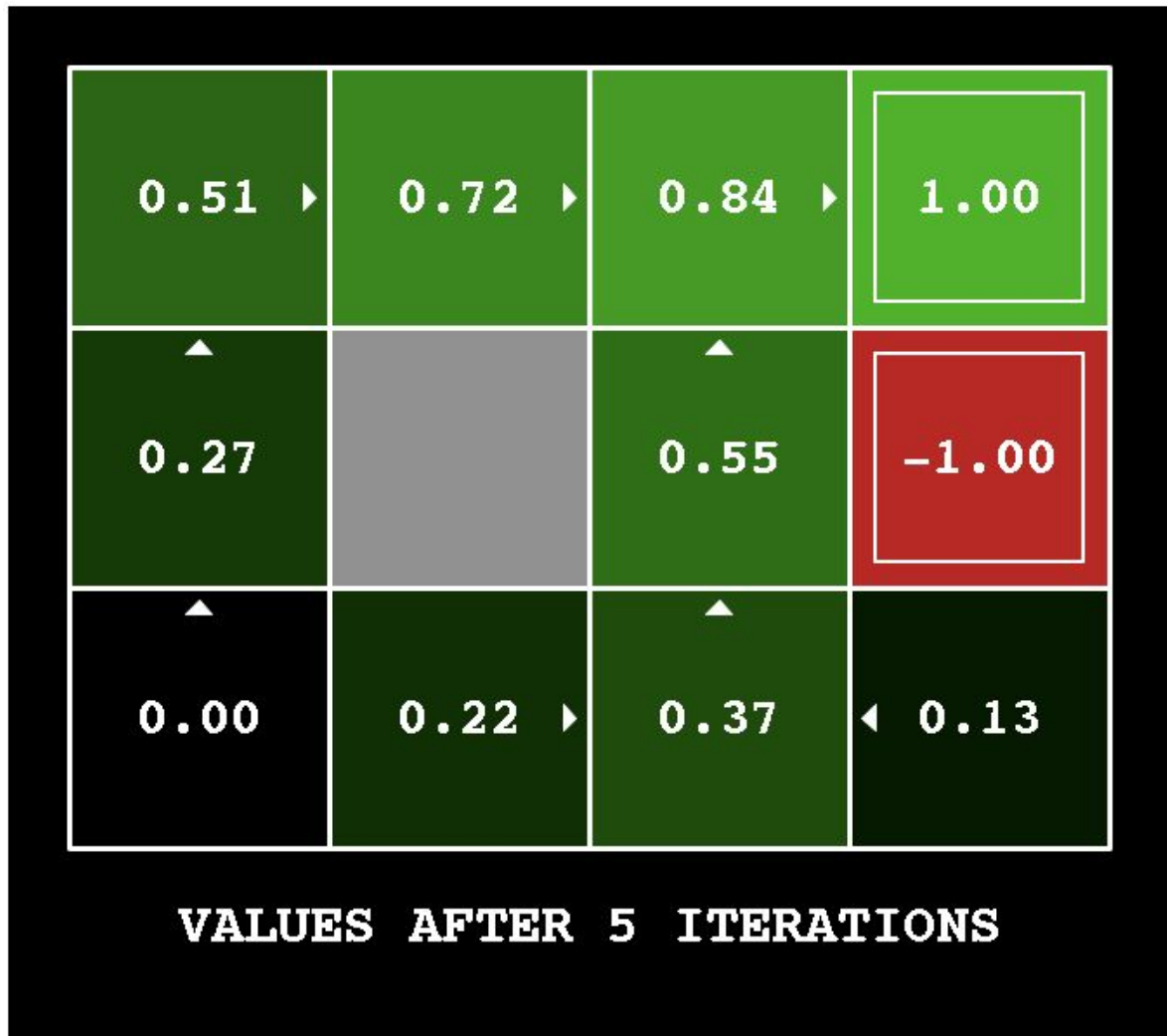


Assignment 5 Report

Ques 1



Ques 2





-discount 0.6 --noise 0.2



discount 0.9 noise 0.5



Discount 0.9 noise 0

BRIDGE CROSSED

Since we reduced the noise to zero, there is no unintended successor state, and thus bridge crossed..

Ques3

Discount - short term goals

LivingReward - penalty for moving

Noise - Randomness

- Prefer the close exit (+1), risking the cliff (-10)
 - Discount - 0.3 Noise - 0.0 LivingReward - 0

Decreasing the discount would do the trick, since the agent would then be focussed at the near profit goals.

- Prefer the close exit (+1), but avoiding the cliff (-10)
 - Discount - 0.3 Noise - 0.2 LivingReward - 0

Noise needs to be increased to let it move on the longer path otherwise it looks for the shorter one. And the lesser discount lets it look for short-term goal.

0.00 ▶	0.02 ▶	0.07 ▶	0.17 ▶	0.62 ▶
▲ 0.00		▼ 0.27	0.62 ▶	▼ 2.49
▲ 0.00		▼ 1.00		▼ 10.00
▲ 0.00	▲ 0.01	▲ 0.25	0.31 ▶	▲ 2.48
◻ -10.00	◻ -10.00	◻ -10.00	◻ -10.00	◻ -10.00

- Prefer the distant exit (+10), risking the cliff (-10)
 - Discount - 0.7 Noise - 0 LivingReward - 0.6

Discount increased to 0.6 for the agent to go to the distant cliff and noise to zero to get the shortest path.

2.94 ▶	3.34 ▶	3.92 ▶	4.74 ▶	5.92 ▶
▲ 2.66		▼ 4.74 ▶	▼ 5.92 ▶	▼ 7.60
▼ 2.94		◻ 1.00		◻ 10.00
3.34 ▶	3.92 ▶	4.74 ▶	5.92 ▶	▲ 7.60
◻ -10.00	◻ -10.00	◻ -10.00	◻ -10.00	◻ -10.00

- Prefer the distant exit (+10), avoiding the cliff (-10)
Discount - 0.7 Noise - 0.2 LivingReward - 0.6
Noise increases, chooses the longer path. Other parameters remain same.



- Avoid both exits and the cliff (so an episode should never terminate)
 - Discount - 1 Noise - 0.5 LivingReward - 0.6

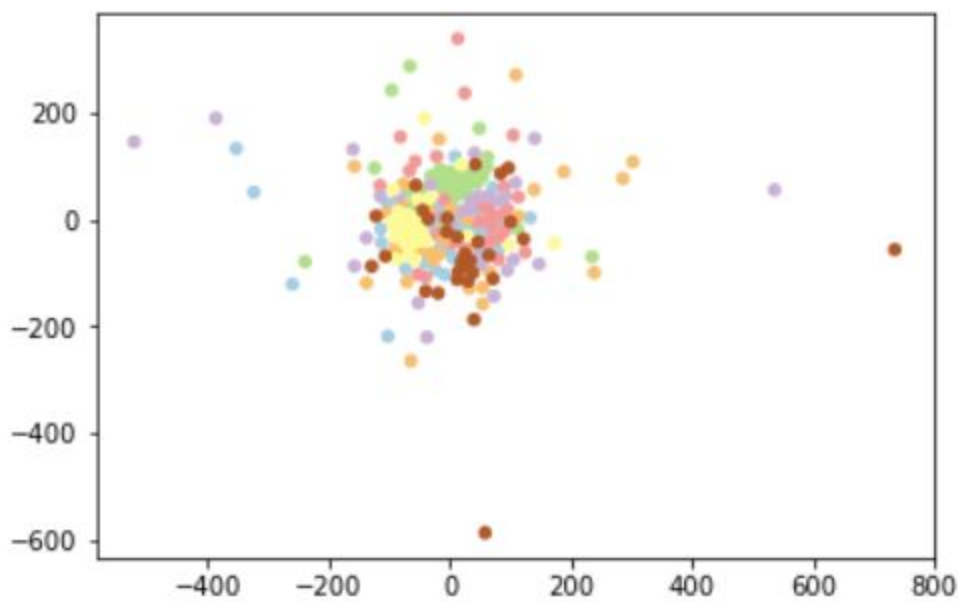
We increase the discount which means that it would tend to maximise the end profit goal and thus would continuously look for further possibilities and thus would never terminate.

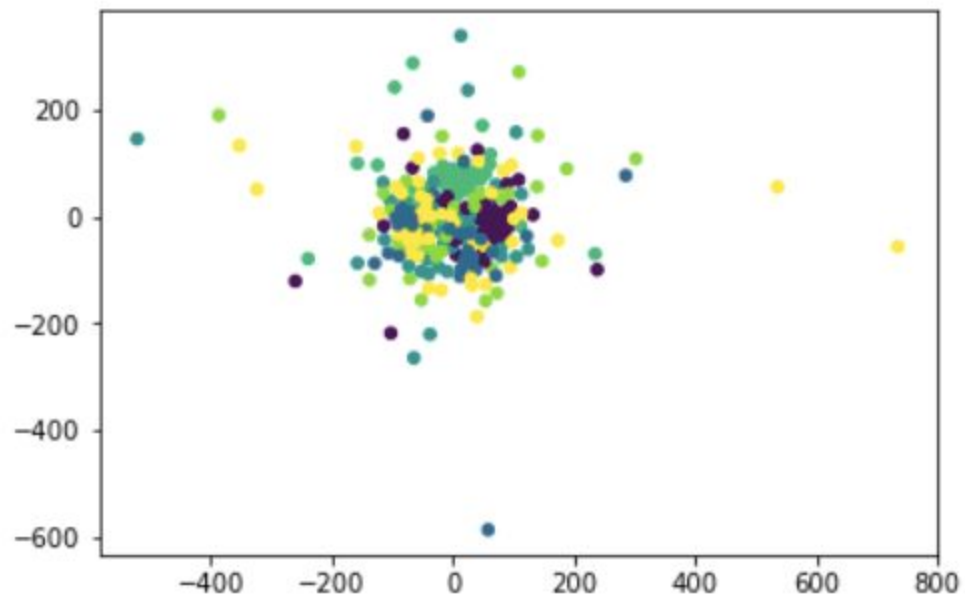


Ques 4

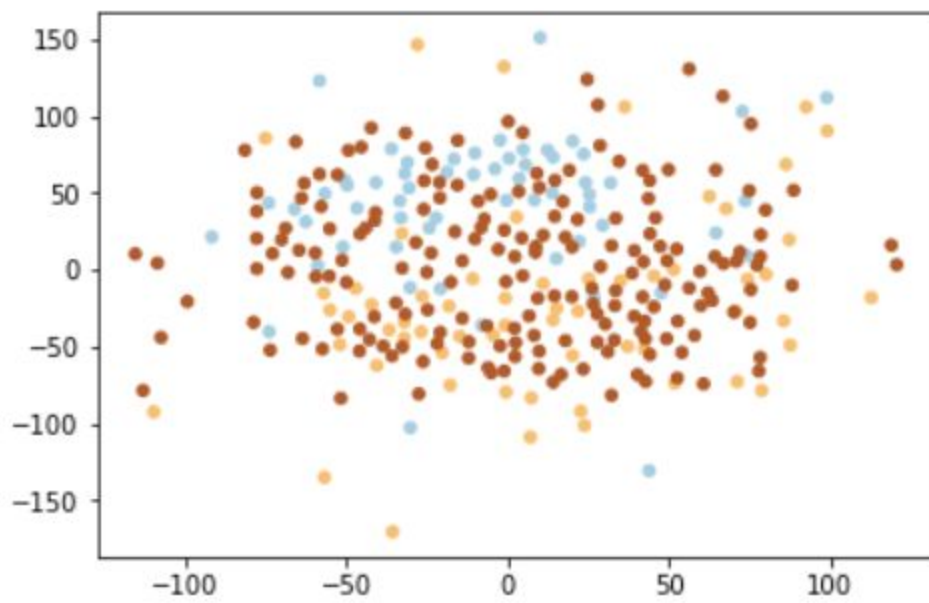
Data	K = 2			K = True Value(4,19,7,6)			K = 12		
	ARI	NMI	AMI	ARI	NMI	AMI	ARI	NMI	AMI
Iris	0.5350337	0.6769711	0.516455935	0.60487871	0.7022470	0.6299488	0.35620070	0.63777704	0.41622352
Segmentation	0.09988115	0.3953245	0.185801914	0.32547129	0.5875750	0.4504575	0.45426672	0.64055726	0.58377625
Seedset	0.47489308	0.5589868	0.434645455	0.49644039	0.6053413	0.45870128	0.37431647	0.56769944	0.38121580
Vertebral	0.07412026	0.1747529	0.142945742	0.06556762	0.1923027	0.13853659	0.04782654	0.20857260	0.11814382

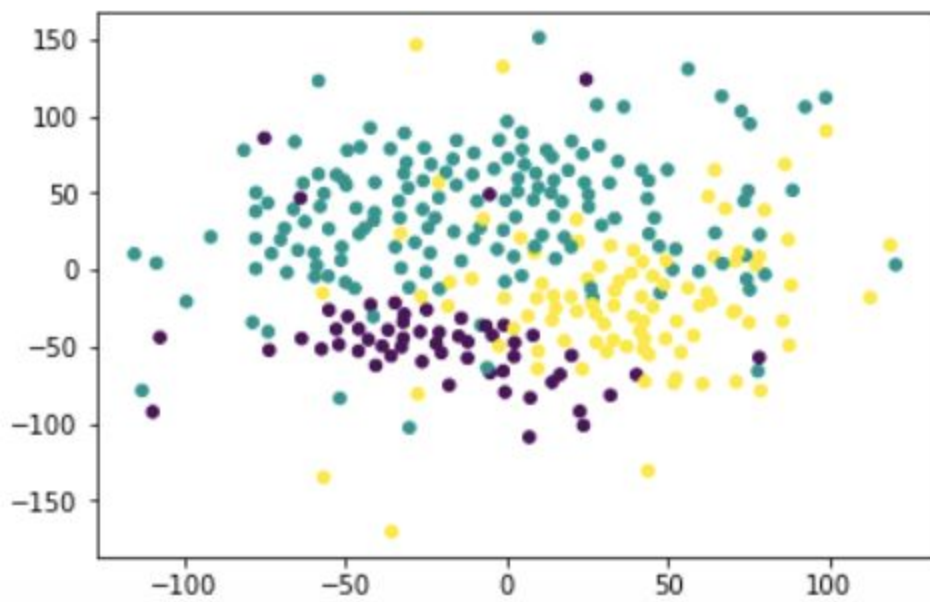
Segmentation



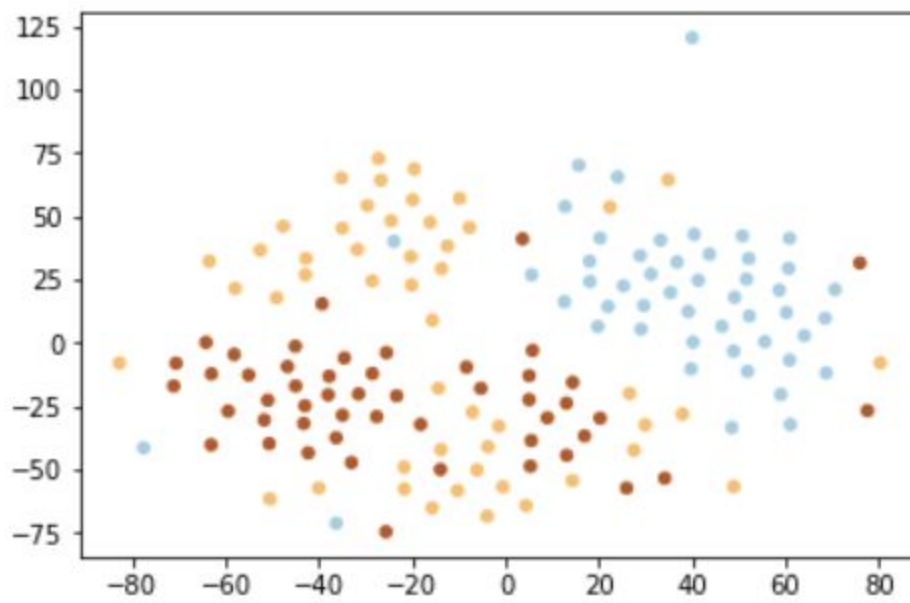


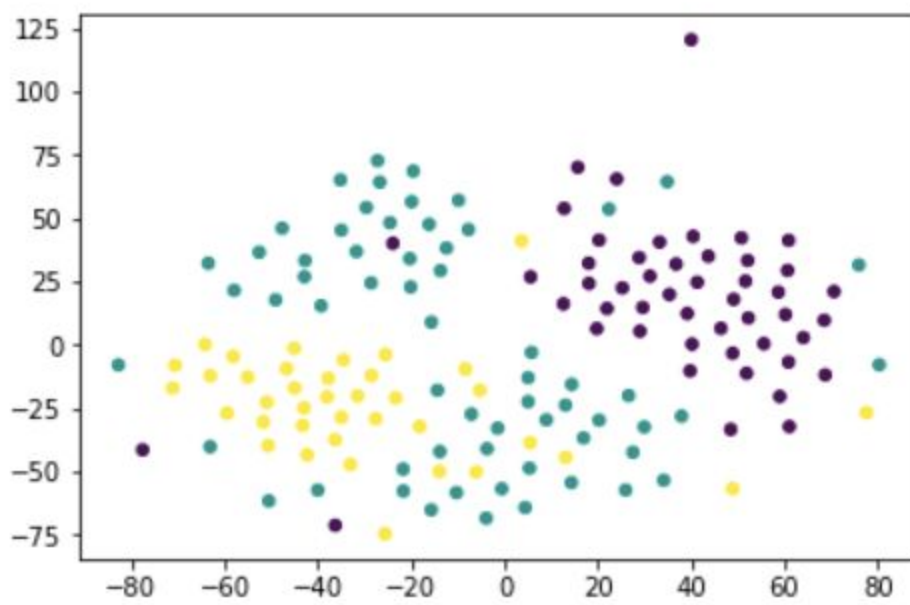
Vertebral



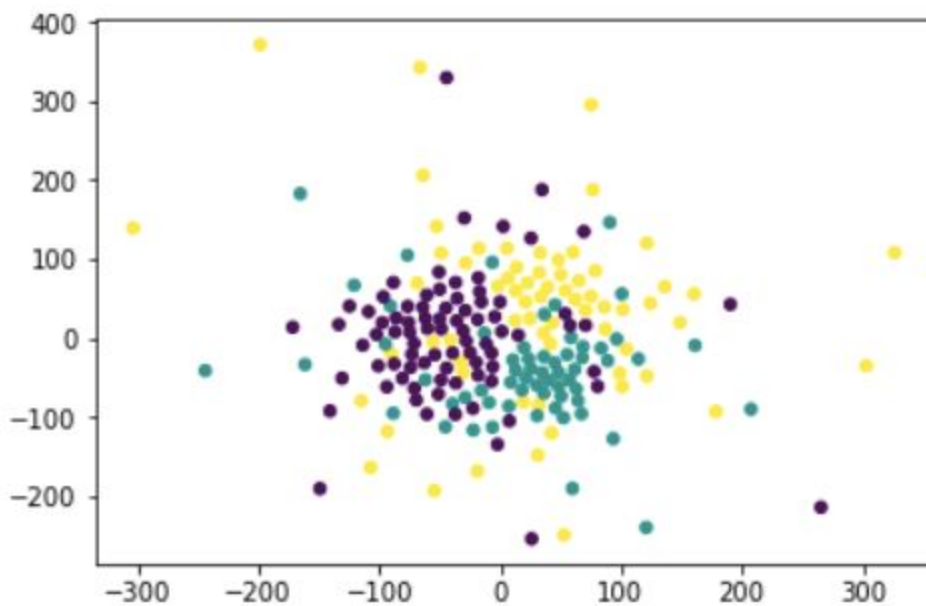
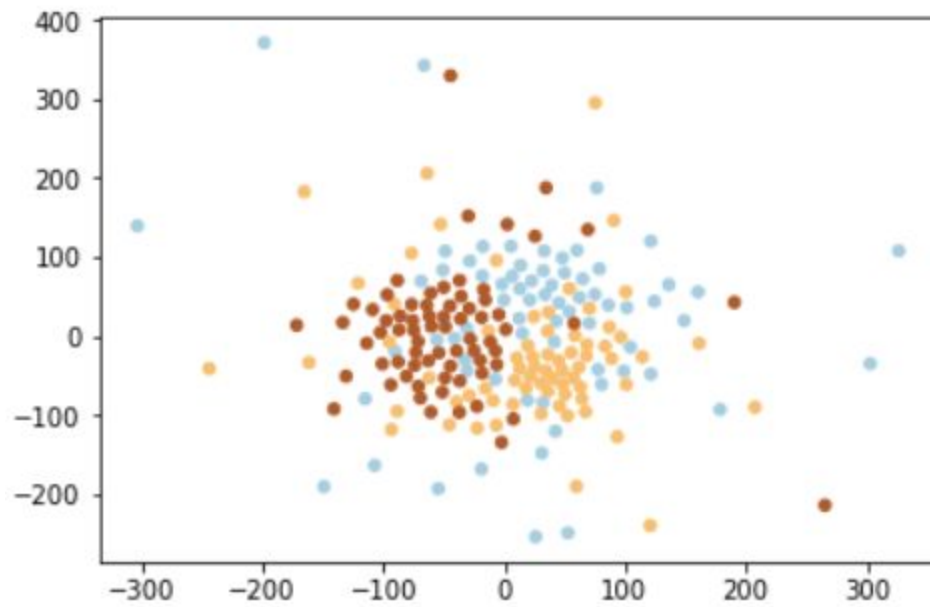


Iris Dataset





Seedset



Based on the given observations, we can say that the qualitative and quantitative are consistent since the plots where the clusters are clear and distinguishable, their values for Adjusted Random Scores, Normalized mutual Info, adjusted mutual info is also high.