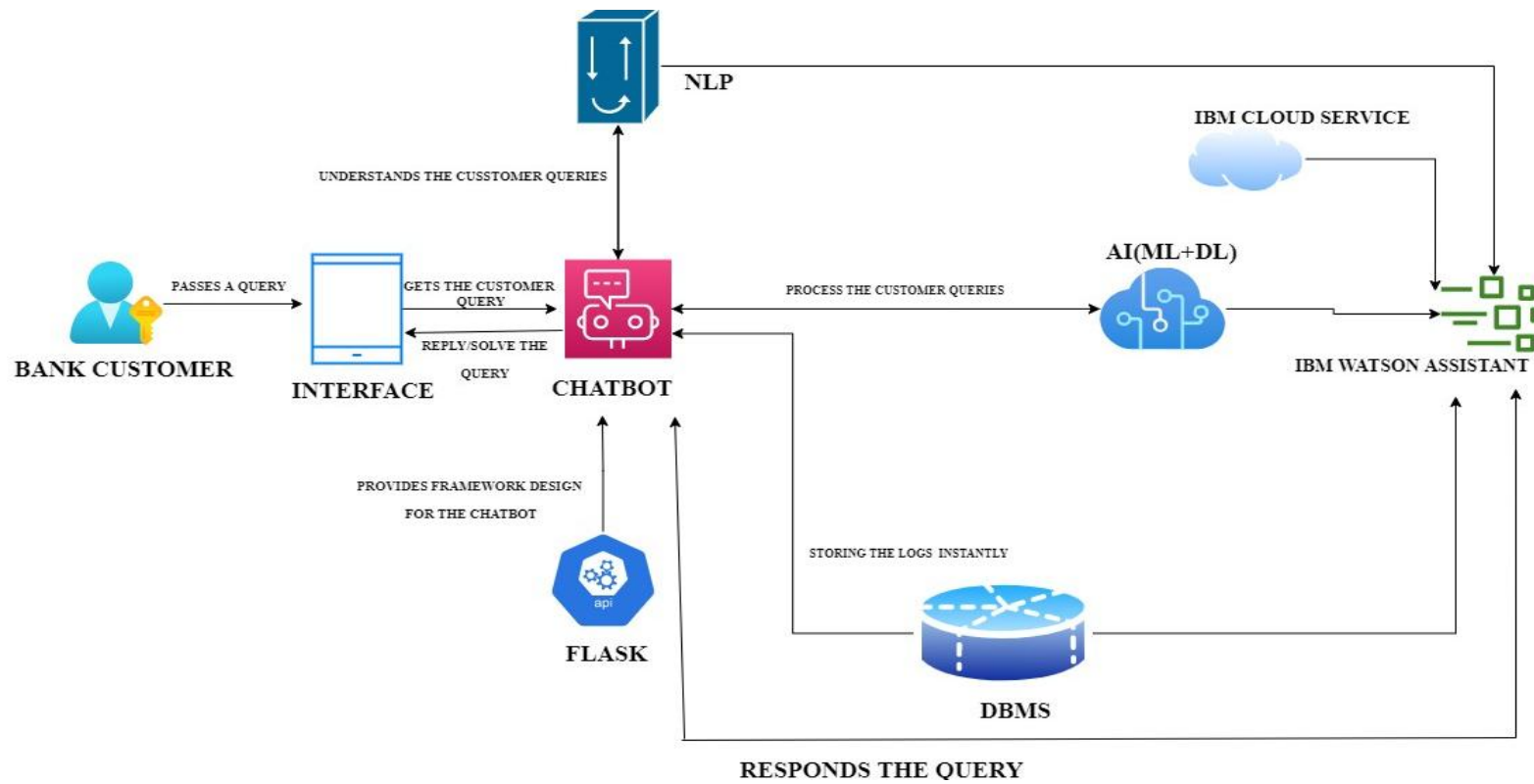


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## Project Design Phase-II Technology Stack (Architecture & Stack)

|               |   |
|---------------|---|
| Date          | 04 November 2022                        |
| Team ID       | PNT2022TMID44006                        |
| Project Name  | AI based discourse for banking industry |
| Maximum Marks | 4 Marks                                 |

### Technical Architecture:



**Table-1 : Components & Technologies:**

| S.No | Component              | Description   | Technology   |
|------|------------------------|---|--|
| 1.   | User Interface         | Chatbot   | HTML, CSS, JavaScript / Angular Js / React Js etc.   |
| 2.   | Application Logic-1    | Query Processing  | NLP and NLU  |
| 3.   | Application Logic-2    | Dealing with Dataset  | IBM Watson STT service   |
| 4.   | Application Logic-3    | Training and Building Deep Learning Model   | IBM Watson Assistant   |
| 5.   | Database               | Data Type –Dialog, Intent etc. Configurations done using small integration Code snippets such as Javascript , SQL and can also be done using Watson APIs. | MySQL or NoSQL or IBM DB2  |
| 6.   | Cloud Database         | Database Service on Cloud   | IBM DB2, IBM Cloudant etc.   |
| 7.   | File Storage           | We store dataset  | IBM Block Storage or Other Storage Service or Local Filesystem, IBM cloud, IBM Watson studio |
| 8.   | External API-1         | To incorporate conversation, language and advanced text analytics into chatbot  | IBM Watson Assistant API,v2 runtime API, etc.  |
| 9.   | External API-2         | Banking API –Data transfer between two systems and data accessibility   | Banking API, etc.  |
| 10.  | Machine Learning Model | Intent detection model and other deep learning models   | Object Recognition Model, Intent detection model, IBM Watson studio etc.                     |

|     |                                 |  |                   |
|-----|---------------------------------|--|-------------------|
| 11. | Infrastructure (Server / Cloud) | On cloud server we will be deploying the chatbot using flask in the web page : | Python Flask etc. |
|-----|---------------------------------|--|-------------------|

**Table-2: Application Characteristics:**

| S.No | Characteristics          | Description  | Technology   |
|------|--------------------------|--|--|
| 1.   | Open-Source Frameworks   | Open-source frameworks used is IBM Watson  | Technology of Opensource framework- IBM Watson   |
| 2.   | Security Implementations | IBM Cloud<br>.   | Watson assistant has certifications such as ISO,SOC2,US HIPAA, European Union GDPR,PCI DSS. We use security systems such as TCS/SSL,IPSEC ,Third party CAs, HTTPS, Encrypted file systems, Encrypted storage systems, Key management systems, AES - 256 bit. |
| 3.   | Scalable Architecture    | Chatbot architecture consist of four pillars. They are intents, entities ,data flow, scripts (3 – tier architecture –presentation tier, application tier, data tier and Micro-services architecture) | Technology used –IBM Watson Assistant  |
| 4.   | Availability             | The Bot is made available using load balancers, distributed servers etc.   | Technology used –IBM Watson Assistant  |

| S.No | Characteristics | Description   | Technology                                     |
|------|-----------------|---|--|
| 5.   | Performance     | IBM Watson –automate processes, The deep learning model is trained using IBM Watson studio for better performance, Cache, CDN's, etc. | Watson Assistant is used to build the chatbot. |