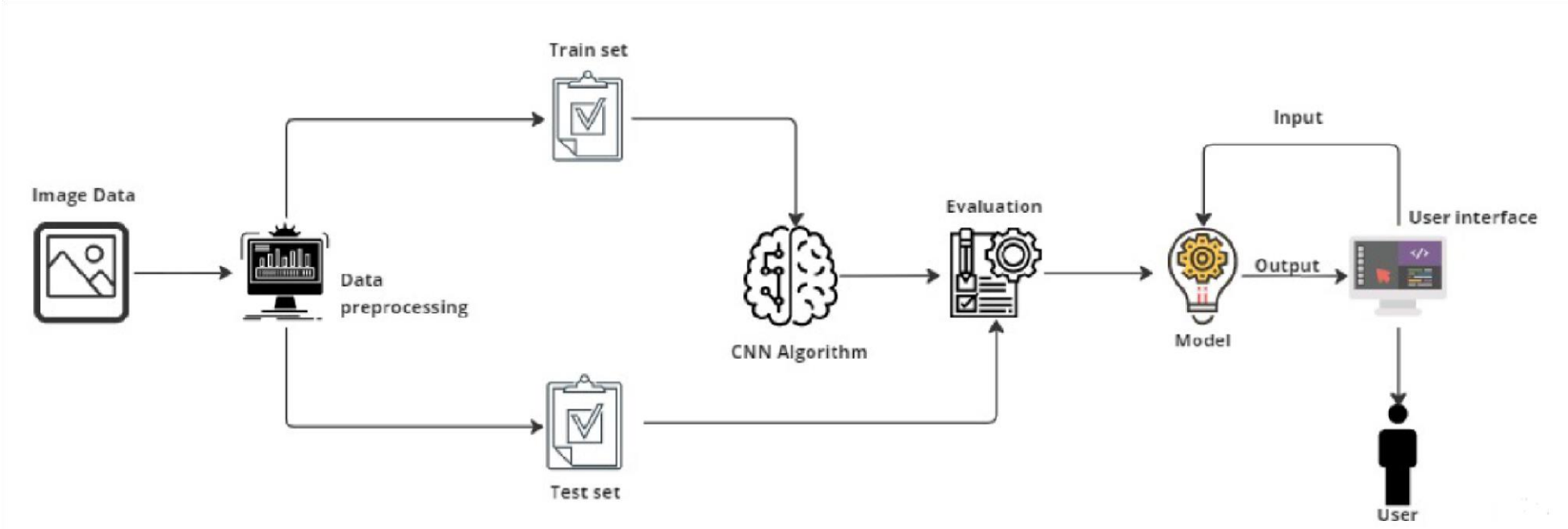
Project Design Phase-II Technology Stack (Architecture & Stack)

Date	6 November 2022
Team ID	IBM PNT2022TMID07192
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