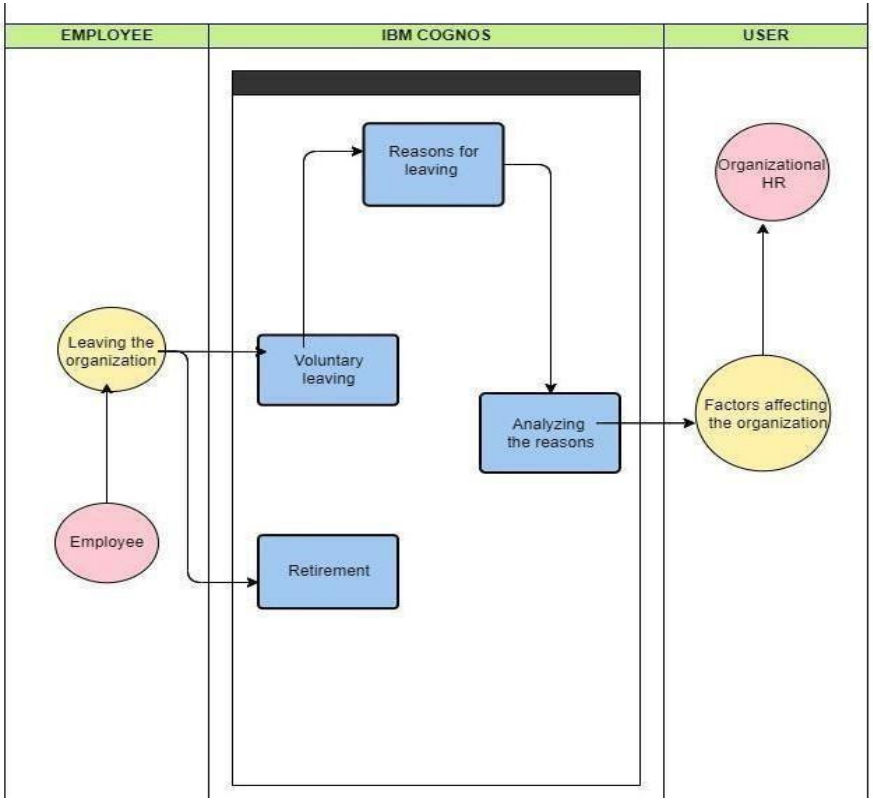
Project Design Phase-II

Technology Stack (Architecture & Stack)

Date	20 October 2022
Team ID	PNT2022TMID36126
Project Name	Gas Leakage Monitoring & Alerting System For Industries
Maximum Marks	4 Marks

Technical Architecture



- As shortly after beginning their jobs, staffers register in the institution's database.
- After a specified period of time, the employees leaving from the organization in which uses machine learning model like Decision Tree, Random Forest model, K-Nearest Neighbour training accuracy, etc. to the training the dataset to get the accuracy by predicting the value.
- User interacts with the application using website UI HTML, CSS, JavaScript, React Js etc.
- This logic depends on the extracting the needed contents into the dataset using Python.

Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	User interacts with the application using website UI, which is used to get the various user needed various user information details from the website UI	HTML, CSS, JavaScript, React Js etc.
2.	Application Logic-1	This logic depends on the extracting the needed contents into the dataset.	Python
3.	Application Logic-2	This logic depends on the training the dataset to get the accuracy by predicting the value.	Python Jupyter
4.	Database	Data Type, Configurations etc.	Python Jupyter
5.	Cloud Database	Database Service on Cloud	IBM DB2, IBM Cloudant etc.
6.	File Storage	File storage requirements	IBM Block Storage or Other Storage Service or Local Filesystem
7.	Machine Learning Model	It allows the user to feed a computer algorithm an immense amount of data and have the computer analyse and make data-driven recommendations and decisions based on only the input data.	Decision Tree, Random Forest model, K-Nearest Neighbour training accuracy, etc
8.	Infrastructure (Server / Cloud)	Application Deployment on Local System / Cloud Local Server Configuration: Google server (Collab)	Local, Cloud Foundry, etc.

Table-2: Application Characteristics:

Synod	Characteristics	Description	Technology
1.	Open-Source Frameworks	A software for which the original source code is made freely available and may be redistributed and modified according to the requirement of the user.	Python, Google collab, Python Jupyter
2.	Security Implementations	IBM Cognos Application Firewall provides security features that are in addition to many of the components identified in the recommended security framework. Firewall architecture is based on a shared library that can be easily updated when new security threats are identified.	Encryptions, IAM Controls, OWASP, SSL Transport Security etc.
3.	Scalable Architecture	Python is one of the pioneers of programming languages that developers can use to do all the scaling work. To improve scalability, you can enable or disable services run by the dispatcher on individual servers to balance the load for a given computer by request type.	Technology used in the architecture is that with the Python and the IBM Cognos.
4.	Availability	Availability is the ability of a system to withstand or recover from exceptional situations, such as a computer failure. The **Jupyter Notebook** is a web based interactive computing platform. The notebook combines live code, equations, narrative text, visualizations, etc.	Technology used in the architecture is that with the Python and the IBM Cognos.
5.	Performance	This is a fundamental step if we need to achieve the greatest benefit with the least amount of work. Designing for capacity means determining the hardware needed for your system to perform well under its anticipated workload.	Technology used in the architecture is that with the Python and the IBM Cognos.