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ML - Week - 7 - Observation

Aim:-

To implement RBF network for classification on our dataset.

Radial Basis Function (RBF) algorithm:-

- Position the RBF centres by either:
  - using the k-means algorithm to initialize the positions of the RBF centres
    (OR)
  - setting the RBF centres to be randomly chosen datapoints
- Calculate the actions of RBF node using

$$g(x, w, \sigma) = \exp\left(-\frac{\|x - w\|^2}{2\sigma^2}\right)$$

- Train the output weights by either:-
  - using the Perceptron learning algorithm
    (OR)
  - computing pseudo inverse of the activations of the RBF centres.

The activation function is a function of the euclidean distance of the input vector and a certain vector. The final layer doesn't use the given activation function, instead it linearly combines the output of previous neurons.