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

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| Date | 05 November 2022 |
| Team ID | PNT2022TMID42609 |
| Project Name | Developing A Flight Delay Prediction Model Using Machine Learning |
| Maximum Marks | 4 Marks |

**Technical Architecture:**

The Deliverable shall include the architectural diagram as below and the information as per the table1 & table 2
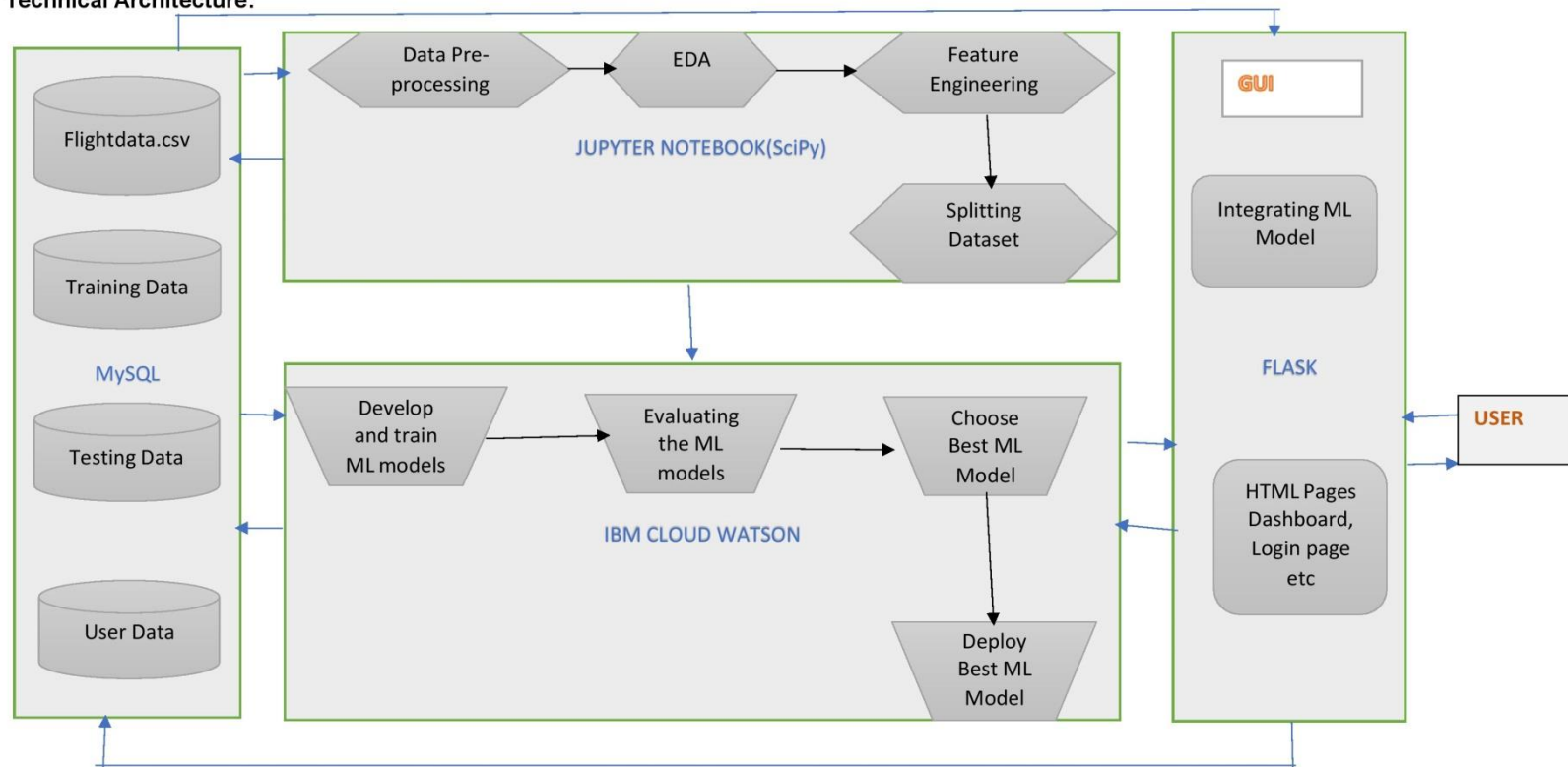
**Technical Architecture:**



**JUPYTER NOTEBOOK(SciPy)**
- Data Pre-processing
- EDA
- Feature Engineering
- Splitting Dataset

**MySQL**
- Flightdata.csv
- Training Data
- Testing Data
- User Data

**IBM CLOUD WATSON**
- Develop and train ML models
- Evaluating the ML models
- Choose Best ML Model
- Deploy Best ML Model

**FLASK**
- GUI
- Integrating ML Model
- HTML Pages Dashboard, Login page etc

**USER**

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

| S.No | Component | Description | Technology |
|------|-----------|-------------|------------|
| 1. | User Interface | How user interacts with application using Web UI | HTML, CSS |
| 2. | Application Logic-1 | Develop , Train and find best ML Model | Python |
| 3. | Application Logic-2 | Deploy Best ML Model | IBM Watson |
| 4. | Application Logic-3 | Integrating ML model with Flask web app | IBM Watson, Flask, Python |
| 5. | Database | Structured data | MySQL |
| 6. | Cloud Database | Database Service on Cloud | IBM DB2 |
| 7. | File Storage | File storage requirements | IBM Block Storage or Other Storage Service or Local Filesystem |
| 8. | Infrastructure (Server / Cloud) | Application Deployment on Cloud | Cloud Foundry, kubernetes |

**Table-2: Application Characteristics:**

| S.No | Characteristics | Description | Technology |
|------|-----------------|-------------|------------|
| 1. | Open-Source Frameworks | Flask, Scipy, Jupiter Notebook | microframework |
| 2. | Scalable Architecture | 3 – tier, Micro-services | Relational database, cloud, GUI |
| 3. | Availability | Distributed servers | IBM Cloud |
| 4. | Performance | 100 per sec | IBM Watson App Service |