Topic 5: Markovian and Deterministic Dynamical Systems (Groups 1, 2, 11 and 14)	
Positive Feedback:	**Room for Improvement:**
Group 1: Positive Feedback: - Simple practical demonstration of application Markov process made the basics easy to understand - Clear speaking and logical progression through the concepts Group 2: Positive Feedback: - I liked the demonstration of calculating the Markov matrix from data, instead of just creating one based on pre-determined diagrams / values. - Statistical testing done to prove/disprove independence was key in establishing whether a Markov process is the appropriate tool to model the data or not. As a data scientist, it is not enough to know the mechanics of a model, but also when to apply and when not to. The p-value test is therefore a critical pre-processing step to determine this. Other videos are have not included this. - Well spoken and notes are mostly clear except in a couple of places. Group 11: Positive Feedback: - Good explanation of theory and named a few real world	Group 1: Suggestions: - Lacking a bit of depth and code comments, would have been good to see a definition of the Transition Matrix, what does Aij represent? Had to understand by looking at the numbers and comparing with the transitional diagram - Some explanation given for the steady state (why does it reach a steady state) in the 1 page summary, but no explanation for the more interesting and confusing observation at the end of the video - why are the steady state probabilities different when the starting conditions (i.e. x_1) are changed?? If Markov Processes depend only on the previous state, then I would have thought that after a few iterations all possible initial states would converge on the same steady state?? Group 2: Suggestions: - Unsure what is meant by the first paragraph under the Transition Matrix heading. I think the notation is confusing and Iâ€™m not sure what â€œmatrix A = Xâ€ means? Then the Markov matrix is redefined as p, would be clearer to stick with A. - Code is missing commentary and function names could be better

Group 1 avoided the use of inbuilt functions in their coding development, which made for ease of understanding the detail for the base Markov Chain methodology. Their stock-market examples demonstrated the basis of convergence. Group 2 were the only group that actually went and sought a data-set to establish some basis for preparing their State Transition Matrix (using Shanghai weather conditions from late 2017). My understanding is that whilst the Markov Chain methodology is underpinned by the assumption that future states only depend on the current state, use of historic information such as this will assist in developing an adequate basis. They also carried out an appropriate assessment of statistical independence of the array of possible weather conditions. Group 11 provided good detail on the theory behind Markov Chains. Group 14 expanded their analysis beyond naÃ¨ve Markov Chains to also consider an example of Reinforced Learning via â€˜Q-learningâ€™. They provided good theoretical detail, and reflected this well in the associated implementation code. It was easy to follow how the code worked given the limited use of inbuilt functions. Running the given example across a number of time period scenarios helped with understanding the associated impact on convergence.	Group 1 should have potentially looked at demonstrating application of dynamical systems beyond the simple Markov Chain example that they provided (given that they did briefly mention Reinforcement Learning in their one-page summary). It is unclear why Group 2 used Python for code development, as it appears that the detail could have been accurately replicated in Julia. Graphical representation of the time dimension to their analysis results would have helped. For Group 11, practical examples of Markov Chain methodology were too limited in scope. Graphing of the â€˜NaÃ¨ve methodâ€™ would have helped in demonstrating the convergence trend. Significant theory behind â€˜Stationary Distribution and Optimised Modellingâ€™ was provided, but the subsequent example of its application was too limited. Not too many issues with the detail that Group 14 provided when compared to the other groups. The use of â€˜redâ€™ vs â€˜blueâ€™ for graphing of â€˜positiveâ€™ vs â€˜negativeâ€™ outcomes respectively for the â€˜Q-learningâ€™ example was a little counter intuitive, and made interpretation of the results a little confusing.

Group 1: This group using the application of predicting trend in stock marketing to introduce Markovian Chain and finally they output some graphics to show that the curves are going to be steady. They snipped the code very well and always run their code to show the outcome after the description, which is friendly to the viewers. But I think they forgot to give a peek at the MDP and Q-learning in the video. From their summary they showed everything properly, we can easily find the definitions, equations and applications. Group 2: This group has a shining point of showing the animation of Markovian Chain in the last few seconds. The visualization clearly shows that what is a Markovian Chain. But before that, this group also forget to give an introduction about MDP and Q-learning. From their summary, it mainly shows the Markovian Chain part and forget the MDP and Q-learning. This summary is fitted for presenting all the part of their video, but not good enough to summarize all the knowledge in the System. Group 11: The video contains too much text descriptions and they donâ€™t snipe their code very well. And the summary also ignored the MDP and Q-learning. Besides they used 2 pages in the summary with too much details in examples and additional knowledge. Group 14: This group did pretty great job! Started with a graphic to simply explain the chain in Markovian Chain and visualized the Q-learning matrix by presenting a colored matrix. In their summary they separated their project to three	Group 1: The definition in their video seems to be an example. So, it might be better for their video to show some basic equations and mathematics without just showing some codes there. And they still got enough time to do this. Group 2: The speaker seemed to be nervous because he always says â€˜yeahâ€™, which makes me feel uncomfortable. They should also focus on the MDP and Q-learning part after introduced Markovian Chain. Besides, they are not using Julia but using Python, which means cheating to me. Group 11: The video contains definitions, equations, applications and a graphic. But the speakers are just reading the text which makes viewers feel boring. And I guess due to the lack of time, they cut the final part of â€˜pagerankâ€™. I can see that this part had a graphic so it should be more attractive than the previous example. So I suggest that they should extend this part and cancel the reading part. Group 14: What to know more about the MDP and Q-learning. Like if we took another action, say punish money for students who dropped the course, then we will have another Q table. Then how can we figure out with Q table is better, is there a way to compare?
As for group 1, they have very good speaking skill, their logic is very clear, step by step. As for group 2, they also demonstrated and show the code. And they also use example to deliver the knowledge. As for group 11, they have very good julia typesettingã€, As for group 14, I think they are the best group, their video has very good logic and their introduction is very detailedã€,	As for group 1,in the code block section, they can add some text descriptions so that I can better understand and summarize. As for group 11, their recordings are not very good. As for group 14, I think there are no problems.
