Interactive Learning Progress Tracker for Students with Special Needs

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ABSTRACT -Spectrum Scholars is an Interactive Learning Progress Tracker for Special Education which is a groundbreaking initiative aimed at revolutionizing the educational journey for students with diverse needs. This visionary project transcends traditional teaching methods by fostering a collaborative ecosystem where students, parents, and educators seamlessly interact to monitor and enhance individual learning trajectories. By amalgamating an extensive array of tailored resources, adaptable tools, and specialized strategies, this project aspires to create a comprehensive system that addresses the multifaceted challenges within special education. Emphasizing the crucial importance of personalized support, the Spectrum Scholars endeavours to empower students with the precise tools and assistance required to flourish in their academic pursuits. Aligned with the Sustainable Development Goal 4 of ensuring 'Quality Education' along with Sustainable Development Goal 8 and 10, i.e., Decent Work and Economic Growth and Reduced Inequality this project serves as a beacon of inclusivity, striving to break barriers and provide equitable access to education for every learner. Through its holistic approach, it seeks to not only enrich academic progress but also nurture a sense of confidence, belonging, and achievement among students with unique learning requirements.

Keywords: Special Education, Personalized Support, Interactive Learning Progress Tracker, PHP implementation with MySQL

I.   INTRODUCTION

In this evolving technological world the educational facilities for the students with intellectual disabilities are often observed to have a notable gap. There are only few websites that cater to the needs for the special education. Most of those website technologies are outdated, complex and bit challenging to navigate. This raises a compelling need for a new and an innovative website that is user friendly as well as an efficient educational platform that will nurture the new future. Spectrum Scholars recognizes the importance of fostering a supportive community. Commitement to staying at the forefront of advancements is always acknowledged by our new venture. This website

seeks to avoid the flaws of current platforms and embraces an effective and accessible learning hub. Users can share success stories, offer improvements, and offer insights through an adaptive feedback system, which encourages co-creation and a sense of ownership among the Spectrum Scholars community. It encorporates adaptive learning tools, contact for any clarification, professional teaching, interactive quizzes and games. Our intensive efforts for a continuous improvement involves regular feedback loops, data-driver insights and collaboration with experts in the field of special education. It promotes an environment of resilience and continuous progression. Spectrum Scholars ensures customizable features, to make sure that the learning experience is tailored to individual strengths and

challenges. This also makes the platform remain dynamic, adapting to the changing needs of students, educators and parents.Teachers can exchange best practices, work together on creative teaching methods, and access resources for professional development on this platform. Child's learning journey, gaining insights into progress, milestones and personalized strategies can be actively participated by the parents. In addition to attempting to close the current gap in special education, Spectrum Scholars also aims to establish new benchmarks for inclusive and adaptable learning. Additionally, Spectrum Scholars acknowledges the value of diversity and cultural sensitivity in teaching materials. The platform strives to provide a diverse, culturally appropriate curriculum that honors the range of users. We make an effort to guarantee that every student feels represented, respected, and included in their educational journey by providing curriculum that reflects a variety of cultures, languages, and viewpoints. Spectrum Scholars is a living example of our ongoing dedication to diversity, creativity, and the complete development of every learner as we move forward. As a catalyst for change in the field of special education, Spectrum Scholars aims to empower and equalize education for all students by addressing not only academic demands but also socio-emotional and cultural aspects."

II. LITERATURE SURVEY

Chung Eun Lee,Julie Lounds Taylor implemented in the paper A Review Of The Benefits And Barriers To Postsecondary Education For Students With Intellectual And Developmental Disabilities, in order to understand the effects and difficulties at each stage of engagement—exploration, participation, and completion—the scoping review on postsecondary educational programs (PSEs) for students with intellectual and developmental disabilities (IDD) combined data from 21 research that were identified[1]. Numerous advantages are shown in the literature for both IDD students and the university community. Persistent obstacles to program participation were found, nonetheless, most notably a lack of finance and teamwork. Stage-specific obstacles included lack of information, restricted choices, lack of personalized help, difficulties integrating into college life, and transportation problems.

Increasing Access To Online Learning For Students With Disablties During the Covid-19 Pandemic, a paper prepared by Ji Young Kim, Daniel M Fienup mention the concerns that were raised about students with disabilities' restricted access to online special education activities during the COVID-19 outbreak. In order to resolve this problem, an assessment was carried out for three second-grade children who were having trouble consistently accessing remote content using a concurrent multiple baseline design. The quantity of daily assignments turned in was the main result that was tracked[2]. During the baseline period, the instructor used Google Classroom to disseminate instructional materials and notify parents of any tasks that were not completed. During the intervention phase, students were given a task analysis that included five daily assignments[3]. They were also given preferred prizes if they completed the assignments. The outcomes showed how successful the intervention was, as evidenced by the participating students' noticeably higher levels of engagement with online learning. This study offers insightful information on possible accessibility-improving measures.

Examining Career Transitioning Among Students With Specific Learning Disabilities is a paper prepared by Chiedu Eseadi, Boitmelo Molebogeng Diale explains on the career transitioning of students with Specific Learning Disabilities(SLD). These students require more strong social involvement,netwroks,independent living and quality lifetime advantages. In order to achieve stable careers, the study emphasizes how important it is for kids with SLD to have support and direction from their parents, instructors, school administrators, classmates, counselors, and other stakeholders.

The paper states that children with neurodevelopmental abnormalities, such as those with specific learning disabilities (SLD), face educational disadvantages[4].To prospective employers and others, the particular learning-disabled pupils sometimes present as having no handicap. People with specific learning disabilities may encounter expectations that are unjustified by their ability since there are often no obvious signs of mental impairment (Madaus et al., 2008). Shah et al. (2019) claim that SLD can mimic dyslexia, dysgraphia, and dyscalculia.

Participation Of Students With Disabilities In College Ready Programs prepared by Shaqwana Freeman-Green, David W. Test, Debra Holzberg talks about the college management that supports the students with disabilities for their degrees. It has reviewed 15 college-ready programs to evaluate if they have met the criteria of providing the right educational materials for the students, whether or not the program evaluation data were broken down for students with disabilities and the impact on them after receiving the guidance.The advantages of having a postsecondary degree, such as higher incomes, better health, and more job satisfaction, are highlighted by research.y. Given the poor post school outcomes of students with disabilities, unemployment or underemployment, lower pay, and job dissatisfaction is greater than that of their peers without disabilities (Sanford et al., 2011), it is important to examine their participation in college-ready programs[5].

Andrea Zingoni, Juri Taborri, Valentina Panetti, Simone Bonechi in their paper 'Investing Issues and Needs of Dyslexic Students at University- Proof of Concept of an Artificial Intelligence and preliminary Results' mentions the body of research highlights the need of treating various learning impairments, most notably dyslexia, which affects a large percentage of the population. Dyslexia causes

serious problems with reading comprehension, memory, and concept exposition. The VRAIlexia project was created to present and advocate for a cutting-edge teaching strategy that encourages inclusivity for students with dyslexia[6]. The BESPECIAL software platform, which makes use of virtual reality and artificial intelligence technologies, is the hub of this project. BESPECIAL seeks to comprehend the main obstacles dyslexic children encounter and offers customized digital support strategies to mitigate their learning challenges.The research emphasizes how crucial it is to attend to the particular needs of dyslexic students in higher education and shows how cutting-edge tools like virtual reality and artificial intelligence may help them succeed academically.

III.   METHODOLOGY

Spectrum Scholars is an interactive learning platform specialized for students who are dyslexic and require more focus on their education. The platform aims at providing a user- friendly interface which lacks in other existing systems. The primary focus lies in enhancing accessibility, ensuring that educational content is not only available but also comprehensible and navigable through the implementation of dyslexia-friendly design principles and features. Suitable for students who are in between the age of 7 and 12 and will be educated on basic math and english contents. The initial stage of starting up with this educational venture is to sign up where users are required to give certain informations such as username, age of the student, contact details. The login page requires username and password which were submitted by the users during sign up process. The password is hashed using a function so neither the admin nor any other user would be able to access any of the user's password in the database. Upon successful login the students are displayed with the content videos of math and english. They are designed in such a way that students have to watch the videos and should take a test and score a minimum mark to watch the next videos. The tests are based on the viewed contents that include visual recognition questions. These scores are used to track progress of their academic journey. The contents for the videos are chosen in such a way that it will be easier for the dyslexic students to follow. 'Touch Math' is used to teach math which is an easier way to learn for dyslexic children. A module "Resource Library" is kept for storing and tracking video lessons. Progress tracker displays the benchmarks achieved by students. Different type of charts are implemented to track different aspect of the studies. Games and puzzles are implemented to engage the kids in activites and to help them more focus. Contact page is provided for any queries either from parents or children. Different tables are used for storing informations on users, modules, quizzes, progression and contacts in the databse using MySQL. All the authentication and progession analysis are confirmed by checking the database. Deployment of the website has ensured accessability across devices and platforms. The required feedbacks are taken into account while testing and panel discussion.

IV.   CONCLUSION

Spectrum Scholars shines in the field of special education as an example of creativity and inclusivity. Through tackling the current shortcomings and obstacles encountered by students with varied learning requirements, this interactive learning environment represents an all-encompassing method of instruction. Spectrum Scholars provides individualized guidance, tools for adaptation, and dyslexia-friendly design concepts to create an atmosphere where all students can succeed both academically and emotionally.

The project's adaptive feedback mechanism and interaction with specialists in the field of special education demonstrate its dedication to collaboration and ongoing progress. Spectrum Scholars makes sure that its products are dynamic and sensitive to the changing requirements of students, educators, and parents by constantly seeking feedback from users and stakeholders.
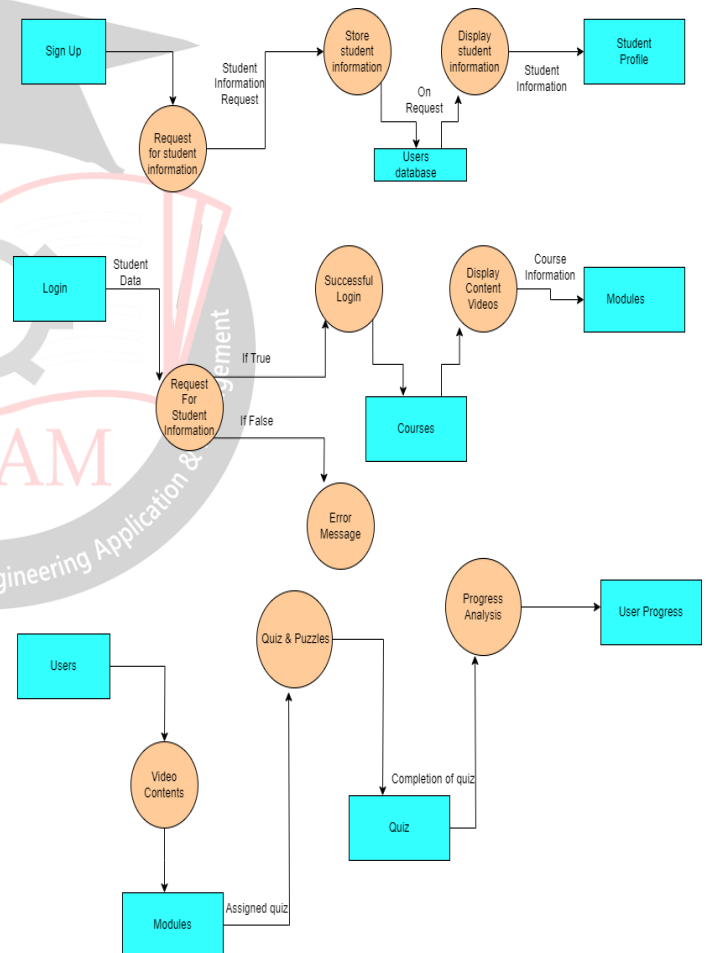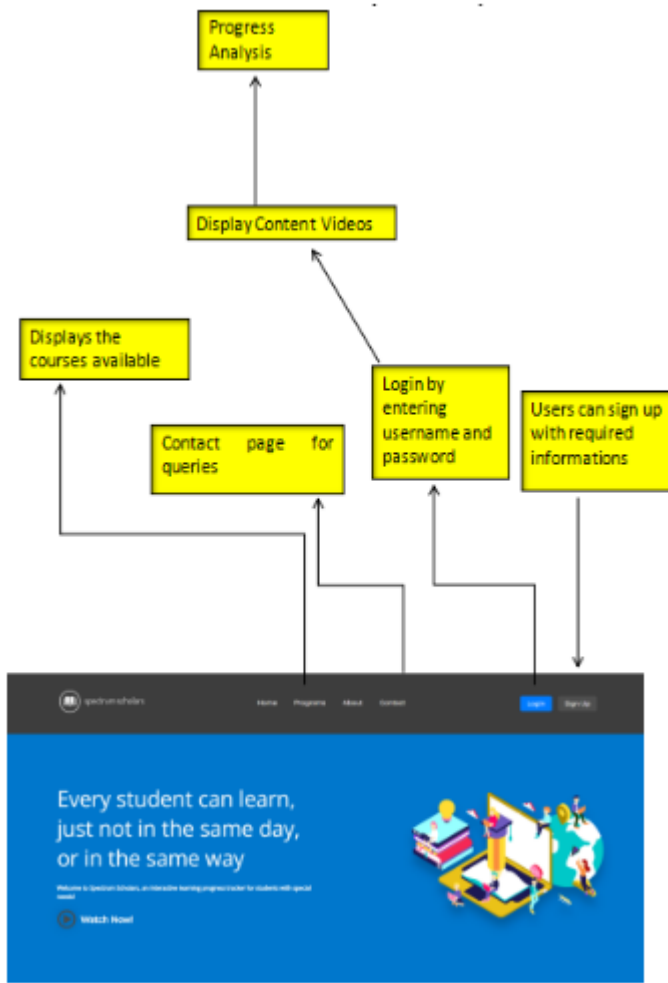

FIGURE 1:DATA FLOW DIAGRAM

FIGURE 2:HOME PAGE

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