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

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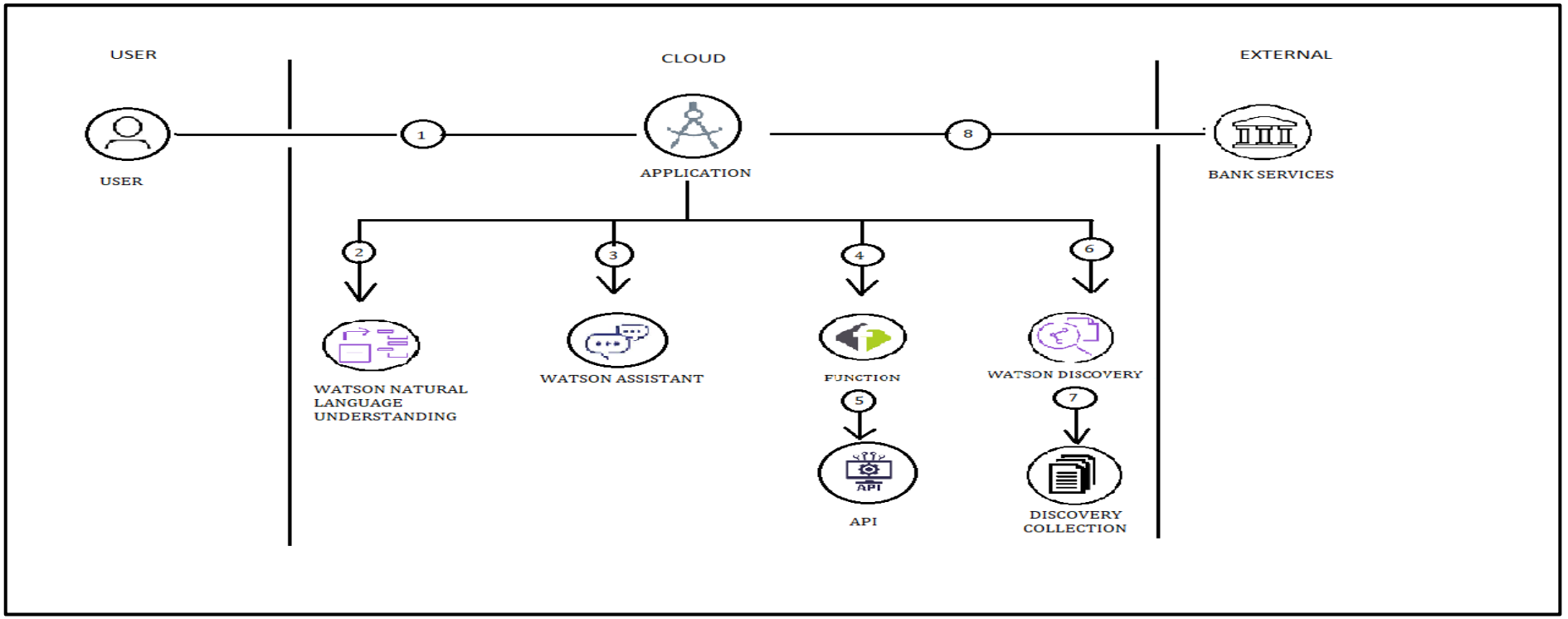
| Date | 03 October 2022 |
| Team ID | PNT2022TMID00963 |
| Project Name | Project – AI Based Discourse For Banking Industry |
| Maximum Marks | 4 Marks |

## Technical Architecture Steps:

1. Chatbot will receive the query from the customer.
2. Chatbot previews the query.
3. Query is transferred to the Watson assistant.
4. Natural Language Programming (NLP) makes it possible for computers to read text, hear speech.
5. Watson assistant sends the query to the IBM Cloud.
6. IBM Cloud finds the relevant response from cloud database.
7. The cloud database will store the queries and responses which is send and received from the customer.
8. All queries and information is sent to the bank services.
9. The Bank will resolve the queries which is sent from the customer through the chatbot.

## Technical Architecture:



## Table-1 : Components & Technologies:

| S.No | Component | Description | Technology |
|---|---|---|---|
| 1. | Chatbot | The query page is presented to the user with chat layout of inbox. That is available to send the queries from the user to the bank services. | HTML, CSS, JavaScript |
| 2. | Application Logic-1 | To deliver automated responses to user inputs. | Java / Python |
| 3. | Application Logic-2 | Frequently asked questions or options are presented to the user. | IBM Watson STT service |
| 4. | Application Logic-3 | The chatbot with displays a relevant solutions for the queries. | IBM Watson Assistant |
| 5. | Cloud Database | The knowledge base or the database of information is used to feed the chatbot with the information required to give a suitable response to the user. | IBM Cloudant Database |
| 6. | External API-1 | The Watson Assistant v2 API provides runtime methods your client application can use to send user input to an assistant and receive a response. | Watson Assistant v2 API |
| 7. | External API-2 | It also allows you to integrate the bot with other messaging platforms. The API helps to make stories related to bots that can answer various questions. | IBM Cloud API |
| 8. | Machine Learning Model | Ability of a system to learn from the inputs it experiences. Through the Natural Language Processing (NLP) will make the interaction between computers and human language. | Machine Learning. |
| 9. | Infrastructure (Server / Cloud) | Application Deployment on Local System / CloudLocal Server Configuration : Flak Application<br>Cloud Server Configuration : IBM Cloud | Python Flask, IBM Cloud |

## Table-2: Application Characteristics:

| S.No | Characteristics | Description | Technology |
|---|---|---|---|
| 1. | Open-Source Frameworks | Microsoft Bot Framework, Google Dialogflow, Intercom, Chatterbot. | Python Flask, CSS framework |
| 2. | Security Implementations | There are two main approaches for storing the personal and financial data of users: on the customer's servers and the cloud (cloud storage). | IBM Watson Assistant, IBM Cloudant Data Bases |
| 3. | Scalable Architecture | The scalable architecture consists of three tiers ,the client side, the web server and the cloud sever. | Client Side: Python Flask<br>Web Server: IBM Watson Assistant<br>Cloud Server: IBM Cloud |
| 4. | Performance | Chatbots increase operational efficiency by automating customer service. In banking, Improve the omnichannel customer experience by reducing response times and allowing customers to get their queries resolved quickly. | IBM Cloud |