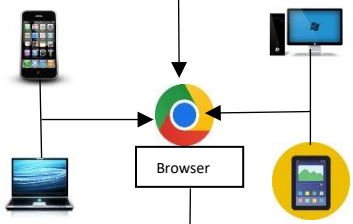
Project Design Phase-II
Technology Stack (Architecture & Stack)

Date	28.10.2022
Team Id	PNT2022TMID43731
Project Name	AI Based Discourse for Banking Industry

Technical Architecture

<table>
<tr><td>USER</td><td> 
CUSTOMER</td></tr>
<tr><td>INTERFACE</td><td>DEVICES
 
Browser</td></tr>
<tr><td rowspan="2">IBM Cloud</td><td>Pre Processing
 
Natural programming language</td></tr>
<tr><td>Watson assistant
  </td></tr>
</table>

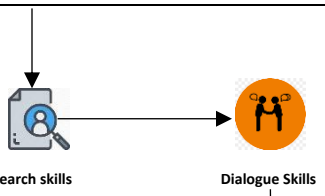
	Post Processing 
Backend System	

Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	The programme is used by a user. for instance, a chatbot or a web user interface.	HTML, CSS, JavaScript / Angular Js / React Js etc.
2.	Application Logic-1	processing of user messages	NLP and NLU
3.	Application Logic-2	Matching intent / Entities	IBM Watson Assistant
4.	Application Logic-3	Building a Deep Learning Model via Training	IBM Watson Studio
5.	Application Logic-4	Deployment	Python Flask
6.	Database	Type of Data: Dialog, Intent, etc. The model data and message statistics for the stored and configured.	MySQL, NoSQL, etc.

7.	Cloud Database	Database Service on Cloud	IBM DB2, IBM Cloudant etc.
8.	File Storage	To store datasets	IBM Block Storage or Other Storage Service or Local Filesystem
9.	External API-1	Type of Data: Dialog, Intent, etc. The trained model data and message statistics for the user are stored and configured.	IBM Watson Assistant API, etc.
10.	External API-2	Banking API - Access to data and data transmission across systems.	Banking API, etc.
11.	Machine Learning Model	Models of deep learning for intent detection and other tasks	Object Recognition Model, etc.
12.	Infrastructure (Server / Cloud)	Local Server Configuration for Application Deployment on Local and Cloud Systems: Python Flask Configuration of the cloud server: Cloud Foundry	Python Flask, Cloud Foundry, Kubernetes, etc.

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	Open-source frameworks used is Python Flask	Technology used Python Flask
2.	Security Implementations	data encryption that is end-to-end, separation of client information, scanning for vulnerabilities and detecting intrusions protection from malware and viruses, user device security, installing security updates.	SHA-256, Encryptions, IAM Controls, OWASP,IBM Watson Assistant etc.

3.	Scalable Architecture	The four pillars of chatbot architecture are as follows. They include scripts, entities, data flow, and intentions (3 – tierarchitecture –presentation tier, application tier, data tier and Microservices architecture)	Technology used – IBM Watson Assistant
4.	Availability	Utilizing load balancers, various servers, etc., the Bot is made accessible.	Technology used –IBM Watson Assistant
5.	Performance	Automation using IBM Watson IBM Watson studio is used to train the deep learning model for improved performance.	Technology used – IBM Watson Assistant