

COMP7015

Artificial intelligence Systems Engineering: Individual Report

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MSc Course: MSc in Artificial Intelligence

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Individual Contribution

During the first meeting each team member wrote a SWOT analysis of their strengths and weaknesses, at this meeting it was decided unanimously that I would take the role of team leader. This was due to my good communication skills combined with my previous experiences as a team leader both in educational projects and professional. I was happy to take this position as I had learnt a lot in recent group projects in how to manage a new team of people.

As team leader I organised all meetings keeping all members schedules in mind, this role also included keeping track of the general progress of team members in accordance with the tasks set and what was still to be completed. In the end due to unreliability of the anointed note taker I also took on this role, to ensure our documentation was kept up to date. Other roles I took on during this project consisted of main application designer, main developer and integration manager.

I think the many roles may have been due to the groups decision of creating a web application of which I do professionally part time, initially I tried to persuade the team to choose a different approach for learning opportunities. As a part time web developer, I have large amount experience in many aspects of this module, therefore I believe I presented many strengths to the team for this project.

I am very comfortable with API handling as well front-end design and backend management. Also, through professional experience I have become quite proficient at debugging and constraining the initial expectations and planning of a complicated application. The main languages included: Python, Javascript, HTML, CSS and SQL, four of which I've used on a regular basis in the workplace for almost 8 years and the last (python) I have become very efficient in throughout this degree.

However, I have very little experience in testing using only simple methods in the past such as printing results, I often also miss important small details during development which end up costing a lot of time and confusion. It was also rather challenging to manage the team with all the unavoidable issues that arose during the semester.

My approach to the development of the project consisted of fundamentals first, to first get the basics of each aspect of the application working and then build upon them with which the team agreed. Each time a new demo was developed it would be integrated to the main project as soon as possible. Since testing is not a strong point of mine Billy volunteered to take this role, however during development I would often test new functionality implemented using "Asserts", printing data for visualization and by front end tests.

The team decided that the application didn't require personal user information for it to be an effective itinerary application, also only basic business information was stored. These methods

allowed the team to avoid most social, legal or ethical difficulties that may have arisen otherwise.

As a team leader I often had to deal with social issues amongst the team such as a member not keeping in contact or availability and attendance for team meetings. To avoid these kinds of issues I used a time slot of 3 hours between a lecture and practical on Friday afternoons. As all members were on the university campus during Fridays for lectures this helped avoid possible clashes of schedules and ensured regular face to face contact at least once a week.

Due to a series of unfortunate events this semester there were various difficult challenges both as a team leader and as a team member. During this semester I fell with a bad case of Covid 19 in February just as the development of the application began, I was away from university for almost two weeks and continued to feel serious side effects for up three weeks after initial recovery. As the prime developer and team leader this seemed to have dramatic effects on the progress made during this time, development all but halted and meetings weren't as productive.

This led to a build-up of workload, I tried various methods to deal with this issue such as group work sessions, time limits and general motivation to no avail. Since things seemed to get even more difficult as Jayalaskmi had other more important commitments handle for a short time and then also fell ill, I decided to ask the tutors for advice. With their assistance I managed to bring the workload under control and get the team working more efficiently once again.

During the earlier development of the project, I found myself going too in depth on the design of the application and the frontend development. I quickly realised that this was causing me to fall behind on my tasks and forced myself to leave design improvements until the end of development as it was a non-functional requirement. This mistake helped me to realise that functional requirements must be implemented first and avoid wasting time later in the development phase.

Towards the end of the development, I realised that I had been taking on too much of the workload effecting my progress in other coursework. At this point as team leader I spoke with the other members of the team, after which we separated all tasks left between the three of us with the other two taking the larger portions.

Group Reflection

The team met on a regular basis with every member attending almost every time except during extenuating circumstances. All members were respectful towards each other, and issues were discussed in a fair manner. A primary issue this semester appeared to be motivation, which his not specific to this team alone. After the first semester all team members seemed quite fatigued and demotivated.

During the time period that I was ill I had hoped that one of the other team members would step up as a back team leader and organise the work between them and ensure that development continued. Although I found that little progressed had been mad beyond my own small amounts during this progress. I also found that despite giving out task and giving a time limit it was rarely on time and for one member never on time.

With these difficulties I realised I began to lose trust that the team members would get the work done and began to take on even more work. However, after taking a step back and re-assessing the situation and conversing with the other team members we reinitialised an even workload. The team worked well during this time period, before the easter holiday tasks were assigned to be completed by the end of the easter holiday, these were important tasks to ensure we stayed on a good protectory.

Despite this the team met at the end of the easter holiday and discovered had done no work over the easter holiday and one task (chatbot integration) needed to be completed for NLP to proceed as planned. This did not get completed until week 13 meaning some last-minute improvisation was required.

Team Members Contribution:

Sam Trowbridge	Billy Allsworth	Jayalaskmi Vijayan
50%	30%	20%

This project has taught a lot of valuable skills in team management, as a team leader you must face any issues that arise immediately. It can be difficult to discuss certain facts with team members such as workload however if these problems are not confronted early in the development, they can lead to larger issues further down the line. Another Important lesson is to set reasonably strict time frames, with some team members being flexible is okay however others may benefit more from stricter leadership. I found that by being too flexible during this project lead to some members taking a lot longer to complete a small amount of work.

I also found that having regular in person meetings really helped keep track of progress, it may be beneficial in future to consider weekly group work sessions to ensure that all members of the team are making progress on their assigned tasks. An important development skill gained during the implementation of this project it to start with a basic function that can be easily improved at later dates. Team roles are also very important, by setting team members certain roles they are then in charge of that aspect of the project this helps share the responsibility of development.

Appendix: Personal Logbook

Date	Completed Tasks	Time
28/01/2022	Write meeting agenda, Attend meeting	2.5
31/01/2022	Create shared areas (google drive, bitbucket), create and share lucidchart UML diagram, make assignment breakdown for the group, Write meeting agenda	3
01/02/2022	Research design pattern methods, create UML class diagram to be further developed in group meeting	3
02/02/2022	Further develop UML before attending meeting, write meeting notes	3
04/02/2022	Write meeting agenda, Research API options, brief look over design patterns again, Further develop UML, Attend Meeting, Write meeting notes	4
06/02/2022	Begin designing application interface	4
09/02/2022	Finish application design	4
12/02/2022	Create Meeting agenda and basic research on google maps api	3
16/02/2022	download postman and get api return data	2
18/02/2022	Create Meeting agenda, prepare postman api data for review in meeting	3

22/02/2022	Create Meeting agenda, Meeting, search to text research	4
24/02/2022	Create Meeting agenda, Created a simple api test run of location and activity search, meeting, demo	5
27/02/2022	researched Django, created Django project and imported the currently implemented functionality into the project, combined data handling functions, tested database read function and created simple write function, found a simpler method of interacting with server	7
01/02/2022	Tidy data storage spaces and ensure all updates are kept (e.g. bitbuack, google drive) create meeting agenda, host meeting (very productive)	3
11/03/2022	Create home page interface, details page and link all pages, implement api search, quick meeting	7
14/03/2022	Display all api results from search function	5
20/03/2022	prepare meeting notes, begin creation of step by step of tasks, host meeting, finish meeting notes and tidy current data.	4
22/03/2022	Create database handling functions to allow user, itinerary creation and activity creation,	5
23/03/2022	Create database handling functions to allow data displaying for itinerary, and activities and adding to readily made data	7
24/03/2022	Create database handling functions to allow removal of activities or itinerary	6
25/03/2022	Meeting, plan AI database and likeing system, planned the database layout for the data required for the AI learning functionality with billy	5
28/03/2022	general fixes, improvements and began the ai implementation, creat a task list	6
30/03/2022	Finish AI implementation, us google api to get the distances between locations ready for route search, write meeting agenda	9

31/03/2022	prepare for meeting, quick bug check for AI, hold meeting, discuss the current progress made and the tasks still to do, have a prep demo of all aspects and discuss who will explain what. Do demo, work on further improvements noted during the demo in the library with billy	7
07/04/2022	make some fixes to current documentation, prepare for meeting, hold meeting and discuss the current documentation and when we are missing, attend documentation demo, write meeting notes	5
08/04/2022	meeting prep, quick meeting to inform team of the tasks that we need to complete by the end of easter, meeting notes	1.5
23/04/2022	some bug fixes	2
24/04/2022	prep meeting, meeting: quick catch up with progress over easter on other members projects, make plan of bare fundamentals still required including tasks which have not been completed, meeting notes	4
26/04/2022	merge chatbot project with main project, integrate best route, improve ai, fix bugs	10
27/04/2022	Integrate search agent, Integrate NLP speech to text, tidy AI functionality	11
28/04/2022	Demo, Bug fixes, Team meeting & meeting notes, report writing	5
04/05/2022	Integrate chatbot, integrate test to speech, bug fixes, reintegrate new search agent	8
05/05/2022	preparation for demo, demo, some report writing	4
06/05/2022	tidy documentation, Report writing	7
	Total Hours	169