

Project Design Phase-II
Solution Requirements (Functional & Non-functional)

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Team ID	NM2023TMID18455
Project Name	CrimeVision: Advanced Crime Classification with Deep Learning

Functional Requirements:

Following are the functional requirements of the proposed solution.

FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	Data Collection and Preprocessing	FR1.1: Collect diverse and representative crime-related datasets, including images, videos, and textual information. FR1.2: Perform data preprocessing tasks such as data cleaning, normalization, and augmentation to enhance the quality and diversity of the dataset. FR1.3: Extract relevant features from the collected data to facilitate deep learning model training.
FR-2	Model Training and Evaluation	FR2.1: Develop deep learning models capable of effectively classifying different types of crimes, considering both visual and textual inputs. FR2.2: Train the models using the preprocessed crime datasets, optimizing model performance metrics such as accuracy, precision, and recall. FR2.3: Evaluate the trained models using appropriate evaluation metrics to ensure their effectiveness in crime classification tasks. FR2.4: Implement techniques for model explainability and interpretability to enhance transparency and trust in the classification results.
FR-3	Real-time Crime Classification	FR3.1: Develop a real-time crime classification system that can process and analyze streaming crime data in near real-time. FR3.2: Implement efficient mechanisms for feature extraction and inference to enable timely classification of incoming data. FR3.3: Ensure scalability and low latency in the real-time classification system to handle a large volume of data and provide timely insights.
FR-4	User Interface and Integration	FR4.1: Design an intuitive user interface that allows police officers or detectives to interact with the crime classification system easily. FR4.2: Provide a user-friendly dashboard with visualizations and summary statistics to aid in the interpretation and analysis of crime classification results. FR4.3: Integrate the crime classification system with existing law enforcement databases or systems for seamless data exchange and collaboration.

		FR4.4: Ensure compatibility and interoperability with different platforms and devices, including desktops, mobile devices, and embedded systems.
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Non-functional Requirements:

Following are the non-functional requirements of the proposed solution.

FR No.	Non-Functional Requirement	Description
NFR-1	Usability	<ul style="list-style-type: none"> -The system should have an intuitive and user-friendly interface for ease of use by police officers or detectives. -It should provide clear and informative visualizations and summaries to facilitate the interpretation of crime classification results.
NFR-2	Security	<ul style="list-style-type: none"> -The system should implement robust security measures to protect sensitive crime data and ensure confidentiality, integrity, and availability. -Access control mechanisms should be in place to restrict unauthorized access to the system and its data.
NFR-3	Reliability	<ul style="list-style-type: none"> -The system should demonstrate high reliability, accurately classifying crimes with minimal errors or false positives/negatives. -It should be capable of handling and recovering from unexpected failures or disruptions to ensure uninterrupted crime classification functionality.
NFR-4	Performance	<ul style="list-style-type: none"> -The system should exhibit high-performance capabilities, processing crime data efficiently and providing timely classification results. -It should have optimized algorithms and architectures to achieve fast inference times and handle large volumes of data effectively.
NFR-5	Availability	<ul style="list-style-type: none"> -The system should strive for high availability, ensuring that crime classification services are accessible and operational whenever needed. -It should have mechanisms in place for monitoring system health, detecting and addressing potential issues, and minimizing downtime.
NFR-6	Scalability	<ul style="list-style-type: none"> -The system should be designed to scale seamlessly as the volume of crime data and the user base increases. -It should be capable of handling concurrent requests and expanding computational resources to maintain optimal performance and responsiveness.