**Approach to Object Detection and Autism Detection**

**1. TensorFlow Object Detection Modules**

* **Initial Exploration**:
  + Began with TensorFlow Object Detection modules, aiming for accurate detection of children and adults.
* **Challenges Faced**:
  + Despite extensive experimentation and fine-tuning, the performance fell short of expectations in accuracy and efficiency.
* **Decision to Pivot**:
  + Recognized the need for a more robust solution, leading to a reevaluation of the approach.

**2. YOLOv8n Model**

* **Strategic Transition**:
  + Shifted to the YOLOv8n model, renowned for its speed and accuracy in real-time object detection.
* **Custom Dataset Creation**:
  + Curated a diverse dataset of images featuring children and adults to enhance the model’s generalization capabilities.
* **Improved Performance**:
  + The transition resulted in significantly higher detection accuracy and a streamlined inference process, making it suitable for real-world applications.

**3. YOLOv8 with DeepSORT**

* **Integration for Tracking**:
  + Combined YOLOv8 with DeepSORT to assign unique IDs to detected individuals.
* **Efficient Tracking**:
  + Enabled continuous tracking of individuals throughout video sequences, crucial for autism-related applications.
* **Enhanced Reliability**:
  + This dual approach improved both object detection accuracy and the reliability of tracking over time.

**4. Decision Tree Classifier for Autism Detection**

* **Complementary Model**:
  + Implemented a Decision Tree Classifier to analyze behavior-related data and make predictions regarding autism.
* **Complex Relationship Modeling**:
  + Leveraged insights gained from tracked individuals to effectively model complex behaviors and interactions.
* **Comprehensive Solution**:
  + This multifaceted approach ensured a robust solution capable of monitoring and analyzing the behaviors of children and adults in various scenarios.