System features are elements of your input vectors. Features are unique signatures of the given image or unique properties that define an image. Features are extracted in order to differentiate between the images .Features play an important role in image processing. Before getting features, various image pre-processing techniques like binarisation, thresholding, resizing, and normalisation are applied on the sampled image. After that feature extraction techniques are applied to get features that will be useful in classifying and recognition of images. Feature extraction techniques are helpful in various image processing applications e.g. character recognition. As features define the behaviour of an image, they show its place in terms of storage taken, efficiency in classification and time consumption. The number of features is equal to the number of nodes in the input layer of the network.

Taking an example of one image with file name COCO\_COCO\_train2014\_0000000001737 from the given images in the dataset, its features are;

**Width**: 640pixels

**Height:** 427pixels

**Dimensions:** 640\*427

**Horizontal resolution**: 72dpi

**Vertical resolution**: 72dpi

This would be initially represented by the vector [640, 427, 640\*427, 72, 72].