A FEASIBILITY STUDY FOR THE STUDENT PERFORMANCE PREDICTION USING MACHINE LEARNING

Divya Shree Yanamandra[1], Dr. G.N.R. Praasd[2]

MCA, IV Sem, Dept. of MCA, Chaitanya Bharathi Institute of Technology (A), Gandipet, Hyderabad – 75.

Sr Asst Professor, Dept. of MCA, Chaitanya Bharathi Institute of Technology (A), Gandipet, Hyderabad – 75.

Abstract: According to Swami Vivekananda, Education is the manifestation of the society. Education purifies the illness in the society. Universities/Colleges/schools are the temples for everyone. Everyone should visit these temple in their life. It is the responsibility of the teacher should teach the student a perfect education. Every teacher tries their level best to impart quality education. Then only the education reaches everyone. We should have one measurement to know the quality education is reaching every student or not. That is only examination system. Every examination tells about the student performance and level of understanding. At the same time, how to predict the student performance is question raises. It is also an important to know the student future performance. Both parent and teacher can work towards in the direction of improvement. Several machine learning algorithms are exist in the market. The project titled "STUDENT PERFORMANCE PREDICTION USING MACHINE LEARNING" is done for the benefit of students in my studying college with the guidance of my guide. A feasibility study is required to start any project. In any software engineering model, feasibility study is a phase plays a crucial role in beginning of a project. A feasibility study determines if the circumstances are suitable for implementing a specific project. These studies are often performed by engineers. Feasibility studies can be carried out for a variety of reasons, and they are occasionally performed in the IT industry to assess the viability of new hardware and software installations. Here, we have considered this study is very crucial to go next level to complete the task.

Keywords : Machine learning, Feasibility Study, University, School

I. INTRODUCTION

Any educational institution's main objective is to provide students with the finest possible education and information. To do that, it is crucial to recognise the pupils that require further help and take the necessary steps to improve their performance. Four machine learning approaches were employed in the development of this software project to create a classifier that can forecast how well students would perform across a range of MCA topics. Artificial Neural Networks, Naive Bayes, Decision Trees, and Logistic Regression are some of the machine learning approaches employed. The feasibility study is procedure to predict outcome of an investigation examination, or assessment of a planned scheme along with possible gain [1]. Prevention is always preferable to treatment. A feasibility study assesses a prospective venture's viability and feasibility. The other name of Feasibility analysis is Feasibility Study is a beginner for any software project. It intends to equitably and logically examine the pros and cons of an existing or a proposed business. It is also related to the venture and various required resources to carry out the operations. It eventually evaluates the probability of success.

A comprehensive picture of the money needed and the potential returns is provided by a feasibility analysis. A feasibility study is not only limited to estimating financial gains. Depending on the project's target audience and the sector to which it belongs, it may be utilised for further objectives.

II. VARIOUS FEASIBILITY STUIDES

2.1 Technical feasibility : When evaluating technological feasibility, one must consider both the new system's performance and an organization's capacity to build the proposed system. The technical evaluation provides information on issues including whether the system's required technology is available, how challenging its construction will be, and if the company has sufficient experience with it.

2.2 Economic feasibility : Economic evaluation is a vital part of investment appraisal, dealing with factors that can be quantified, measured, and compared in monetary terms [3]. This assesses the cost-effectiveness of a project or enterprise. It is accomplished by looking at the necessary budget and predicting the income from a certain project.

2.3 Market feasibility : To build a precise understanding of the market where your company will operate and to comprehend the commercial potential of your invention. This entails being aware of:

- The level of demand for goods or services, the different types of customers and their needs,

- The potential customer base, the value that a innovation offers to those customers, who are competitors, their main advantages and disadvantages.

- Unique selling proposition, any potential barriers to market entry, and how to get around them.

2.4 Social feasibility : A thorough investigation of interpersonal relationships inside a system or organisation is known as social feasibility. In order to comprehend the scope and extent of the project's social repercussions, social impact analysis is a process that aims to discover and analyse such affects.

2.5 Environmental feasibility : The environmental feasibility analysis takes into account both environmental and human health issues. The ES is a comparison procedure that considers every option before assessing each one in light of a set of standards to determine which is the best option. It is true that the external environment has a big impact on companies. The existence of an organisation is actually significantly impacted by the climatic conditions in a certain place or region. Therefore, it is important to consider the viability of the ecosystem as well.

2.6 Legal feasibility : Prior to moving further, it is important to ascertain whether the planned project will violate any rules or regulations and whether it would be lawful to proceed. The project team must conduct a comprehensive investigation of the project's legal problems from all angles.

To make sure that all expected legal requirements, which have not or will not be addressed in earlier appraisal operations, are satisfied for the development of the project, a thorough legal due diligence should be performed.

2.7 Operational feasibility : To determine if the proposed system would likely address business issues or take advantage of opportunities, it is necessary to evaluate operational feasibility. It is crucial to comprehend how the new systems will integrate with the organization's present daily activities. System analysts need to assess whether the current work practices and procedures support a new system and how the organizational changes will affect the working lives of those affected by the system [5].

2.8 Schedule feasibility : If a project takes too long to finish before it is beneficial, it will fail. This often entails calculating how long the system will take to create and determining if it can be finished in a specific amount of time using techniques like payback period. A project's schedule's viability as a measure of its timeliness.

There are certain undertakings that are started with deadlines in mind. The question of whether the deadlines are required or preferred must be answered. PERT and CPM are two flexible scheduling methods that are used.

2.9 Market feasibility : Testing potential real estate development project locations through market feasibility studies often involves real estate land parcels. Market analyses are frequently carried out by developers to identify the ideal location within a jurisdiction and to explore potential applications for specific parcels of property. Many jurisdictions need feasibility studies from developers before approving a permit for a retail, commercial, industrial, manufacturing, housing, office, or mixed-use project. Market viability takes into account how significant the company is in the chosen region.

2.10 Resource feasibility : This raises issues including how much time is available to construct the new system, when it can be developed, if it disrupts regular business operations, the kind and quantity of resources needed, dependencies, and the relationship between development processes and corporate income prospects. Any project requires resources to be finished. By thoroughly researching the viability of the resources required to execute the project, all significant resources, including human, artificial, and financial ones, are taken care of.

2.11 Political Feasibility : To understand how important organisational stakeholders feel about the proposed system, one must first evaluate the political viability of the proposal. The new information technologies might have an impact on politics and the way power is divided. Therefore, those parties who are opposed to the initiative may hinder or sabotage it.

2.12 Commercial Feasiblity : The financial needs to make your innovation feasible must be taken into account once you have shown that there is a market for it. Typically, commercial viability includes

- The amount of capital you need to commercialise your idea, how you plan to get it, your commercialization strategy, and your revenue model.

- Understanding the legal and regulatory standards you must meet, your ownership of intellectual property, and your operating independence are other factors to take into account.

III. MATERIALS AND METHODS

The steps involved in conducting a feasibility study [6]:
1. Outline your plan and perform a preliminary analysis
2. Conduct a market survey or perform market analysis
3. Answer the core feasibility questions
4. Calculate the costs
5. Polish and review your feasibility report
6. Present your findings

IV. RESULT ANALYSIS

The following feasibility study analysis is the result of the study. Since, this application will be used in the college premises. The remaining feasibility study analysis are not required.

Economic feasibility: Generally, any software project is possible to complete this project within the budget approved by upper management and stakeholders. But in this project, there is no cost involved. We are doing this project as a part of my course.

Schedule feasibility: The project can be completed within the timeframe provided. The timeframe identified is 6 months.
Legal feasibility: This project met the requirements of cyber law as well as other regulatory compliances.
Technical feasibility: The software is compatible with the current computer system. The hardware requirements are a processor above I3, 8GB RAM and 1 TB hard disk capacity system is sufficient to run this software. And also the version of python 3.6 or above is required. The python is a free version software. Hence a higher end system is sufficient.
Operation feasibility: The user of the system are the operators to use the system and show the results to the principal, directors, head and staff of a branch. W**e** are able to create the operations that the client expects.
All the significant variables are considered, the organization and its development won't suffer and the system would get success easily. So, to properly operate the project and the company, this stage is significant in the Software Development Life Cycle (SDLC) process. After analyzing system requirements, the next phase in the software development life cycle is to analyze software requirements. In other words, software requirement analysis is of a feasibility study. The development team is communicate with clients, understand their requirements, and analyze the system throughout this phase.

The feasibility study is constructed with the following parameters
- To ascertain if people training is required for the system development process, a feasibility study of the system being developed is carried out.
- This helps in the future when designing training sessions.
- Is the system made to be able to expand or switch to new technologies as needed in the future? To ascertain the system's mobility in the future, another study is now being done.
- Did the system development cost come in on schedule or was it unaffordably expensive? It is done using a cost-benefit analysis. In other words, the cost viability of the project is evaluated.
- This helps determine if the college will be able to cover the anticipated costs and helps the organisation make earlier and more efficient preparations for covering additional costs incurred by system development.
- A choice is made on the software to be used to build the system. The best organisational implementation and system will be determined with the help of this investigation and analysis.
- This feasibility analysis takes into account elements like installation, development, and scalability. This feasibility study focuses mostly on technical issues.
- The system's efficiency can be increased with the help of this analysis. This is because choosing the right technology based on an analysis of the system requirements helps to increase system efficiency.
A feasibility study is conducted to determine how the system will be maintained throughout the maintenance stage.

V. CONCLUSION

The feasibility study is an integral part during the planning phase of the system development life cycle (SDLC). A feasible project is one where the project could generate adequate amount of cash flow and profits, withstand the risks it will encounter, remain viable in the long-term and meet the goals of the business. The venture can be a start-up of the

new business, a purchase of the existing business, and expansion of the current business [2]. Therefore, doing a feasibility study has many advantages, some of which include the fact that this research, which was developed as the initial stage of the software development life cycle, has all of the analytical elements that help in completely assessing the system requirements. It helps to identify the risk factors associated in the development and deployment of the system. The feasibility study supports planning for risk assessments. A cost/benefit analysis, which supports the efficient functioning of the organisation and system, is produced with the help of a feasibility study. A feasibility study serves in creating plans for instructing programmers on how to install the system. A feasibility study is a report that the organization's senior or top management may use because the organisation bases decisions on the report regarding cost estimation, funding, and other crucial decisions that are necessary for the system to operate effectively and for the organisation to function financially. Therefore, it is essential to do feasibility studies in some or all of the aforementioned areas before developing a product or piece of software. This will help with the efficient and effective creation and upkeep of the programme while staying within budgeted costs. The proposed system's usability, capacity to meet user demands, efficient use of resources, and, of course, cost-effectiveness are all tested in the feasibility study.

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