Project Planning Phase
Technology Stack (Architecture & Stack)

Date	06 May 2023
Team ID	591762
Project Name	CrimeVision: Advanced Crime Classification with Deep Learning

Technical Architecture:

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

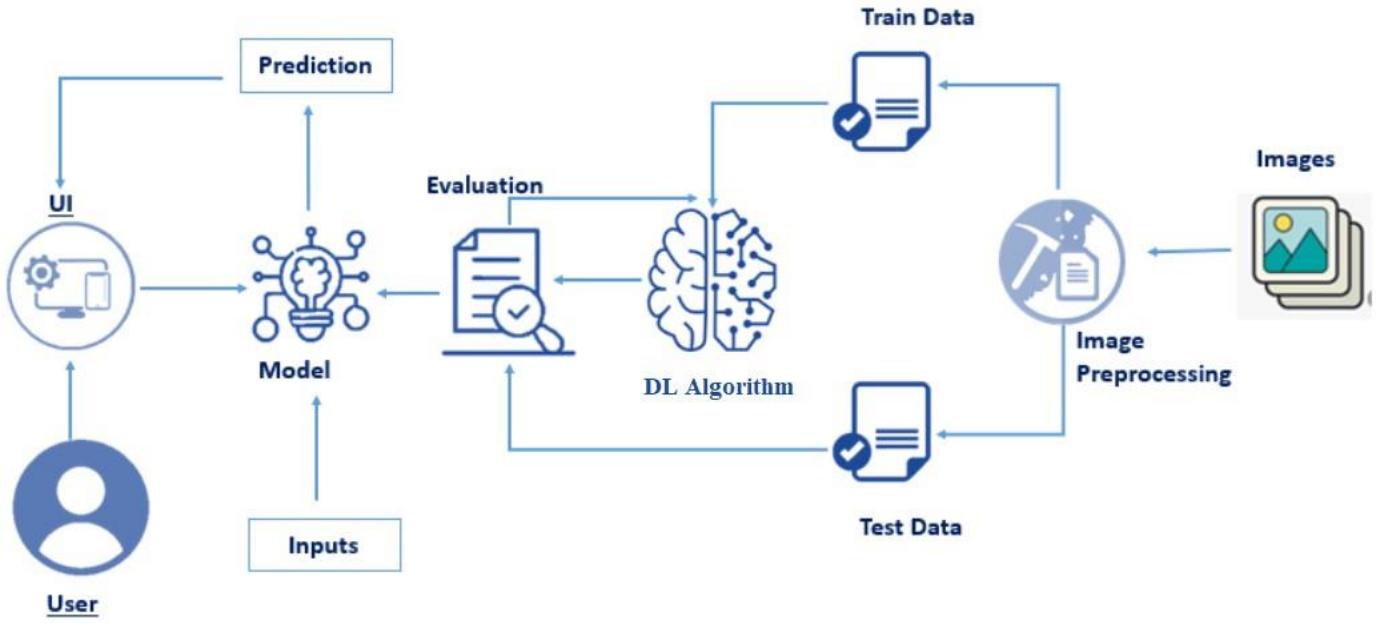

Figure- Components in Technical Architecture in Crime Classification using Deep Learning

Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	UI (User Interface)	The system incorporates visual and interactive components that enable users to engage with and manipulate its features.	HTML, CSS, JavaScript, UI frameworks (e.g., React, Angular)
2.	Model	The computational framework or model that acquires knowledge from data and generates forecasts.	Deep learning frameworks (e.g., TensorFlow, PyTorch), programming languages (e.g., Python), neural network architectures (e.g., CNN, RNN)
3.	Deep Learning Algorithm	The particular algorithm or method employed in the deep learning model to discern patterns and make forecasts.	Convolutional Neural Networks (CNN), Recurrent Neural Networks (RNN), YOLO (You Only Look Once), etc.
4.	Evaluation	Evaluating the model's performance and its effectiveness in action.	Metrics (e.g., accuracy, precision, recall, F1score), programming languages (e.g., Python), data analysis libraries (e.g., NumPy, pandas)
5.	Image Pre-processing	The input images undergo various operations to improve their quality and make them more suitable for analysis..	Image processing libraries (e.g., OpenCV), programming languages (e.g., Python), image manipulation techniques (e.g., resizing, normalization)
6.	Train Data	The data with assigned labels utilized for training the deep learning model.	Labelled image datasets, data collection and labelling tools

7.	Test Data	The labeled dataset employed to assess the effectiveness of the trained model..	Labelled image datasets, data collection and labelling tools

Table-2: Application Characteristics:

S.no	Characteristic	Description	Technology
1.	Open-Source Frameworks	Utilizing open-source frameworks with publicly accessible source code that enables customization and fosters collaboration within the community.	TensorFlow, PyTorch, Keras, scikitlearn, OpenCV, Django, Flask, Node.js
2.	Security Implementations	Incorporating safeguards to secure data and guarantee the system's data confidentiality, integrity, and availability.	Encryption algorithms (e.g., AES, RSA), secure communication protocols (e.g., SSL/TLS), authentication mechanisms, access control systems
3.	Scalable Architecture	Developing a system that can accommodate growing workloads and user requirements through the addition of resources and the enhancement of its capabilities.	Cloud platforms (e.g., AWS, Azure, Google Cloud), containerization (e.g., Docker), load balancing, horizontal scaling
4.	Availability	Ensuring the system remains accessible and fully operational, while minimizing any periods of downtime and maximizing the amount of time it is available for users.	High availability architectures, redundant infrastructure, faulttolerant systems
5.	Performance	Enhancing the system's performance to provide rapid and efficient responses, while minimizing delay and maximizing processing capacity.	Caching mechanisms, performance monitoring tools, optimization algorithms, hardware acceleration (e.g., GPUs)