LAB 15: Implement a YOLO model to detect object

AIM :- To implement YOLO model for real time object detection

Pseudocode :-

→ import required libraries
→ load a pre trained YOLO model
→ load an input image
→ pre-process input
→ Pass the preprocessed image through YOLO model obtain prediction
→ Apply non-maximum Subpermission to remove overlapping boxes
→ Draw bounding boxes and class labels on the detected objects.
→ Display or save the annotation image

Observation

→ Yolo divides an image into grids and predicts bounding boxes and class probabilities.
→ It perform end to end detection in one pass
→ YOLO is efficient for real time applications such as ~~robotics~~

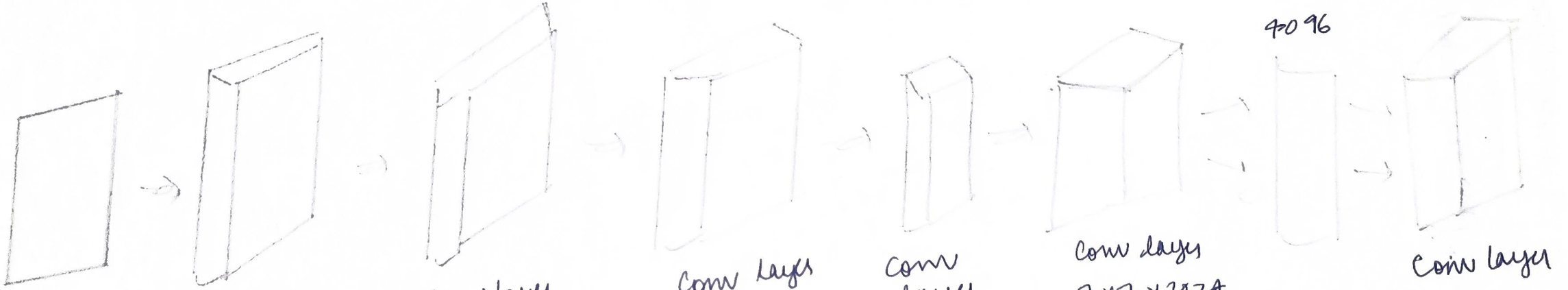
→ The accuracy depends on lightning conditions and occlusions

→ Detection is robust on diversable dataset like COCO.

Result :-

YOLO model successfully implemented for object detection.

Yolo Architecture



Input image

Conv layer
7×7×64-S-2
Max pool
2×2-S-2

Conv layer
3×3×192
Max pool
2×2×S-2

Conv layer
3×3×256
Max pool
2×2-S-2

Conv layer
14×14×1024
Max pool
2×2-S-2

Conv layer
7×7×1024

Conv layer
7×7×30

output :

Detected : Dog (confidence : 0.79)

Detected : Cat (confidence : 0.72)

Detected : Cat (confidence : 0.32)