Assessment 3: Our IT Project

COSC2196 | Introduction to Information Technology

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# Team Profile (5%)

You have included all relevant information about your team. You have included your test results, and a clear discussion of the differences between your ideal jobs.

You will have submitted a Team Profile as part of Assignment 2. You can use this as a basis for this Team Profile, noting any changes in the group as appropriate. There are some slight differences this time around, as noted below.

## Team Name

ColourTech

## Personal information

Name: William Weir

Student Number: S3831617

I was born in Australia to Australian parents. I have completed a certificate II in Automotive, and studied Bachelor of Arts prior to starting in IT. I spend most of my free time at car shows or working on motorcycles and cars. Otherwise I’ll be pulling something else apart or designing weird things or programming things. I have been interested in science and how things worked for a long time but have only recently started getting into computers and tech, so my IT experience is only just beginning.

***My Personal Profile***

<https://w-weir.github.io/RMITAssignment01/>

## Group Processes

How well did your group work together in Assignment 2? Will you be introducing any changes in process for Assignment 3? This is new for this assignment.

## Career PlansC:\Users\lynet\AppData\Local\Packages\Microsoft.Office.Desktop_8wekyb3d8bbwe\AC\INetCache\Content.MSO\77813006.tmp

There are a lot of similarities in our ideal jobs especially Data Engineer, Software Engineer and Full Stack Web Developer; These positions require the principles of computer software to design and develop computer software, with a full stack developer also needing to know more front-end technology. A Cyber Security (Malware) Analysist also needs to know C & C++ similar to the above position to provide access to IT infrastructure such as system processes. The big difference in Cyber Security to other positions is that it is more about monitoring and analysing existing systems and protection of sensitive information.

The position of Systems Assembler is the only position within the group that revolves around the hardware of a computer rather than the software, with a thorough understanding of how the different hardware components will meet a customer's needs. This position does require good problem-solving skills which is also required for the other positions.

We all seem to have the analytical, logical parts of the industry at the forefront of our aspirations, though this appears to come with the territory, as people with our personality types (introverted, thinking, neurotic types) seem to be drawn to an industry where it is possible to spend a lot of your time in a room making things work without speaking face-to-face with actual human beings.

Compare and contrast the career plans, including ideal jobs, for each person in the group. This may have changed due to feedback from Assignments 1 and 2. What common elements are there, if any? What differentiates each position from the others, if anything? How similar or different are your career plans across the group? This is new for this assignment.

# Tools (5%)

You have included a link to your group’s website. You have set up your group’s Git repository and included a link to it. You have made some clear and appropriate comments about your group’s log of activity.

As in Assignment 2, you need to have a group website and a GitHub (or similar) repository for your group. In your report you should include a brief description of what you have done, and include the following:

* The link to your group’s website
* The link to your group’s Git repository (GitHub, BitBucket, etc)
* Your comments on how well the audit trail on the Git repository reflects your group’s work. You will presumably only be able to do this close to the time of submission.

**Tools**

**Group Website**

<https://tegano-au.github.io/IIT-A2/>

**Group Git Repository**

<https://github.com/TeganO-au/IIT-A3>

# Project Plan (50%)

You have described all aspects of your project very well. You have given a clear picture of what you believe can be achieved in the time available.

Having completed both Assignment 1 and Assignment 2, you will have thought about a personal project as well as one with your group. In this Assignment you are to come up with a plan for group project, and to develop it as much as possible in the time available. Naturally you will be very unlikely to complete your project; in fact, most worthwhile projects are “endless”, in that there is always more that you can do, more features to be added, more levels to be designed, or new devices that could be used.

Naturally the choice of what to do is up to you, but you should take the following into account when making your decision.

- The passions, interests and skills of your group - IT industry trends - What would assist you in your career plan - Feedback from Assignments 1 and 2

Your group will have developed some ideas in Assignment 2; it is fine to build on and refine these for this assignment, or to develop a new project based on feedback and/or what you have learned since.

## Overview

Topic

**An overview of what you propose to do in your project. Concentrate on the big picture and outcomes, rather than intricate details. At least two paragraphs is expected.**

The purpose of the computer acceleration safety device (CASD) is to aid the driver to stay within the speed limits of the roads they are traveling anywhere in the world and not be able to accelerate more than 10 km over the limit. It will also assist drivers buy when there are accidents and emergency vehicles in the area, major works or change of conditions the CASD device will notify the car that speed limit has changed due to these circumstances and change its speed accordingly.

Potential outcomes for the population is a decrease in the number of deaths on our roads due to high-speed crashes which will mean decreased costs such as accident costs, decrease insurance costs, maintenance on roads and vehicle costs. Not to mention the reduced costs to society itself by services will no longer be stretch in relation to ambulance, police, hospital staff and clean up crews and maintenance crews the lists go on, the government then can then use these services were there actually needed.

Motivation

**What are your motivations for your project**.

So as IT student we are told to find real-world problems and solve them so here's a little history on the problem we see, in 1901 when speed limits were introduced to Australia and was designed to increase safety on our roads and reduce crashes than the speed camera was introduced in 1961 with a radar device inside to catch people speeding(Davis, 2020) as you can see from table below in the last 24 months 2,431 people have being in crashes relating to speeding, and in 2019 there were 4.7% more deaths on Australia roads than the same period as 2018(Roadsafety.transport.nsw.gov.au, 2020). Our CASD is going to save lives this should be motivation enough but the second is to reduce the number of crashes on our roads and third of all is that this project will make a difference in people's lives and that why we go into IT in the first place.

Seroius injuries crash data - June 2019 quarter

<https://www.bitre.gov.au/statistics/safety/fatal_road_crash_database>

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | 12 months ending 12 months ending  Jun 2019p Jun 2018 | | # Change | % Change |
| **RMS Region (CRS)**  Sydney | 2607 | 2902 | -295 | -10% |
| Northern | 562 | 661 | -99 | -15% |
| Hunter | 713 | 769 | -56 | -7% |
| Southern | 509 | 484 | 25 | 5% |
| South West | 233 | 255 | -22 | -9% |
| Western | 376 | 405 | -29 | -7% |
| **Total** | **5000** | **5476** | **-476** | **-9%** |
| **Behavior Factors**  Alcohol involved in crash 'Yes' | 335 | 362 | -27 | -7% |
| Speeding involved in crash 'Yes' | 1179 | 1252 | -73 | -6% |
| Fatigue involved in crash 'Yes' | 629 | 644 | -15 | -2% |
| **Safety Device Usage**  Driver - unrestrained^ | 60 | 61 | -1 | -2% |
| Passenger - unrestrained^ | 27 | 26 | 1 | 4% |
| Motor Vehicle Occupants - unrestrained^ | 87 | 87 | 0 | 0% |
| Motorcyclists- unhelmeted^^ | 26 | 38 | -12 | -32% |
| Pedal Cyclists - unhelmeted^^ | 35 | 43 | -8 | -19% |

**Why is this project important or interesting?**

Overall the CASD s will be controversial because it will change laws for car owners and their rights and responsibilities regarding driving their cars. This system will also reduce the resources needed by the government to regulate car safety to speed limits. I know firsthand from working in a hospital as an orderly than the devastation that high-speed crashes not only from the victims but the family them self’s not only physically but mentally.

**How does it fit in with current IT trends?**

Then the CASD system is on-trend as the increase of technology for cars is increasing with more airbags being introduced into vehicles for safety, along with lane assist sensors that help guide the car back into the lane, sensors in front of the car to ensure that your car doesn’t get to close to vehicle in front and will hit the brakes if it detects obstacles in its path even cruise control being the norm in cars today and this is all about driver and passenger safety and that’s what our device is designed for everyone safety.

**What would it show to a future employer if you were able to work on this project? At least one paragraph is expected.**

Over the course of the next couple of years, our team would like to have learned and gain the knowledge and experience to have least created and designed a working scale model of our device along with the skills and team behind us to make it become a reality. This will demonstrate that our team has a vision and a passion for what we do. The employer will see this and so much more as teamwork is such a big part of the career path we have chosen and that we had a vision and no matter what our differences were we produced the CASD that works and has changed people lives and that what all IT professional want to do.

Landscape

**What similar systems or products are available? What competitors are there? What points of difference are there about your project compared to what exist now? At least one paragraph is expected.**

There are speed limiters out there that reduce the car overall speed of the motor vehicle example of this are Australia trucks are limited to 100kms an hour, these are call governors there are different types our there such Mechanical, Pneumatic and Hydraulic governors (The Engineers Post, 2020). Also, there Electronic Speed Governor which is micro-control base (I diagnosis.in, 2020) but these governors don’t take into consideration the variety of speed limits changes and does reduce the car overall speed to no more than 10kms over the speed limit. Self-driver cars use radar, sensors, GPS, sonar and lidar to take in their surroundings to ensure they keep in the guidelines of the road rules (Jameco.com, 2020).

Market in this field is companies such as Tesla, wymo, gm cruise, argo Ai, Mercedes-Benz, General Motors, Continental Automotive Systems, Autoliv Inc., Bosch, Nissan, Toyota, Audi, Volvo, Vislab from University of Parma, Oxford University and Google. But what these companies all have in common that their concentration on driverless cars. Our system is for the everyday driver that doesn’t what a completely drives car. The CASD system will always still let the driver be in control of the vehicle up to ten km over the speed limit, the default setting wherein case the GPS and sensor go down for any reason the car can still can be driven. Added features of sensors that a read any vehicle such as an emergency one, witches hats, work road signs on the road to random changes of conditions where the sensors on these can be changed to reduce speeds in this area and our system will limit speed accordingly.

## Detailed Description

### Aims

The topic description gives a general overview. However, it is usually helpful to have a specific aim for your project, as well as some smaller goals which will be helpful for achieving your aim. Describe these as best you can. Each project should have a single aim.

(e.g. “Re-establish the King under the Mountain", “Construct an artefact in Minecraft", “Produce a movie about green flowers", “Explore the use of Raspberry Pis for cooking"), but may have several goals which will need to be achieved in order to fulfil your aim (e.g. defeat Smaug, annoy Bard, befriend Beorn, kill as many giant spiders as necessary, fight Azog if he shows up, ... ).

If things don't go as expected, this is the part of the plan that you would fall back on to answer questions such as “What are the most important parts of the project? Which parts should have priority over the others? If we have only enough time or resources for one of our goals, which one should it be?". One paragraph for the aim and one for each goal is expected. Each paragraph should include a description of the aim or goal, and a justification for it.

### Plans and Progress

Here you should give as much detail as you can about what your project will do, and how you will do it. This should also include how far you have got with developing any features or outcomes from your project. Tell us about the “story" of your project – how it began, how it has progressed, and what stage of the plan you are up to. Include any dead-ends you may have followed, decisions made, and changes that have been made to the project plan. This will need to include a significant amount of detail, so that it is easily seen what precisely you have done and are planning to do. If it helps, imagine the information that would be required if you were to hand this project over at the end of the semester to a new team to complete the job. What would you want to know, if you were one of the people taking over? There is no set length for this section, but it is hard to believe that less than two pages could be adequate. Three or four pages is far more likely.

### Roles

It is sometimes useful to define roles for particular participants, such as Lead Developer, or Technical Designer, or User Interface Designer. It is also possible that roles are changed from week to week, depending on what needs to be done next. Have you defined any specific roles for your project? If so, describe and justify these. If not, describe your process and justify why there are no specific roles.

### Scope and Limits

“There's no such thing as perfection. You're never finished with a film. You run out of time.” -- Peter Jackson, director of `The Lord of the Rings’ and ‘The Hobbit’ trilogies

One of the more difficult parts of project planning and execution is to define the scope and limits of the project. As mentioned above, you never really complete project like these; all you can ever do is your best in the time available. Part of that involves setting priorities and accepting that there will be features that will take too long to develop. This means that it is important to set a scope for your project, as a means of ensuring that you make the most of the time available. For example, if you are developing a game, you might consider only producing one level and two or three characters, in order to show a proof-of-concept, rather than develop three levels and ten characters.

The scope is probably the most crucial part of your plan, and also the most difficult to define. One way to define the scope is to think of the deliverables for your project, i.e. what outcomes would you be able to show to someone who asks you to see the results of your work. This will also include several statements about what will not be part of the project. For example, if you are using Open Street Maps to show the location of all your favourite shops, the deliverables would include the updated map, but not the Open Street Maps technology itself. It would also not include many other features of Open Street Maps, or other interesting location -- just those which show your favourite shops.

Also, be aware of the phenomenon of `scope creep', which is the tendency for projects to incorporate more and more features. There is nothing wrong with being ambitious, but you only have a certain amount of time. At least one paragraph is expected.

### Tools and Technologies

What software or other tools are required by the project? Are there any software licenses needed? Is there any hardware needed (beyond a standard laptop or something similar)? This needs to be precise (e.g. Windows Movie Maker Version 45.3) but needn't be long. You should also include a brief description of any prior experience any group members have had with the tools and technologies you list. There is no minimum length for this. It is important to be as precise as possible, but descriptions of the tools are not needed here.

### Testing

How will your test your project? How will you know when you have succeeded? Testing is not something that you should leave until the very end; often it is far more useful to have a quick and dirty “mock up" of a project and then do some (limited) testing, to nd out whether you are building the right product. If your project involves user testing, you should describe in your plan how you will find the test users, approximately what number of people you will need, and what background (if any) is required. At least one paragraph is expected here.

### Timeframe

Another difficult aspect of project planning is knowing how much time to allow. You will have something like 36 hours per person for this assignment. In order to develop a plan for further work beyond the end of this course, let us assume that you will have an extra 10 hours per week per person for 10 weeks in addition to this time in order to develop your project. This means that you will have six weeks (Weeks 7 to 12) of the semester to work on your assignment, with a further 10 weeks after that. This means that your plan will be for a total of 15 weeks, with the first 6 being on this assignment.

You will clearly not have the extra 10 weeks to work on the project; this is intended to give you a feeling for how much you would be able to achieve in that time. This means that the first 6 weeks of your timeline will end up being your actually progress on this project, with the remaining 10 weeks being your plan for the next stages.

This should be presented in the form of a table, with one row for each week, specifying as best you can the work for each person for each week. This means that the first six rows of the table will describe your progress so far, and the remaining 10 your best guess at how the remaining time would work.

This will no doubt change as you work on your assignment, as it will give you a more precise idea about how long it will take to get things done. This is not an unchangeable contract for exactly how things will work; that is unrealistic for just about any project. The idea is to get you thinking about how exactly your time should be allocated to the various tasks involved. It is a good idea to have a milestone (i.e. a specific outcome) for each week of the project. This may include getting familiar with tools, or reading up on a particular technique or technology. You should also include time for writing up the final report and any other documentation. Writing reports always takes longer than you think, especially as you should expect to re-write any piece of writing that you do at least three or four times.

### Risks

What risks can you identify for your project? There will always be some generic risks (such as computers breaking down the night before a deadline, health and family issues, and institutional changes). Do not include generic risks such as these. The idea is to be as specific as you can to your project. For example, if your topic is to develop a game, there may be a risk that the software you choose to work with may be very difficult to learn, poorly documented, or not turn out to have the features that it claims it has. These properties are often only discovered once you have started working with the software, and so unless you have had lots of experience with the particular tool, there is always a risk that it may not work as well as you believe it should, no matter how much prior research you do. Similar comments apply to hardware.

### Group processes and communications

Communication between group members is arguably the most important aspect of your project. Past experience has shown that communication breakdowns between group members is the most common cause of project failures, so it is vital that you specify at the outset the means and expected frequency of communication between group members. How will your group communicate? How often will meetings take place? Will these be face-to-face, or using technologies such as Skype? Or Facebook? Or email? Or text? Or ... ?? What will you do if you have a group member who does not respond to communications? You should expect contact between group members at least twice a week. You can always make contact more often if you wish, but you do need to know what minimum frequency is expected from all members of your group. At least one paragraph is expected here.

# Skills and Jobs (10%)

You have clearly identified the skills appropriate to your project and have written 4 position descriptions that clearly and accurately specify all of the skills, qualifications and experience needed.

Let us suppose that a group of venture capitalists hears about your project, and is so impressed that they wish to fund you to develop it further for say six months. You will be the manager of a team of 4 people to deliver the project outcomes. What position description would be appropriate? Write 4 position descriptions for people that you would employ to take your project to the next phase. You will need to consider what skills are appropriate, which may include specific technical expertise, team work experience, leadership and management techniques, and innovative thinking.

# Feedback (10%)

All of your group members have contributed appropriate feedback on themselves and their group members on SparkPLUS.

By the time you get to the end of the semester, you should have been working as a group for nearly ten weeks, and so you will have been able to judge how well your group is performing. As in Assignment 2, each of you should login to the SparkPLUS tool to provide an assessment of each person in the group, including themselves. This will then provide feedback to each of you, and in particular on how the rest of the team view’s you performance.

You do not need to include any information about the feedback you receive, as this is intended to give you experience with use of tools such as these, and how the information is gathered and processed in such tools. The markers will, however, check that each person in the group has contributed via SparkPLUS, and the marks for this section will only be awarded if all group members have contributed in an appropriate manner by the assignment deadline.

If you have any concerns with this process, please raise these with your instructor. If you wish to have a group discussion about this feedback, please contact the instructor who will facilitate a group discussion on this topic.

# Group Reflection (10%)

You have clearly described what worked well in your group. You have discussed what could be improved. You have included at least one surprising thing. You have appropriately discussed one thing you have learned about groups.

Towards the end of the assignment period, you should reflect as a group on how well you think you have performed in this assignment. You should include whatever evidence you may have about the groups processes (such as commit trails from GitHub, or project meeting minutes). Each member of the group should contribute up to 200 words about their own perception of the group, and the group as a whole should contribute around 400 words. This should include the following attributes.

- What went well - What could be improved - At least one thing that was surprising - At least one thing that you have learned about groups - Remember to include in your section on Tools how well you think your GitHub log of activity reflects your group’s work on this assignment.

# Presentation (10%)

Your report looks clean and professional, and uses appropriate font, colours and backgrounds. You have included an appropriate number of images.

# References

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