Part 1: k-Nearest-Neighbour Classifier

n_neighbors=3
[0 1 1 1 2 0 2]
n_neighbors=7
[0 1 1 2 2 0 2]

Part 2: Discriminant Functions

b^t_k = [1, 9, 0, 5, 6, 6]

x^t	y^t
(0, 2)	(1, 0, 2)
(1, 2)	(1, 1, 2)
(2, 1)	(1, 2, 1)
(-3, 1)	(-1, 3, -1)
(-2, -1)	(-1, 2, 1)
(-3, -2)	(-1, 3, 2)

	a^t	y^t_k	$a^t y_k$	$a^t_{new} = a^t + 0.1(b_k - a^t y_k)\, y^t_k$
1	[1, 0, 0]	[1, 0, 2]	1	[1, 0, 0] + 0.1(1-1) [1, 0, 2] = [1, 0, 0]
2	[1, 0, 0]	[1, 1, 2]	1	[1, 0, 0] + 0.1(9-1) [1, 1, 2] = [1.8, 0.8, 1.6]
3	[1.8, 0.8, 1.6]	[1, 2, 1]	5	[1.8, 0.8, 1.6] + 0.1(0-5) [1, 2, 1] = [1.3, -0.2, 1.1]
4	[1.3, -0.2, 1.1]	[-1, 3, -1]	-3	[1.3, -0.2, 1.1] + 0.1(5+3) [-1, 3, -1] = [0.5, 2.2, 0.3]
5	[0.5, 2.2, 0.3]	[-1, 2, 1]	4.2	[0.5, 2.2, 0.3]+ 0.1(6-4.2) [-1, 2, 1] = [0.32, 2.56, 0.48]
6	[0.32, 2.56, 0.48]	[-1, 3, 2]	8.32	[0.32, 2.56, 0.48] + 0.1(6-8.32) [-1, 3, 2] = [0.552, 1.864, 0.016]
7	[0.552, 1.864, 0.016]	[1, 0, 2]	0.584	[0.552, 1.864, 0.016] + 0.1(1-0.584) [1, 0, 2] = [0.5936, 1.864, 0.016]
8	[0.5936, 1.864, 0.016]	[1, 1, 2]	2.656	[0.5936, 1.864, 0.016] + 0.1(9-2.656) [1, 1, 2] = [1.228, 2.4984, 1.368]
9	[1.228, 2.4984, 1.368]	[1, 2, 1]	7.5928	[1.228, 2.4984, 1.368] + 0.1(0-7.5928) [1, 2, 1] = [0.4687, 0.9798, 0.6087]
10	[0.4687, 0.9798, 0.6087]	[-1, 3, -1]	1.86208	[0.4687, 0.9798, 0.6087]+ 0.1(5-1.86208) [-1, 3, -1] = [0.1549, 1.9212, 0.2949]
11	[0.1549, 1.9212, 0.2949]	[-1, 2, 1]	3.982432	[0.1549, 1.9212, 0.2949] + 0.1(6-3.982432) [-1, 2, 1] = [-0.0468, 2.3247, 0.4967]
12	[-0.0468, 2.3247, 0.4967]	[-1, 3, 2]	8.014387	[0.7764, 2.63368, 0.30696] + 0.1(6-8.014387) [-1, 3, 2] = [0.1546, 1.7204, 0.0938]

Part 3: Neural Networks

(a) Sequential Delta Learning Algorithm, w <- w + learning_rate*(t-y)x^t

Given -sida=0, w1=-5, w2=6, H(0)=0.5

x^t	t	x
(0, 2)	1	(1, 0, 2)
(1, 2)	1	(1, 1, 2)
(2, 1)	1	(1, 2, 1)
(-3, 1)	0	(1, -3, 1)
(-2, -1)	0	(1, -2, -1)
(-3, -2)	0	(1, -3, -2)

w_0 = [-sida, w1, w2] = [0, -5, 6]

index	w	x	y = H(wx)	t	$w_{new} = w + 1*(t-y)x^t$
1	[0, -5, 6]	[1, 0, 2]	H(12) = 1	1	[0, -5, 6]
2	[0, -5, 6]	[1, 1, 2]	H(7) = 1	1	[0, -5, 6]
3	[0, -5, 6]	[1, 2, 1]	H(-4) = 0	1	[0, -5, 6] + (1-0)*[1, 2, 1] = [1, -3, 7]
4	[1, -3, 7]	[1, -3, 1]	H(17) = 1	0	[1, -3, 7] + (0-1)*[1, -3, 1] = [0, 0, 6]
5	[0, 0, 6]	[1, -2, -1]	H(-6) = 0	0	[0, 0, 6]
6	[0, 0, 6]	[1, -3, -2]	H(-12) = 0	0	[0, 0, 6]
7	[0, 0, 6]	[1, 0, 2]	H(12) = 1	1	[0, 0, 6]
8	[0, 0, 6]	[1, 1, 2]	H(12) = 1	1	[0, 0, 6]
9	[0, 0, 6]	[1, 2, 1]	H(6) = 1	1	[0, 0, 6]
10	[0, 0, 6]	[1, -3, 1]	H(6) = 1	0	[0, 0, 6] + (0-1)*[1, -3, 1] = [-1, 3, 5]
11	[-1, 3, 5]	[1, -2, -1]	H(-12) = 0	0	[-1, 3, 5]
12	[-1, 3, 5]	[1, -3, -2]	H(-20) = 0	0	[-1, 3, 5]
13	[-1, 3, 5]	[1, 0, 2]	H(9) = 1	1	[-1, 3, 5]
14	[-1, 3, 5]	[1, 1, 2]	H(12) = 1	1	[-1, 3, 5]
15	[-1, 3, 5]	[1, 2, 1]	H(10) = 1	1	[-1, 3, 5]
16	[-1, 3, 5]	[1, -3, 1]	H(-5) = 0	0	[-1, 3, 5]

(b)

index	w	x	y	t	$w_{new} = w + 1*(t-y)x^t$
1	[0.0, -5.0, 6.0, -6.0, 7.0]	[1.0, 5.1, 3.5, 1.4, 0.2]	0	1	[0.1, -4.49, 6.35, -5.86, 7.02]
2	[0.1, -4.49, 6.35, -5.86, 7.02]	[1.0, 4.9, 3.0, 1.4, 0.2]	0	1	[0.2, -4.0, 6.65, -5.72, 7.04]
3	[0.2, -4.0, 6.65, -5.72, 7.04]	[1.0, 4.7, 3.2, 1.3, 0.2]	0	1	[0.3, -3.53, 6.97, -5.59, 7.06]
4	[0.3, -3.53, 6.97, -5.59, 7.06]	[1.0, 4.6, 3.1, 1.5, 0.2]	0	1	[0.4, -3.07, 7.28, -5.44, 7.08]
5	[0.4, -3.07, 7.28, -5.44, 7.08]	[1.0, 5.0, 3.6, 1.4, 0.2]	1	1	[0.4, -3.07, 7.28, -5.44, 7.08]
6	[0.4, -3.07, 7.28, -5.44, 7.08]	[1.0, 5.4, 3.9, 1.7, 0.4]	1	1	[0.4, -3.07, 7.28, -5.44, 7.08]
7	[0.4, -3.07, 7.28, -5.44, 7.08]	[1.0, 4.6, 3.4, 1.4, 0.3]	1	1	[0.4, -3.07, 7.28, -5.44, 7.08]
8	[0.4, -3.07, 7.28, -5.44, 7.08]	[1.0, 5.0, 3.4, 1.5, 0.2]	1	1	[0.4, -3.07, 7.28, -5.44, 7.08]
9	[0.4, -3.07, 7.28, -5.44, 7.08]	[1.0, 4.4, 2.9, 1.4, 0.2]	1	1	[0.4, -3.07, 7.28, -5.44, 7.08]
10	[0.4, -3.07, 7.28, -5.44, 7.08]	[1.0, 4.9, 3.1, 1.5, 0.1]	1	1	[0.4, -3.07, 7.28, -5.44, 7.08]
11	[0.4, -3.07, 7.28, -5.44, 7.08]	[1.0, 5.4, 3.7, 1.5, 0.2]	1	1	[0.4, -3.07, 7.28, -5.44, 7.08]
12	[0.4, -3.07, 7.28, -5.44, 7.08]	[1.0, 4.8, 3.4, 1.6, 0.2]	1	1	[0.4, -3.07, 7.28, -5.44, 7.08]

13	[0.4, -3.07, 7.28, -5.44, 7.08]	[1.0, 4.8, 3.0, 1.4, 0.1]	1	1	[0.4, -3.07, 7.28, -5.44, 7.08]
14	[0.4, -3.07, 7.28, -5.44, 7.08]	[1.0, 4.3, 3.0, 1.1, 0.1]	1	1	[0.4, -3.07, 7.28, -5.44, 7.08]
15	[0.4, -3.07, 7.28, -5.44, 7.08]	[1.0, 5.8, 4.0, 1.2, 0.2]	1	1	[0.4, -3.07, 7.28, -5.44, 7.08]
16	[0.4, -3.07, 7.28, -5.44, 7.08]	[1.0, 5.7, 4.4, 1.5, 0.4]	1	1	[0.4, -3.07, 7.28, -5.44, 7.08]
17	[0.4, -3.07, 7.28, -5.44, 7.08]	[1.0, 5.4, 3.9, 1.3, 0.4]	1	1	[0.4, -3.07, 7.28, -5.44, 7.08]
18	[0.4, -3.07, 7.28, -5.44, 7.08]	[1.0, 5.1, 3.5, 1.4, 0.3]	1	1	[0.4, -3.07, 7.28, -5.44, 7.08]
19	[0.4, -3.07, 7.28, -5.44, 7.08]	[1.0, 5.7, 3.8, 1.7, 0.3]	1	1	[0.4, -3.07, 7.28, -5.44, 7.08]
20	[0.4, -3.07, 7.28, -5.44, 7.08]	[1.0, 5.1, 3.8, 1.5, 0.3]	1	1	[0.4, -3.07, 7.28, -5.44, 7.08]
21	[0.4, -3.07, 7.28, -5.44, 7.08]	[1.0, 5.4, 3.4, 1.7, 0.2]	1	1	[0.4, -3.07, 7.28, -5.44, 7.08]
22	[0.4, -3.07, 7.28, -5.44, 7.08]	[1.0, 5.1, 3.7, 1.5, 0.4]	1	1	[0.4, -3.07, 7.28, -5.44, 7.08]
23	[0.4, -3.07, 7.28, -5.44, 7.08]	[1.0, 4.6, 3.6, 1.0, 0.2]	1	1	[0.4, -3.07, 7.28, -5.44, 7.08]
24	[0.4, -3.07, 7.28, -5.44, 7.08]	[1.0, 5.1, 3.3, 1.7, 0.5]	1	1	[0.4, -3.07, 7.28, -5.44, 7.08]
25	[0.4, -3.07, 7.28, -5.44, 7.08]	[1.0, 4.8, 3.4, 1.9, 0.2]	1	1	[0.4, -3.07, 7.28, -5.44, 7.08]
26	[0.4, -3.07, 7.28, -5.44, 7.08]	[1.0, 5.0, 3.0, 1.6, 0.2]	0	1	[0.5, -2.57, 7.58, -5.28, 7.1]
27	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 5.0, 3.4, 1.6, 0.4]	1	1	[0.5, -2.57, 7.58, -5.28, 7.1]
28	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 5.2, 3.5, 1.5, 0.2]	1	1	[0.5, -2.57, 7.58, -5.28, 7.1]
29	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 5.2, 3.4, 1.4, 0.2]	1	1	[0.5, -2.57, 7.58, -5.28, 7.1]
30	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 4.7, 3.2, 1.6, 0.2]	1	1	[0.5, -2.57, 7.58, -5.28, 7.1]
31	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 4.8, 3.1, 1.6, 0.2]	1	1	[0.5, -2.57, 7.58, -5.28, 7.1]
32	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 5.4, 3.4, 1.5, 0.4]	1	1	[0.5, -2.57, 7.58, -5.28, 7.1]
33	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 5.2, 4.1, 1.5, 0.1]	1	1	[0.5, -2.57, 7.58, -5.28, 7.1]
34	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 5.5, 4.2, 1.4, 0.2]	1	1	[0.5, -2.57, 7.58, -5.28, 7.1]
35	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 4.9, 3.1, 1.5, 0.2]	1	1	[0.5, -2.57, 7.58, -5.28, 7.1]
36	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 5.0, 3.2, 1.2, 0.2]	1	1	[0.5, -2.57, 7.58, -5.28, 7.1]
37	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 5.5, 3.5, 1.3, 0.2]	1	1	[0.5, -2.57, 7.58, -5.28, 7.1]
38	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 4.9, 3.6, 1.4, 0.1]	1	1	[0.5, -2.57, 7.58, -5.28, 7.1]
39	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 4.4, 3.0, 1.3, 0.2]	1	1	[0.5, -2.57, 7.58, -5.28, 7.1]
40	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 5.1, 3.4, 1.5, 0.2]	1	1	[0.5, -2.57, 7.58, -5.28, 7.1]
41	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 5.0, 3.5, 1.3, 0.3]	1	1	[0.5, -2.57, 7.58, -5.28, 7.1]
42	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 4.5, 2.3, 1.3, 0.3]	1	1	[0.5, -2.57, 7.58, -5.28, 7.1]
43	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 4.4, 3.2, 1.3, 0.2]	1	1	[0.5, -2.57, 7.58, -5.28, 7.1]
44	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 5.0, 3.5, 1.6, 0.6]	1	1	[0.5, -2.57, 7.58, -5.28, 7.1]
45	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 5.1, 3.8, 1.9, 0.4]	1	1	[0.5, -2.57, 7.58, -5.28, 7.1]
46	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 4.8, 3.0, 1.4, 0.3]	1	1	[0.5, -2.57, 7.58, -5.28, 7.1]
47	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 5.1, 3.8, 1.6, 0.2]	1	1	[0.5, -2.57, 7.58, -5.28, 7.1]
48	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 4.6, 3.2, 1.4, 0.2]	1	1	[0.5, -2.57, 7.58, -5.28, 7.1]
49	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 5.3, 3.7, 1.5, 0.2]	1	1	[0.5, -2.57, 7.58, -5.28, 7.1]
50	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 5.0, 3.3, 1.4, 0.2]	1	1	[0.5, -2.57, 7.58, -5.28, 7.1]
51	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 7.0, 3.2, 4.7, 1.4]	0	0	[0.5, -2.57, 7.58, -5.28, 7.1]
52	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 6.4, 3.2, 4.5, 1.5]	0	0	[0.5, -2.57, 7.58, -5.28, 7.1]
53	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 6.9, 3.1, 4.9, 1.5]	0	0	[0.5, -2.57, 7.58, -5.28, 7.1]

54	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 5.5, 2.3, 4.0, 1.3]	0	0	[0.5, -2.57, 7.58, -5.28, 7.1]
55	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 6.5, 2.8, 4.6, 1.5]	0	0	[0.5, -2.57, 7.58, -5.28, 7.1]
56	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 5.7, 2.8, 4.5, 1.3]	0	0	[0.5, -2.57, 7.58, -5.28, 7.1]
57	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 6.3, 3.3, 4.7, 1.6]	0	0	[0.5, -2.57, 7.58, -5.28, 7.1]
58	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 4.9, 2.4, 3.3, 1.0]	0	0	[0.5, -2.57, 7.58, -5.28, 7.1]
59	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 6.6, 2.9, 4.6, 1.3]	0	0	[0.5, -2.57, 7.58, -5.28, 7.1]
60	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 5.2, 2.7, 3.9, 1.4]	0	0	[0.5, -2.57, 7.58, -5.28, 7.1]
61	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 5.0, 2.0, 3.5, 1.0]	0	0	[0.5, -2.57, 7.58, -5.28, 7.1]
62	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 5.9, 3.0, 4.2, 1.5]	0	0	[0.5, -2.57, 7.58, -5.28, 7.1]
63	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 6.0, 2.2, 4.0, 1.0]	0	0	[0.5, -2.57, 7.58, -5.28, 7.1]
64	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 6.1, 2.9, 4.7, 1.4]	0	0	[0.5, -2.57, 7.58, -5.28, 7.1]
65	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 5.6, 2.9, 3.6, 1.3]	0	0	[0.5, -2.57, 7.58, -5.28, 7.1]
66	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 6.7, 3.1, 4.4, 1.4]	0	0	[0.5, -2.57, 7.58, -5.28, 7.1]
67	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 5.6, 3.0, 4.5, 1.5]	0	0	[0.5, -2.57, 7.58, -5.28, 7.1]
68	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 5.8, 2.7, 4.1, 1.0]	0	0	[0.5, -2.57, 7.58, -5.28, 7.1]
69	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 6.2, 2.2, 4.5, 1.5]	0	0	[0.5, -2.57, 7.58, -5.28, 7.1]
70	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 5.6, 2.5, 3.9, 1.1]	0	0	[0.5, -2.57, 7.58, -5.28, 7.1]
71	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 5.9, 3.2, 4.8, 1.8]	0	0	[0.5, -2.57, 7.58, -5.28, 7.1]
72	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 6.1, 2.8, 4.0, 1.3]	0	0	[0.5, -2.57, 7.58, -5.28, 7.1]
73	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 6.3, 2.5, 4.9, 1.5]	0	0	[0.5, -2.57, 7.58, -5.28, 7.1]
74	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 6.1, 2.8, 4.7, 1.2]	0	0	[0.5, -2.57, 7.58, -5.28, 7.1]
75	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 6.4, 2.9, 4.3, 1.3]	0	0	[0.5, -2.57, 7.58, -5.28, 7.1]
76	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 6.6, 3.0, 4.4, 1.4]	0	0	[0.5, -2.57, 7.58, -5.28, 7.1]
77	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 6.8, 2.8, 4.8, 1.4]	0	0	[0.5, -2.57, 7.58, -5.28, 7.1]
78	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 6.7, 3.0, 5.0, 1.7]	0	0	[0.5, -2.57, 7.58, -5.28, 7.1]
79	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 6.0, 2.9, 4.5, 1.5]	0	0	[0.5, -2.57, 7.58, -5.28, 7.1]
80	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 5.7, 2.6, 3.5, 1.0]	0	0	[0.5, -2.57, 7.58, -5.28, 7.1]
81	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 5.5, 2.4, 3.8, 1.1]	0	0	[0.5, -2.57, 7.58, -5.28, 7.1]
82	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 5.5, 2.4, 3.7, 1.0]	0	0	[0.5, -2.57, 7.58, -5.28, 7.1]
83	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 5.8, 2.7, 3.9, 1.2]	0	0	[0.5, -2.57, 7.58, -5.28, 7.1]
84	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 6.0, 2.7, 5.1, 1.6]	0	0	[0.5, -2.57, 7.58, -5.28, 7.1]
85	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 5.4, 3.0, 4.5, 1.5]	0	0	[0.5, -2.57, 7.58, -5.28, 7.1]
86	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 6.0, 3.4, 4.5, 1.6]	0	0	[0.5, -2.57, 7.58, -5.28, 7.1]
87	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 6.7, 3.1, 4.7, 1.5]	0	0	[0.5, -2.57, 7.58, -5.28, 7.1]
88	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 6.3, 2.3, 4.4, 1.3]	0	0	[0.5, -2.57, 7.58, -5.28, 7.1]
89	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 5.6, 3.0, 4.1, 1.3]	0	0	[0.5, -2.57, 7.58, -5.28, 7.1]
90	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 5.5, 2.5, 4.0, 1.3]	0	0	[0.5, -2.57, 7.58, -5.28, 7.1]
91	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 5.5, 2.6, 4.4, 1.2]	0	0	[0.5, -2.57, 7.58, -5.28, 7.1]
92	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 6.1, 3.0, 4.6, 1.4]	0	0	[0.5, -2.57, 7.58, -5.28, 7.1]
93	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 5.8, 2.6, 4.0, 1.2]	0	0	[0.5, -2.57, 7.58, -5.28, 7.1]
94	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 5.0, 2.3, 3.3, 1.0]	0	0	[0.5, -2.57, 7.58, -5.28, 7.1]

95	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 5.6, 2.7, 4.2, 1.3]	0	0	[0.5, -2.57, 7.58, -5.28, 7.1]
96	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 5.7, 3.0, 4.2, 1.2]	0	0	[0.5, -2.57, 7.58, -5.28, 7.1]
97	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 5.7, 2.9, 4.2, 1.3]	0	0	[0.5, -2.57, 7.58, -5.28, 7.1]
98	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 6.2, 2.9, 4.3, 1.3]	0	0	[0.5, -2.57, 7.58, -5.28, 7.1]
99	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 5.1, 2.5, 3.0, 1.1]	0	0	[0.5, -2.57, 7.58, -5.28, 7.1]
100	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 5.7, 2.8, 4.1, 1.3]	0	0	[0.5, -2.57, 7.58, -5.28, 7.1]
101	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 6.3, 3.3, 6.0, 2.5]	0	0	[0.5, -2.57, 7.58, -5.28, 7.1]
102	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 5.8, 2.7, 5.1, 1.9]	0	0	[0.5, -2.57, 7.58, -5.28, 7.1]
103	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 7.1, 3.0, 5.9, 2.1]	0	0	[0.5, -2.57, 7.58, -5.28, 7.1]
104	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 6.3, 2.9, 5.6, 1.8]	0	0	[0.5, -2.57, 7.58, -5.28, 7.1]
105	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 6.5, 3.0, 5.8, 2.2]	0	0	[0.5, -2.57, 7.58, -5.28, 7.1]
106	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 7.6, 3.0, 6.6, 2.1]	0	0	[0.5, -2.57, 7.58, -5.28, 7.1]
107	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 4.9, 2.5, 4.5, 1.7]	0	0	[0.5, -2.57, 7.58, -5.28, 7.1]
108	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 7.3, 2.9, 6.3, 1.8]	0	0	[0.5, -2.57, 7.58, -5.28, 7.1]
109	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 6.7, 2.5, 5.8, 1.8]	0	0	[0.5, -2.57, 7.58, -5.28, 7.1]
110	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 7.2, 3.6, 6.1, 2.5]	0	0	[0.5, -2.57, 7.58, -5.28, 7.1]
111	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 6.5, 3.2, 5.1, 2.0]	0	0	[0.5, -2.57, 7.58, -5.28, 7.1]
112	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 6.4, 2.7, 5.3, 1.9]	0	0	[0.5, -2.57, 7.58, -5.28, 7.1]
113	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 6.8, 3.0, 5.5, 2.1]	0	0	[0.5, -2.57, 7.58, -5.28, 7.1]
114	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 5.7, 2.5, 5.0, 2.0]	0	0	[0.5, -2.57, 7.58, -5.28, 7.1]
115	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 5.8, 2.8, 5.1, 2.4]	0	0	[0.5, -2.57, 7.58, -5.28, 7.1]
116	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 6.4, 3.2, 5.3, 2.3]	0	0	[0.5, -2.57, 7.58, -5.28, 7.1]
117	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 6.5, 3.0, 5.5, 1.8]	0	0	[0.5, -2.57, 7.58, -5.28, 7.1]
118	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 7.7, 3.8, 6.7, 2.2]	0	0	[0.5, -2.57, 7.58, -5.28, 7.1]
119	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 7.7, 2.6, 6.9, 2.3]	0	0	[0.5, -2.57, 7.58, -5.28, 7.1]
120	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 6.0, 2.2, 5.0, 1.5]	0	0	[0.5, -2.57, 7.58, -5.28, 7.1]
121	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 6.9, 3.2, 5.7, 2.3]	0	0	[0.5, -2.57, 7.58, -5.28, 7.1]
122	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 5.6, 2.8, 4.9, 2.0]	0	0	[0.5, -2.57, 7.58, -5.28, 7.1]
123	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 7.7, 2.8, 6.7, 2.0]	0	0	[0.5, -2.57, 7.58, -5.28, 7.1]
124	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 6.3, 2.7, 4.9, 1.8]	0	0	[0.5, -2.57, 7.58, -5.28, 7.1]
125	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 6.7, 3.3, 5.7, 2.1]	0	0	[0.5, -2.57, 7.58, -5.28, 7.1]
126	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 7.2, 3.2, 6.0, 1.8]	0	0	[0.5, -2.57, 7.58, -5.28, 7.1]
127	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 6.2, 2.8, 4.8, 1.8]	0	0	[0.5, -2.57, 7.58, -5.28, 7.1]
128	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 6.1, 3.0, 4.9, 1.8]	0	0	[0.5, -2.57, 7.58, -5.28, 7.1]
129	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 6.4, 2.8, 5.6, 2.1]	0	0	[0.5, -2.57, 7.58, -5.28, 7.1]
130	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 7.2, 3.0, 5.8, 1.6]	0	0	[0.5, -2.57, 7.58, -5.28, 7.1]
131	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 7.4, 2.8, 6.1, 1.9]	0	0	[0.5, -2.57, 7.58, -5.28, 7.1]
132	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 7.9, 3.8, 6.4, 2.0]	0	0	[0.5, -2.57, 7.58, -5.28, 7.1]
133	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 6.4, 2.8, 5.6, 2.2]	0	0	[0.5, -2.57, 7.58, -5.28, 7.1]
134	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 6.3, 2.8, 5.1, 1.5]	0	0	[0.5, -2.57, 7.58, -5.28, 7.1]
135	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 6.1, 2.6, 5.6, 1.4]	0	0	[0.5, -2.57, 7.58, -5.28, 7.1]

136	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 7.7, 3.0, 6.1, 2.3]	0	0	[0.5, -2.57, 7.58, -5.28, 7.1]
137	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 6.3, 3.4, 5.6, 2.4]	0	0	[0.5, -2.57, 7.58, -5.28, 7.1]
138	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 6.4, 3.1, 5.5, 1.8]	0	0	[0.5, -2.57, 7.58, -5.28, 7.1]
139	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 6.0, 3.0, 4.8, 1.8]	0	0	[0.5, -2.57, 7.58, -5.28, 7.1]
140	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 6.9, 3.1, 5.4, 2.1]	0	0	[0.5, -2.57, 7.58, -5.28, 7.1]
141	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 6.7, 3.1, 5.6, 2.4]	0	0	[0.5, -2.57, 7.58, -5.28, 7.1]
142	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 6.9, 3.1, 5.1, 2.3]	0	0	[0.5, -2.57, 7.58, -5.28, 7.1]
143	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 5.8, 2.7, 5.1, 1.9]	0	0	[0.5, -2.57, 7.58, -5.28, 7.1]
144	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 6.8, 3.2, 5.9, 2.3]	0	0	[0.5, -2.57, 7.58, -5.28, 7.1]
145	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 6.7, 3.3, 5.7, 2.5]	0	0	[0.5, -2.57, 7.58, -5.28, 7.1]
146	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 6.7, 3.0, 5.2, 2.3]	0	0	[0.5, -2.57, 7.58, -5.28, 7.1]
147	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 6.3, 2.5, 5.0, 1.9]	0	0	[0.5, -2.57, 7.58, -5.28, 7.1]
148	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 6.5, 3.0, 5.2, 2.0]	0	0	[0.5, -2.57, 7.58, -5.28, 7.1]
149	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 6.2, 3.4, 5.4, 2.3]	0	0	[0.5, -2.57, 7.58, -5.28, 7.1]
150	[0.5, -2.57, 7.58, -5.28, 7.1]	[1.0, 5.9, 3.0, 5.1, 1.8]	0	0	[0.5, -2.57, 7.58, -5.28, 7.1]

Get w=[0.5, -2.57, 7.58, -5.28, 7.1]

(c) test Xtest

Given w=[0.5, -2.57, 7.58, -5.28, 7.1]

Xtest	H(wx)	y
[4.43478261, 4.25, 1, 1.25]	24.912608695652175	1
[7.91304348, 2, 4.33333333, 1.5]	-16.90652173913044	0
[4, 3.25, 5, 1.5]	-0.8950000000000014	0
[6.17391304, 3.5, 5, 1.75]	-2.811956521739134	0
[6.60869565, 3.5, 5.66666667, 0.25]	-18.09934782608696	0
[6.60869565, 3.75, 1.66666667, 2.25]	19.115652173913045	1
[7.04347826, 2.25, 7, 0]	-37.50673913043478	0