it goes away, go ?Tell me ! Or don't even grown-ups know ?  
2)Why do people keep Winking their eyes ?  
3)Why do goldfish keep chewing ? and rabbits Warble their noses ?

**Start** **Stop** **Start** **Stop**

**Submit all Answers**

← → ⌛ ① 127.0.0.1:5000

Welcome | Paused | LOGOUT

## Spelling Training.

Click on any alphabet.

A	B	C	D	E	F	G	H	I	J	K	L
M	N	O	P	Q	R	S	T	U	V	W	X
Y	Z										

[Go next module](#)

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Welcome | Paused | LOGOUT

## Spelling Training.

Click the button below to start.

[Click me](#)

Bold **B** Brilliant  Bachelor 

[Next](#)  
[Go next module](#)

Curiosity

1. Listen, repeat and sing.

Tell me, tell me everything !  
What makes it Winter And then Spring ?  
Which ore the children Butterflies ?  
Why do people keep Winking their eyes ?  
Where do birds sleep ?  
Do bees like to sting ?  
Tell me, tell me please, everything !

What makes it Winter And then Spring ?  
Which ore the children Butterflies ?  
Why do people keep Winking their eyes ?  
Where do birds sleep ?  
Do bees like to sting ?  
Tell me, tell me please, everything !  
Tell me; tell me, I want to know !  
What makes leaves grow In the shapes they grow ?  
Why do goldfish keep chewing ?  
and rabbits Warble their noses ? Just from habits ?  
Where does the wind, When it goes away, go ? Tell me ! Or don't even grown-ups know ?

Next

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Welcome  
de  
LOGOUT

## At the Market .

### 1. Listen and remember.

Description	Image
<p>A : Good morning, grandmother . B : I want to buy rice for the whole year. Show me the varieties you have and tell me the prices. A : Grandmother , this variety is good . Don't worry about the price. It is not very costly.</p>	

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PROGRESS	
<p>A : Grandpa, the bubbles look so lovely ! . Can we buy the bubble-maker ? B : Why not ? Let's buy three Two for you children and one for me !</p> <p>Hear it</p>	
<p>A : Have you tried these cakes ? They're so delicious B : This is a new cake shop is it ? But I'm not very fond of cakes</p> <p>Hear it</p>	

Next

## Std 4-Week 1 Good Test

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Welcome  
LOGOUT

### Spelling.

1. Write Correct Spelling.

A 

B 

C 

127.0.0.1:5000

Paused

### Memory.

1. Write Correct Answer.

Questions from "At the market"

Swaraj is my birthright and I will have it. who said this ?      Who started the first school for girls in Pune in 1848 ?

Lokmanya Bal Gangadhar Tilak.       Mother Teresa.

Ramalinga Swamigal.       Savitribai Phule.

### Reading.

127.0.0.1:5000 Paused

## Reading.

1. Speak the given words.

1)plural of ox should be oxen, not oxes.      2)The masculine pronouns are he,his and him      3)The trickiest language you ever did see

Start Stop Start Stop Start Stop

Submit all Answers

## Std 4-Week 1 Good Test

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## Spelling Training.

Click on any alphabet.

A	B	C	D	E	F	G	H	I	J	K	L
M	N	O	P	Q	R	S	T	U	V	W	X
Y	Z										

Go next module

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## Spelling Training.

Click the button below to start.

[Click me](#)

Thrifty 

Translate 

Tropical 

[Next](#)

[Go next module](#)

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Welcome | Paused | Logout

### Why English is so Hard...

1. Listen, repeat and sing.

We'll begin with a box, and the plural is boxes;  
But the plural of ox should be oxen, not oxes.  
You may find a lone mouse or a whole lot of mice,

← → ⌂ ⓘ 127.0.0.1:5000 ☆ ⚙ | Paused ⏴

But the plural of house is houses,  
not hice.  
If the plural of man is  
always called men,  
Why shouldn't the plural of pan  
be called pen ?  
And I speak of a foot,  
and you show me your feet,  
But I give you a boot;  
would a pair be called beet ?  
That one may be that,  
and three may be those,  
Yet the plural of hat  
would never be hose.

← → ⌂ ⓘ 127.0.0.1:5000 ☆ ⚙ | Paused ⏴

would a pair be called beet ?  
That one may be that,  
and three may be those,  
Yet the plural of hat  
would never be hose.  
The masculine pronouns are he,  
his and him,  
But imagine the feminine she,  
shis and shim !  
So our English,  
I think you will all agree,  
Is the trickiest language  
you ever did see.

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127.0.0.1:5000

Welcome  
de  
LOGOUT

## History .

### 1. Listen and remember.

Description	Image
<p>'Swaraj is my birthright and I will have it.'</p> <p>The person who asserted this was Lokmanya Bal Gangadhar Tilak.</p> <p>Bal Gangadhar Tilak was born in 1856.</p> <p>At that time, the British ruled over India .</p> <p>People did not like this British rule.</p> <p>They agitated against the British Government.</p> <p>Lokmanya Tilak inspired a national spirit among the people.</p> <p>The British Government arrested Tilak and put him in prison.</p>	

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<p>'Swaraj is my birthright and I will have it.'</p> <p>The person who asserted this was Lokmanya Bal Gangadhar Tilak.</p> <p>Bal Gangadhar Tilak was born in 1856.</p> <p>At that time, the British ruled over India .</p> <p>People did not like this British rule.</p> <p>They agitated against the British Government.</p> <p>Lokmanya Tilak inspired a national spirit among the people.</p> <p>The British Government arrested Tilak and put him in prison.</p> <p>But Lokmanya Tilak continued his struggle for Swaraj even after he was released from prison.</p> <p>He spent all his life in the service of the nation.</p> <p><a href="#">Hear it</a></p>	
<p>Today, we see that girls go to school, colleges and excel in every walk of life along with men.</p> <p>But this was not always so.</p> <p>Social reformers fought against this injustice and discrimination.</p> <p>Foremost among them were Mahatma Jotirao Phule and his wife Savitribai Phule.</p> <p>Mahatma Phule started the first school for girls in Pune in 1848, in the face of great social opposition.</p> <p>At a time when women were not allowed to read and write, Savitribai became the first woman to teach in a girls' school.</p> <p>To stop her, people created many obstacles in her path.</p> <p>They even threw dirt and stones at her.</p> <p>But she did not waver.</p> <p>She did not give up her noble cause.</p> <p>Her nobility and courage will always guide men and women alike in the course of their life and career.</p> <p><a href="#">Hear it</a></p>	

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## **CHAPTER 7**

### **CONCLUSION**

#### **7.1 CONCLUSION**

We have successfully implemented the first module that is the parent/teacher logging in the software and answering the pre-requisite questionnaire prepared for teacher/student and quiz for the students. We also implemented the second module which involves pattern evaluation using the existing data. We evaluated the severity of the student and level of aid required for each student.

We used various JavaScript, Bootstrap, PHP and Database in detail to develop first and second module of the software. This will further help in implementing the remaining modules of the application software.

#### **7.2 Future Scope of the Project**

We have given our best, tried to cover as many patterns as we could in the dyslexia, dysgraphia and memory domain, since the domain is extremely vast we have mainly focused on Reading, Spelling and Memory. One such is writing domain, this domain still remains untouched this project could have future potential where in using the latest IOT platform and the Machine Learning a notepad could be developed as an interface especially of student who face learning disability. There is a particular grip in which students hold the pen but in case of dyslexic students children require an external grip if we could collaborate with the IOT and ML technology the developers could record the level of improvement and eventually use the combined data generated to help solve this problem quicker. Such that the student could find everything on one platform.

This project can further be carried on by the batch of 2021 to ensure the smoothing functioning of the application. We will put our best foot forward to ensure to help maximum number of students diagnosed with learning disability. In case of any failure during the testing and

deployment phase this project could be modified or a better version of the same module could be created with the intent to help students with learning disability cope up faster.

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