The project statement is to Identify Learning Disabilities in Children from various Informal Educational Assessment Tools. This is project tackles a real world problem under the hood of special education. If a child faces any sort of difficulty with one or more skills in comparison to their peers or in processing certain information, then he or she is said to have learning disabilities which is also often used interchangeably with learning difficulties. These are issues are independent of the child’s IQ. These could be in any form like difficulty with reading writing spelling memory sequencing etc. In order to quantify these difficulties there are tools such as the informal educational assessment tools like Wepman’s Auditory discrimination test, Burt’s reading test, Schonell’s spelling test which give out a certain score after taking each test, which when we perform inference with a customized model or algorithm predicts the child’s approximate reading, writing spelling age. Reading age or spelling age here is a term that defines the reading ability of a child against their biological age. The model also predicts if the child has any disability in reading spelling or anything else at all and generates a report stating these facts. We are going to deploy this model using a web interface which we started working on and perform the inference with a suitable model after experimenting a handful of models. It is necessary to identify these disabilities in the early years of the child otherwise it may lead to further complications or they might turn out to be the symptoms of higher disorders like dyslexia, dysgraphia, etc. The assessment report basically helps in conveying what kind of disabilities the child is facing. Such children who have been identified can later be dealt with in the special education units opened up in their own schools or any form or additional support.

The first innovation is automating the entire assessment process, which traditionally is done manually with the help of a trained remedial practioner or a special educator. This provides the advantage of making no prior assumptions about the nature of the data obtained from the subject who is the child here and eliminates natural bias when carried out by humans.

The second innovation is training and performing inference with the help of Informal Educational assessment tools.

The other innovations include identifying potential tools for diagnosis, so in the process of doing the assessment we can determine which tools are more precise in predicting LD. Plus we can also determine new classes and combination of occurrence of LD, since it is not necessary that it occurs singly. By applying algorithms such as SOM, we can identify clusters in the population of subjects each corresponding to a new class of LD. Using the clusters identified by the SOM as class labels for the evaluation of Bayesian classifiers using the dataset, and enabling the identification of the tests that can be considered the best for that cluster identification.

1. A **self**-**organizing map** (SOM) is a grid of neurons which adapt **to** the topological shape of a dataset, allowing us **to** visualize large datasets and identify potential clusters. They are like a rectangualar lattice of hexagonal structures.

Naive **Bayes** is a kind of **classifier** which uses the **Bayes** Theorem. It predicts membership probabilities for each class such as the probability that given record or data point belongs to a particular class. The class with the highest probability is considered as the most likely class.

1. Mental Attributes Profiling System (MAPS) identification and classifying to a certain type.