MODULE REPORT

Module	CS3244 - MACHINE LEARNING
Academic Year/Sem	2022/2023 - Sem 1
Department	COMPUTER SCIENCE
Faculty	SCHOOL OF COMPUTING

Note: Class Size = Invited; Response Size = Responded; Response Rate = Response Ratio

Raters	Student
Responded	148
Invited	237
Response Ratio	62%

1. Overall opinion of the module

Distribution of Responses

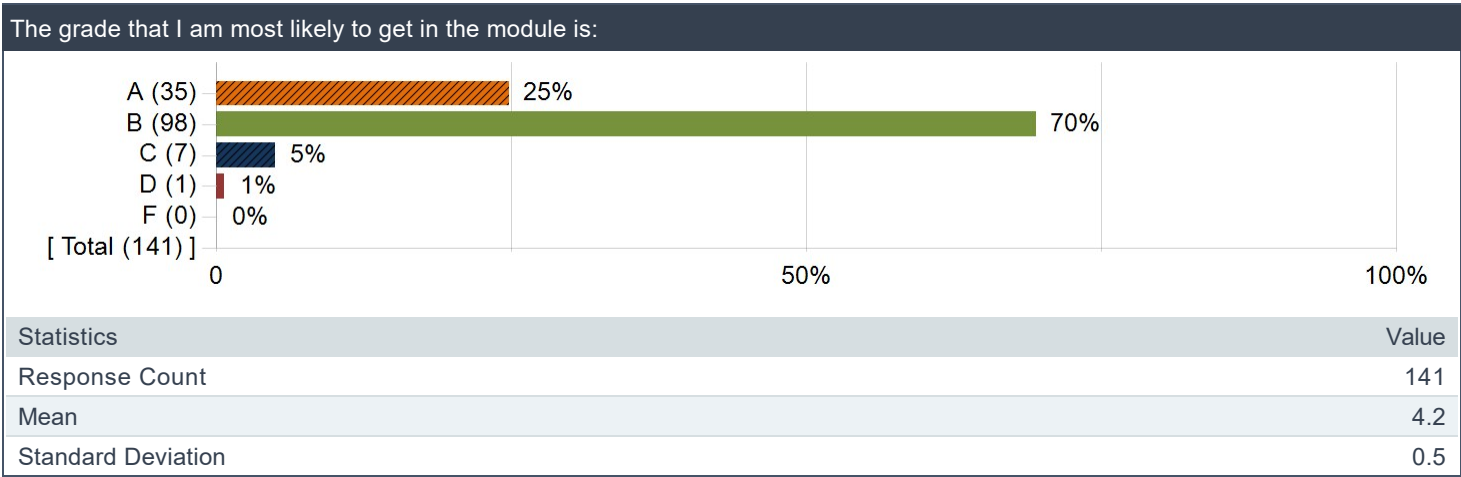| Statistics	Value
Response Count	147
Mean	4.0
Median	4.0
Mode	4
Standard Deviation	0.8
Positive Feedback	78%

Rating Scores

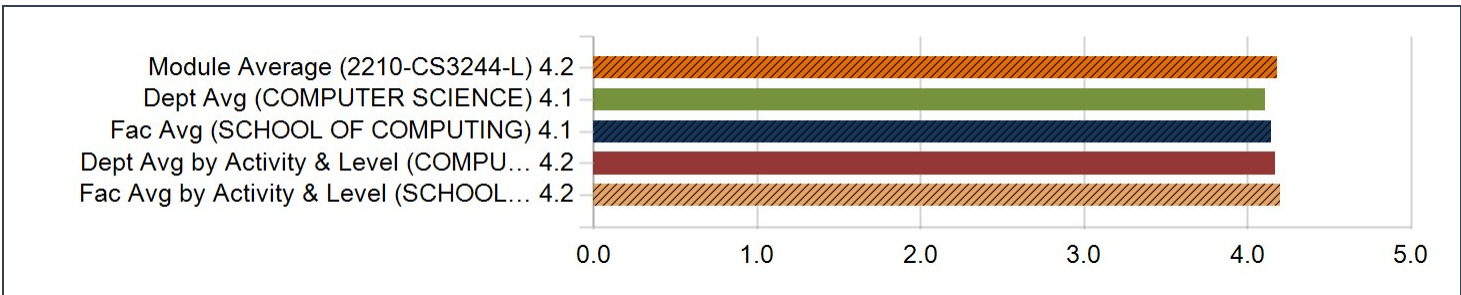| Question	Module Average (2210-CS3244-L)		Dept Avg (COMPUTER SCIENCE)		Fac Avg (SCHOOL OF COMPUTING)		Dept Avg by Activity & Level (COMPUTER SCIENCE-LECTURE (Level 3000))		Fac Avg by Activity & Level (SCHOOL OF COMPUTING-LECTURE (Level 3000))	
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
What is your overall opinion of the module?	4.0	0.8	3.9	0.9	3.9	0.9	3.8	1.0	3.8	1.0
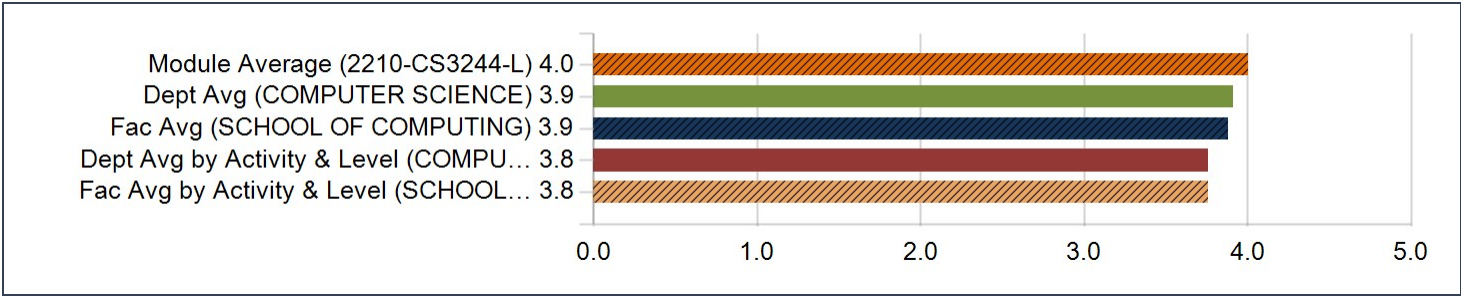
2. Expected Grade

Distribution of Responses

The grade that I am most likely to get in the module is:

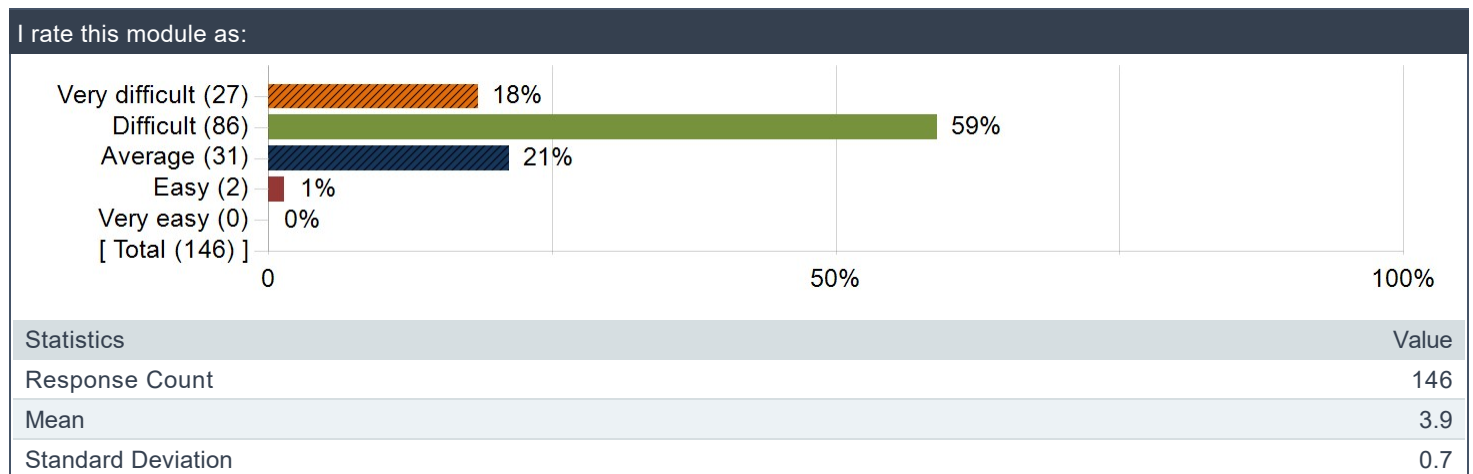| Statistics	Value
Response Count	141
Mean	4.2
Standard Deviation	0.5

Rating Scores

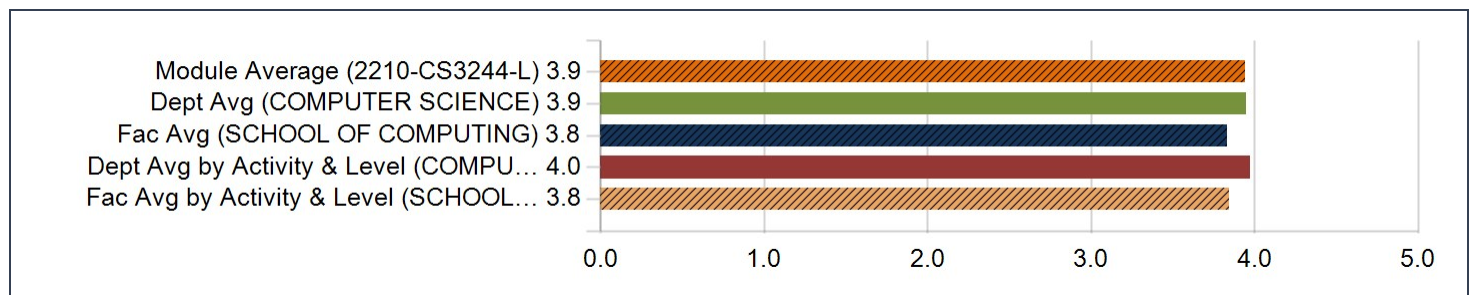| Question	Module Average (2210-CS3244-L)		Dept Avg (COMPUTER SCIENCE)		Fac Avg (SCHOOL OF COMPUTING)		Dept Avg by Activity & Level (COMPUTER SCIENCE-LECTURE (Level 3000))		Fac Avg by Activity & Level (SCHOOL OF COMPUTING-LECTURE (Level 3000))	
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
The grade that I am most likely to get in the module is:	4.2	0.5	4.1	0.8	4.1	0.8	4.2	0.7	4.2	0.7

3. Difficulty Level of the module

Distribution of Responses

I rate this module as:

Response	Percentage
Very difficult (27)	18%
Difficult (86)	59%
Average (31)	21%
Easy (2)	1%
Very easy (0)	0%
[Total (146)]	

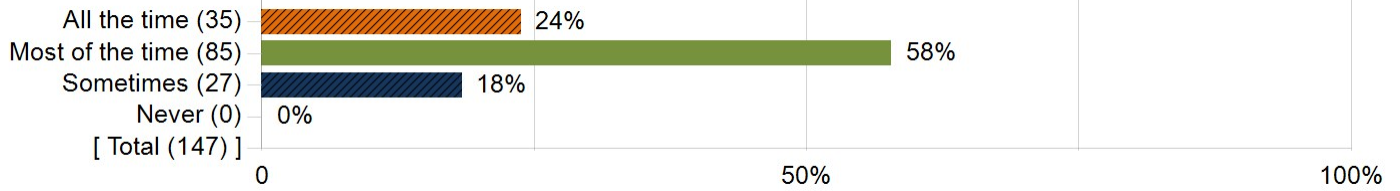| Statistics	Value
Response Count	146
Mean	3.9
Standard Deviation	0.7

Rating Scores

Question	Module Average (2210-CS3244-L)		Dept Avg (COMPUTER SCIENCE)		Fac Avg (SCHOOL OF COMPUTING)		Dept Avg by Activity & Level (COMPUTER SCIENCE-LECTURE (Level 3000))		Fac Avg by Activity & Level (SCHOOL OF COMPUTING-LECTURE (Level 3000))	
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
I rate this module as:	3.9	0.7	3.9	0.8	3.8	0.8	4.0	0.8	3.8	0.8

Module Average (2210-CS3244-L)	3.9
Dept Avg (COMPUTER SCIENCE)	3.9
Fac Avg (SCHOOL OF COMPUTING)	3.8
Dept Avg by Activity & Level (COMPU...	4.0
Fac Avg by Activity & Level (SCHOOL...	3.8

MODULE LEARNING OUTCOMES

1. Understand the basic concepts of machine learning.

Understand the basic concepts of machine learning.

All the time (35) — 24%
Most of the time (85) — 58%
Sometimes (27) — 18%
Never (0) — 0%
[Total (147)]

Statistics	Value
Response Count	147
Mean	3.1
Standard Deviation	0.6

2. Apply an appropriate machine learning algorithm for a given problem.

| Apply an appropriate machine learning algorithm for a given problem. |
|---|

All the time (28) — 19%
Most of the time (87) — 59%
Sometimes (32) — 22%
Never (0) — 0%
[Total (147)]
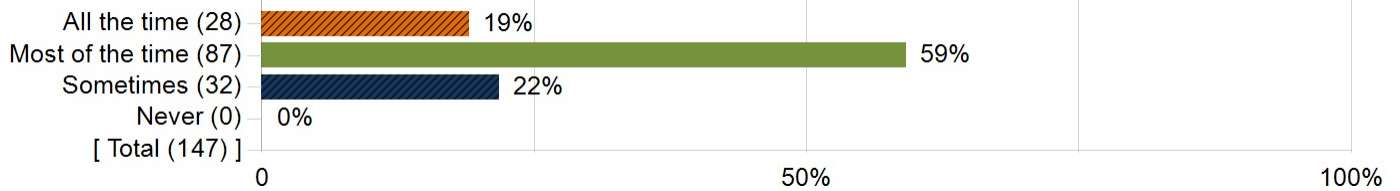
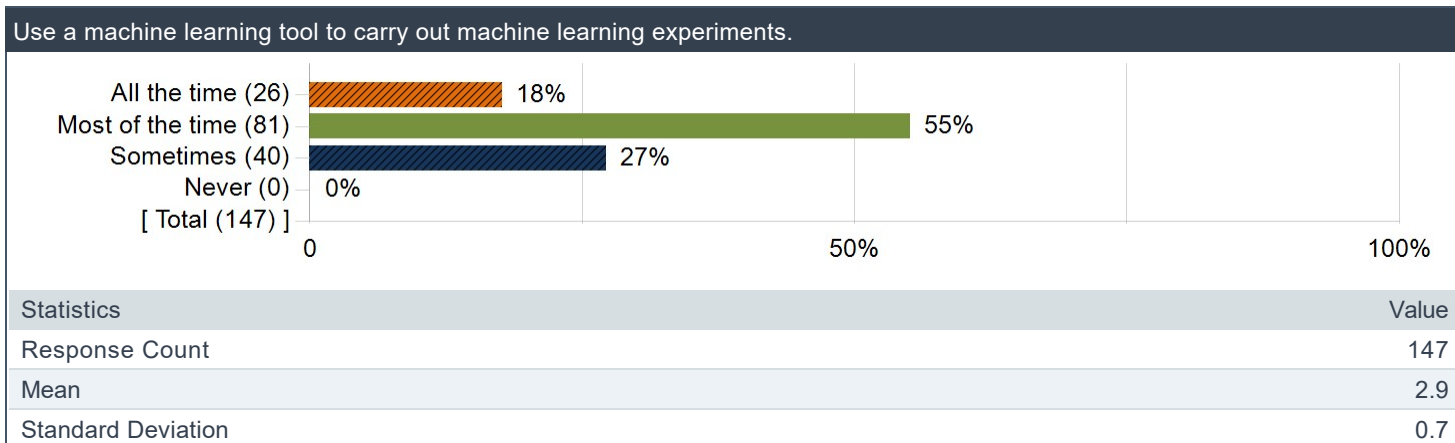| Statistics	Value
Response Count	147
Mean	3.0
Standard Deviation	0.6

3. Evaluate the performance of a machine learning solution.

Evaluate the performance of a machine learning solution.

All the time (31) — 21%
Most of the time (84) — 57%
Sometimes (32) — 22%
Never (0) — 0%
[Total (147)]
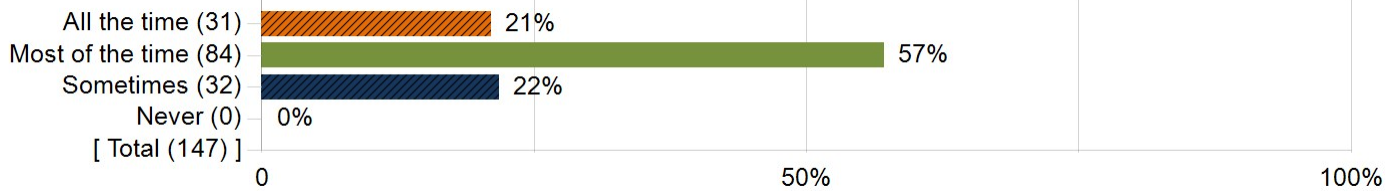
Statistics	Value
Response Count	147
Mean	3.0
Standard Deviation	0.7

4. Use a machine learning tool to carry out machine learning experiments.

Use a machine learning tool to carry out machine learning experiments.

All the time (26) ▨ 18%
Most of the time (81) ▨ 55%
Sometimes (40) ▨ 27%
Never (0) 0%
[Total (147)]

0   50%   100%

Statistics	Value
Response Count	147
Mean	2.9
Standard Deviation	0.7

WHAT I LIKE / DISLIKE ABOUT THE MODULE

What I liked about the module:

Comments
Very interesting concepts.
teaches alot of concept that are useful in machine learning
Interesting concepts
The breath of topics
Good foundation for ML, and is always interesting.
Content is interesting
The concepts were interesting to learn, and I like how I also hear about the terms and concepts in other modules I am taking, hearing about the topics in different lens.
Content was great overall
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Incredibly enlightening with regards to how different concepts are tied together, albeit not very mathematically.
interesting
Good intro to machine learning
Interesting, good foundational knowledge, good flow of topics, good in–lecture activities
Not much math
Lecturers try to keep to 2h instead of 3h per week Workload is much more manageable compared to other CS modules I have taken so far
I like that the workload for this module is not high. I like the pacing of lectures and tutorials.
This module provides a great introduction to ML with the profs being the highlight because of how friendly they are and their effective teaching styles.
Well–structured, group project is effective is allowing students to explore datasets and models of their selection.
very interesting
Learnt interesting concepts about ML.
Good content and good explanation of content
AMA sessions, can we have more of this?
Deep concepts, real–world application in group project
nil
Engaging and caring profs :D concepts are really interesting and ties in with real world use cases
Honestly, the module promotes self directed learning and critical thinking. This is very different from modules that just gives you the

Comments
content. While it isn't the module's fault, i think many students will find this approach hard to follow as the content received during lecture seems very fluid and not efficient. Often, if one were to get "lost" in the lecture, it is very hard to come back especially during the lectures with a lot of mathematical notations. Lastly right, I liked that this module have a project component because it allowed us to work on a real machine learning project and analyse it. This experimental based approached allowed students liked myself to learn what works and also make use of what was taught to evaluate the various results. However, it will be good if evaluation metrics was taught earlier. I actually don't mind if it wasn't a proper lecture but a recorded lecture. overall thanks for teaching us.
Learn a lot about modern algorithms that are being used
topics taught were interesting and relevant in the real world
Projects were interesting and that the workload was just nice (1 assignment + 1 project apart form exams). GREAT TEACHING STAFF and gives help to students who need it
Provides a lot of flexibility in terms of project.
The content is interesting
An excellent introduction to machine learning. Many machine–learning topics are covered.
Machine learning is cool.
Interesting, enlightens me about how machines can think like humans by modelling neural networks
Teaches machine learning pipeline comprehensively, mentions a lot about possible models to be used in machine learning.
Learning about Machine Learning and the applications, which is increasingly useful nowadays.
Machine learning concepts were delivered very well.
I like how the lecturers used pre–lecture and in–lecture activities to engage us in our learning as well as active discussion about the questions raised. The slack channel is also very useful for us to review questions that other people asked.
They go through the math behind machine learning and helps me understand it as more than just a black box. A variety of different ideas were introduced and made the module interesting.
Intuitive and clear introduction to ML.
Hands on practical experience
Good introduction into the topic of Machine Learning
This mod provides fundemental knowledge of machine learning and it also provides a chance to hand on real projects. I enjoy learning in the process.

What I did not like about the module:

Comments
I think this module cover much more math than expected..
second half of the lecture is content heavy and faster paced
No diagnostic quizzes to test understanding of lecture content. The only way to check one's knowledge of the content is during midterms and tutorials. However, tutorials frequently test the implementation of various algorithms while midterms test the understanding of those algorithms.
the concepts hard to grasp..
Too much mathematics.
The project is quite heavy when combined with the fact that deep learning is only taught in the latter half of the module
Some mathematical contents are a bit hard to comprehend
The complexity of the theory and math portions
Project felt very fluff and did not really learn a lot through the project. Code–wise also not well versed in ML since we only could apply model evaluation – most code can be plucked off / learnt the internet.
A lot of content and math heavy.
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Assignment questions were open–ended although only had specific answers on obscure concepts. Aside from that, the midterm exam had slightly confusing English (e.g. on constraint with a "no budget", it occurred to me that this meant a 'limitless' budget instead of 'zero' budget).
I think the grouping algorithm for the project component is not very good to be honest. The idea of allocating groups based on abilities and experiences is good, but the result seemed inaccurate. In our group, none of us has any prior experience in machine learning, which resulted in very slow progress plus low efficiency. I feel like the grouping algorithm should do better to ensure

Comments
maximum fairness. As a component with such a high percentage, I think the project grouping really makes a difference in our grades. I'm not sure how other groups are doing, but I felt that my group is quite disadvantageous by not having anyone who is very good at machine learning or coding in general.
really dislike the fact that there is negative marking in exams.
Project very vague
Too abstract
Math can be too difficult, hard to follow during lectures
Not very precise
I felt that this module could go more in–depth into the topics on machine learning. I felt that this module could also give us more tips on how to use machine learning in real life.
It can get a lot sometimes
challenging
The math is really hard. Tutorial questions are very daunting to approach.
The project consultation should be earlier (e.g. week 9 / 10).
Content seemed to be very disorganised
Group project very undirected, dependent on group members you get...
the math, but that is not the fault of the lecturers/tutors
Too much freedom is given to the project component but not enough support from the teaching team, project team formation system is very flawed and does not match suitable teammates. A suggestion is to let those who want to play with more advanced concepts do it in CS3244R?
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nil
Very theoretical, would like for more hands on coding to tie in the concepts taught during lectures.
The math part feels inaccessible.
Alot of math :(
– Very math heavy and lectures with a lot of math were gone through at a fast pace, making it difficult to absorb. – Overemphasis on live lecture attendance and participation is detrimental to learning, especially since math–heavy topics greatly benefit from being able to pause and rewind in lecture recordings. – Project is very messy with very unclear guidelines and expectations, and project structure is very hands–off, making it very unclear what is expected of us.
The lectures by Prof Min were subpar
some concepts were quite confusing and a bit harder to grasp
Tutorial questions were often too abstract/difficult. Tough to apply what I learnt in lecture to practice and hone my understanding. I would recommend having 1 "easy" question per tutorial to check students understanding instead of multiple medium/difficult problems
high workload
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Would be better if classes are hybrid as to strictly physical. I spend a lot of time travelling just to attend the both lecture every week
More help provided to students would have been better
Could be very difficult sometimes, especially some concepts are not that easy to understand but is not explained enough.
Nothing.
While the math was fun, it was not easy to pick up and some parts felt like they were slightly rushed through.
Missing mathematical rigor. I do not like the project. It expect students who just learned about ML to do a independent research to tackle a ML problem. I would recommend more structured assignment for each respective topic, instead of a big project.
Project consultation with instructors in week 11 was very late. It was quite rushed for us to modify our project based on the feedback given.
The extremely open–ended nature of the project with a group of random people
Maybe can give more opportunities to dig deeper into each topic.