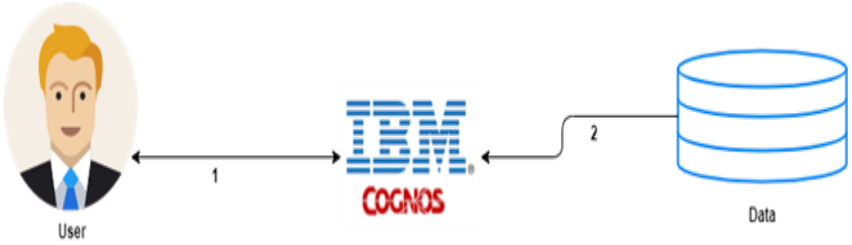
Project Design Phase-II
Technology Stack (Architecture & Stack)

Date	03 October 2022
Team ID	PNT2022TMID12915
Project Name	Visualizing And Predicting Heart Diseases with An Interactive Dash Board
Maximum Marks	4 Marks

Technical Architecture:

Guidelines:

- Include all the processes (As an application logic / Technology Block)
- Provide infrastructural demarcation (Local / Cloud)
- Indicate external interfaces (third party API's etc.)
- Indicate Data Storage components / services
- Indicate interface to machine learning models (if applicable)



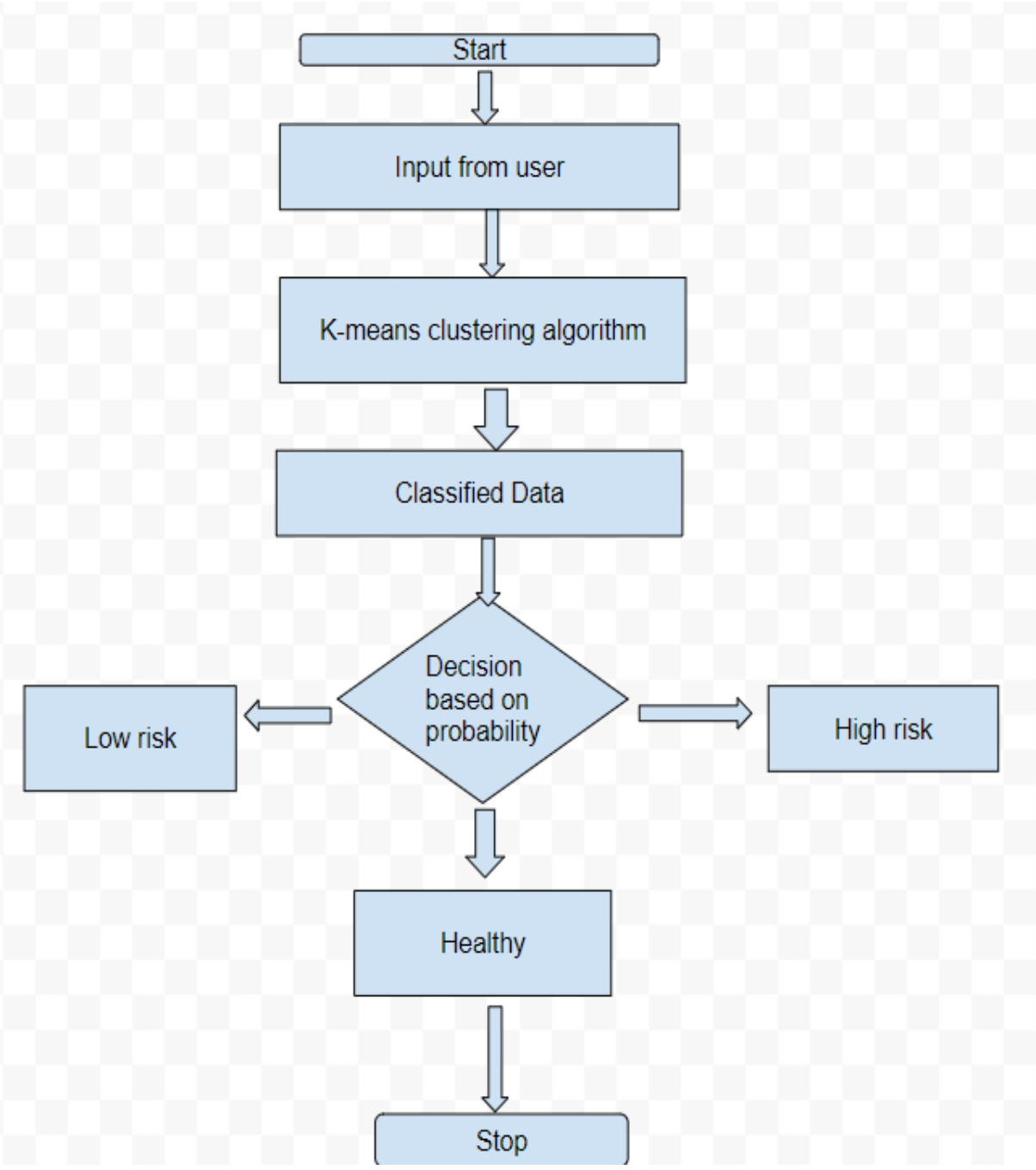

Start
Input from user
K-means clustering algorithm
Classified Data
Decision based on probability
Low risk
High risk
Healthy
Stop

Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	Using HTML, CSS and JavaScript a website can be developed	HTML, CSS, JavaScript / Angular Js / React JS
2.	Application Logic-1	Python can be used as a main programming language for the data analysis	Java / Python
3.	Application Logic-2	For speech to text purposes IBM Watson STT service can be used	IBM Watson STT service
4.	Application Logic-3	IBM Watson Assistant uses AI for understanding the needs of customers	IBM Watson Assistant
5.	Database	A database with all the requires columns can be developed using MyAQL	MySQL, NoSQL
	Cloud Database	IBM Clod Services can be used for storing the database created in the cloud	IBM DB2, IBM Cloudant
7.	File Storage	IBM Block Storage can be used for local storage	IBM Block Storage or Other Storage Service or Local Filesystem
8.	External API	An API using Machine Learning built using Flask can be used	Flask
9.	Machine Learning Model	A model can be developed using neural networks li KNN	KNN
10.	Infrastructure (Server / Cloud)	Application Deployment on Local System / Cloud	Local, Cloud Foundry, Kubernetes

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	Frameworks are about more than just creating a development environment. They help to define a set of standards that programmers can follow when working collectively. When programmers choose a certain framework, they adopt the specific tools and methodologies associated with that framework. This also means they must be mindful of your choice, as they may end up with processes that don't fit the needs of their project or the developers involved.	Django/AngularJS/React
2.	Security Implementations	SHA-1 or Secure Hash Algorithm 1 is a cryptographic hash function which takes an input and produces a 160-bit (20-byte) hash value. This hash value is known as a message digest. This message digest is usually then rendered as a hexadecimal number which is 40 digits long.	SHA-256, Encryptions, IAM Controls, OWASP
3.	Scalable Architecture	Microservices architecture is an application structure that divides services into separate modules which are loosely coupled together, communicating with each other through light-weight mechanisms, often an HTTP resource API, WebSockets, or AMQP.	Microservices 'Smart Endpoints and Dumb Pipes', AWS Lambda, API Gateway
4.	Availability	A load balancer can be deployed as the front end to a cluster of servers, routing each incoming client request to a member of the cluster, and relaying the response back to the client. To ensure high availability and optimal service, the load balancer performs continual health checks of each server in the cluster, using probes to determine its eligibility for requests.	Server Load Balancers/ Global Service Load Balancing
5.	Performance	The data in a cache is generally stored in fast access hardware such as RAM (Random-access memory) and may also be used in correlation with a software component. A cache's primary purpose is to increase data retrieval performance by reducing the need to access the underlying slower storage layer.	Caching