Flipkart Problem Submission

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Solution
The solution that we propose to solve the object localization problem consists of a CNN having 4 neurons in the output layer where each corresponds to the 4 output values i.e the bounding boxes coordedinates to be determined.
Therefore it will be solved as a regression problem.

Architecture of CNN:

_____
_____
Layer (type) Output Shape Param #
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====
conv2d_1 (Conv2D) (None, 240, 320, 32) 896
_____
conv2d_2 (Conv2D) (None, 240, 320, 32) 9248
_____
max_pooling2d_1 (MaxPooling2 (None, 120, 160, 32) 0
_____
conv2d_3 (Conv2D) (None, 120, 160, 64) 18496
_____
conv2d_4 (Conv2D) (None, 120, 160, 64) 36928
_____
max_pooling2d_2 (MaxPooling2 (None, 60, 80, 64) 0
_____
conv2d_5 (Conv2D) (None, 60, 80, 128) 73856
_____
conv2d_6 (Conv2D) (None, 60, 80, 128) 147584
_____
conv2d_7 (Conv2D) (None, 60, 80, 128) 147584
_____
max_pooling2d_3 (MaxPooling2 (None, 30, 40, 128) 0
_____
conv2d_8 (Conv2D) (None, 30, 40, 256) 295168

conv2d_9 (Conv2D)	(None, 30, 40, 256)	590080
conv2d_10 (Conv2D)	(None, 30, 40, 256)	590080
max_pooling2d_4 (MaxPooling2	(None, 15, 20, 256)	0
conv2d_11 (Conv2D)	(None, 15, 20, 256)	590080
conv2d_12 (Conv2D)	(None, 15, 20, 256)	590080
conv2d_13 (Conv2D)	(None, 15, 20, 256)	590080
max_pooling2d_5 (MaxPooling2	(None, 7, 10, 256)	0
flatten_1 (Flatten)	(None, 17920)	0
dense_1 (Dense)	(None, 1024)	18351104
dropout_1 (Dropout)	(None, 1024)	0
dense_2 (Dense)	(None, 1024)	1049600
dropout_2 (Dropout)	(None, 1024)	0
dense_3 (Dense)	(None, 4)	4100

Total params: 23,084,964
Trainable params: 23,084,964
Non-trainable params: 0

Number of epochs - 10
Layers – 16 (Inspired by the VGG16 model)
Activation – Relu
Dropouts – 0.5/0.25 as shown in
Tools:
Used keras, sklearn, numpy.
For training our model we used Google colab.

Final score:
The score we got was **0.79** approx.

Usage Instructions:

Run train.py with appropriate data to train the model.
Run test.py to generate output in form of .csv file.