Research Project Progress Report Week 5 – SIT723

Student Name:	Tithra Chap
Supervisors' Names:	Assoc Professor Richard Dazeley, Dr Bahareh Nakisa, Dr Sunil Aryal
Project Title:	Emotion Recognition Using Facial Expression
SIT723 Target Grade:	HD
Overleaf Project Link:	https://www.overleaf.com/6618692772zcghdsfqcybf
Project Folder Link:	https://github.com/Tithra/SIT723.git
Worklog:	33hrs 20mins https://github.com/Tithra/SIT723/blob/c8093a262c2e029f7ce643063e0cb50168b6408d/Worklog.xlsx
Project Plan	
Summary of the work planned with your supervisor:	This week discussion has brought a swiping change of project direction. I will need to work on improving accuracy of the emotion recognition algorithm as opposed to finding the effectiveness rate of pre-processing facial images in emotion recognition. I will need to finetune the model and improve accuracy and report the results to Dr. Bahareh during the week. During the week, after reporting the results, Dr. Bahareh, asked me to integrate CK+ dataset as a variation to FER2013 and to look for an effective finetuning and pre-processing techniques from a good paper before starting a new experiment.

Summary of the work done:	I have produced the results of experiment using MobileNet and FER2013 in various setting of parameters. I received feedbacks for those results. Later, I did a search of literature to find some good techniques in finetuning model and pre-processing facial images. I also managed to access to CK+ dataset which I later prepared it for experiment with ResNet and MobileNet model.
Next steps:	Although the experiment results are under expectation, I can see that the model is overfitting with dataset. Overfitted model, by nature, can be improved. For that reason, I believe that there are ways to enhance it with further finetuning of parameters which requires my further searching on literature.
Overall project progress:	I pause the drafting of literature review because the direction of the project has been changed during the last supervisor meeting. To resume it, I will need to formulate a good model which can help direct my literature searching effectively. Overall, progress tends to stay behind the backlogs caused by the changes in supervised direction.

Reflection against Assessment Rubric

Add comments and evidence against your target grade for each criterion in the assessment rubric. You should also provide evidence (relevant to your target grade) on how you meet all the relevant criteria for that grade based on your progress so far.
In case you have not started work on a specific criterion, e.g., research evaluation, leave it blank.

Your reflection on work done so far against the assessment rubric criteria

Literature Review	I thoroughly search for papers related to CBAM and FER2013 via Deakin IEEE library as well as google scholar. I used advanced search tools which eliminates old papers, filters for only publications with relevant keywords: FER2013, CBAM, Convolutional Block Attention Module, and combination of these keywords. I skimmed through network architectures and dataset used to find the gap. Grade: D Appendix 1 gives the evidence of the relevant literatures that have been found.
Technical & Academic Writing	[Add your comments, grade and relevant evidence here]
Research Design	[Add your comments, grade and relevant evidence here]

Project Management	I have strictly followed the project backlogs that were planned early from the first week. The backlog was approved by all supervisors. Each week of supervisor meeting, there have been changes in research direction which I need to adjust the plan accordingly. For instance, in Week 4 and 5, there were major changes in the research direction from working pre-processing of images to working on improving accuracy. In addition, I set up Git repository to manage my version of model development of facial expression recognition which supervisors can track of progress level I have made. Literature resources are also stored there for an easy access. From week 4, I have also recorded details of meeting with supervisors so that I would not missed what to do. All of these notes are posted at Git repository for accessible by all supervisors. Grade: HD Appendix 2 shows Git repository where model versions are accessible and the commit activities so far. Appendix 3 shows the recorded meeting minutes with supervisors.

Artefact Development	Although it is still in the early stage, my development on the project artifact has been regular and progressive. Based on supervisors' comments, new changes have been made and reported in a regular basis. Since the research design has not been fixed, this artifact evolvement will continue based on experiment results and comments from the supervisors. It is challenging for me to carried out the development of the artifact. It requires me to upskill myself along the way and use all my IT skills in data science. So far, I have been able to execute all the necessary coding and data manipulation to performance the development of this artifact. The changes of any part of the artifact have always been discussed (with supervisors) prior to the execution. I have been able to effectively communicate technical problems and solutions with all supervisors. I am confident that it has been a fruitful communication between me and all supervisors on refining the artifact to a positive direction. Grade: HD Appendix 4 indicates the coding content of the artifact which can be accessible here: https://github.com/Tithra/SIT723/blob/main/FaceRecognition.v2.ipynb
Research Evaluation	[Add your comments, grade and relevant evidence here]
Research Dissemination	[Add your comments, grade and relevant evidence here]
OVERALL	Based on what I have performed in finding relevant literature resources, strictly managing the project and regularly improving the project artifact, I am confident that I am eligible for HD grade as described in the unit rubric.

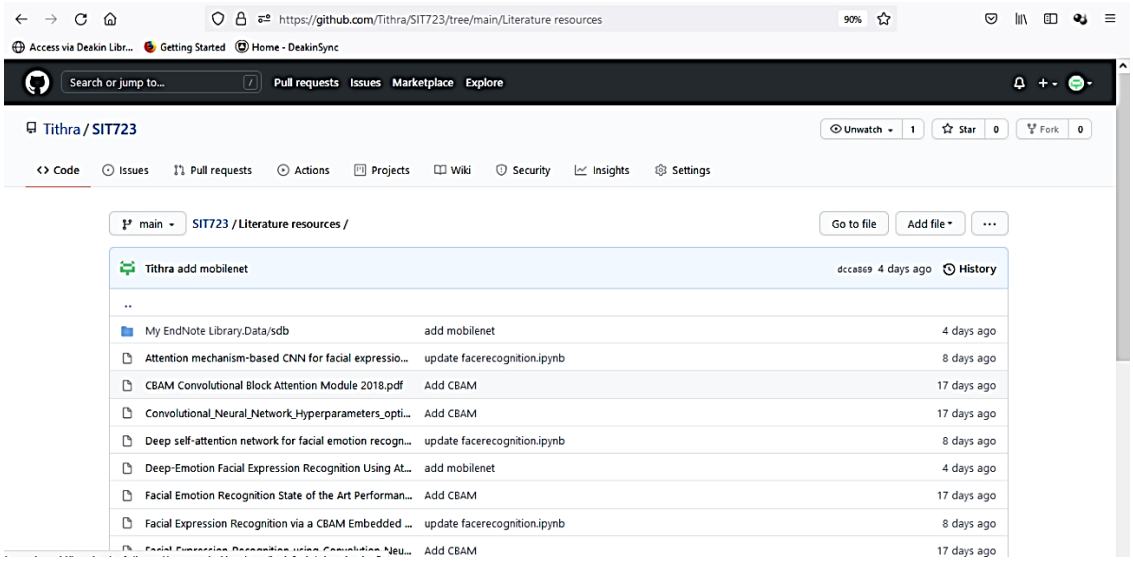
Additional Evidence

Add any evidence that supports your case for your target grade. For example, screenshot of git commits log, screenshot of your cloud storage folder, progress in your research report or artefact development, or a visual chart to illustrate project progress so far.

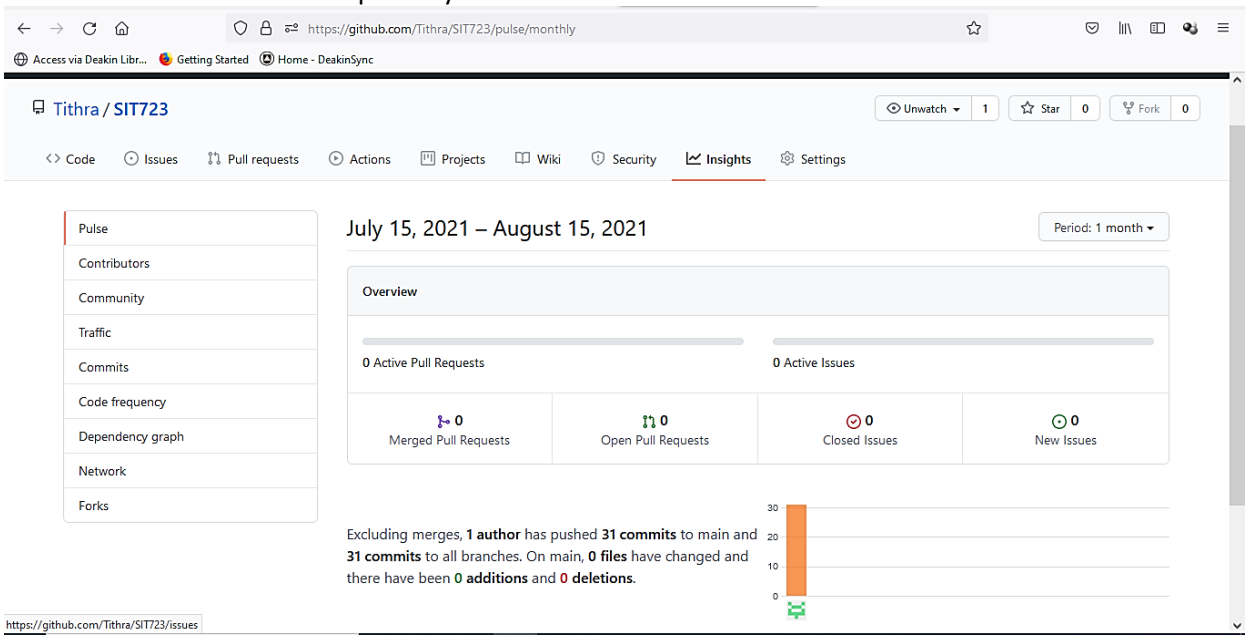
*This is your research project, and you need to demonstrate (**with evidence**) how you meet criteria for a certain grade. Make this project report easy to read and help anyone reading this report assess, with least effort, the progress you have made.*

Appendices:

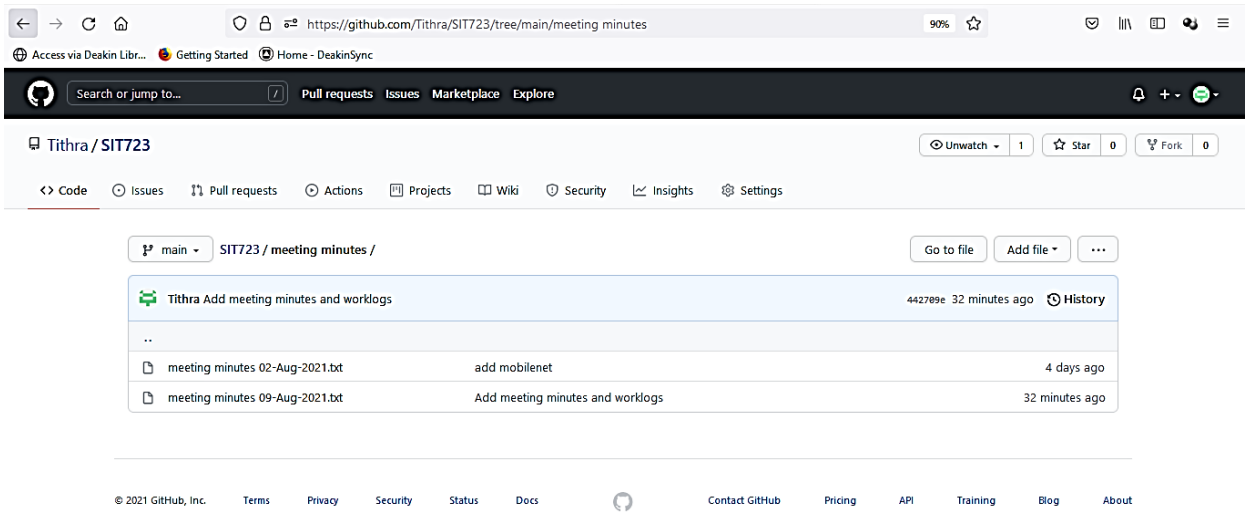
1. Paper publication relevant to the 'CBAM', 'Convolutional Block Attention Module', 'FER2013' and combination of these keywords.
   They are accessible here: https://github.com/Tithra/SIT723/tree/main/Literature%20resources



2. Number of commit GIT repository



3. Meeting minutes for week 4 and week 5



4. Project Artifact by 15-08-2021