# Impact:

Machine learning algorithms itself has the potential to change one’s approach to certain tasks. The use of machine learning algorithms and combining them in Educational Data Mining(EDM) has the potential to completely change how students approach their academic activities. This project aims to anticipate the students’ performance level beforehand thus providing them a tool or a model to improve their learning experience and academic outcomes.

This model can play a significant role in terms of how a student manages their time as well as their academic planning. Since they have access to their potential performance, they can thoroughly strategize both their time and resources. For example if a student knows beforehand about the specific courses he/she is going to struggle they can devote extra time to studying that subject or seek additional support ahead of time. Thus leading to more improved and better grades as well as knowledge. Also, the students that are meant to excel in the courses can explore more advanced opportunities for their higher enrichment.

The model can motivate students into having a more comprehensive understanding of their predictive outcomes and therefore remain engaged into working on much more finer aftermaths. It can lead to students having their confidence increased, reducing their stress levels and providing them with a sense of empowerment that can lead to a more enriched and specific life ahead.

It can bring drastic changes in the rate of dropouts in Bangladesh. Since, students will know beforehand about the steps they need to take; it can bring quite a difference in terms of negative thoughts such as dropping out or not being able to compete.

In Bangladesh the graduation rate is 31.65 % in 2019, according to the World Bank collection of development indicators.

[Bangladesh - Percentage Of Graduates From Tertiary Education Graduating From Humanities And Arts Programmes, Both Sexes - 2023 Data 2024 Forecast 2002-2019 Historical](https://tradingeconomics.com/bangladesh/percentage-of-graduates-from-tertiary-education-graduating-from-humanities-and-arts-programmes-both-sexes-percent-wb-data.html#:~:text=Percentage%20of%20graduates%20from%20tertiary%20education%20graduating%20from%20Arts%20and,compiled%20from%20officially%20recognized%20sources.)

The model can surely bring a change in the recorded rates.

* Aims to anticipate the students’ performance level beforehand thus providing them a tool or a model to improve their learning experience and academic outcomes.
* Since students have access to their potential performance, they can thoroughly strategize both their time and resources.
* The model can motivate students into having a more comprehensive understanding of their predictive outcomes and therefore remain engaged into working on much more finer aftermaths.
* It can bring drastic changes in the rate of dropouts in Bangladesh.In Bangladesh the graduation rate is 31.65 % in 2019, according to the World Bank collection of development indicators.

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1. It can decrease the rate of dropouts in Bangladesh which is 31.65% as of 2019 according to the World Bank collection of developed indicators.
2. Our dataset may be used for other research projects.
3. Help identify features that affect performance in the context of Bangladesh CSE students.
4. Adheres to SDG Goal 4-Ensure inclusive and equitable quality education.

# Constraints:

While our model provides several advantages, it is important for us to be aware of the challenges that might arise while the project is ongoing. There can be multiple constraints.

1. For our model to work precisely and efficiently we need to access as much information as we can to the students’ academic and personal data. However, not everyone will be applying to the fact of sharing their personal data. While taking the data for the model we need to consider the ethical boundaries as well. Since they will be sharing their personal data they might be hesitant and also concerned due to their privacy.
2. For the model to be as accurate as possible we need to make sure that the data we are using has the topmost quality and quantity. Inaccurate data or irrelevant data could lead the model to uncertain predictions. Accessing well structured data can be a challenge as well.
3. The most finest and accurate prediction provided from the machine learning algorithm should be chosen. Machine learning algorithms can sometimes be biased depending on the training data which can lead to unequal predictions. Ensuring that the best algorithm and the more fair one is being used can be a concern for us.
4. In the implementation phrase, a successful implementation might not be as easy to handle. Since we are working with educational data and personal data, it requires careful consideration with a user's interface design, considering the existing systems and keeping them integrated, and the scalability of the project. Designing will make sure that the user is feeling comfortable enough and getting the prediction as they expect it to be. Therefore, the design making process can be a complex challenge for us to solve.
5. There can be resistance from people in power or institutions since we will be handling academic data. Handling those resistances can be a challenge for us as well. Cultivating the culture of acceptance and trust might take us some time to overcome.

* Data Constraint: Students might not feel comfortable sharing their personal or social data.
* Data Cleanliness: The dataset that is used must be relevant and should have quality data as well as quantitative data.
* Algorithm Constraint:Since multiple algorithms will be used, choosing the best algorithm can be a challenge.
* Design Constraints:Designing will make sure that the user is feeling comfortable enough and getting the prediction as they expect it to be. Therefore, the design making process can be a complex challenge for us to solve.
* Resistance: Cultivating the culture of acceptance and trust might take us some time to overcome the resistance we will be facing from people in power.

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1. Data Constraint: Not everyone interested in sharing their personal data.
2. Data Cleanliness: The dataset that is used must be relevant and should have quality data as well as quantitative data.
3. Environmental Constraints: Using a cloud based environment, it limits the use of RAM, GPU and HBM. This will limit the dataset we can load on memory.
4. Ethical Constraint: We will need to make sure that we are following society norms without offending anyone.
5. Data Access: We will need to acquire the trust of the authorities for them to provide us with the needed data.