



Education Prediction

Leveraging Big-Data for Predictive
Education Solutions

Manual Guide for Project Implementation

OUR TEAM

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Prepare For:

E-Project

Introduction

EduPredict is an innovative initiative aimed at transforming education through technology. In a world where data drives decisions, there's a growing need for intelligent, technology-driven educational solutions. EduPredict addresses this by harnessing the power of Big Data and predictive analytics to offer deep insights, identify trends, and support timely academic interventions—paving the way for smarter, data-informed education.

Objectives

- Bridge theory with practice by providing real-life educational scenarios.
- Help students apply learned tools such as data analysis and predictive modeling.
- Enhance the learning experience through personalized, data-driven insights.
- Improve educational processes using big data analytics for informed decision-making.
- Support institutions in identifying patterns, trends, and academic anomalies early.

Problem Statement

- **Declining student retention** due to lack of early intervention and progress tracking.
- Inefficient resource allocation, leading to gaps in academic support and planning.
- Lack of personalized learning, making it harder to address individual student needs.
- Limited insight from existing data, leaving institutions reactive instead of proactive.



Solution

- Leverages Big Data and predictive analytics to identify patterns and academic risks early.
- Enables personalized learning paths and targeted interventions for better student outcomes.
- Improves resource planning by providing actionable insights based on real-time data.





Project Scope

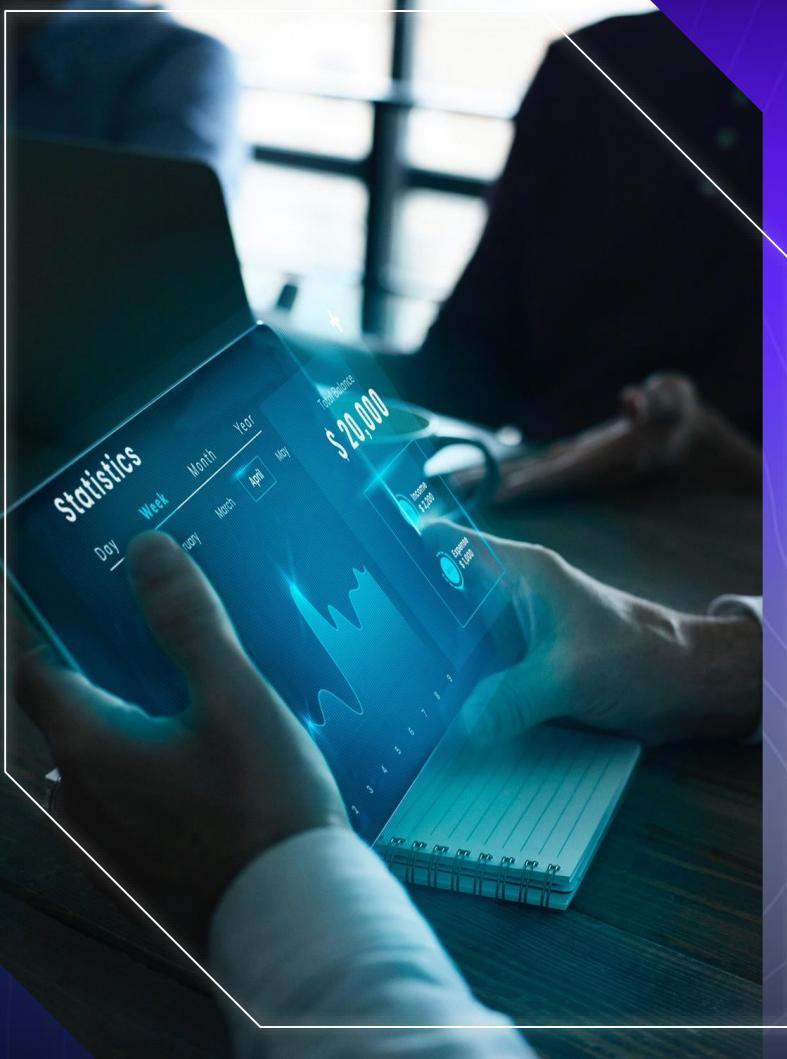
- Secure login for students, teachers, and administrators.
- Collects academic, behavioral, and attendance data from multiple sources.
- Enables instant analysis and actionable insights.
- Predicts student outcomes and academic risks.
- Dashboards with charts, heat maps, and alerts for better decision-making.
- Improved student performance prediction and early identification of at-risk learners.
- Accurate anomaly detection in grades, attendance, or engagement.
- Enhanced resource optimization through data-backed planning and insights.



SYSTEM ARCHITECTURE

The EDU-PREDICT system is built on a scalable architecture that integrates real-time and batch data processing. It utilizes Hadoop for distributed storage, while real-time insights are enabled through tools like Apache Spark or Kafka. Machine learning models analyze student data to predict performance and detect anomalies. The processed data is stored in HDFS or MongoDB and visualized through interactive dashboards, offering stakeholders actionable insights.





Functional Requirement

- User Authentication and Authorization
- Data Ingestion
- Data Storage
- Data Processing
- Real-time Data Processing
- Machine Learning Models
- Data Visualization
- Notifications and Alerts
- Feedback and Support



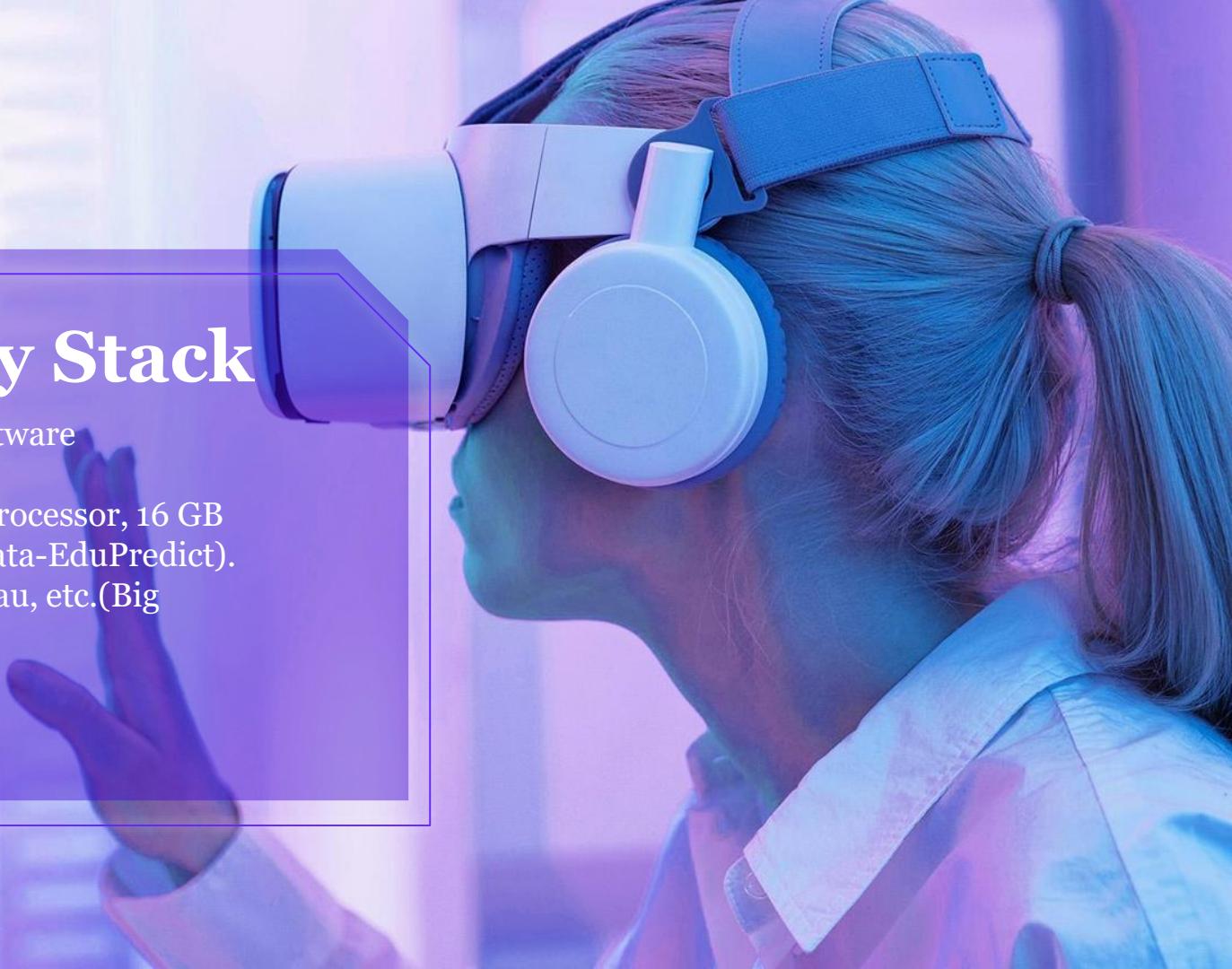
Non-Functional Requirement

- Performance
- Data Security
- Data Integrity
- Reliability
- Scalability
- Performance Monitoring
- Compliance and Standards
- Documentation

Technology Stack

List the hardware and software requirements such as,

Hardware: Minimum i5 processor, 16 GB RAM, 500 GB SSD(Big Data-EduPredict).
MongoDB, Apache, Tableau, etc.(Big DataEduPredict).



Installation Guide

Provide step-by-step instructions on setting up the necessary software environment, including Hadoop, Jupyter Notebook, and other tools. Mention any installation requirements for dependencies like machine learning libraries or database setup.



User Instruction

- Explain how users can access and interact with the system, such as logging in, uploading data, and running analyses.
- Describe how to navigate the data visualization dashboard and how to interpret the results of the predictions and alerts(Big Data-EduPredict).

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Register Page

Create an EduPredict Account

Username

noor ul ain

Email address

nooraysiraj@gmail.com

Password

.....

Register

[Already have an account? Login here](#)

Login to EduPredict

Username

Password

Login

[Don't have an account? Register here](#)

Login Page

Performance Page

Student Performance Prediction

Student Name

Student ID

Email

Result Page

EduPredict  Home

Welcome, mariyam! 

Prediction Result

Performance Prediction

Good Result! The student is likely to perform well.

Prediction: **1**

Probability: **71.9%**

Student Details:

Name: **mariyam**

Student ID: **1339070**

Email: **mariyam@gmail.com**

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Conclusion!

Summarize the significance of EduPredict.

Highlight the potential impact of the project in improving educational processes through technology and data-driven insights.

Thanks!

Do you have any questions?

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