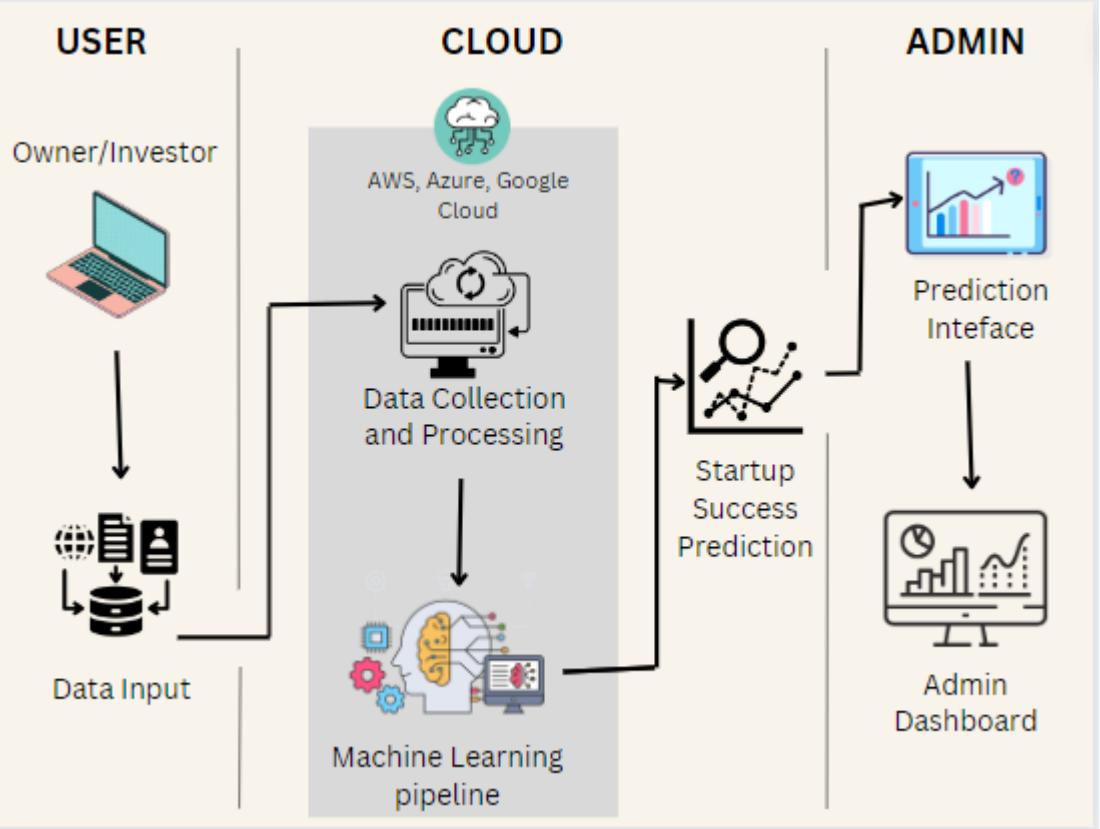
Project Design Phase-II

Technology Stack (Architecture & Stack)

Date	30 October 2023
Team ID	Team - 593188
Project Name	STARTUP PROPHET: HARNESSING AI TO DIVINE THE FUTURE OF STARTUP SUCCESS
Maximum Marks	4 marks

Technical Architecture:



In this architecture:

- The **USER** section is where data about the startup is inputted.
  - **Startup Data Input**: Users input data about their startup (e.g., sector, funding, team size, etc.)

- The **CLOUD** section is where the processing happens. This includes data collection and processing, machine learning model training, and prediction generation.
  - **Data Collection and Processing**: The input data is collected and processed.
  - **Machine Learning Pipeline**: This includes data cleaning, feature extraction, model training, and prediction generation. This could be done using cloud-based machine learning services.
  - **Startup Success Prediction**: The processed data is fed into a machine learning model that predicts the likelihood of startup success.

- The **ADMIN** section is where the predictions are made available for viewing and analysis.
  - **Prediction Interface**: The predictions from the machine learning model are made available to the admin via a user-friendly interface.
  - **Admin Dashboard**: The admin can view and analyse the predictions, and take necessary actions based on them.

Table-1 : Components & Technologies:

Component	Description	Technology
User Interface (UI)	A front-end application for users to interact with the system.	React.js, Angular.js
Application Server	Handles the business logic and controls application functionality.	Node.js, Express.js
AI/ML Models	Predictive models for forecasting startup success.	TensorFlow, PyTorch
Data Processing	ETL (Extract, Transform, Load) processes for data cleaning and preparation.	Python, Pandas
Cloud Platform	Production environment deployed on a cloud platform for scalability and reliability.	AWS, Google Cloud, Azure
Startup Data API	To fetch data related to startups.	REST API
Financial Data API	To get financial market trends.	REST API
News API	To gather news articles related to startups.	REST API
Database	A relational database for structured data storage.	PostgreSQL, MySQL
Model Training Pipeline	A pipeline for training ML models with startup data.	TensorFlow, PyTorch
Model Serving Service	A service for deploying trained models and making predictions in real-time or batch mode.	TensorFlow Serving

Table-2: Application Characteristics:

Characteristics	Description	Technology
Scalability	The ability of the system to handle increased load.	Cloud platforms like AWS, Google Cloud, Azure provide services to scale applications.
Real-time Processing	The capability to process data as it arrives.	Node.js, Express.js for real-time updates.
Data Storage	Storing and retrieving of data.	PostgreSQL for structured data, Amazon S3 for unstructured data.
Predictive Analysis	Forecasting startup success based on historical and real-time data.	AI/ML models developed using TensorFlow or PyTorch.
Data Security	Protecting data from unauthorized access and data breaches.	Encryption technologies, Secure Socket Layer (SSL).
User Experience	Ensuring the application is user-friendly and intuitive.	Front-end frameworks like React.js or Angular.js for building interactive UIs.
API Integration	The application's ability to integrate and interact with external services.	REST APIs for fetching startup, financial, and news data.

References:

https://c4model.com/

https://www.ibm.com/cloud/architecture

https://aws.amazon.com/architecture

https://medium.com/the-internal-startup/how-to-draw-useful-technical-architecture-diagrams-2d20c9fda90d