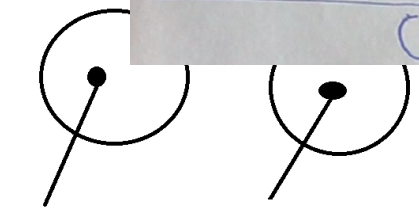
Q) Use K-means Clustering Algorithm to divide the following data into two clusters

	X1	1	2	2	3	4	5
	X2	1	1	3	2	3	5

SOLUTION:

Step-1) we consider first two data points of our data and assign them as a centroid for each cluster as shown below.Choose randomnly two cluster centers.

Euclidean Distance (ED): $\sqrt{(X_o - X_c)^2 + (Y_o - Y_c)^2}$



1- (2,1) 2-(2,3)

Step-2) Now we need to assign each and every data point of our data to one of these clusters based on Euclidean distance calculation.

Point	Distance from Centroid 1 (2,1)	Distance from Centroid 2 (2,3)	Assigned Cluster
a1 (1,1)	**1**		
a2 (2,1)	**0**		
a3 (2,3)	**2**		
a4 (3,2)	**1.4**		
a5(4,3)			
a6(5,5)			

Find distance from point

a1(1,1) and the first centroid (2,1)	1									
Find distance from point a1(2,3) and the first centroid (2,1)										
	2									
Find distance from point a1(3,2) and the first centroid (2,1)										
	1.414213562									