

Project Management Documentation

Team Bothal

Development of SignPal

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Code of Conduct:

Respect: All team members should conduct themselves with a high level of respect and professionalism. There will be no toleration to disrespectful conduct, including harassment or discrimination.

Responsibility: All team members will be accountable for completing their allocated tasks to the best of their abilities and on scheduled timing. Members should inform the group manager as soon as possible if they will not be able to finish a task by the deadline.

Collaboration: All team members should work together effectively when needed as it is essential to the project's success. Each member should be eager to assist and aid other member.

Communication: A good level of communication is crucial for the project to be successfully completed. All members should strive to communicate in an attentive, and clear manner. Members should communicate with one another frequently, as well as communicating with the project manager.

Attendance and Absence: All team members should attend all set meetings. Frequent absence of group members in meetings would lead to involving module tutors and teaching staff.

Meeting Procedures: Meetings shall take place biweekly on campus, meetings should consist of providing updates on work, issues ran into and progress. Meetings will usually take between 30-60 minutes.

Confidentiality: All team members should maintain the confidentiality of any sensitive information pertaining to the project, and they should not disclose sensitive information to anyone outside the group without the permission from all group members.

Accountability: All team members will be held responsible for their choices and actions done. Members should accept responsibility for mistakes they make and attempt to resolve the issue.

Professionalism: All team members should act professionally at all times while interacting with other team members and members of staff. This entails arriving on time, keeping to deadlines, and delivering work of high quality.

Commitment: All team members should have a high level of commitment to the project and are expected to complete personal and group missions to the best of their abilities.

Conflict: All team members are expected to adhere to a professional manner when/if conflicts arise. Project manager should be notified if a conflict occurs, and team members should work together to resolve conflicts. If group cannot resolve a conflict, a vote will be done with the majority vote winning. If vote remains at a 50/50 split, project manager will have final say.

Ethical Conduct: All team members are expected to adhere to the university's ethical standards throughout their work, any form of unethical behavior will not be tolerated. Furthermore, all team members should be treated in a fair and ethical manner.

Group Member Signatures:

Signed:

Abdullah Musleh



Signed:

Mohammed Chtiar



Signed:

Mohamed Etri



Signed:

Syed Quadri



Skills Audit:

Student name: Abdullah Musleh					
Skill	I do not know how to do this	I have some idea how to do this, but need to develop my skills	I can do this, but need more practise	I am comfortable doing this	I am skilled in this
Score	1	2	3	4	5
Written Communication					X
Literature Reviewing				X	
Programming (general)					X
Programming AI applications				X	
Creative problem solving					X
Solution design description				X	
Iterative development of AI				X	
Solution testing			X		
Project Management					X
Maths for AI		X			
Critical Evaluation				X	
API design and creation		X			
UI design and creation				X	
Putting forward suggestions in team meetings					X
Putting forward suggestions by email/text/etc					X

Brief Commentary on Strengths and Weaknesses

I can say that I am quite comfortable managing the project and want to do so, furthermore I am skilled in communicating effectively, solving problems, evaluation and in programming. But I have a weak point in mathematics, so I aim to stir clear from that part of the project. I also don't feel comfortable designing and creating APIs for the project.

Student name: Mohamed Etri					
Skill	I do not know how to do this	I have some idea how to do this, but need to develop my skills	I can do this, but need more practise	I am comfortable doing this	I am skilled in this
Score	1	2	3	4	5
Written Communication				X	
Literature Reviewing				X	
Programming (general)			X		
Programming AI applications			X		
Creative problem solving			X		
Solution design description				X	
Iterative development of AI			X		
Solution testing			X		
Project Management				X	
Maths for AI				X	
Critical Evaluation			X		
API design and creation	X				
UI design and creation			X		
Putting forward suggestions in team meetings					X
Putting forward suggestions by email/text/etc					X

Brief Commentary on Strengths and Weaknesses

I have very strong communication skills as well as mathematical problem-solving skills, I contribute to this team by putting forward suggestions for certain problems we have as we build this project. My weaknesses are building sophisticated code that implements certain functions, I don't know how to create API or how to design it.

Student name: Syed W. Quadri					
Skill	I do not know how to do this	I have some idea how to do this, but need to develop my skills	I can do this, but need more practise	I am comfortable doing this	I am skilled in this
Score	1	2	3	4	5
Written Communication			X		
Literature Reviewing			X		
Programming (general)					X
Programming AI applications				X	
Creative problem solving				X	
Solution design description			X		
Iterative development of AI			X		
Solution testing			X		
Project Management			X		
Maths for AI				X	
Critical Evaluation			X		
API design and creation				X	
UI design and creation				X	
Putting forward suggestions in team meetings				X	
Putting forward suggestions by email/text/etc				X	

Brief Commentary on Strengths and Weaknesses

I have very strong skills in programming and I aim to implement my skillsets in this project. Furthermore, I have a good sense of creativeness and communication that I will use throughout the work. I would say that I would not prefer to critically evaluate or plan and manage this project.

Student name: Mohammed Chtiar					
Skill	I do not know how to do this	I have some idea how to do this, but need to develop my skills	I can do this, but need more practise	I am comfortable doing this	I am skilled in this
Score	1	2	3	4	5
Written Communication				X	
Literature Reviewing			X		
Programming (general)				X	
Programming AI applications			X		
Creative problem solving					X
Solution design description		X			
Iterative development of AI			X		
Solution testing			X		
Project Management				X	
Maths for AI		X			
Critical Evaluation			X		
API design and creation			X		
UI design and creation				X	
Putting forward suggestions in team meetings				X	
Putting forward suggestions by email/text/etc					X

Brief Commentary on Strengths and Weaknesses

As a student, I have identified my strengths and weaknesses in various skills related to AI. I feel comfortable in written communication, programming in general, creative problem solving, project management, UI design and creation, and putting forward suggestions in team meetings or through email and text. However, I still need more practice in literature reviewing, programming AI applications, solution design description, iterative development of AI, solution testing, maths for AI, and critical evaluation. I can do API design and creation, but also need more practice. Overall, I am aware of my strengths and weaknesses and will work on improving my skills in the areas where I need more practice.

Skills Audit Summary:

	Abdullah Musleh	Mohamed Etri	Syed Quadri	Mohammed Chtiar
Written Communication	5	4	3	4
Literature Reviewing	4	4	3	3
Programming (general)	5	3	5	4
Programming AI applications	4	3	4	3
Creative problem solving	5	3	4	5
Solution design description	4	4	3	2
Iterative development of AI	4	3	3	3
Solution testing	3	3	3	3
Project Management	5	4	3	4
Maths for AI	2	4	4	2
Critical Evaluation	4	3	3	3
API design and creation	2	1	4	3
UI design and creation	4	3	4	4
Putting forward suggestions in team meetings	5	5	4	4
Putting forward suggestions by email/text/etc	5	5	4	5

Brief Commentary on Team Strengths and Weaknesses

It is evident from the skill audits filled in by each member of the group that we have a wide array of skillsets available to our disposal and each member had their own strengths and weaknesses evident. We will work hand in hand to cooperate since some members strengths are other weaknesses and vice versa, thus hopefully allowing a smooth flow of work throughout this project. We have members who are excellent at programming, mathematics, management and critical thinking and evaluation.

Risk Analysis:

According to *Campbell (2014)*, "A risk is as an uncertain event or condition that, if it occurs, has an effect on at least one project objective, such as the scope, schedule, cost, or quality." To conduct a successful risk analysis and following established project management practices such as ones seen in *Campbell (2014)*, risks will be identified, analyzed, have a probability measure, impact measure and a mitigation plan.

To begin with, the identification of risks should be done first. There are a wide array of risks that may arise during the development of the project that can be split into 5 main categories including project management risks, technical risks, team member risks, resource risks and performance risks.

Risk Identification:

Project Management Risks	
Risk ID	Risk
1	Poor project planning, in turn causing requirements to be unmet and missed deadlines.
2	Inadequate communication of team members.
3	Scope creep, project may be expanded beyond original plans causing delays.

Technical Risks	
Risk ID	Risk
4	Compatibility problems due to use of different hardware and operating systems.
5	Issues with utilizing third party libraries.
6	Unexpected coding challenges throughout software development.

Team Member Risks	
Risk ID	Risk
7	Interference with work due to personal reasons, illness etc.
8	Team member errors, causing quality issues.

Resource Risks	
Risk ID	Risk
9	Inadequate resources including but not limited to time and hardware.
10	Insufficient technology to conduct project.

Performance Risks	
Risk ID	Risk
11	Poor performance of software, leading to crashes and slowness when running program.

Analyzing Risks:

After identifying the risks involved in the project, following practices of the Project Management Institute, the risks are then analyzed to aid in identifying the impacts on the project in a qualitative and quantitative manner. In turn allowing for the identification of the pertinent techniques to mitigate said risks.

The two factors considered will be the probability of occurrence and the risk impact. The probability of occurrence will be split into four groups: High probability, Medium-high probability, Medium-low probability, and Low probability (*Project Management Institute, n.d.*). The following figure sets forth the boundaries for allocating the group type.

Probability of occurrence

- High probability ($80 \% \leq x \leq 100\%$)
- Medium-high probability ($60 \% \leq x < 80\%$)
- Medium-Low probability ($30 \% \leq x < 60\%$)
- Low probability ($0 \% < x < 30\%$)

Risk impact

Additionally, Risk impact will be split into three groups consisting of:

- Catastrophic (Risk impact level of 100)
- Critical (Risk impact level of 50)
- Marginal (Risk impact level of 10)

Identified Risks, alongside probability of occurrence and risk impact		
Risk ID	Probability of occurrence	Risk Impact
1	Medium-low probability	Catastrophic
2	Medium-low probability	Catastrophic
3	Medium-low probability	Marginal
4	High probability	Marginal
5	Medium-high probability	Marginal
6	High probability	Critical
7	Low probability	Marginal
8	Medium-low probability	Marginal
9	Medium-low probability	Catastrophic
10	Low probability	Catastrophic
11	Low probability	Catastrophic

Moving on, the general practice seen by the PMI is to calculate the risk exposure by taking the upper boundary of the measure of probability of occurrence, with the risk impact level. The following figure shows the possible risk exposure scores.

		Probability of occurrence			
		High probability (80 % $\leq x \leq 100\%$)	Medium-high probability (60 % $\leq x < 80\%$)	Medium-Low probability (30 % $\leq x < 60\%$)	Low probability (0 % $< x < 30\%$)
Risk Impact	Catastrophic (100)	Exposure: High Score: 100	Exposure: High Score: 80	Exposure: High Score: 60	Exposure: Moderate Score: 30
	Critical (50)	Exposure: High Score: 50	Exposure: Moderate Score: 40	Exposure: Moderate Score: 30	Exposure: Low Score: 15
	Marginal (10)	Exposure: Low Score: 10	Exposure: Low Score: 8	Exposure: Low Score: 6	Exposure: Low Score: 3

Identified Risks with corresponding Risk Exposure Scores		
Risk ID	Risk Exposure Score	Ownership
1	60	Abdullah Musleh
2	60	All group members
3	6	Abdullah Musleh
4	10	All group members
5	8	All group members
6	50	All group members
7	3	All group members
8	6	All group members
9	60	All group members
10	30	N/A
11	30	All group members

RANKED Identified Risks with corresponding Risk Exposure Scores		
Risk ID	Risk Exposure Score	Ownership
1	60	Abdullah Musleh
2	60	All group members
9	60	All group members
6	50	All group members
10	30	N/A
11	30	All group members
4	10	All group members
5	8	All group members
8	6	All group members
3	6	Abdullah Musleh
7	3	All group members

RANKED Identified Risks with corresponding Risk Exposure Scores and actions			
Risk ID	Risk Exposure Score	Ownership	Action
1	60	Abdullah Musleh	High risk, action as soon as possible.
2	60	All group members	
9	60	All group members	
6	50	All group members	
10	30	N/A	Risk may be acceptable, needs to be monitored.
11	30	All group members	
4	10	All group members	Low risk, no gains expected from tackling risks.
5	8	All group members	
8	6	All group members	
3	6	Abdullah Musleh	
7	3	All group members	

Risk Mitigation Plan:

Moving on, a mitigation plan and a contingency plan for the risks are developed (*A Guide To The Project Management Body of Knowledge, 2008*). Also, risks should be monitored and controlled throughout the project.

Identified Risks, Risk Exposure Scores and Risk Mitigation Techniques		
Risk ID	Risk Exposure Score	Risk Mitigation Techniques
1	60	<ul style="list-style-type: none">- Ensure to develop a detailed project management document covering what needs to be done, by whom, and by when.- Ensure all members of team are producing clear and concise work and project manager should monitor progress of team closely and communicate with them, ensuring work is on track.
2	60	<ul style="list-style-type: none">- Ensure all team members are using communication channels effectively and frequently.- Schedule biweekly meetings with all members present discussing relevant information and progress.
3	6	<ul style="list-style-type: none">- Ensure that a clear project scope is developed, and all work relevant to the project is within the scope set.- Monitor project progress against the project plan to identify any possible creep up.
4	10	<ul style="list-style-type: none">- Ensure that hardware and software standards are set for the project, using same hardware and software throughout the project would reduce the risk of compatibility issues.- Test hardware and software compatibility before developing software.
5	8	<ul style="list-style-type: none">- Ensure to only use well known libraries that have good documentation and a large user base.- Conduct tests before utilizing libraries for the software.- Regularly check for library updates to avoid the risk of issues arising.
6	50	<ul style="list-style-type: none">- Implement a basal solution before developing the main solution.- Conduct tests frequently to identify unexpected issues early.- Team members should review code of other members to attempt to identify potential issues.
7	3	<ul style="list-style-type: none">- Ensure that remote working technology is used to allow team members to be able to work remotely as well.

		<ul style="list-style-type: none"> - Team members should communicate if any possible issues may arise to be able to deal with issues in an easier manner.
8	6	<ul style="list-style-type: none"> - Conduct frequent code reviews and testing, to identify any possible mistakes/errors in code. - Team members should work together when needed, providing a support system to aid in resolving issues quickly and effectively.
9	60	<ul style="list-style-type: none"> - Development of a detailed schedule to be followed by all team members to the highest extent possible. If issues arise, communication is essential to allow for contingency planning to be done. - Prioritization of missions and deadlines should be set to allow for a greater understanding for all team members. - Progress of project should be monitored closely and adjusted if needed. Including adjusting scheduling, prioritization of missions etc.
10	30	<ul style="list-style-type: none"> - Research about possible technology usage and select appropriate technology that is accessible for all team members.
11	30	<ul style="list-style-type: none"> - Ensure performance testing is done, to identify any potential issues before code is deployed. - Attempt to optimize code to the highest possible degree by implementing smart programming choices. - Utilize appropriate hardware and software to better match solutions needs.

Risk Contingency Plan:

Identified Risks, Risk Exposure Scores and Risk Contingency.		
Risk ID	Risk Exposure Score	Risk Contingency Plans
1	60	Project manager to acquire assistance from group members in managing project.
2	60	Project manager to enforce proper communication and to adjust meetings timing accordingly (i.e. meeting time, meeting frequency)
3	6	Project manager to refuse any additional features/concepts presented.
4	10	Project manager enforces all group members to shift to similar software/hardware.
5	8	Attempt to find other libraries, read documentation to attempt to fix issues.
6	50	Face the challenges, attempt to read through documentation and online forums for technical help.
7	3	Project manager should communicate with team member, offer advice and gain understanding of situation. Adjust timeline set accordingly.
8	6	Team members to go back to errors and fix them.
9	60	Attempt to complete work on time, acquire better hardware.
10	30	Change project idea completely.
11	30	Attempt to read through documentation and online forums for technical help.

Risk Monitoring and Control:

Risks Identified During Development	
Risk ID	Risk
12	Sign Language model not being able to differentiate between different letter signs.
Response	
To overcome this risk, more images will be used in training the data including different angles (front view, side view, titled etc.) as well as increasing the training level of the data.	

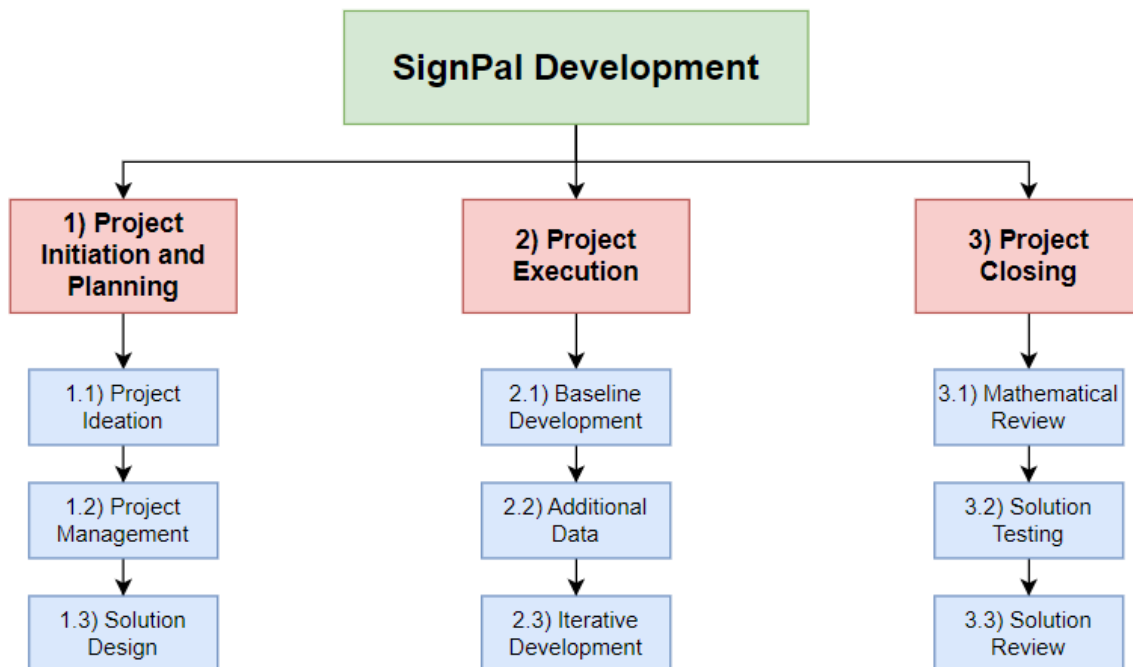
Task Management:

Mission Allocation:

Abdullah	Syed	Mohamed E.	Mohammed C.
Iterative Development			
Project Management	Solution Design	Project Ideation	Solution Testing
Baseline Development	Solution Review	Mathematical Review	Additional Data

Work Breakdown Structure:

Following established project management practices seen in *Campbell (2014)*, a work breakdown structure (WBS) is used to break down the work into phases to make the work more manageable and easier to complete.



Task Breakdown and Prioritization:

Furthermore, work is then broken down into smaller tasks, that are more easily tackled by group members.

Mission	Phase	Tasks	Priority
Project Ideation	Project Initiation	<ol style="list-style-type: none">1. Brainstorm problem areas to address.2. Conduct some research on existing solutions/research in the problem area.3. Develop a clear problem statement summarizing challenges to be addressed.4. Write the motivation behind the problem and why it should be addressed.5. Develop a project statement outlining what/how problem will be addressed.6. Review Project Initiation document to ensure it is well structured and clear.7. Share document with team members on GitHub.	High
Project Management	Project Planning	<ol style="list-style-type: none">1. Draw up code of conduct for the team to sign and follow.2. Draw up team member's skills audit.3. Conduct research on established project management practices.4. Establish communication channels for team members.5. Conduct risk analysis of project with risk response plans.6. Conduct task management.7. Set schedule for project with deliverables, ensure all project deliverables and milestones are on time.8. Continuous progress and communication logging.9. Continuous collaboration with team members to resolve issues.10. Share/Update document with team members on GitHub.	High
Solution Design	Project Planning	<ol style="list-style-type: none">1. Identify the problem the solution is trying to solve and objective of the proposed solution.2. Elicit requirements for proposed solution.3. Draw up a diagram for proposed solution that outline the architecture.4. Describe the proposed solution that will be developed.5. Describe the dataset that will be utilized.	High

		<ol style="list-style-type: none"> 6. Write down reasonings behind the development of proposed solution. 7. Document findings in a Solution Design Document. 8. Review Solution Design document to ensure it is well structured and clear. 9. Share Solution Design document with team members on GitHub. 	
Baseline Development	Project Execution	<ol style="list-style-type: none"> 1. Prepare initial version of dataset used. 2. Develop and implement initial version of solution. 3. Evaluate initial solution. 4. Set up environment to be able to run code. 5. Create a snapshot of the project. 6. Share repository with team members on GitHub. 7. Review Baseline Development document to ensure it is well structured and clear. 8. Share Baseline Development document with team members on GitHub. 	Medium
Additional Data	Project Execution	<ol style="list-style-type: none"> 1. Determine the need for an additional dataset. 2. Develop a plan for incorporating the additional dataset into the solution. 3. Incorporate the additional dataset. 4. Discuss methods used to prepare and integrate new datasets. 5. Produce an impact report discussing the impact of additional data on solution. 6. Review Additional Data document to ensure it is well structured and clear. 7. Share Additional Data document with team members on GitHub. 	Medium
Iterative Development	Project Execution	<ol style="list-style-type: none"> 1. Evaluate several data pre-processing techniques. 2. Conduct model evaluations and compare models. 3. Justify the parameters and tuning methods used for the model. 4. Produce reproducible code of the solution, being well documented and commented. 5. Share repository with team members on GitHub. 6. Review Iterative Development document to ensure it is well structured and clear. 7. Share Iterative Development document with team members on GitHub. 	High

Mathematical Review	Project Closing	<ol style="list-style-type: none"> 1. Formulate the problem mathematically by defining relevant variables, constraints, and objectives. 2. Choose appropriate model parameters keeping complexity and accuracy in mind. 3. Provide a detailed review report summarizing the problem, theory and choices made in developing the solution. 4. Review Mathematical Review document to ensure it is well structured and clear. 5. Share Mathematical Review document with team members on GitHub. 	Medium
Solution Testing	Project Closing	<ol style="list-style-type: none"> 1. Define the scope of the testing plan including the features that will be tested. 2. Create the testing plan with test cases for the features. 3. Perform testing plan on solution. 4. Document the test results in a test report include any issues or bugs found. 5. Based on test results, come up with recommendations for the solution, including ideas for enhancing overall functionality/performance. 6. Review Solution Testing document to ensure it is well structured and clear. 7. Share Solution Testing document with team members on GitHub. 	Medium
Solution Review	Project Closing	<ol style="list-style-type: none"> 1. Identify relevant literature related to team's solution. 2. Compare results of the developed solution with existing solutions / literature. 3. Justify the comparisons being made and explain any potential biases or limitations. 4. Evaluate the fairness of the comparisons. 5. Document all findings in a Solution Review document. 6. Review Solution Review document to ensure it is well structured and clear. 7. Share Solution Testing document with team members on GitHub. 	High

Mission Dependency:

Moving on, mission dependencies are logical relationships between all the missions in the project. It is essential to know the dependencies between missions as it gives an insight onto the project timeline and how a project can be delayed if a certain mission wasn't completed on time.

Mission (A)	Depends on (B)	Dependency type
Project Ideation	N/A	N/A
Project Management	N/A	N/A
Solution Design	Project Ideation	Finish-to-start
Baseline Development	Solution Design, Project Ideation	Finish-to-finish
Additional Data	Solution Design, Baseline Development	Finish-to-finish
Iterative Development	Baseline Development, Additional Data, Solution Design, Project Ideation, Project Management	Start-to-start
Mathematical Review	Solution Design, Iterative Development	Finish-to-start
Solution Testing	Iterative Development	Finish-to-start
Solution Review	Iterative Development, Solution Testing	Finish-to-start

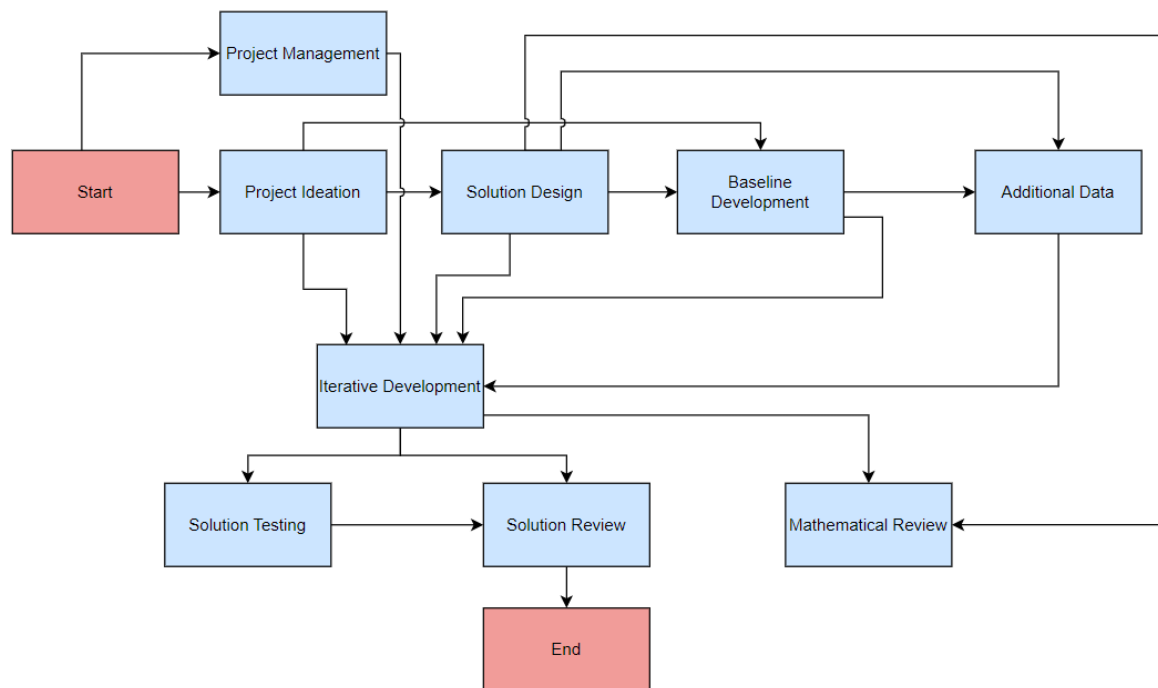
Finish-to-start (*B must finish before A can start*)

Finish-to-finish (*B must finish before A can finish*)

Start-to-start (*B must start before A can start*)

Start-to-finish (*B must start before A can finish*)

PERT Dependency Diagram:



*Direction of Dependency: dependent mission is pointed to by mission that is depended on.

(eg. Solution Review pointed to by Iterative Development, meaning Solution Review depends on Iterative Development)

Change Log:

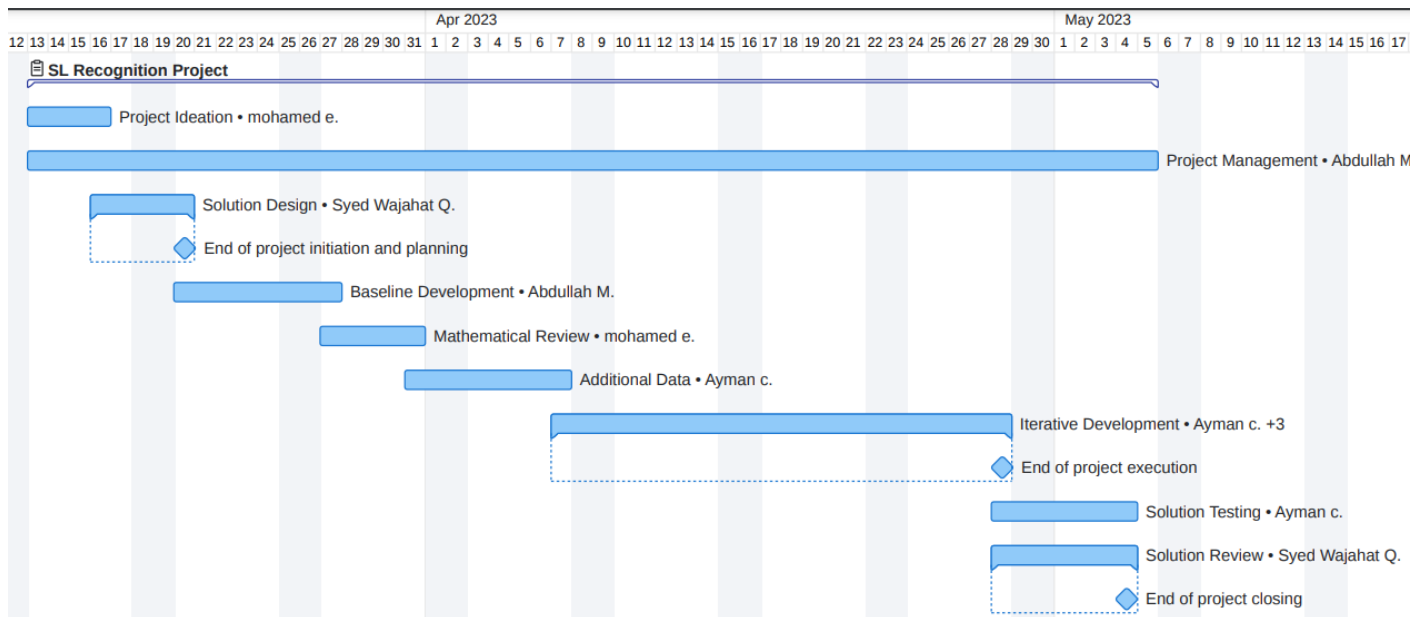
Date	Change	Impact
25/3/2023	Change mathematical review and additional data to be done simultaneously.	Increase iterative development from 16 days to 28 days.
27/3/2023	Change mathematical review to be done after iterative development.	No timeline changes.
26/4/2023	Changed Solution Review to be done after Solution Testing.	Solution Testing and Solution Review shortened to 5 days each.

Master Schedule:

Milestones and deliverables (version 1):

Missions	Start Date	Duration	End Date	Deliverables
Project Ideation	13/3/2023	4 days	16/3/2023	Project Ideation Document
Project Management	13/3/2023	40 days	5/5/2023	Project Management Document
Solution Design	16/3/2023	5 days	20/3/2023	Solution Design Document
End of project initiation and planning			20/3/2023	
Baseline Development	20/3/2023	7 days	27/3/2023	Initial version of solution
Mathematical Review	27/3/2023	5 days	31/3/2023	Mathematical Review Document
Additional Data	31/3/2023	8 days	7/4/2023	Additional Data Document
Iterative Development	7/4/2023	22 days	28/4/2023	Final version of solution
End of project execution			28/4/2023	
Solution Testing	28/4/2023	5 days	4/5/2023	Solution Testing Document
Solution Review	28/4/2023	5 days	4/5/2023	Solution Review Document
End of project closing			4/5/2023	
Submission of project			7/5/2023	

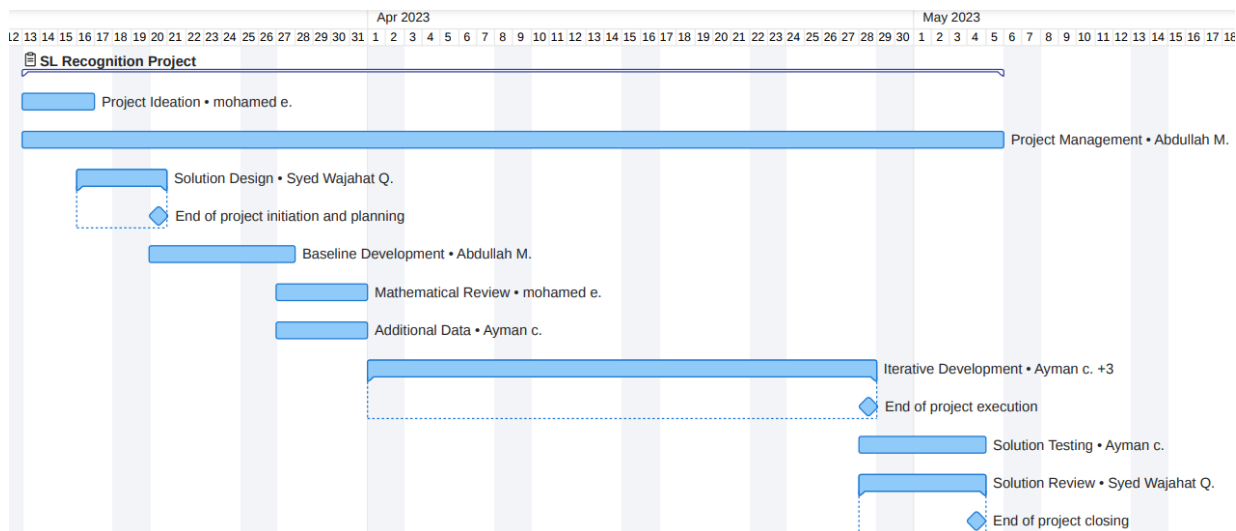
GANTT chart (version 1):



Milestones and deliverables (version 2):

Missions	Start Date	Duration	End Date	Deliverables
Project Ideation	13/3/2023	4 days	16/3/2023	Project Ideation Document
Project Management	13/3/2023	40 days	5/5/2023	Project Management Document
Solution Design	16/3/2023	5 days	20/3/2023	Solution Design document
End of project initiation and planning			20/3/2023	
Baseline Development	20/3/2023	8 days	27/3/2023	Initial version of solution
Mathematical Review	27/3/2023	5 days	31/3/2023	Mathematical Review Document
Additional Data	27/3/2023	5 days	31/3/2023	Additional Data Document
Iterative Development	1/4/2023	28 days	28/4/2023	Final version of solution
End of project execution			28/4/2023	
Solution Testing	28/4/2023	7 days	4/5/2023	Solution Testing Document
Solution Review	28/4/2023	7 days	4/5/2023	Solution Review Document
End of project closing			4/5/2023	
Submission of project			7/5/2023	

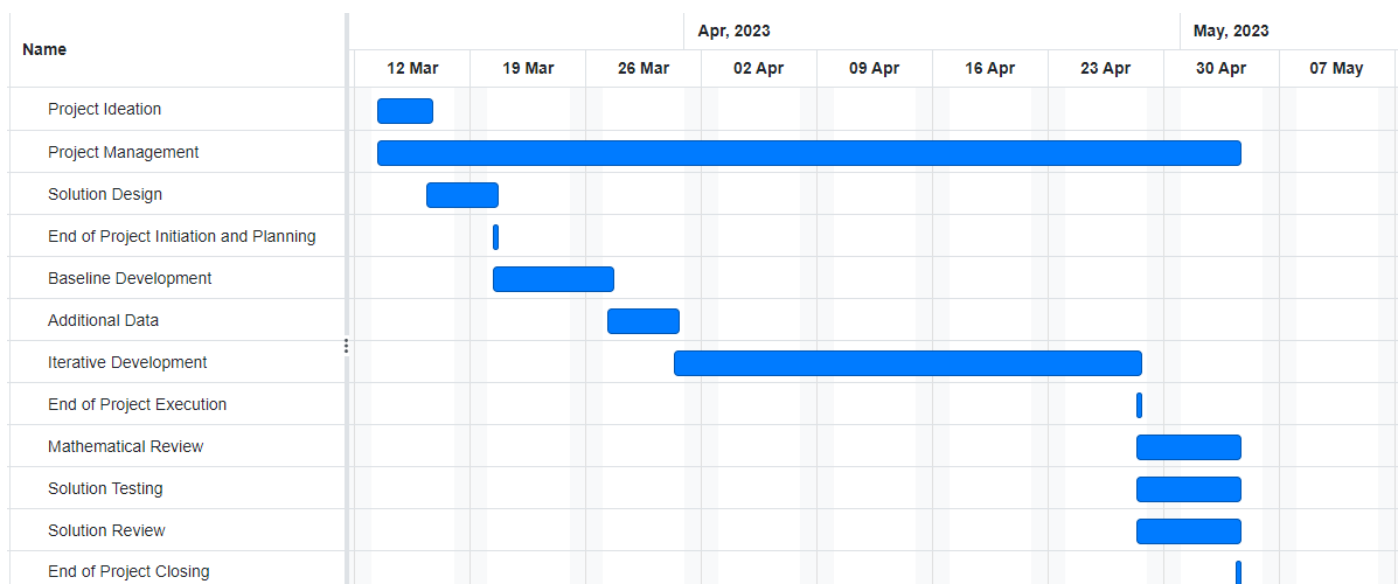
GANTT chart (version 2):



Milestones and deliverables (version 3):

Missions	Start Date	Duration	End Date	<u>Deliverables</u>
Project Ideation	13/3/2023	4 days	16/3/2023	Project Ideation Document
Project Management	13/3/2023	40 days	5/5/2023	Project Management Document
Solution Design	16/3/2023	5 days	20/3/2023	Solution Design Document
End of project initiation and planning			20/3/2023	
Baseline Development	20/3/2023	8 days	27/3/2023	Initial version of solution, Baseline Solution Document
Additional Data	27/3/2023	5 days	31/3/2023	Additional Data Document, Additional Dataset
Iterative Development	1/4/2023	28 days	28/4/2023	Final version of solution, Iterative Development Document
End of project execution			28/4/2023	
Mathematical Review	28/4/2023	7 days	4/5/2023	Mathematical Review Document
Solution Testing	28/4/2023	7 days	4/5/2023	Solution Testing Document
Solution Review	28/4/2023	7 days	4/5/2023	Solution Review Document
End of project closing			4/5/2023	
Submission of project			7/5/2023	

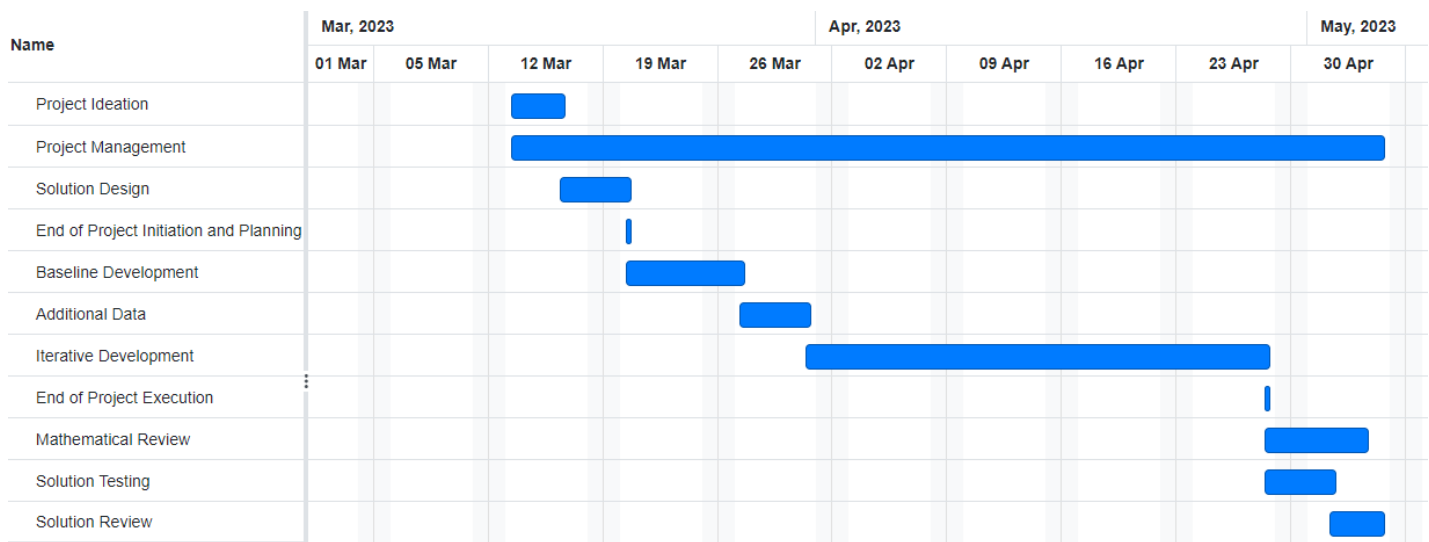
GANTT chart (version 3):



Milestones and deliverables (Final):

Missions	Start Date	Duration	End Date	<u>Deliverables</u>
Project Ideation	13/3/2023	4 days	16/3/2023	Project Ideation Document
Project Management	13/3/2023	41 days	6/5/2023	Project Management Document
Solution Design	16/3/2023	5 days	20/3/2023	Solution Design Document
End of project initiation and planning			20/3/2023	
Baseline Development	20/3/2023	8 days	27/3/2023	Initial version of solution, Baseline Solution Document
Additional Data	27/3/2023	5 days	31/3/2023	Additional Data Document, Additional Dataset
Iterative Development	1/4/2023	28 days	28/4/2023	Final version of solution, Iterative Development Document
End of project execution			28/4/2023	
Mathematical Review	28/4/2023	7 days	4/5/2023	Mathematical Review Document
Solution Testing	28/4/2023	5 days	2/5/2023	Solution Testing Document
Solution Review	2/5/2023	5 days	6/5/2023	Solution Review Document
End of project closing			6/5/2023	
Submission of project			7/5/2023	

GANTT chart (Final):



Additional Elements:

Conflict Resolution Plan:

Following established practices, such as the ones seen in (*Usmani, 2022*), I have reviewed the several conflict resolution techniques and chose the Collaborating technique.

This technique involves finding solutions that satisfy the needs of all members of the conflict. This technique was chosen since it allows all team members to have their concerns addressed and encourages open communication and facilitates a greater level of satisfaction, team spirit and understanding.

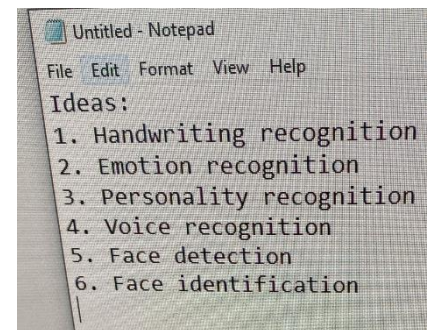
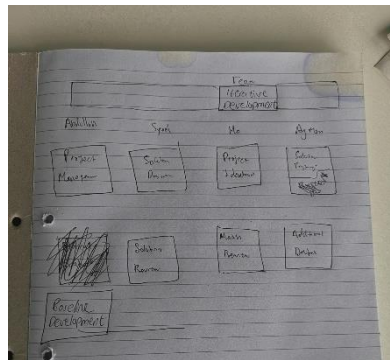
There are various steps to be taken once a conflict arises including:

1. Identifying all members involved in the conflict.
2. Arrange a meeting with involved members.
3. Encourage each member to express their concerns/views and define the issue at hand.
4. Attempt to identify the common ground, showing areas where members can work together.
5. Brainstorm several solutions.
6. Evaluate the proposed solutions and weigh in the advantages and drawbacks.
7. Identify the best solution which attempts to satisfy every members needs.
8. Implement the solution and communicate with team members.
9. Follow up with all team members to ensure the conflict has been resolved successfully to avoid further conflict.

Progress Report:

First Group Meeting: 08/02/2023

Group met together to discuss and go through the software engineering practice umbrella and AI assessment briefs. Both documents were read and understood by all members of the group, and some brainstorming was done in choosing an AI problem to tackle and initial missions were decided by group members in a fair fashion. Some issues did arise due to confusion in the assessment briefs where we were unsure whether baseline development was an individual or group responsibility.



Confirming Missions: 13/02/2023


After gaining some clarity with the previous concerns by talking to a member of the teaching staff regarding some missions, the group has decided and finalized the missions and responsibilities of each person. Furthermore, the group has decided to base our project on the idea of handwriting recognition.

Abdullah	Syed	Mohamed E.	Mohammed C.
Iterative Development			
Project Management	Solution Design	Project Ideation	Solution Testing
Baseline Development	Solution Review	Mathematical Review	Additional Data

Submission of skills audit and proposal: 16/02/2023


After receiving skills audits from each member of the group, group manager merged all audits into one document and provided a brief summary on the skillsets of the group.

Bothal AI proposal and skills audit🔗 1 🔍 📄

 **abdullah.musleh**

To: Dan Hodgson
Cc: mohamed.etri; mohammed.chtiar; syed.quadri

Thu 2/16/2023 10:56 PM

 Bothal AI Proposal & Skills A...
35 KB

Hello, I hope this email finds you well.
Kindly find attached the skills audit and project proposal for the Bothal AI group.
Kind regards,
Abdullah

↩ Reply ↶ Reply all ➦ Forward


Second Group Meeting: 22/02/2023

Quick meeting was scheduled to discuss how to tackle workload and stay on schedule.

Initial Idea Rejected: 01/03/2023

After reviewing the idea with teaching staff, we were told that the initial project was not complex enough.

Group project for KF5012😊 ↩ Reply ↶ Reply All ➦ Forward 📄 ...
Wed 01/03/2023 10:08

 **Honglei Li**
To: abdullah.musleh; mohamed.etri; syed.quadri; mohammed.chtiar
Cc: Dan Hodgson; jialou.wang

Hi Group Bothal,
After careful review, your project idea of text recognition is not innovative enough. You also haven't provided enough description of your project. It is expected you write a paragraph to introduce your project ideas. I will look forward for you to come out of another idea.

Regards,
Honglei

Third Group Meeting, Final Idea Confirmation: 07/03/2023

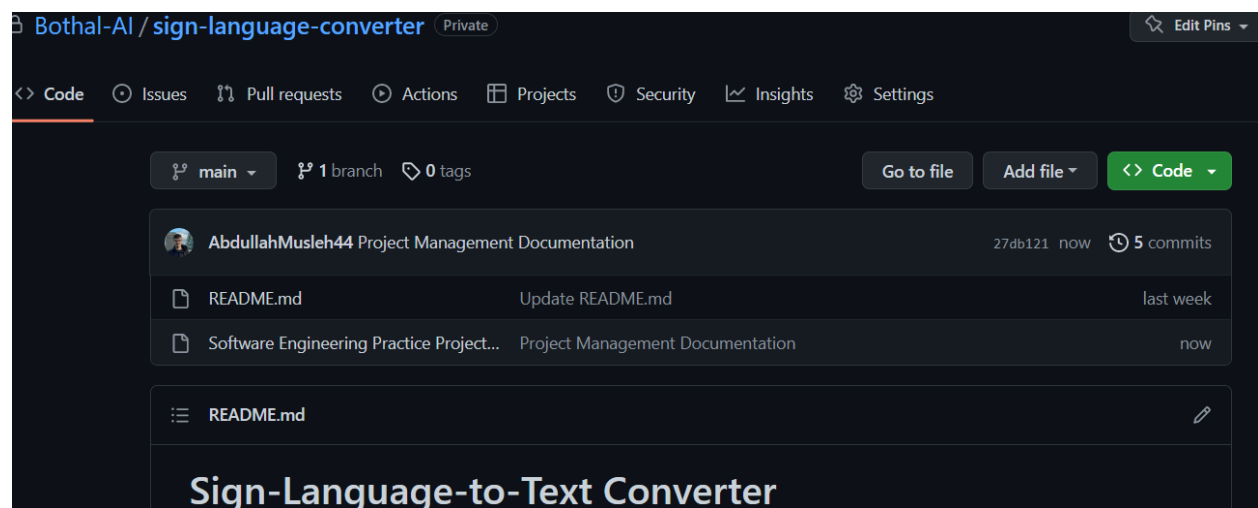
The group has discussed and brainstormed new ideas to come up with an idea of developing software to recognize sign language and output the translation in text. The idea was then confirmed with teaching staff.

Beginning of work: 13/03/2023

After idea confirmation, work has begun on the project ideation mission as well as the project management mission.

Project Management Document Shared: 15/03/2023

After the initial version of the project management document being completed containing task breakdown and mission scheduling, document was shared with group members via GitHub.



Solution Design Document Completed: 20/03/2023

After the completion of the project ideation and the initial version of the project management document, The solution design document was completed and shared on GitHub. All work on schedule so far.

Fourth Group Meeting: 22/03/2023

Meeting was scheduled to discuss the upcoming work that was needed to be done and to check that all work is on schedule.

Change in scheduling #1: 25/03/2023

To be more efficient with our time, the mathematical review and additional data missions are now changed to be done simultaneously, this has led to more time being available for the iterative development of the solution.

Baseline Development Complete: 26/03/2023

After having the outline of the solution from the project ideation and solution design documents, the baseline code was completed and shared on GitHub, alongside the baseline documentation. Slightly ahead of schedule.

Change in scheduling #2: 27/03/2023

After some slight misunderstanding of the missions and between team members, mathematical review has been changed to be completed after the iterative development mission (after the solution has been complete).

Additional Data Complete: 31/03/2023

Additional data documentation alongside the additional dataset has been complete and shared on GitHub to other group members.

Beginning of Work on Iterative Development: 01/04/2023

After having a baseline solution and additional datasets ready, work has begun on producing a more complex and accurate solution.

Fifth Group Meeting, Iterative Development Interface Complete: 08/04/2023

After the interface part of the solution has been completed and is fully functional, the group met to test out the solution and to discuss how to overcome the issues arising from the creation of the sign language translation model.

Initial Version of Solution Complete: 13/04/2023

Solution has been completed but there are various deficiencies in the solution, slow run-time and inaccuracy being major issues.

Solution Refining: 13/04/2023 – 18/04/2024

Attempts to make model more accurate, making a clearer dataset, change epochs used etc.

Sixth Group Meeting: 22/02/2023

The group has met up to wrap up the iterative development mission of the project.

Solution Complete: 25/04/2023

The program has been completed, is running without any issues with good levels of accuracy. Slightly ahead of schedule.

Beginning of work on Mathematical Review, Solution Testing, Solution Review: 27/04/2023

As the group is ahead of schedule, work has begun on the remaining 3 missions.

Final Group Meeting, All missions completed: 04/05/2023.

All members have successfully completed their missions, and files shared on GitHub. Solution is also completed and is functioning as intended.

Project Submission: 07/05/2023.

As scheduled, work will be submitted on the seventh of May.

References

A Guide To The Project Management Body of Knowledge. (2008). Available at: https://www.works.gov.bh/English/ourstrategy/Project%20Management/Documents/Other%20PM%20Resources/PMBOKGuideFourthEdition_protected.pdf [Accessed 13 Mar. 2023].

Campbell, G.M. (2014). *8 Managing Risks and Constraints - Project Management, Sixth Edition [Book]*. [online] oreilly.com. Available at: <https://learning.oreilly.com/library/view/project-management-sixth/9781615644421/xhtml/chapter008.xhtml#p26> [Accessed 13 Mar. 2023].

Project Management Institute. (n.d.). *Risk analysis and management*. [online] Available at: <https://www.pmi.org/learning/library/risk-analysis-project-management-7070> [Accessed 13 Mar. 2023].

Usmani, F. (2022). *5 Conflict Resolution Techniques in Project Management*. [online] PM Study Circle. Available at: <https://pmstudycircle.com/best-conflict-resolution-technique/> [Accessed 14 Mar. 2023].