**A08 Hac-King-Do Lionel Silva Team Reflective Journal**

**Introduction:**

This journal reflects our voyage on Object detection. This group assignment aimed to integrate and express key concepts, methodologies, and tools pertinent to object detection.

**What we learned:**

We learned about the key concepts, which include bounding boxes, annotations, IoU, and confidence score. A Bounding box is a virtual box encompassing an object in an image. Annotations are the format used to label images given to a dataset. The confidence score indicates the possibility of an object being present in the bounding box. In addition, we also cover the algorithms like R-CNN, Faster-R-CNN, Fast R-CNN, and SSD. These algorithms play a crucial role in object detection for example Faster-R-CNN evaluates a region-based object classification (ROI) it achieves this by using the feature maps given through the convolutional layer. In SSD the algorithm executes real-time detection in numerous objects in an image with high precision. R-CNN uses a discriminating search technique to identify Rols in the input images.

Furthermore, we also had to import tools and libraries for the program. We listed the ones that we thought were needed for instance TensorFlow, cv2, NumPy, and matplot. We also learned about the steps that are needed to start the objection detection model, they were collecting data, preprocessing the data, training the model, evaluating, and inference. Finally, we also cover common challenges and solutions which include object classification & localization, speed for real-time detection, multiple spatial scales and aspect ratios, limited data, and class imbalance. We believe this cheat sheet will benefit us in the future on object detection tasks because we gained enough knowledge on the steps to take when starting an object detection task. We also gained knowledge of the fundamentals of key concepts, common challenges and solutions, and the libraries and tools needed for the task.