

Extra Tips for Assignment

- **Dataset download link:** <https://drive.usercontent.google.com/download?id=197RBFt2niCcVNPmEUwzp3ds5LsWxZVxd&export=download&authuser=0>
- **Test set:** Annotations are not required. Please run your model on the test dataset and visualize the outputs.
- **Bounding box visualization:** In the `bbox_visualizer` directory, there are helper files that can help you test your generated bounding boxes.
- **Do not share weights just because shapes match:** If two convolution layers have the same input and output shape, they still need to be defined as separate `nn.Conv2d` modules.
- **Use separate prediction heads:** Classification and bounding box regression should not come from the same convolutional layers. Use two separate heads: one for classification and one for box regression.
- **No softmax inside forward():** The forward pass should output raw scores (logits). `torch.nn.CrossEntropyLoss` applies softmax internally, so applying softmax in the model can interfere with training.
- **Apply softmax only at inference:** If you need probabilities for visualization or final predictions, apply softmax outside the model after you obtain the logits.
- **Avoid `torch.nonzero` for slicing masks:** `torch.nonzero` returns a 2D index tensor, which can lead to incorrect shapes and slicing issues. Use a boolean mask instead.