7. we have 5 instances with 2 class labels yes/no. To predict the class label for the instance {37, 50, 2}, the following steps are to be considered.

Step1: find the euclidean distance of the target instance to each datapoint in the dataset.

Age	Income	no. creditcards	class	Euclidean distance
35	35	3	NO	15.13
22	50	2	Yes	15
63	200	1	NO	152.2
59	170	1	NO	122
25	40	4	Yes	15.7

Euclidean distance b/w (37, 50, 2) and (35, 35, 3)

$$= \sqrt{(35-35)^2 + (50-35)^2 + (2-3)^2} = \sqrt{229} = 15.13$$

E.D b/w (37, 50, 2) and (22, 50, 2)

$$= \sqrt{(37-22)^2 + (50-50)^2 + (2-2)^2} = \sqrt{225} = 15$$

E.D b/w (37, 50, 2) and (63, 200, 1)

$$= \sqrt{(37-63)^2 + (50-200)^2 + (2-1)^2} = \sqrt{23,176}$$

$$= 152.2.$$

E.D b/w (37, 50, 2) and (59, 170, 1)

$$= \sqrt{(37-59)^2 + (50-170)^2 + (2-1)^2} = \sqrt{14,885}$$

$$= 122.$$

E.D. b/w (37, 50, 2) and (25, 40, 4)

$$= \sqrt{(37-25)^2 + (50-40)^2 + (2-4)^2} = \sqrt{248} = 15.7.$$

Step 2 : We Consider 3 points in the dataset nearest to Target Point.

Age	Income	No. CreditCards	class	ED	Rank
35	35	3	NO	15.13	2
22	50	2	Yes	15	1
63	200	1	NO	152.2	5
59	170	1	NO	122	4
25	40	4	Yes	15.7	3

Step 3 : Among these 3 points, the majority class label is Yes.

∴ for the instance X = {Age = 37, Income = 50, No credit Cards = 2} the predicted class label is Yes