

Topic 1: Constrained Optimization (Groups 9 and 13)	
Positive Feedback:	Room for Improvement:
<p>G9: Simple code with clear explanation, easy to go through. The summary has an opening with definition of their topic constrained optimization, good structure and arrangement for reader.</p> <p>G13: Beautiful summary with great composing and highlight key content. The code with graphs makes it easier for readers who have no idea about the topic to understand it.</p>	<p>G9: In the solution methods part, the first paragraph's topic is Lagrange Multiplier. However, it is not corresponding to the code, which mentioned KNN equation at the same position. This inconsistency creates some ambiguity.</p> <p>G13: The code file is too long to read, with a lot of contents what has been written in the summary. These contents are repeated in the two materials, it is recommended to delete them in the code file.</p>
<p>For group 9, In the end, they show us these two methods give us the same answer.</p> <p>For group 13, on the video, I can see each step of the algorithm easily since they put the notes in their jupyter notebook. and explanation and code can help each other to work well on the notebook. the materials are well-organised and well-looking on the jupyter notebook.</p>	<p>For group 9, For the first part, try to have materials in the jupyter notebook like your group mate did which will make it easier to look for us. Also, since you still have much time, try to have more examples to show your work.</p> <p>For group 13, group 13 did a good job on the project. the video, the summary, everything is good. maybe group 13 could give more examples by using the methods they covered.</p>
<p>Group 9: The group's interpretation of code is detailed, such as the definition of variables and functions. The speech rate and volume in the video are appropriate that is easy for me to follow. Besides, there summary is structural and concise.</p> <p>Group 13: The group's Jupyter notebook contains detailed explanation text and many examples that help me to understand the case. Their summary is also well structured and concise.</p>	<p>Group 9: The video begins with introducing the solution of CLS, which makes me a bit confused. It would be better to introduce what is CLS problem and what's the goal of the solution. In addition, I think it would be more clear to add the related book contents to the Jupyter notebook.</p> <p>Group 13: First, the video's volume is too low. Second, I think briefly explain the steps and functions in the code is better than just scroll down the notebook. And some plots are missing in the video. While in code summary, plots are not missing.</p>
<p>Group 9 give a concise explanation of constrained optimization. Their focus on step in solving the constrained optimization makes me easy to follow that part. They also using good intonation in their video.</p> <p>Group 13 explains with an adequate level of detail. The presenter's intonation and the cursor moved on the screen several times help me focus on that particular part. This group also provides an additional description of the least norm problem.</p>	<p>Group 9 can use the cursor to highlight the part being explained. This will help the viewer follow the presenter's explanation easier, especially when they move to another document since the document contains many writings and formulas.</p> <p>While for group 13, the use of cursors in highlighting a part can be improved, especially when explaining coding and sequences.</p>
<p>Basically, the first group has completed the aim of the project, providing an explanation of proper understanding. The video is also suitable.</p> <p>The logic of the second group is really good and they has adequate content around this topic with decent order which can be understood easily.</p>	<p>The first group still have a long way to go, I think the content group is not enough and I can find the similar code on Github so they need to pay more attention on it.</p> <p>Overall, the second group is better than first group. I recommend them to do some futher research on n constrains and multiple variables. Besides, the volume of the video is too low to be listened clearly.</p>

<p>Group 9: the summary is quite good, and explained the constrained optimization clearly; code is simple and easy, and the format is well organized</p> <p>Group 13: good structure, every knowledge are explained apparently in the summary; the code, which uses lots of formulas and steps to show each of the algorithm, is pretty good</p>	<p>Group 9: the code need more clear comments, which can help me to understand the aims of each rows. And I think the video can be explained more clearly with the movement of mouse cursor.</p> <p>Group 13: the summary is too crowded, I think it should be showed more simple and easy to understand. And the video needs more explanation about the code.</p>
<p>For group 9, their summary has a definition of the topic which can help us to understand the topic. They also have a detailed explanation of their code in their video and the whole process is fluent.</p> <p>For group 13, their summary has a good layout so we can learn this topic step by step. They add a short summary at the beginning of the video which helps audience to know what will be talked later and the whole process is very fluent too.</p>	<p>For group 9, they switch their screen many times and the mouse was hidden, so it is a little bit hard to follow what they are talking about.</p> <p>For group 13, they can add a definition of constrained optimization which will help readers to have some background knowledge. In the last part of the video, they slide the screen too fast so it is hard to see the code and if they can have more detailed explanation on their code will be better.</p>
<p>Group 9 separates the formula principle and code, allowing people to understand the principle of constrained optimization and the method of solving constrained least squares optimization.</p> <p>Group 13 details the steps to resolve the problem.</p>	<p>Group 13 can add the definition of related concepts to the summary.</p> <p>Group 9 can show the resolution steps more clearly.</p>
<p>Group-9 ----- The summary is well structured and coherent. They provided the big picture of what the constrained optimisation is, explained the methods to solve the optimisation problem and concluded with the application.</p> <p>Group-13 ----- They nicely explained the theoretical aspects of the concept. They also provided a simple example In solving Least norm problem using the Lagrangian function in the summary sheet.</p>	<p>Group-9 ----- It would be better to show the statement of the problem they are trying to solve in the video. Furthermore, they could give a simple broad overview of what KKT equations are. In addition to this, it is good to show a critical comparison of KKT and QR factorisation method.</p> <p>Group-13 ----- They could have explained the concept of KKT equations in simple terms. And it would be better to supplement the theoretical concept with illustrations in the video for more clarity.</p>

<p>Group 9: Your video was excellent and concise. I like how you used example problems from the text as a basis for your code.</p> <p>Group 13: The video was well spoken. Introducing the video with a short summary of the problem and what the video is covering on the problem was effective.</p>	<p>Group 9: It is important that when you do the video you are drawing attention of the viewer to the important parts of the code using a mouse pointer or dot. I got lost quite a lot trying to figure out which parts of the code you were referencing in your speech. The summary was missing the explanation of the KKT equations and what they could be used for. I was unsure what the purpose was for the problem of J_{output} and J_{input}.</p> <p>Group 13: The summary was missing an explanation on how the problem could be solved using QR factorization. The explanation of the applications for the problem could have been better. I am unsure how the problem relates to "Linear quadratic state estimation".</p>
<p>Group 9 mainly focus on code of method for solving constrained least squares problem, which can help better understanding of code.</p> <p>Group 13 provides more clear ideas and logics about the summary.</p>	<p>Two groups may not give specific examples for how to use constrained least square in practice to solve real-life problem but code and formula in application.</p>
<p>Group 9: The structure of the project is clear. The significant parts of constrained optimisation have been emphasised, like KKT, QR factorisation, Lagrangian function.</p> <p>Group 13: The summary has clear structure including introduction, definitions, the special case "least norm problem, and applications.</p>	<p>Group 9: This group should provide more features to illustrate constrained optimization. And codes also needs more comments.</p> <p>Group 13: This group perform better. However, this group lacks practical examples to explain the principle so that I could understand easily and quickly.</p>
<p>Group 9: The structure is complete, gives the definition of key knowledge point, relevant method. Summary gives the outline of knowledge, and video gives the details.</p> <p>Group 13: Excellent report. The main methods, tools, results and applications are accurately expressed. Each knowledge point is very clear and easy to understand.</p>	<p>Group 9: The knowledge arrangement is a bit confusing. In their Summary, the first method of Solution Methods is Lagrange Multipliers, which is described in a large number of sentences (12 lines). There is no mention of KKT equations in so many of the contents. But in video they have KKT as the focus of the first method. This arrangement is very troublesome for the reader's understanding.</p> <p>Group 13: I thought they did a fantastic job and I couldn't do any better. If I had to find fault with the report, perhaps they could explain the definition of KKT, since it is a very important method to solve the constrained Least Squares problems.</p>

<p>Group 9: The first section of the presentation was mostly clearly spoken and easy to follow. Comparing the results of the different methods was good.</p> <p>Group 13: The presenter speaks clearly and in an easy to follow pace. Parts 1 and 2 of the notebook are laid out clearly and the code is supported by explanations. Showing two methods returning the results was good.</p>	<p>Group 9: Switching between the notebook and the formula sheet was distracting, it would have been better to have the formula and explanations included in the notebook. I found the second section of the presentation (linear quadratic control) confusing, but I'm not sure if it was the presentation or if I just didn't get it. The notebook had little explanation of the code for this section (and no comments)</p> <p>Group 13: The audio description of the two methods for solving CLS was confusing as it seems to describe both methods as QR factorisation. I'm not sure if I have misunderstood something here. Linear quadratic state estimation example in presentation looks like it was supposed to contain code examples but wasn't completed. Part 3 contains very little explanation of the code (and no comments).</p>
<p>Feedback to group 9: Your code is written in a simple way, which is good. And, you also gave a detailed explanation of the code. Besides, you didn't choose to write all the code together, which makes the reader easier to understand.</p> <p>Feedback to group 13: You use a lot of text and formulas to explain your algorithm in the jupyter file, which is very good. Besides, you chose to present your code step by step, instead of writing all the code together, which is very good. And, you explain the algorithm by drawing some graphics, which is also very good.</p>	<p>Feedback to group 9: Firstly, there is no comments in your code. When I read some code, I feel a little difficult. Secondly, I suggest that when you explain your code, you can use your mouse to point to where you are explaining. In this way, I can keep up with your explanation more easily.</p> <p>Feedback to group 13: As for the video, I suggest that you can try to explain some of your code. Then I can know more details about the algorithms. As for the summary, I suggest that you explain the Lagrange function firstly and then explain the KKT function, because the KKT function can be thought that it is based on the Lagrange function.</p>
<p>For group 9, in the summary, the structure is clear, the solution methods are very detailed and the application is very specific. In the video, the explanation of the code is good.</p> <p>For group 13, in the summary, the structure is very clear and the focus is obvious. In the video, the structure is also very clear.</p>	<p>For group 9, in the summary, the relationship between Constrained Optimization and Constrained Least Squares is not very clear. In the video, I think that it is better to use the own example than the example in the book.</p> <p>For group 13, in the summary, there are many mathematical expressions. There is too much content in jupyter notebook, but it is not clearly displayed in the video. Therefore, I suggest deleting some content.</p>

<p>With group 9's presentation, I prefer their method of giving a short explanation of Lagrange multipliers before going into the methods, since KKT equations done via Lagrange multipliers to my understanding. The way the speaker described output of each step in the code is also helpful toward understanding the algorithms.</p> <p>As for group 13, they provided a very comprehensive document and video with clear sequences. The way they approach the topic sequentially helps to structure the narrative of the video better for the audiences.</p>	<p>For group 9, I'd have like it if they give more explanation of the concepts rather than going straight to the coding exercises without context. It may be unclear to viewers who are unfamiliar with the problem especially that their summary are also quite technical. It'd have been better to also have the speaker giving a short explanation of what they are trying to achieve when transitioning to the next part of the video.</p> <p>As with group 13, it'd help with some explanation about Lagrange multipliers for the viewers. Similar with group 9, I'd prefer to have them explain the concepts in their own words for easier understanding rather than textbook-like technical explanation. Both group could also try running their codes in the video to assist with the demonstration.</p>
<p>The video of group 9 make a good code but is not continuous due to there are two speakers. The summary of group 9 is in good structure, and has a clear order which let others easy to get it.</p> <p>In the video of group 13, it can be seen that the notebook of group 13 is richful. The summary of Group 13 is not structured well, but tell the methods and applications clearly.</p>	<p>The video of group 9 can be more continuous, and could add the theory into notebook which could make it nice to see.</p> <p>In the video of group 13, the code can be placed in the place where just the end of introduction of each method. And the summary can be well structured.</p>
<p>For group 9 I like that every time they introduce some function, they used another documents to show, I can pause the video to read it slowly.</p> <p>For group 11 I like that every problem they have examples come together. That is good.</p>	<p>I don't know the time, I think both of the group can increase more than 1 minute to introduce more about code or their model.</p>
<p>Group 13: They have explained the theory part very nicely in the video and has also drafted the summary in a constructive manner which is easy to understand.</p> <p>Group 9: They have mainly focused on the Code part and has explained the code of the KKT and Lagrange Multipliers in the video which was very informative and also the application part in the summary was nicely explained.</p>	<p>Group 13: There can be little more elaboration regarding the Application of the constrained of least squares in the video as they were still having 1 more minute of time.</p> <p>Group 9: The Theory part of the topic should be explained in more details in order to get the main motive of the topic and would have made it clearer.</p>
<p>Group 9: The code for explaining the KKT and QR factorization methods is very clear and easy to understand.</p> <p>Group 13: The summary looks pretty good for me, especially the idea that they've showed us a simple example in the summary for better understanding. For the video, I like that they described the steps for each algorithm.</p>	<p>Group 9: In the Jupyter notebook, they have a duplicate part (around 3:10 in the video). And I think it would be better if they use a laptop for the whole video recording. Since when there is no cursor on the screen, we can hardly know that what did they mean by this.</p> <p>Group 13: The voice is too low, I could barely hear. Some of the plots didn't shown up in the video. Although we can have a look at the ipynb file, I think it would be great if they show us during the video recording.</p>

<p>Group 9 first selected a simple example, explaining the method of constraint optimization with simple code, then chose an example of constraint optimization, and made a detailed explanation with the code of solving the problem. Group 13 focused more on the mathematical part of constrained optimization and put forward more mathematical terms. In terms of method explanation, their text structure was better.</p>	<p>Group 9 mentioned the mathematical principle in the summary but didn't talk about the mathematical principle of constraint optimization in the video. In the video, their work is more like an exercise explanation. Group 13 mentioned a lot of mathematical theories but didn't make it clear. Besides, their example was not as good as that of group 9.</p>
<p>Group 9</p> <p>From Group 9's, summary and presentation I liked how they tried to cover both the mathematical theory and application at the same time. It was also broken down nicely according to topics so that there wasn't much back and forth between previous ideas. The summary and notebook also had a very consistent appearance which improved readability and usefulness.</p> <p>Group 13</p> <p>Group 13 included much more detail on the mathematical theory alongside the Julia applications which aided in understanding the content of each section. They also included some fully worked out examples which, along with their well labelled steps, made it clearer to understand the intention of the Julia code. Overall, their explanations were much more robust were better suited for introducing somebody to constrained optimization.</p>	<p>Group 9</p> <p>Group 9 needed to include much more introductory content to explain the goal and challenges of constrained optimization instead of going straight into the technical application. I think they also needed to give context to the examples they were working through so that it was more relatable to the real world i.e. optimising a factory's production given x,y,z input constraints.</p> <p>Group 13</p> <p>Although Group 13 had more by the way of explanations and examples, much of it was still presented as abstract mathematical theory that didn't smoothly flow from topic to topic. Overall, useful context was missing for many of their examples which made it difficult to decipher what the goal of each step was. Much of the explanations were also front loaded on the earlier topics which made the later topics more difficult to understand by comparison.</p>
<p>For group 9 I liked how the summary and the video matched in their content.</p> <p>For group 13 I liked the presentation of the summary, which was well structured and each numbered section built on the previous. The notebook presented in the video was very thorough, included a lot of code and was well presented and structured.</p>	<p>Group 9's video was quite fast with a lot of code on the screen so I found it difficult to follow, perhaps slowing down the explanations (they had another minute and a half of time they could have used) would have been helpful. Also rather than flicking between the notebook and the word doc the equations could have been incorporated into the notebook for smoother viewing and links the code to the equations better.</p>
<p>Group 9: The summary is organized and clear. Group 13: Comments are thorough and readability of code is good. Video is fluent.</p>	<p>Group 9: Maybe more fluency in video would be better . Group 13: How to use QR factorization solve constrained least squares problem is not specific in summary.</p>
<p>For group9, I like their video, the video they used two windows to make the presentation much vividier. For group13, the PDF file is better, it contains many points and clearly shows what it is.</p>	<p>For group9, they can do more for this topic, like the solution of the equations or the way how to get to the result. For group13, they can make their video more beautiful, like a teacher to teach us.</p>

<p>For group 9 The video is fluent and the notebook has a text description. The format in the Summary is clear, and the bold words make it clear that I need to find the information I need to find.</p> <p>For group 12, Before the video starts, there is a text introduction. Let me understand the overall content more. And each part also has text, so I once again understand what this part is talking about. The format of the Summary is very comfortable. Compared with the ninth group, the format is very regular.</p>	<p>For group 9, I switched between notebook and pdf one minute before the speech, which made me unable to see the code. And just describe the implementation of a formula, and did not talk about some principles. But the text description in the notebook is too small.</p> <p>For group 12, Did not explain the code, just showed the results and code. And sometimes the speed is too fast. I didn't see the code clearly. Summary The background color is uncomfortable and you can't see the words clearly. Especially with the formula color is very clear</p>
<p>For group 9, the logic of the video is clear. Before each code is shown, the problem background and solution are given, and each code step is explained, so that we can clearly understand the video content. Each code of the application has very comprehensive understanding of the subject. And the summary is comprehensive.</p> <p>For group 13, the video content from simple to deep, from general situation to special situation, logic is clear. The summary has comprehensive content and subtitle of the summary is clear which is a good structure for us to follow the topic.</p>	<p>For group 9, some serial numbers could be added to the summary subheadings, so that people can clearly understand the order and subordination of each subheading.</p> <p>For group 13, the code could be explained in the video to let the audience understand what each step of the code is doing.</p>
<p>Group 9: Their summary is logical. Audiences can easily make sense what they want to express. As for video, they represent with the reference sheet, which can let everyone understand deeply.</p> <p>Group 13: I like the style of their summary sheet. And as well, their summary is clear and logical. For the video, they have a pause in the middle which can let audience have time think.</p>	<p>Group 9: Maybe their summary is not clear and the layout is a bit messy. And there is no conclusion in their video.</p> <p>Group 13: They omitted some thing in their summary e.g. QR factorization. And not like Group 9, there is no definition, so maybe it is hard to understand what they want to introduce.</p>
<p>In terms of the group 9, I understand the code of calculating least squares, and they compared these two methods and the results were similar.</p> <p>In terms of the group 13, their thinking is really clear because they introduced some examples. I also understood how to solve constrained least problems. The both method got the same results too.</p>	<p>To group 9, I recommend that they can write more details in summary except for theoretical content.</p> <p>To group 13, I have no idea to give suggestions.</p>
<p>As for group 9, they use more than one method to solve the problems. They also use subtitle to show the video.</p> <p>As for group 13, they also explained the code and knowledge in detail, which made me more aware of their project, and finally I learned a lot of knowledge.</p>	<p>As for group 9, their project can be introduced by a group member who have good command of speaking, some words can not be heard clearly in the video.</p> <p>As for me, I think there are no problems in group 13.</p>

<p>This topic includes group 9 and group 13.</p> <p>Group 9 The project of group 9 is clear and straightforward, with all the significant parts of constrained optimisation being emphasised, like KKT, QR factorisation, Lagrangian function.</p> <p>Group 13 Group 13 did a lot of work on the description test, thus personally, their jupyter notebook can be directly used as textbooks to guide learners what constrained optimisation is. The illustration has clear structure, starting from introducing the least squares problem, then explaining definitions and the special case "least norm problem, and ending at applications. Also, I like their summary's layout.</p>	<p>Group 9 can try to apply some cases to clear explain constrained optimisation.</p> <p>Group 13's video can be improved via adding more explanation of important theories.</p>
<p>Group 9: Their vide is good, they combined their code and the summary together which explained a clear process and the two method. And they compared the two method. Group 13: Their video is better and have a good logic. They not only have the two methods, but also have some applications, which shows a better construction.</p>	<p>Group 9: The example in the video is too simple. I cannot find the application in code. Group 13: the voice in the video is little small, and hope they can improve the pronounce, but overall, the video and summary are really good.</p>
<p>I like Lagrange Multipliers parts in group 9 They clearly explain the condition of Lagrange Multipliers and how to solve problems by Lagrange Multipliers. I like Application parts in grouo 13 I learned that Constrained Optimization can be used in Linear quadratic state estimation, including navigation system and global positioning system.</p>	<p>In group 9 I think they should do more effort on the part of application. I mean in some specific area rather than theory. In group 13 I think they shold explain more specific in KKT equation. Because after I watched video, there are also a little confusion.</p>
<p>Group 9: This group's summary includes the definition of the constrained optimisation, what is Constrained Least Squares problem and how to solve that. The structure is clear and the format is understandable.Their video is well organised.</p> <p>Group 13: This group shows meaning of linear constrained least squares problems and the method to solve the constrained least squares problem in their summary. They also show readers a special case of the constrained least squares problem) and the process to solve this problem. Their video is clear can easy to follow.</p>	<p>Group 9: The little things perhaps they can do to improve them report is showing the difference between the situation of using Lagrange multiplier method and using QR Factorisation.</p> <p>Group 13: One little thing maybe they can improve is the structure of every part. Maybe part3 can be put into part2 ---"Methods of solving the constrained least squares problem". (Please correct me if I'm wrong.)</p>

<p>Group 9: This group was very familiar with this topic. I can see that they've read through all the reading materials. The summary and video had covered all aspects. I like the completeness of their project.</p> <p>Group 13: The layout of the summary as well as the notebook are well designed, it makes the contents very organized and clear. They went further in this topic by providing detailed examples of the two applications of CLS.</p>	<p>Group 9: They didn't put together the two notebooks they've mentioned in the video. The notebook available on the website only cover the first part of their project. They should've double-checked before handing in. They can also improve by adding some plottings with Julia in their notebook.</p> <p>Group 13: For the part of example, they could add some explanations before each box of codes, so that reader can better understand what are the difference between each output.</p>
<p>Both of groups give the application and they are different. They also have good framework to help me engage in this topic.</p> <p>Group 9 has detailed mathematical formulas.</p> <p>Group 13 has different colors for different content (formula, explanation, focus) which is very clear. The code is also full of explanation and have plots.</p>	<p>Group 9 does not give the reason why the KKT or Lagrangian can solve this problem. It is not rigorous to give the code to check the correctness.</p> <p>Group 13 also has this shortage but they are better than Group 9.</p>