Project Design Phase-II
Technology Stack (Architecture & Stack)

Date	20 October 2022
Team ID	PNT2022TMID24428
Project Name	Project -Virtual Eye - Lifeguard for Swimming Pools To Detect Active Drowning
Maximum Marks	4 Marks

Technical Architecture:

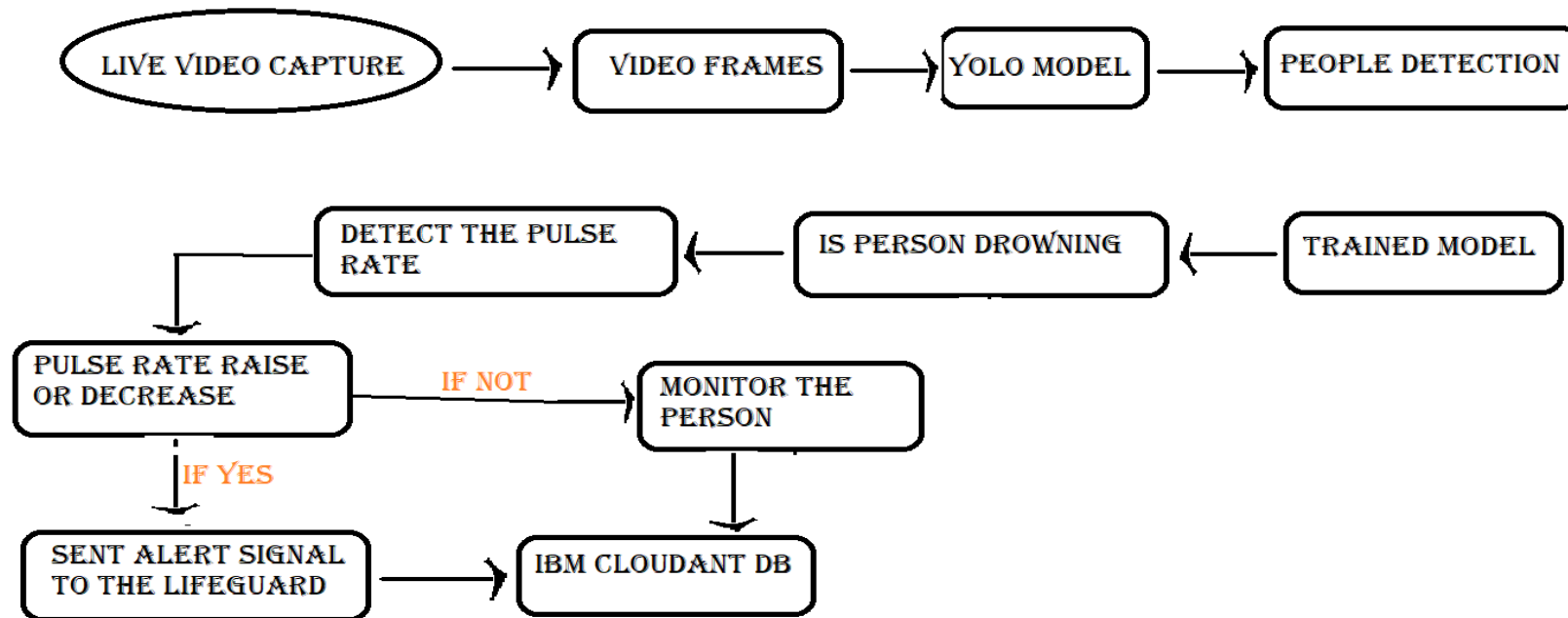The Deliverable shall include the architectural diagram as below and the information as per the table01 & table 2

Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	An web UI provided to the admin who installed the software on the swimming pool	HTML, CSS, JavaScript / React J etc.
2.	Application Logic-1	Pre-processing the model using datasets	Java / Python
3.	Application Logic-2	Image extraction	Python
4.	Application Logic-3	A Deep learning model to find and detect for a drowning person	Machine Learning & Image Processing using Python
5.	Database	Data Type, Configurations etc.	MySQL, NoSQL, etc.
6.	Cloud Database	All the drowning instances with timestamp and segmented images are logged in for future uses. Database Service on Cloud	IBM DB2, IBM Cloudant etc.
7.	File Storage	File storage requirements. User details pertaining to the apartment(private use case)	IBM Block Storage or Other Storage Service or Local Filesystem
8.	Deep Learning Model	Captured images are processed using machine learning models to identify for drowning	Aadhar API, etc.
9.	Infrastructure (Server / Cloud)	The application is deployment on cloud for use	Local, Cloud Foundry, Kubernetes, etc.

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	Python (Anaconda) open-source frameworks used	Python
2.	Security Implementations	Trigger once drowning is detected and send notifications to pertaining authorities	SMTP
3.	Scalable Architecture	Application is highlight scalable and multiple cameras can be introduced in further updates	Customer feedback, reviews, and ratings
4.	Availability	All the time persons are under surveillance	AI
5.	Performance	Many persons in the swimming pool will be detected whether the person is drowning or not	Testing - Black, White, and Beta Revise application in a iterative manner