

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

Date	03 October 2022
Team ID	PNT2022TMID53170
Project Name	Project – AI Based Discourse for Banking Industry
Maximum Marks	4 Marks

- Technical Architecture: (Reference: [Service architecture](#))

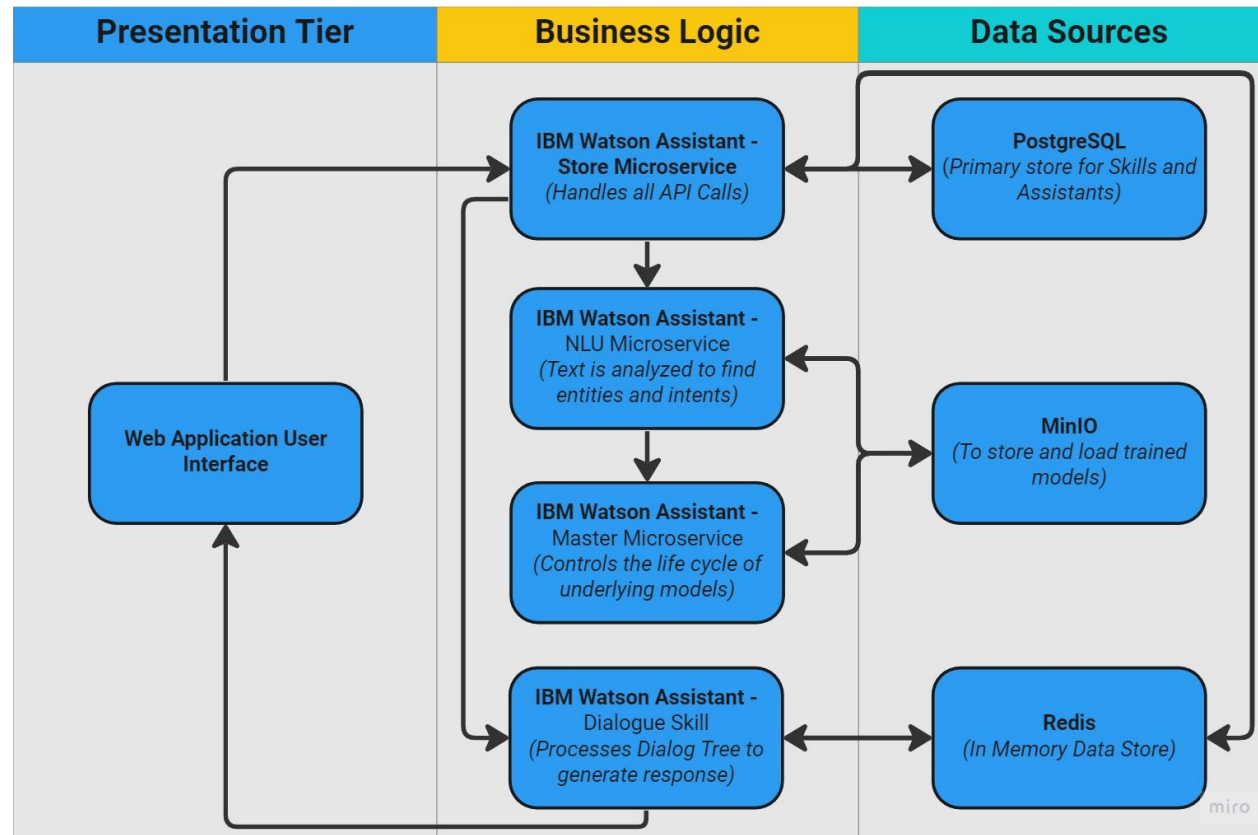


Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	The UI mainly comprises of a captivating webpage within which the Chatbot window is embedded	HTML, CSS, JavaScript
2.	Application Logic-1 - Creating Actions	Actions represent the tasks you want your assistant to help your customers with. Each action contains a series of steps that represent individual exchanges with a customer.	IBM Watson Assistant
3.	Application Logic-2 - Natural Language Understanding	Understanding user input which is in the form of sentences (natural language)	IBM Watson Assistant
4.	Application Logic-3 - Natural Language Generation	Generation of response in natural language	IBM Watson Assistant
5.	Database	Primary store for workspaces, skills, and assistants	PostgreSQL
6.	Cloud Database	IBM Watson Assistant is hosted on the IBM Cloud	IBM DB2, IBM Cloudant etc.
7.	File Storage	NA	NA
8.	External API-1	To provide runtime methods that the client application can use to send user input to an assistant and receive a response.	Watson Assistant v2 stateful API
9.	Machine Learning Model	To understand words, parse the meaning of ideas, and provide a clear and concise response	NLP
10.	Infrastructure (Server / Cloud)	Application Deployment on Local System / Cloud Local Server Configuration: TBD Cloud Server Configuration: TBD	Local, Kubernetes

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	Flask	Micro web framework written in Python which uses the Jinja2 Template Engine

S.No	Characteristics	Description	Technology
2.	Security Implementations	<ul style="list-style-type: none"> - Encryption of all messages that are sent from the web chat. - To verify that messages originate from the web chat that is embedded in your website only. 	RSA signature with SHA-256 (RS256)
3.	Scalable Architecture	<ul style="list-style-type: none"> - The web application consists mainly of the Watson Assistant Chatbot (which is embedded in it). - Watson Assistant internally uses the Microservices architecture to execute its functions 	<ul style="list-style-type: none"> - Microservices architecture - REST API
4.	Availability	<ul style="list-style-type: none"> - Watson Assistant supports high availability with no single point of failure. - The service achieves high availability automatically and transparently by using the multi-zone region feature provided by IBM Cloud. 	<ul style="list-style-type: none"> - Enabling multiple zones that do not share a single point of failure within a single location. - Automatic load balancing across the zones within a region.
5.	Performance	<ul style="list-style-type: none"> - Performance improves with usage because the Chatbot learns from previous interactions 	NLP

References:

- [Watson Assistant v2 | IBM Cloud API Docs](#)
- [Service architecture](#)
- [Securing the web chat](#)
- [High availability and disaster recovery](#)
- [Chatbot Security - IBM Watson Assistant](#)