**Introduction to Information Technology COSC2196**

**OUA Study Period 4, 2020**

**Assessment 1: My Profile**

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# **1.1 Personal Information**

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Photo:



**Biography**

I am a 45-year-old Australian living in Bangkok, Thailand for the last 12 years and have been working for an oil & gas multinational as an operations supervisor. I have a wife who is Thai and a 6yr old daughter. During 2017 I completed a business diploma while working to see If tertiary study were something I could undertake and in 2018 I made the decision to leave full time work and study a business degree in logistics and supply chain management which I am now in my final year. We had planned on moving back to Australia in March 2020 but plans got derailed and so I continued with my studies in Bangkok. I can speak reasonable Thai but can understand a lot. My main interest is building and riding motorcycles and have done many trips around Thailand.

**Interest In IT**

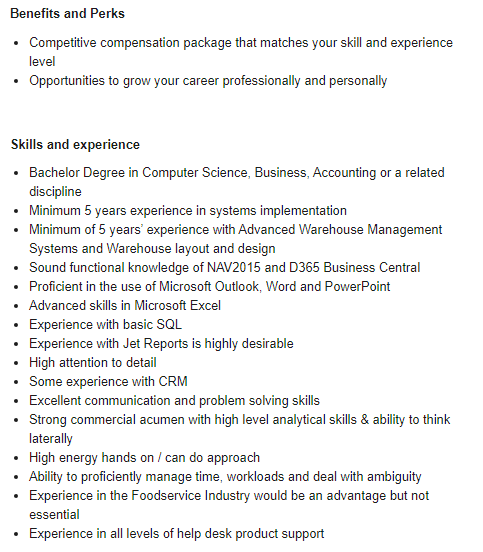
I have been exposed to computers in the family since the early 80’s and have watched the progression from early intel 286/486 processors and CGA, EGA, VGA monitors. My dad used to code games with the Basic programming language and I made some simple programs. Mostly I have been an IT user rather than a creator however this has extended to experimenting with Ubuntu and other various Linux distributions as well as flashing android phones with custom ROMS over the years. Just recently I bought and modified an old cheap business computer for gaming. In a professional life I have done basic trouble shooting on equipment out of necessity due to the remote working locations on offshore oil platforms with limited IT support. Examples would be flashing software updates and changing settings and parameter inputs on Siemens Programmable Logic Controller (PLC) units for automated equipment, network trouble shooting or setting up VGI over IP display networks with multiple points. This has given me an interest in machine control systems.

Since studying a supply chain degree my exposure to IT has focused more on analysing problems and developing solutions through products specifically aimed at this industry such as ERP, MRP and TMS systems and associated RFID equipment My exposure and interest in Microsoft office products and in particularly Excel solver to develop linear modelling programs to solve basic supply chain problems has also grown as I find the application of IT for automation of mundane tasks and problem solving quite appealing.

I chose RMIT as it was the only provider offering a supply chain degree online. Overall, my experiences have been positive due to the programs extensive input from industry and this is evident with some fantastic seminars and talks given by industry leaders. One negative aspect I have encountered though is I have found the lecturer input less than my experiences at other universities; however, this is definitely not the case with this course, and I am thrilled.

During my studies this semester, I am hoping to build on my understanding of IT and be able to apply it to my supply chain career path. As this is an introductory course, I would expect an overview perspective on the core components of this industry. From this, new pathways could be developed and take many directions either as a useful knowledge base as a business manager, or to follow this pathway towards a career in applying IT to the supply industry in areas such as ERP system implementation or automated control development.

# **2.1 Ideal Job**

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https://www.seek.com.au/job/51065252?type=standout#searchRequestToken=7bb1523b-0d8c-449f-a024-e14b56dcb6e7

**Job description and its appeal**

This is a project leader position for sales and implementation of a Microsoft Dynamics ERP business integration system. This ERP system is customised for the wholesale distribution industry, is aimed at the SME market and is a cloud-based solution. The position interests me because I have experience using ERP systems (SAP) and have recently completed a course on enterprise information systems at RMIT. It is appealing because ERP systems can bring visibility to business performance, streamline business processes, and automate mundane back office tasks which when implemented successfully can achieve better business performance.

**Required skills and experience**

The position requires extensive knowledge of the ERP product and business processes commonly used in the distribution industries for sales demonstration purposes. The role would require project management leadership skills such as allocating roles and responsibilities for customer implementation team members, consultants, and vendors. It would also require knowledge of ERP implementation which includes an analysis of the customers business processes and subsequent modification of those processes to fit the ERP capability (industry best practices) or modification of the ERP system itself to fit with the organisations specific process (usually to retain a competitive advantage). The job would also involve development knowledge management practices such as the creation of documentation and training packages for the customers system users as well as change management recommendations to facilitate the transition from legacy system to new system. This role would typically be for someone with extensive experience and knowledge of ERP systems applied to the supply chain, warehousing, and logistics industry with tertiary qualifications.

**My Qualifications and experience**

My current qualifications and experience are below those required in the job listing. I have two thirds of a supply chain degree completed and some warehousing experience. My previous employment in the oil industry utilised my project management skills, management of diverse nationality work teams and problem-solving skills under adverse conditions. I have experience using SAP ERP systems and Microsoft office suite including extensive Excel experience.

**Forward plan to gain qualifications and experience**

My goal is to complete my degree in 2021 and gain employment in the supply chain industry. This would increase my exposure to warehouse management systems (WMS) software as well as further my knowledge of optimal warehouse layout and design for product flow which is usually developed using IT products. For an ERP services pathway, employment as an ERP implementation team member is possible which would allow me to develop the required skills on the job. To gain experience using Microsoft Dynamics 365 training online training is available using Udemy and other similar platforms, through private training organisations or on the job if working for an organisation which uses that particular ERP system.

# **3.1 Personal Profile**

## **3.2 Myers-Briggs test. 16 Personalities**

**Personality Type**: Consul ESFJ-A (assertive)

**Mind** (interaction with our environment): 57% Extraverted / 43% Introverted

**Energy** (mental energy direction): 47% Intuitive / 53% Observant

**Nature** (make decisions & cope with emotions): 46% Thinking / 54% Feeling

**Tactics** (approach to work, planning & decision making): 72% Judging / 28% Prospecting

**Identity** (confidence in our abilities & decisions): 61% Assertive / 39% Turbulent

**What do the results of the test mean to me?**

An overview of my results indicates that I am reasonably in the middle for the 3 of the criteria and my identity assertive with a focus on positive things, see difficulties as a motivation and a challenge and am goals driven. I tend to agree with this assumption as my mantra towards tasks is generally to “just get it done”. Another attribute mentioned is that I would be inclined to speak up if I disagreed with a group, which is true and while I may not push for the groups agreement to be in line with my own, I would let my opinion be known. As a consul career wise, the results also mention that I am a well organised leader, who enjoys structure, hierarchy and respects authority but does not take criticism and conflict well and prefers interaction with others rather than purely analytical work. I tend to agree with this assumption due to my preference for leading, influencing or being involved in teams through my contribution to hands on work with a high focus on deliverables.

**How do I think these results may influence my behaviour in a team?**

The results indicate that through my preference for networking, social and administrative skills I can create an environment that brings people together in an organised structure to solve problems and complete tasks. My dependable and self-motivated nature plays a key role in my character which allows for increased focus on other areas in the team that may be underperforming. As I am impervious to stress, I can focus on the task at hand, help develop solutions and help bring the team back on track when problems arise. My goals driven focus and enjoyment of being productive can be a motivator for team members however I must be careful not to tread on others who may need support and encouragement.

**How should I take this into account when forming a team?**

It is preferred that a well-functioning cohesive group of team members should be reliable, honest, embrace a hard work ethic with effective communication. Collaboration for a cohesive team effort is expected and is driven by a strong team environment. Through the creation of structured group and identifying team member strengths and weaknesses, tasks can be allocated to suitable to those most suitable.

## **3.3 Learning Styles Quiz**

**Reflector style:** 11.6%

**Theorist style:** 25.9%

**Pragmatist style:** 44.1%

**Activist style:** 18.4%

**What do the results of the test mean to me?**

My dominant learning style is a pragmatist. I prefer to see concepts put into practical situations and experiment with ideas to learn from and find solutions. This could be though examining case studies or open discussions of solutions to problems. The results also mention that I am prone to losing patience and prefer to get straight into the task rather than an extensive pre task discussion. My secondary learning style is a theorist which has similar attributes to the pragmatist in practical learning style preference such as storytelling and case studies. I can relate to these results as I enjoy job debriefs and the resulting learnings from issues and their solutions. The pragmatist learning style is also evident as I believe in the notion “see one, do one, teach one” as a way for gaining skills or an understanding.

**How do I think these results may influence my behaviour in a team?**

I would put forward that communication and regular open discussion is critical for the team to capture and share individual’s knowledge with the group. I would also promote brainstorming sessions so group members can find new ideas and solutions to problems. I would probably need to be cautious of cutting discussions short due to my eagerness and impatience to get to the point.

**How should I take this into account when forming a team?**

The teams varied background provides many different experiences and viewpoints for problem solving and its members should be engaged with sharing their experiences to the rest of the group. My preference for story telling should be focused on group cohesion and aligning the groups direction and motivation to achieve its goals and objectives. Group members responsibilities and accountabilities will be assigned though techniques developed though previous practical experiences.

## **3.4 Big Five Personality Test**

1. Extroversion 63% High score = outgoing and social
2. Emotional Stability 62% High score = withstand difficult situations
3. Agreeableness 35% Low score = Critical and aggressive
4. Conscientiousness 87% High Score = careful and diligent
5. Intellect/Imagination 34% Low score = traditional and conventional

**What do the results of the test mean to me?**

I tend to agree with the level of extroversion and emotional stability reported as I prefer to sit somewhere in the middle between both extremes. I don’t agree with the critical and aggressive result as I like to think I can be accommodating to others and their ideas and opinions. The conscientious and intellect/imagination results are similar to what I feel as in previous work situations I enjoyed a structured and process orientated work structure.

**How do I think these results may influence my behaviour in a team?**

My reported levels of emotional stability and extroversion are evident when in a team as when there is a problem, I am generally unphased and like to give input to the team to help find solutions. When a team is losing direction through lack of leadership, I am usually unable to idly stand by and will step up and attempt to steer it back on track. Sometimes I wish I did not have this trait so I could standby with my hands in my pockets with the others waiting for a solution. I must remain cautious of being too critical of team members and showing signs of aggression when results are not being delivered as expected.

**How should I take this into account when forming a team?**

When forming a team my outgoing, social and positive aspect should play a key role though drawing skills and knowledge from team members and sharing it amongst the group. My emotional stability will enable a calm and methodical selection of team members for suitable task allocation however I will tend to prefer traditional teams with a clear hierarchy structure who have familiarity and experience working with each other.

# **4.1 Project Idea**

**Overview**

The project idea is an automated outdoor greenhouse for growing potted plants that require specific conditions to thrive. The project is aimed at the hobby gardening enthusiast with the goal to simplify plant care though the automation of the greenhouse conditions to maintain an ideal growth environment. The greenhouse size is approximately 1m x 1m x 1.5m and its objective is to be simple, of relatively low cost, can house a small amount of plants and is lightweight and portable so it can be relocated with ease into other areas of the garden or balcony.

**Motivation**

Since the solitude periods of the 2020 pandemic, many people have turned to hobbies around their home for entertainment. One of the areas of growth during this period has been urban gardening. This is evident at the booming plant bazaars throughout Bangkok and the proliferation of online sellers. The most popular and valuable plants during this period are mostly ornamental and require special care to maintain visual perfection on leaf, shoot and root growth with the slightest deviation ruining of hours of work. By automating the care process with inexpensive sensors, an Arduino microcontroller and simple hardware to control watering, shading and ventilation, users can enjoy a constant state environment for their plants to thrive.

**Description**

Many plants species that are grown as a hobby are chosen because of their popularity and rarity. This is mostly because they are not commonly available in the local environment and are sourced from overseas or from another part of the country. The difficulty to overcome is that local environmental conditions may not be optimal for their growth and therefore extra care is needed maintain their specific requirements for a visually appealing foliage of leaves, shoots, and rot free roots. Additionally, free space around the home that can be used for growing plants may be subjected to extremes of sunlight or shade that are unfavourable. This is where a controlled environment offered by an automated greenhouse can be a solution. It can take the narrow range of plant species suitable for the local environment and create a larger window of optimal conditions allowing for the inclusion of a greater variety of plant species to be grown. This can be achieved by tailoring the conditions in the greenhouse specifically to the plant’s requirements. Additionally, potted plants can be cycled through the greenhouse as a nurturing boost before being placed back into areas where they can have maximum viewing pleasure.

The focus on the product is not so much on the overall greenhouse structure due to a large variety of small, cheap, and portable versions already available on the marked. The product is an additional unit that can be placed inside a prebought greenhouse, connected to a power and water source, and create a stable environment tailored to the user’s requirements.

Through automation, the greenhouse will measure the conditions inside the greenhouse such as air temperature, humidity, soil water and nutrient content and temperature and apply resources as required to maintain a predetermined condition. Soil moisture content is achieved by timing the opening a sprinkler in the early morning or evening as required to increase moisture but not humidity. Humidity is controlled by opening a sprinkler during the warmer parts of the day or turning on a ventilation fan. Temperature is controlled by operating a heating lamp or fan, and lighting is controlled by manipulating a shade blind. Soil nutrient content could also be available however the sensor would have to be manually moved from pot to pot. For simplicity, these features can be added or removed as components.

The automation of these processes also allows for the capacity to capture and display data which enables the user to begin with a benchmark and then experiment with different conditions to find optimal growth. This information could also be shared with other users of similar systems and open discussions related to best practice or find solutions to remedy problems. Further expansions could be related to web based, monitoring, control, and forum discussion.

While the options for variations to parameters are nearly endless, it could include pre-installed settings allowing it for plug and play which would make it more commercially appealing. Condition settings could also be manipulated by enthusiasts to achieve a better outcome or grow a larger variety of species.

**Tools and Technologies**

The automated greenhouse is based on commonly available and inexpensive kit form greenhouses available at most big box hardware outlets or online retailers at a low cost. The size is based on the popular 1m x 1m x 1.5 model and could be scaled up slightly to accommodate larger models available such as 1.50m x 1.50m x 1.95m, however retaining a small footprint and portability is a key objective.

To monitor the conditions inside the greenhouse, readily available low-cost sensors will be used to measure soil moisture content, humidity, light, soil nutrient content and temperature. The sensor data will be inputted to an Arduino Uno which will then be used to control some simple relays / stepper motors which will open / close windows, water pumps, and a heating lamp.

**Skills Required**

The bare greenhouse is commercially available unit that requires little skill and a short amount of time, the additional features intended for the project are based on the integration of several component projects aimed at IT students and enthusiasts. The Arduino and associated sensors and components are available online for little cost and while I have been interested in a project using an Arduino or a Raspberry Pi for some time, my lack of experience is a large obstacle. However, there is a large amount of information available online for free and these products are aimed at beginners. The project will require basic electronics knowledge for hardware setup to interface the sensor inputs with the Arduino and coding for Arduino to send and receive signals from sensors to servos and switches. An anticipated issue is the soil moisture content will be sensing just one pot in the greenhouse and watering will be based on that one input and may not be a representative of the condition of other pots.

**Outcome**

The outcome of a successful project would be a marketable product that could be produced relatively cheaply and allow small hobby gardens to be set up in a variety of small spaces. It could help busy people be involved with gardening through a reduced time requirement. The data capture aspect could also help form a gardening community that was interested in a more structured approach that was results driven through benchmarking and measurable improvements. There is also the possibility that it could be scaled to suit much larger applications.

# **References**

https://www.16personalities.com/ (Links to an external site.)

http://www.emtrain.eu/learning-styles/ (Links to an external site.)

https://openpsychometrics.org/tests/IPIP-BFFM/ (Links to an external site.)