

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

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| Date | 15 October 2022 |
| Team ID | PNT2022TMID39559 |
| Project Name | Project - Digital Naturalist - AI Enabled tool for Biodiversity Researchers |
| Maximum Marks | 4 Marks |

Technical Architecture:

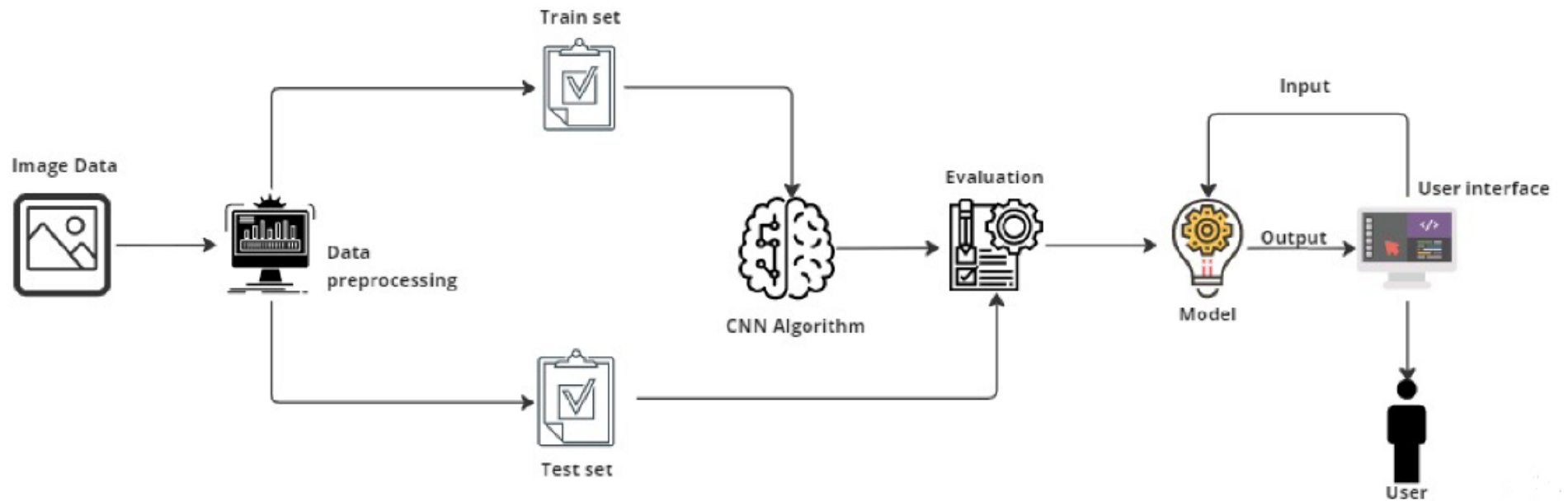


Table-1 : Components & Technologies:

| S.No | Component | Description | Technology |
|------|---------------------------------|---|---------------|
| 1. | User Interface | Web UI or Website | HTML, CSS. |
| 2. | Application Logic-1 | Image upload | Python Flask. |
| 3. | Image Recognition Model | To predict the species(flora and fauna), through image provided by the user | CNN |
| 4. | Infrastructure (Server / Cloud) | Application Delpoyed on cloud server | IBM Cloud |

Table-2: Application Characteristics:

| S.No | Characteristics | Description | Technology |
|------|-----------------------|--|---|
| 1. | Open-Source Framework | Opensource frameworks for preprocessing, web application and model training | Keras, Python Flask, TensorFlow, CNN, sklearn and matplotlib |
| 2. | Data Preprocessing | The security / access controls are implemented using firewalls etc. | Firewall and other security related softwares. |
| 3. | Scalable Architecture | Justify the scalability of architecture (3 – tier, Micro-services) | Data , models, operate at size, speed , consistency and complexity |
| 4. | Availability | The availability of application (e.g. use of load balancers, distributed servers etc.) | Image recognition. |
| 5. | Performance | Design aspects for the performance of the application (number of requests per second, use of Cache, use of CDN's) etc. | Full and effective prediction using deep learning for Bio-Diversity researchers |