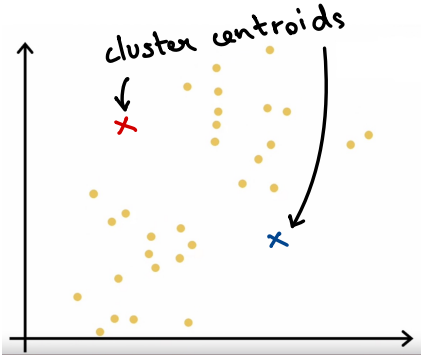
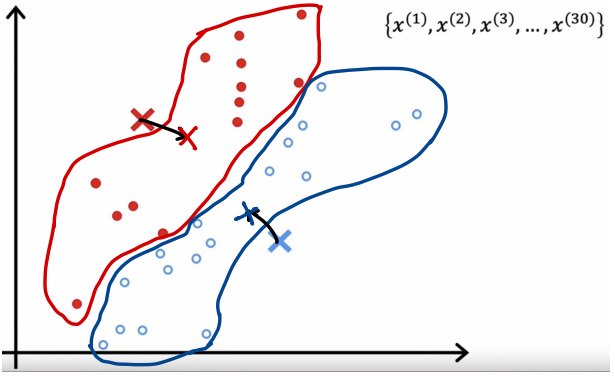
The first thing k-means algorithm will do is it will randomly guess two centroid points



It will then go through all the $x^{(1)}$ . . . . $x^{(30)}$ and check which one is closer to red cross or blue cross and mark it.

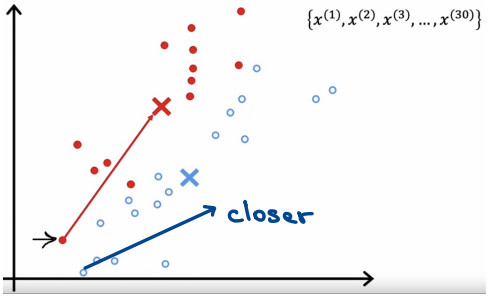


we will then recompute the centroids

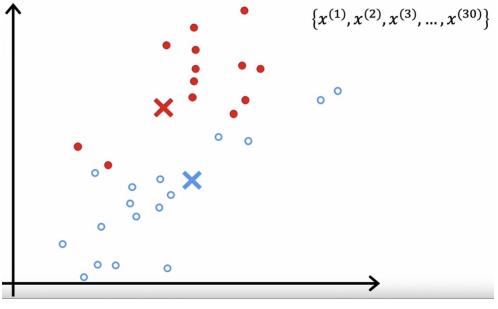
take the average of red dots and blue dots and shift the centroid to the respective average location

Some points may join a different cluster due to distance from centroid changing.

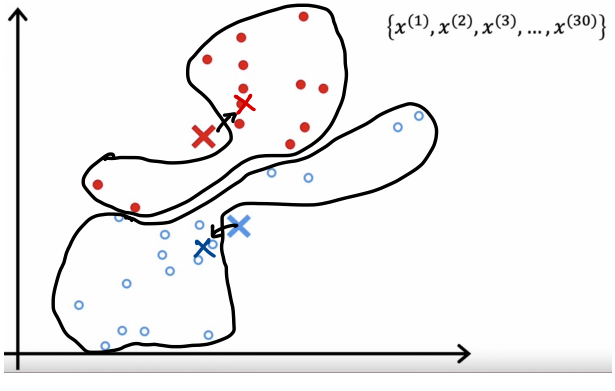
⇒ Basically, we go back to step 1.



by doing this for all



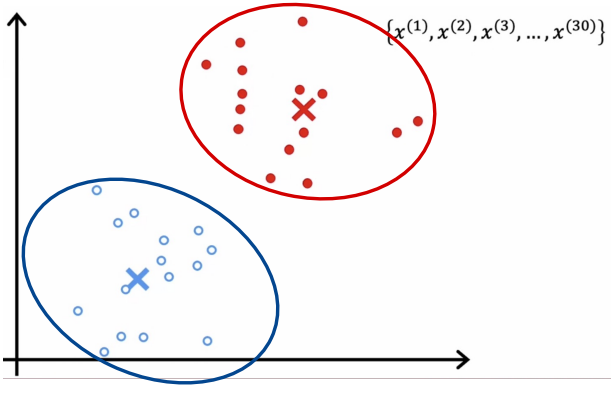
we recompute the centroid



Step 2 is performed again and centroid is readjusted

We go back to step 1 and assign the points to the closest centroid.

As it turns out, if we keep on repeating the process we will get to a point where the centroid can no longer be readjusted and stays the same.



$\Rightarrow$ Basically, step 1 $\longrightarrow$ step 2

in a loop until no change