Q5. Let our data instances be represented as ordered pairs of (age, loan). We now find the euclidean distance of (37, 142) to all points in our dataset.

		Rank
①	$\sqrt{(37-25)^2 + (142-40)^2} = 102.703$	9
②	$\sqrt{(37-35)^2 + (142-60)^2} = 82.024$	8
③	$\sqrt{(37-45)^2 + (142-80)^2} = 62.514$	5
④	$\sqrt{(37-20)^2 + (142-20)^2} = 123.128$	10
⑤	$\sqrt{(37-35)^2 + (142-120)^2} = 22.091$	2
⑥	$\sqrt{(37-52)^2 + (142-18)^2} = 124.904$	11
⑦	$\sqrt{(37-23)^2 + (142-95)^2} = 49.011$	4
⑧	$\sqrt{(37-40)^2 + (142-62)^2} = 80.056$	7
⑨	$\sqrt{(37-60)^2 + (142-100)^2} = 47.885$	3
⑩	$\sqrt{(37-48)^2 + (142-220)^2} = 78.772$	6
⑪	$\sqrt{(37-33)^2 + (142-150)^2} = 8.944$	1

- For k=1, the closest neighbour to (37,142) is (33,150). We can simply predict the features for (37,142) ⇒

  → Predicted BHK = 4

  → Predicted HPI = 264

- For k=2, the 2 closest neighbours are (33,150) and (35,120). As both of them have BHK = 4,

  → Predicted BHK = 4

  As for the predicted HPI, we take the average of 2 HPIs

  → Predicted HPI = $\frac{264+139}{2}$ = 201.5

- For k=3, the 3 closest neighbours are (33,150), (35,120), and (60,100). As the most common BHK among these three points is 4, we choose that as the predicted BHK.

  → Predicted BHK = 4

  As for the predicted HPI, we'll take the average of 3 HPIs

  → Predicted HPI = $\frac{264+139+139}{3}$

  = 180.667