1. **Project's Category Explanation:**

Our project aims to develop an advanced system powered by artificial intelligence and neural networks, using Convolutional Long Short-Term Memory (ConvLSTM) models, to identify people in videos. The system starts by detecting a person in the footage, then analyzes and extracts a range of features like facial and body structures. After gathering these details, it tries to match them with a particular person we're searching for. Additionally, one of our goals is to source videos from suspected or provided channels to aid in finding the individual in question, making the search process more efficient and targeted.

1. **Keywords:**

Person Detection, Feature Extraction, Facial Recognition, Body Structure Analysis, Artificial Intelligence, Neural Networks, Video Processing, Machine Learning, Person Matching, Biometric Analysis,Deep Learning, Pattern Recognition, ConvLSTM ,CNN.

1. **General Description of the Problem:**

The challenge we're tackling is multifaceted: accurately detecting individuals in video footage, extracting a comprehensive set of features including but not limited to facial and body structure, and then matching these features against a database to find a specific person. This process involves navigating complex variations in appearance, movement, and environmental conditions within video data. Moreover, the project must address the ethical handling of sensitive biometric information, ensuring privacy and consent are prioritized. Our goal is to build a system capable of performing these tasks with high accuracy and efficiency, using the latest advancements in AI and neural networks.

1. **Planned Working Process During the First Semester:**

During our first semester, we're focusing on building a strong project foundation, exploring AI and neural networks for person detection and feature extraction through literature and technology review. We'll examine various models and algorithms for accurately analyzing human features in videos. Additionally, we'll investigate similar problems and draw inspiration from their analysis and characterization, comparing these findings to our project's specific challenges. If time permits, we'll test the feasibility and develop a prototype in real-world scenarios, focusing on detection and initial feature extraction. We'll also choose the programming tools and frameworks that best suit our needs, setting up a development environment that facilitates efficient testing and iteration.

1. **Expected Achievements This Semester:**By the semester's end, we anticipate having a deep understanding of AI and neural network technologies for detecting persons and extracting their features from videos. We expect to have a working prototype that can reliably detect individuals and perform initial feature extraction, such as identifying facial and body characteristics. If time permits the prototype will form the basis for further refinement and development in the subsequent semester, where the focus will shift towards optimizing feature extraction and improving the accuracy of the matching process. Additionally, we plan to have a clear roadmap for the next steps, including advanced feature analysis and matching strategies, with an eye on addressing any challenges encountered during the initial testing phase.