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

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|---|---|
| Date | 13 October 2022 |
| Team ID | PNT2022TMID52976 |
| Project Name | Estimate The Crop Yield Using Data Analytics |
| Maximum Marks | 4 Marks |

**Technical Architecture:**

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

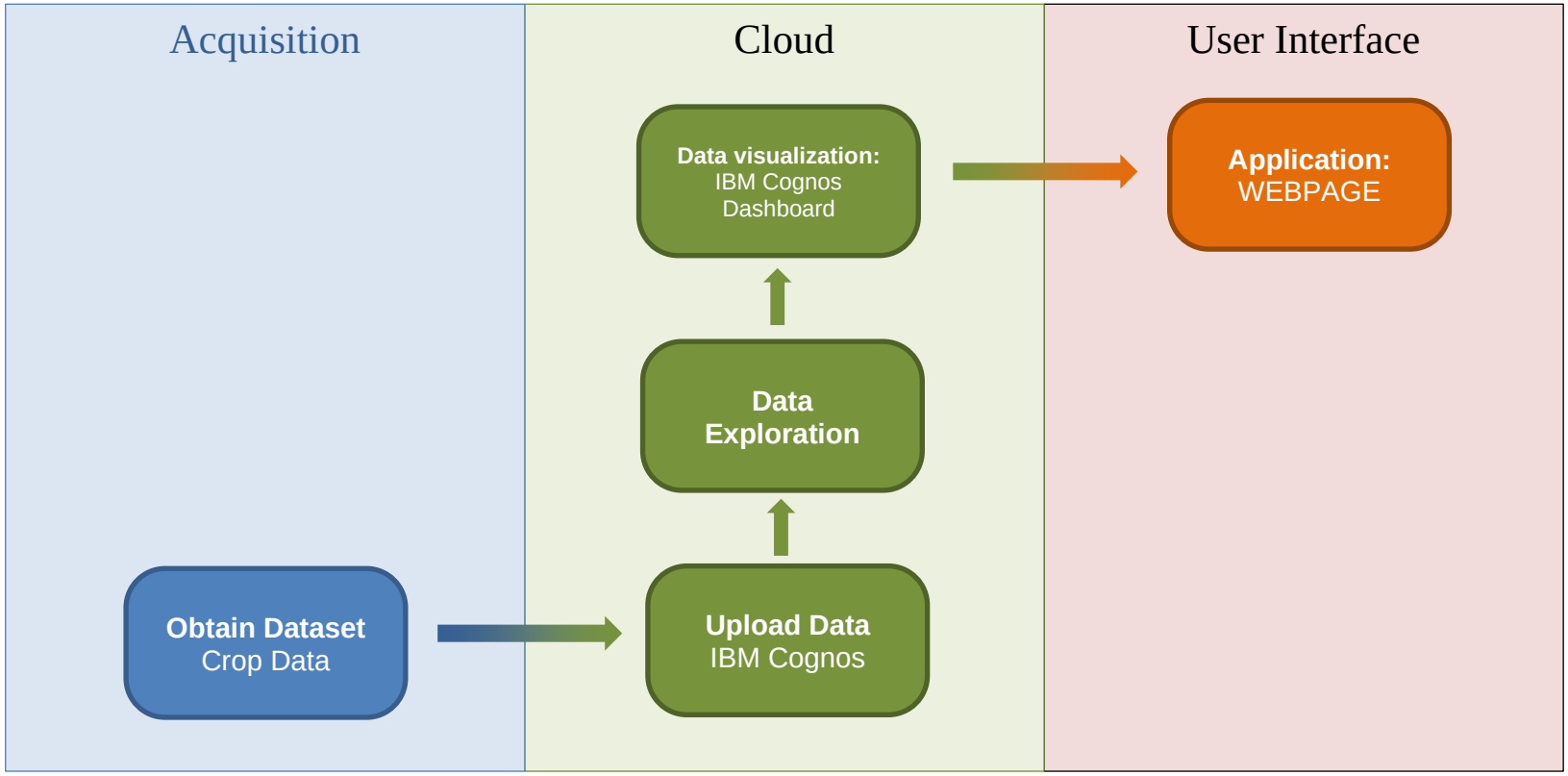

**Table-1 : Components & Technologies:**

| S.No | Component | Description | Technology |
|---|---|---|---|
| 1. | User Interface | How user interacts with application e.g.<br>Web UI, Mobile App, Chatbot etc. | HTML, CSS, JavaScript, Bootstrap, IBM Cognos and IBM Cloud Storage |
| 2. | Remote sensing data | The data prepared to estimate the crop yield | Python and IBM Cognos |
| 3. | Crop yield data | Data set used to estimate the sample crop production | Kaggle API |
| 4. | IBM Cognos | Data analytics platform and to create a database | IBM Cognos Analytics |
| 5. | Cloud Database | Database Service on Cloud | IBM DB2, IBM Cloud etc. |
| 6. | IBM Cloud | Storage of data | IBM Block Storage, Local Filesystem, IBM DB2 |
| 7. | External API-1<br>Crop data detected and clustered | Purpose of External API used in the application | Object Recognition Model, Kaggle API |
| 8. | Machine Learning Models | To estimate the Crop Production using ML models | Python, Google Colab |
| 9. | Infrastructure (Server / Cloud) | Application Deployment on Local System / Cloud<br>Local Server Configuration:<br>Cloud Server Configuration : | Local,<br>IBM Cloud. |

**Table-2: Application Characteristics:**

| S.No | Characteristics | Description | Technology |
|---|---|---|---|
| 1. | Open-Source Frameworks | It empowers the farmers and to increase the productivity there is need to provide the best dissemination tool for their farming activities | Cognos Analytics |
| 2. | Security Implementations | List all the security / access controls implemented, use of firewalls etc. | SHA-256, Encryptions |
| 3. | Scalable Architecture | The estimate of crop yield is based on soil, meteorological, environmental, and crop parameters | Python - Machine learning |
| 4. | Availability | Both website and mobile application interface and developed in local language and the content is available in localized language | Python- Anaconda, Google Colab |
| 5. | Performance | Multiple technologies and services that will improve the usability in agricultural activities | Python and other languages like HTML, CSS, JavaScript, BootStrap. |