# **EduAuth**

# **Non-profit Educational Application**

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# **Declaration**

I/We certify that this report does not incorporate without acknowledgment, any material previously submitted for a previous Hackathon, Competition, Degree, or Diploma in any university or organization, and to the best of my knowledge and belief, it does not contain any material previously published or written by another person, except where due reference is made in the text.

# **Team Details**

**Team Name:** Matrix

**Topic:** EduAuth - Non-profit Educational Application

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# **Introduction**

The economic crisis in Sri Lanka has a devastating impact on millions of people, causing widespread poverty and hindering their access to basic human rights such as health, education, and a decent standard of living. As the cost of living continues to rise, many students are forced to leave university or enter the workforce without obtaining higher education degrees. In recognition of this growing problem, our team has come together to find a solution that will help people obtain professional qualifications.

EduAuth is a web-based application that serves as a central hub for free, certified courses from all around the world. The app is designed to make it easy for individuals to find courses that match their career ambition and enhance their skills. Furthermore, EduAuth features an AI-based proctoring system that monitors the user during online exams. This system helps to validate the authenticity of the user and provides a level of assurance to employers, ensuring that the certificates earned through course providers have real value in the job market.

In conclusion, EduAuth provides a modern solution to the economic crisis in Sri Lanka, helping people acquire professional qualifications and improve their chances of finding meaningful employment.

# **Problem Identification**

# The economic crisis can affect education in several ways. Firstly, this reduces the parents' income. As a result, parents are unable to cover their children's basic needs. This leads to reduced school enrollment and more high school and university dropouts.

# The lack of foreign currency to import essentials and the sharp depreciation of the rupee have caused severe import shortages, including for printing paper. Therefore, the prices of books and other stationery increased. As a result, parents have to spend lots of money to buy their students' book lists. If there are three or more kids in a poor family, most of the time only one student is attending school; otherwise, nobody attends school.

# The majority of university students drop out of school because their parents cannot pay both their educational fees and the higher boarding house rent. High school students also quit their studies because they couldn’t make payments for their tuition fees. Additionally, the cost of transportation, stationery, and other costs is considerable. Therefore, they leave the university or high school to find a job that can support their family. But they won't be able to find the most suitable job for themselves because they don’t have enough requirements that companies expect. To fulfill those requirements, sometimes they have to take certain courses and pay a fee that they are unable to pay. As a solution, they can follow courses around the world. These free courses are not commonly recognized by companies, though, as they cannot verify whether the test taker completed the quizzes, tests, or assignments on their own. Therefore, high school and university dropouts have less probability of getting a better job that can help their financial problems.

# **Proposed Solution**

As for the above-mentioned problems we intend to compile a list of free courses provided by universities and organizations all around the world. Then these courses will be categorized according to different fields such as Mathematics, Computer Science etc. and each field will be sub categorized (for example Computer Science can be sub categorized as Cyber Security, Software Engineering, Artificial intelligence, IoT etc.) to ensure the courses provided are easy to find. Also the free courses provided will be given priority according to the league of the provided university and the country of the registered student.

For the zero-authentication problem, we intend to issue a EduAuth badge which can be used as an authentication tool to combat the above-mentioned problem to make these courses have an impact on the CV of a person completely free of charge. To achieve this, we intend to use facial recognition during the quizzes in these courses. For this a person should register to the app, providing a copy of their NIC during which they should also provide a video of themselves facing the camera and facing away from the camera, using the camera of the registering device. This will be cross-checked with the provided copy of the NIC and the NIC information obtained using the NIC number to ensure no fraudulent NIC or video was provided.

This procedure is done to ensure there is no exam violation during the quiz and most importantly to ensure that the person doing the quiz is the actual person to which the course completion certificate is awarded to. If a particular person fails to face the screen and looks away during the quiz a warning will be issued. After three of these warnings the EduAuth badge will not be provided to this person for that particular course. If a person manages to complete all the quizzes of a particular course without getting three warnings, they will be awarded with the EduAuth badge for that course.

As for the problem of potential donors being reluctant to donate since they do not know what percentage of the money is actually being used and whether it actually helps the children in need, the information displayed on the app will be certified and gathered by religious places such as temples, churches etc. of the people who came looking for donations to help their children not drop out of school due to financial issues. To make the donation process as easy and transparent as possible there will be three options that is to donate through the app or to donate to these religious places where the information was gathered from or to donate directly to the needed person. All and only required information of the person, religious place the information was gathered from will be displayed for the donator to make the donation without any fear. Since the app is a charity project no percentage of the donated money will be taken from these donations and 100% of the donated money will go towards the children to ensure their education. To ensure this, the donors can contact these families themselves if they wish to do so, since the past donations will be saved.

# **Technologies Used**

The following technologies will be utilized when building the application:

1. **MERN Stack** - This is a widely used stack when developing web applications. MongoDB will be used for database management, ExpressJS for server-side routing, ReactJS for front-end development and NodeJS for back-end development. MERN stack is chosen because it provides a complete solution for building full-stack applications efficiently. Also it uses JavaScript as the main programming language throughout the application without needing to switch to other programming languages. And also it offers high scalability as well as high flexibility if a need arises to further expand the functionality of the application.
2. **Microsoft Azure Face API** - This API will be utilized to monitor examinees during online exams, ensuring the authenticity of the individual thus prevents exam violations. Microsoft Azure Face API is chosen mainly for the high level of accuracy it provides which is crucial for our purpose. Also it offers high compatibility with other Microsoft Azure services if they were to be used for future purposes. Also Microsoft Azure Face API provides a free plan
3. **Github pages** - This will be used for hosting the web application since it's free and reliable.

In a event that the API does not produce the expected results, a new AI model can be trained, if given the access to a cluster of sample data