**AI for Kids**

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**Overview**:

Object detection is a sought-after field in computer vision with many applications. It is used from video surveillance, face detection to self-driving cars. We develop an application to interactively teach users how object detection is done using Convolutional neural networks. We have used a pre trained Coco ssd model for object detection, already available in tensoflow.js. Coco ssd uses mobilenet v2 architecture for feature extractions. Our application shows how these features are extracted to detect objects.

**Workflow**:

The web app allows a user to upload any image and detect objects in it. We give a brief explanation of Convolution, activation function performed by the CNN for feature extraction. We also provide some interesting details useful in understanding the flow of the neural network. After having the knowledge of each of the terms, the user then gets to visually see how the layers of a convolution network look like by clicking on “Convolutional Neural Network for uploaded image” button. The display shows image outputs of each neuron in multiple layers.

**Limitations / Future Work**:

Our project does not cover every operation a CNN performs to detecting object. Below are some topics that are not covered and can be considered as a future scope for this project.

1. Batch normalization is a technique used while training the model. In the project we focus on how the model predicts the outputs rather than what happen while training the model. Due to this reasoning, since batch normalization is a technique heavily used while training the model, it is not a focus of explanation.
2. The output image shown in the multiple layers diagram does not have bounding boxes displayed to show the objects.