CSE623: Machine Learning: Theory and Practice
Group: 5   Project no.:11
Weekly Report 6

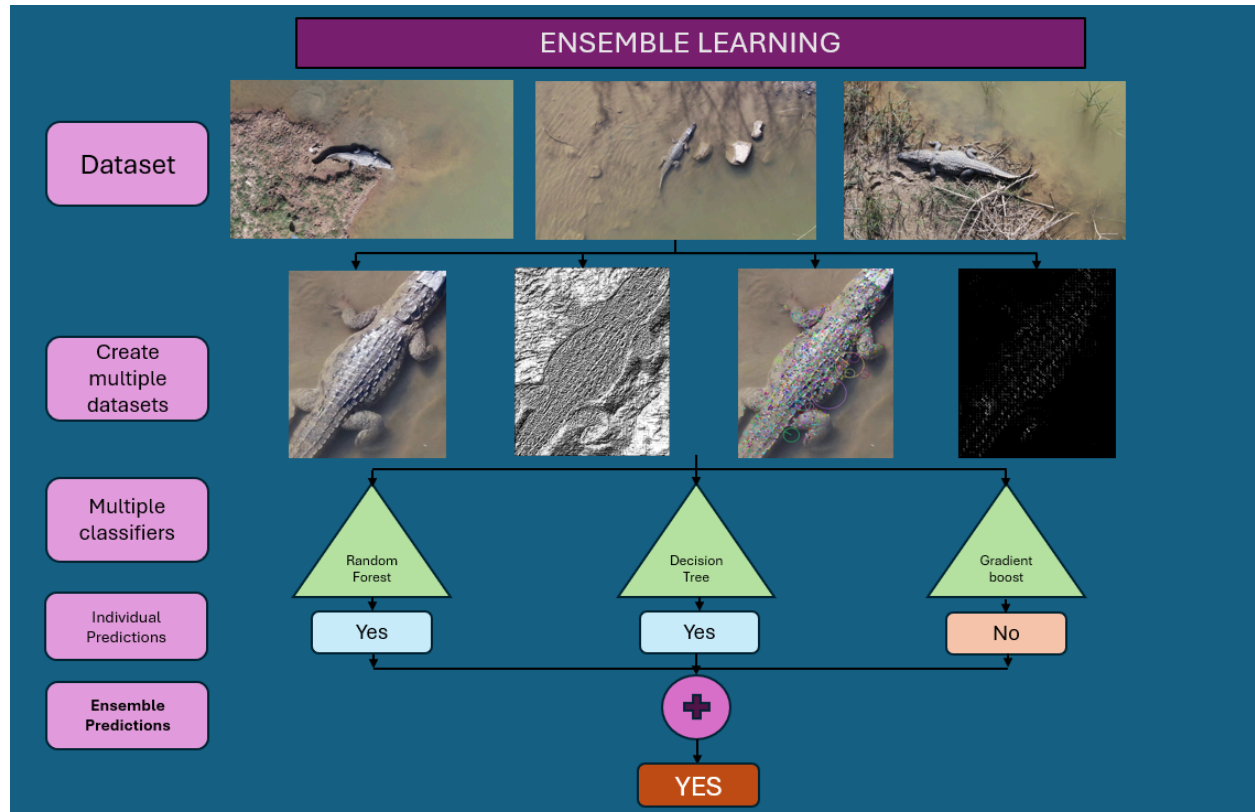| Name	Enrollment number
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Summary:

Using Unmanned Aerial Vehicle (UAV) drone images the project works to detect wild mugger crocodiles (Crocodylus palustris). Research on mugger crocodiles requires individual identification because this species faces vulnerability which means population dynamics need monitoring along with behavioral pattern analysis. The current identification practices depend on invasive tagging methods that create stress in addition to disturbing natural environments of wild animals. The system provides solutions to identification challenges through the deployment of distinctive scute patterns for non-invasive identification processes. Various high-resolution imaging analysis methods now let researchers detect both specific animal subjects and separate different wildlife species effectively. Our system utilizes the YOLOv8 model which creates bounding boxes to establish exact location detection in addition to giving wildlife population monitoring both speed and scalability capabilities. Our system makes use of the model to identify wildlife effectively without dependency on human interaction and generates precise results for classification. This project design features flexibility which allows its use for multiple species dealing with similar conservation threats. The system brings substantial progress to ecological research by connecting automated identification capabilities with advanced image analysis systems.

Task completed:

- Ensemble model trained.
- Tried different classifiers for improvement of accuracy- XGboost classifier, Random Forest, MLP Classifier. Fine tuning these models for improved accuracy.

Flowchart:

Goals for Next week:

1. **Completing the project and preparing the final deliverables for the project.**
2. **Preparing the report and presentation for the final presentation**
3. **Identifying the expectations and what have been done in the project for identifying the improvement.**