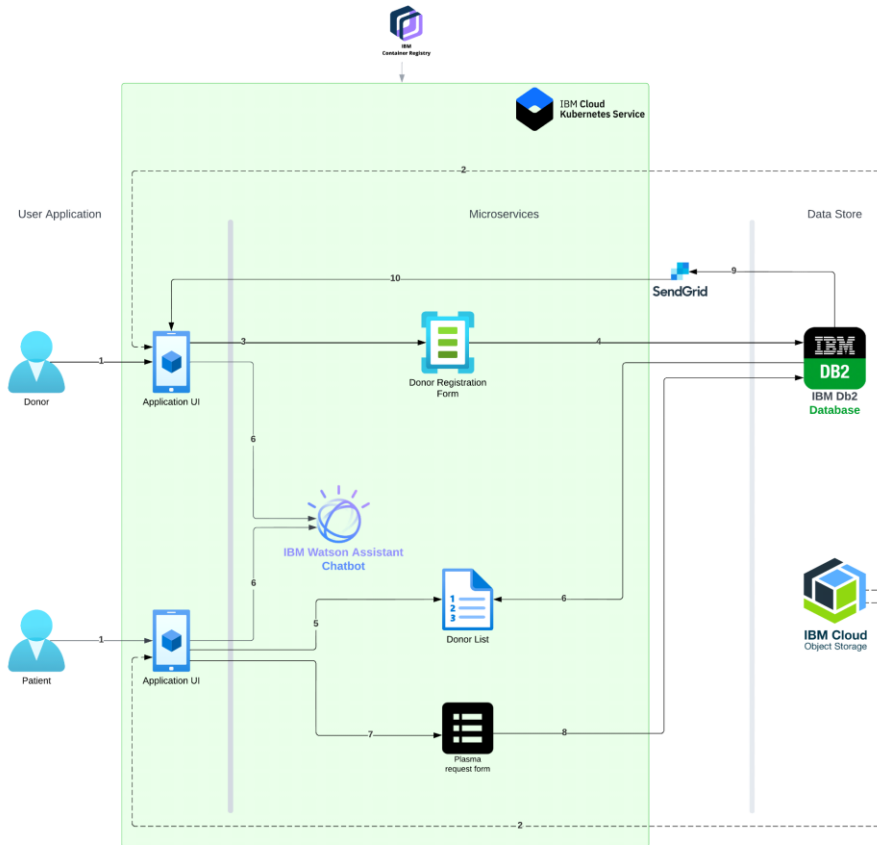


**Technical Architecture:**

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

|               |                          |
|---------------|--------------------------|
| Date          | 22 October 2022          |
| Team ID       | PNT2022TMID43957         |
| Project Name  | Plasma Donor Application |
| Maximum Marks | 4 Marks                  |



## Steps

1. Users open the web application on their devices
2. The required assets for the application are instantly loaded from the IBM Cloud Object Storage
3. The donor registers his/her medical and contact information
4. These details are stored in the IBM Db2 Database
5. The patient accesses the list of donors available
6. The donor list is updated real-time from the database
7. The patient then submits a plasma donation request
8. The request details are stored in the database
9. The SendGrid API is provided with the required request details
10. The SendGrid API sends an email alert to the donor's device

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

| S.No | Component                       | Description  | Technology   |
|------|---------------------------------|--|--|
| 1.   | User Interface                  | How user interacts with application (Web UI, Chatbot etc.)                                       | HTML, CSS and JavaScript                             |
| 2.   | User Registration               | Sign up users to the web application using Email and Password and store credentials in database  | IBM Db2 and Python Flask                             |
| 3.   | User login                      | Authorize users by comparing credentials with the registered accounts in the database            | IBM Db2 and Python Flask                             |
| 4.   | Resolve user queries            | Allow users to resolve their queries using the chatbot   | IBM Watson Assistant                                 |
| 5.   | Database                        | The IBM Db2 is a relational and fully managed SQL database                                       | RDBMS, SQL   |
| 6.   | Cloud Database                  | Database Service on Cloud to store application data  | IBM Db2  |
| 7.   | File Storage                    | The files required for the application are stored in the cloud object storage for fast retrieval | IBM Cloud Object Storage                             |
| 8.   | Email Notification              | Send immediate email alerts to donors upon a request from a patient                              | SendGrid API   |
| 9.   | Infrastructure (Server / Cloud) | Application Deployment on Cloud  | IBM Container Registry, IBM Cloud Kubernetes Cluster |

**Table-2: Application Characteristics:**

| S.No | Characteristics          | Description   | Technology                              |
|------|--------------------------|---|---|
| 1.   | Open-Source Frameworks   | The application is primarily developed in Flask and containerized as Docker images  | Python Flask and Docker                 |
| 2.   | Security Implementations | The flask app is protected in various ways to prevent attacks and only registered users can access the data in the database     | IBM Db2, HSTS, CSP, XSS Protection, TLS |
| 3.   | Scalable Architecture    | The services provided by IBM Cloud and Kubernetes can handle huge amount of users seamlessly and are scalable to a large extent | IBM Cloud Platform and Kubernetes       |

|    |              |  |                       |
|----|--------------|--|-----------------------|
| 4. | Availability | The application can handle any number of users and is available all the time | Docker and Kubernetes |
|----|--------------|--|-----------------------|