Team: Data Pirates_
College – K. J. Somaiya Institute of Engineering and Information Technology, Sion, Mumbai

Smart India Hackathon 2022 – Software Edition
Problem Statement I.D. – PK854

Flow of Software Application - Sparkle:

1. Initially, the parents will be filling a questionnaire regarding the general behaviour of their child and his/her academic skills. This is for the counsellor to have a better understanding of the child.

2. All students will be appearing for a diagnostic test which includes basic reading, listening and writing questions of age-appropriate level **(Grade 3/Grade 4)**. Questions will be such that they help us to identify symptoms for the below mentioned LDs in a child. While appearing for the test, a supervisor will always be present to monitor the behaviour of child during the test. It is mandatory for each student to appear for all 4 diagnostic tests

   For diagnosis of each of the L.D., following methods will be used:

   A. **Dyslexia** – A set of words, phrases, sentences and paragraphs from the child's curriculum would be shown to them on screen and they have to read it out loud. The words spoken by the student and original given text will be recorded, compared and the result will be stored in database.

   B. **Dyscalculia** – Simple Math questions of – basic math operations, less than, greater than, which number is bigger and which is smaller and other topics from child's curriculum will be shown on the screen and the students have to answer them.

   C. **Dysgraphia** –
   Section 1: An activity sheet(printed) will be given to the students. The sheet will have various types of questions like – tracing the dotted shapes, drawing the shown shapes, copying short paragraphs, answering simple questions in one sentence.
   Section 2: Student will listen to audio (words/sentences) and will have to write it down on the same sheet. After the completion of activity sheet, the sheet will be uploaded on the application by the supervisor.

   D. **ADHD** –
   Section 1: A short video story/picture will be shown to the student and the student has to observe it. After a while, the story/picture will disappear from the screen and the student will be asked simple questions related to it.

Section 2: A memory flip card game for example: 2x2, 3x3, 4x4 will be given and student has to complete it. The time taken to complete the game will be noted down.

3. The responses of Parents Questionnaire, the final answers of all the tests given by the student and the feedback of the supervisor as to how did the child behaved during the test will be analysed and the students scoring below a certain threshold value will be shortlisted. All responses of such students will be shown to the school counsellor appointed to the child. Based on counsellor's recommendation, final call of whether the student has a particular Learning Disability or not will be taken.

4. If the student is having a LD, the counsellor can suggest some relevant activities (activities/questions similar to diagnosis test, just with appropriate level of difficulty) which will help in the remediation of the child. The activities when given, should be completed and the scores of the child will be monitored again.