```
imds = imageDatastore('cutlery','IncludeSubfolders',true,'LabelSource','foldernames');
```

```
tbl = countEachLabel(imds)
```

tbl = 5×2 table

	Label	Count
1	Spoon	15
2	fork	15
3	knife	17
4	peeler	17
5	wooden-spoon	16

```
[trainingSet, validationSet] = splitEachLabel(imds, 0.6, 'randomize');
```

```
bag = bagOfFeatures(trainingSet);
```

```
Creating Bag-Of-Features.
-------------------------
* Image category 1: Spoon
* Image category 2: fork
* Image category 3: knife
* Image category 4: peeler
* Image category 5: wooden-spoon
* Selecting feature point locations using the Grid method.
* Extracting SURF features from the selected feature point locations.
** The GridStep is [8 8] and the BlockWidth is [32 64 96 128].

* Extracting features from 48 images...done. Extracted 36000000 features.

* Keeping 80 percent of the strongest features from each category.

* Balancing the number of features across all image categories to improve clustering.
** Image category 1 has the least number of strongest features: 5400000.
** Using the strongest 5400000 features from each of the other image categories.

* Creating a 500 word visual vocabulary.
* Number of levels: 1
* Branching factor: 500
* Number of clustering steps: 1

* [Step 1/1] Clustering vocabulary level 1.
* Number of features          : 27000000
* Number of clusters          : 500
* Initializing cluster centers..99.60.
* Clustering...completed 0/100 iterations
Warning: Some output might be missing due to a network interruption. To get the missing output,
rerun the script.
```

```
img = readimage(imds, 1);
featureVector = encode(bag, img);
```