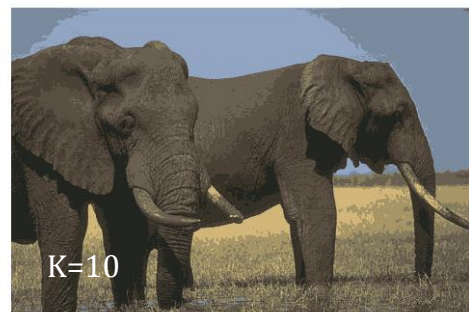


## Lab k-means

The goal of image segmentation is to partition an image into regions each of which has a reasonably homogeneous visual appearance or which corresponds to objects or parts of objects. Each pixel in an image is a point in a 3-dimensional space comprising the intensities of the red, blue, and green channels, and our segmentation algorithm simply treats each pixel in the image as a separate data point. We illustrate the result of running K-means, for any particular value of K, by re-drawing the image replacing each pixel vector with the (R,G,B) intensity triplet given by the centroid to which that pixel has been assigned. Results for various values of K based on example `elephant.jpg` are shown as follow.



Create your own kmeans function

```
function [C, I] = Kmeans_code(X, K, maxIter)
```

1. Randomly initializing  $K$  centroids (select those centroids from the actual points)

2. Assigning data points to  $K$  clusters using the following distance

```
dist = norm(C - x, 1);
```

3. Re-computing  $K$  centroids

Repeat 2 and 3 until `maxIter` reached. Set `maxIter=100`.

Compare your Kmeans function to the matlab version.