

Students Classification and Analysis based on Cognitive Abilities

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Abstract— Education is a crucial variable of any country for evolution in different areas like health, economical, cultural, political and so on. The main goal of the Institute is to increase students' learning abilities and their skills for benefactions towards society. For the betterment of society these days Students learning process and development in skill requires much more attention. There are many factors which affect and influence the performance of students which mainly depends on his/her learning ability. In this research, we have studied types of learning abilities of students i.e slow, average and fast. The first and main thing of our project is to classify the dataset of students into a particular category. There are three types i.e slow, average and fast learners. The second thing is to display all the information regarding his/her academic performances and other activities. The third thing is to analyze the data of all the students as well as of individuals and to carry out the data mining process to analyze their performance. Then we will use Machine learning algorithms to predict their performances which will help to improve their performance levels.

Keywords—Cognitive skills, Learning Capabilities, Student's performance, Type of learner, Machine Learning

I. INTRODUCTION

According to studies, education is the main factor behind the development of any country. Education helps a country for development in different aspects like social, political and economical manner. Performance mainly depends upon the his/her ability of learning and how fast the student grasps a particular topic or subject and is impacted by many factors. A slow learner has less ability to grasp things than other learners. As there is tremendous competition in the world, it demands more out of a student in terms of all round development, students classification based on his/her knowledge is much useful in predicting slow learners. Students who have less cognitive ability will be given applicable training to achieve

greater goals. This paper takes real time data from the students of college in any field.

To understand students' performance, we need to know the result by analyzing different cognitive experiments. The students are differentiated as slow, average and fast learners using different algorithms and locating the efficient prediction model. This study tries to integrate the differences of a particular individual with respect to learning ability, preferences, knowledge level etc. It is difficult to predict students' performance directly as it may depend on factors like grades in academics and other analytical data. But it is important to predict his/her upcoming performance based on his/her past performance, to identify weak students among them at an early stage so required attention or material can be arranged to avoid risk of any failure.

II. PROBLEM STATEMENT

Education plays a crucial role in the development with respect to social, economical and personal growth of a nation. Different aspects such as teaching methodologies, teachers capabilities affect skill development and individual performance of a student. Students learn many things in college. But the main thing is how to know the understanding level of students, how to categorize them and treat them with their level. How to improve their thinking and ability. How to build their mindset. We need to categorize students to learn their behaviour. So this can be overcome by analyzing students with respect to different aspects.

Logical thinking, perception, concentration and memory are cognitive skills in human beings according to research. All these four skills are essential in order to pursue engineering education. However, various proportions of these skills are possessed by each individual. Learners can be provided with