**Students JHID : qgao6 llin34**

**Grader: Can Zhao**

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|  | Full points | Your points | Comments |
| 3.1.4 | 40 | 40 | Errors are all around 1E-7. Excellent! |
| 3.1.5 | 10 | 10 |  |
| 3.2.1 | 20 | 18.5 | Q4: (2) -0.5pt  Q5: (a) I tend to believe it might be a typo. You include Action\_5 in the final clique instead of Pos\_5. So only 1pt off. |
| 3.2.2 | 10 | 10 |  |
| 3.2.4 | 60 | 20 | Traceback (most recent call last):  File "bayes\_query\_sp.py", line 600, in <module>  bq.query(query)  File "bayes\_query\_sp.py", line 572, in query  root = self.initBU(que)  File "bayes\_query\_sp.py", line 486, in initBU  self.downwardPass(root)  File "bayes\_query\_sp.py", line 511, in downwardPass  parent.passMessage(child, self.evidence)  File "bayes\_query\_sp.py", line 271, in passMessage  edge.passMessage(self, targetCluster, msg)  File "bayes\_query\_sp.py", line 123, in passMessage  newMsg = self.divideMu(msg)  File "bayes\_query\_sp.py", line 136, in divideMu  newMsg[k] = msg[k] - self.mu[k] # TODO: only multiply those in msg?  KeyError: (('PositionCol\_1', '1'), ('PositionRow\_1', '8')) |
| 3.2.5 | +20 |  |  |
| Total | 140+20 | 99 |  |

## Grading Details:

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| --- | --- | --- | --- |
|  | Full points | Your points | Comments |
| 3.1.4 | 40 |  | Most of you did it well.  A few students thought the input files would always be in the same path with the code, which is not necessarily true. If you can run a better result on your own computer, then come to me with your laptop on the poster day.  For those who I have pointed out the bug, and you fixed it, you can also come to me on that day. But your new version grades will be taken 20% off. |
| 3.1.5 | 10 |  | Most of you did it well. In Q3, you can design any model that is reasonable. But a recommended method would be hyper-parameters. |
| 3.2.1 | 20 |  | **Q1-Q3:** Most of you did it well. A few students just simply copied the algorithm description from the given homework file. That will take at least 1pt off.  **Q4:** (1) Brute sum-out. 1pt. It goes exponentially.  (2) clique tree. 3pt. Linearly.  Note: A. The landmarks do not matter. Because the position will not be affected by observed landmarks. If # of landmark included, 0.5pt off.  B. In the largest clique, {Row\_t, Col\_t, Row\_t+1, Action\_t}, the possible values are not M^2\*N\*4. Because the Pos\_t+1 can only be neighbor of Pos\_t. It should be O(4MN) for each time step. If wrong here, 0.5pt off.  **Q5:** (a) Method 5pts. From the clique of t=5 to clique of t=15, don’t eliminate state t=5, but still eliminate t=6,7,…14.  Proof 2pts.  (b) p(x,y) not equal to p(x)p(y)  Note: A. Here it asked how to modify the clique tree to make the hint happen. If student only copied the hint without explanation for a practical method, then 5pts off.  B. Some student give a method that merge all the cliques between time 5 and 15 to make a super cluster, then brute sum out. The complexity of this method will explode just as Q4(1). 3 pts off. (Adopted from last year’s grading) |
| 3.2.2 | 10 |  | Most of you did it well |
| 3.2.4 | 60 |  | If you code cannot give a result, then you will get 10-20 pts.  If it cannot pass even 10x10\_t10 test, then you will get 10-30 pts.  If it can only pass the test of 10x10\_t10, then you will get 40pts.  A few students thought the input files would always be in the same path with the code, which is not necessarily true. If you can run a better result on your own computer, then come to me with your laptop on the poster day.  For those who I have pointed out the bug, and you fixed it, you can also come to me on that day. But your new version grades will be taken 20% off. |
| 3.2.5 | +20 |  |  |
| Total | 140+20 |  |  |