**ALGORITHM:**

**Convolutional Neural Networks (CNN)**

Convolutional Neural Networks (CNN) is one of the variants of neural networks used heavily in the field of Computer Vision. It derives its name from the type of hidden layers it consists of. The hidden layers of a CNN typically consist of convolutional layers, pooling layers, fully connected layers, and normalization layers. Here it simply means that instead of using the normal activation functions defined above, convolution and pooling functions are used as activation functions. To understand it in detail one needs to understand what convolution and pooling are. Both of these concepts are borrowed from the field of Computer Vision

**Region-based Convolutional Neural Networks(R-CNN)**

R-CNN is a state-of-the-art visual object detection system that combines bottom-up region proposals with rich features computed by a convolutional neural network. At the time of its release, R-CNN improved the previous best detection performance on PASCAL VOC 2012 by 30% relative, going from 40.9% to 53.3% mean average precision. Unlike the previous best results, R-CNN achieves this performance without using contextual rescoring or an ensemble of feature types. To bypass the problem of selecting a huge number of regions, [Ross Girshick et al](https://arxiv.org/pdf/1311.2524.pdf). proposed a method where we use selective search to extract just 2000 regions from the image and he called them region proposals. Therefore, now, instead of trying to classify a huge number of regions, you can just work with 2000 regions.

**R-CNN algorithms have truly been a game-changer for object detection tasks. There has suddenly been a spike in recent years in the amount of computer vision applications being created, and R-CNN is at the heart of most of them.**