**Team 12 Assignment Three**

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# Team Profile

## Team Name: stockIT

## Personal Information

### Ahmet Akgun

Student No: S3865010

Originally from Istanbul Turkey, Ahmet’s passion for IT started in 1992, when his uncle assembled their first personal computer. Their first computer had MSDOS 4.0 installed and provided the young Ahmet with various experiences such as customising a data storage device and entering lines of code in the command bar. It was this first interaction with a computer that fostered his interest in IT.

After graduating from RMIT university, he intends to continue his study at the postgraduate level in hopes to become an instructor at an education institution one day. Ahmet’s hobbies include learning about astronomy and astrophysics, playing chess and editing music using a program called CoolEdit. He currently lives in Melbourne Australia.

### Brandon McPherson

Student No: S3921902

Brandon is a person with a wide range of interests. In his spare time, he enjoys playing video games, watching soccer games, spending time with friends and family, and travelling. He is also an enthusiastic reader, his favourite book for this year is titled *Sapiens: A Brief History of Humankind* by *Yuval Noah Harari*. In his childhood, he used to play a game called *Sonic the hedgehog.* The experience resulted in developing his passion for video games and technology.

At the time of this writing, he has already been working in the IT industry as an information system support analyst for 7 years. Despite his solid background in networking and information systems, he found computer programming interesting and is considering a career change as a full stack software developer in the future. He lives in Brisbane with his cat named Indy.

### Hugo Hughes

Student No: S3923309

Hugo has a culturally diversified family background with his parents and grandparents who originated from various countries all over the world. He is a keen learner of different languages and loves to travel the world to experience different cultures. In his childhood, information technology was not something he was familiar with nor interested in. However, it all changed when he landed a job at an IT service desk.

With this challenging role, he gradually developed his passion in IT. The role also allowed him an opportunity to brush up on the basic skills that are required to secure his ideal job in the future. His ideal role is to work for the Royal Australian Navy as a Cyber Security Technician. The position interests him because it requires him to be multifaceted and be familiar with various disciplines.

### Taylen Robert Anderson

Student No: S3925287

Born in Idaho USA, Taylen grew up in Mornington Peninsula, the southeast of Melbourne. Taylen started nurturing his interest in IT when his father was building websites, it was here that he began playing around with Macromedia flash. Due to Taylen's proficiency with building websites, his IT teacher offered him to build a website for the teacher's dad, the website was built using ActionScript 2.0 which is now deprecated. Since then, he taught himself various computer skills and successfully implemented a server which is running his smart home system for his family.

Being a qualified mechanic, he has a strong understanding of electronics. Also, as an astute self-learner, He acquired a basic understanding in programming languages such as C and C++. In the future, he sees himself becoming a firmware engineer which allows him to be involved with both hardware and software development. He currently lives in West Gippsland with his wife and child.

### Tetsu Watanabe

Student No: S3923443  
Born and raised in Japan, Tetsu came to Australia over 20 years ago. He worked at several accounting practices in Brisbane before starting his consulting firm targeting Japanese businesses. The company has grown after 8 years of operation, expanding his client offices in Brisbane, Japan, and Vietnam.

He has witnessed the substantial evolution of IT in the accounting industry. He believes that combining IT and Accounting skills will take him and his company to the next level. His hobby is surfing, which is the reason he moved to Tweed Heads 3 years ago with his family.

### Tim Prast

Student No: S3923309

Tim has a successful business background operating his own bar in Subiaco for the past 5 years. His business is technically advanced and uses the latest technologies to achieve efficient operation. His interest in IT came naturally by having a childhood surrounded by technology and can easily relate himself to IT. Throughout his life, he has enjoyed experiencing the technological advancement.

Gaming has also significantly contributed to developing his interest in the field of IT, his passion for gaming led him to build his own gaming PC. With his strong commercial experience, he hopes to transition his studies over to Computer Science and pursue a career as a business analyst specialising in IT.

## Group Processes

In assignment two our team was quite fresh at learning to work together. This was particularly evidenced by our initial meetings lack of structure and leadership. Progress through assignment two transitioned us from no management to a central leader (Tetsu Watanabe) from whom everyone else answered to. This was a significant step and produced some sizeable benefits in terms of productivity and reduced wasted time drastically.

Progression to assignment three our team has kept with the same arrangement under a new leader (Taylen Anderson). Small changes implemented include things such as individuals in a meeting being required to mute themselves during each meeting unless they are called upon by the host. Assignment three has also attempted to move our group to a GitHub from the beginning approach allowing collaboration for individual segments of our assignment to be completed easily by multiple parties. This team dynamic is a natural progression from where we were in assignment two and should allow us to continue to build on that foundation.

## Career Plans

Our team have an impressive variety of ideal jobs. This culminates with a large variety of careers available for us as individuals from the public sector as a teacher, to the private sector as a computer engineer. This is just a snippet of the available roles available within the Information Technology (IT) industry however we will go further in depth to see what variety is available to us.

Ahmet Akgun wishes to become a teacher within the industry. This contrasts with our team in many ways, for example this was the only job to specifically require a masters degree in any field. Additionally there are requirements for skills in teaching as well as communication. Due to the nature of this particular industry the communication skill would have different assessment criteria to communication in a management position. Teaching within the IT industry will likely have many interesting challenges and is going to be a role on the outskirts of the industry in an intriguing way.

Brandon McPherson indicated he would like to be a full stack developer. The role included within his first assignment (Full Stack Developer, BHP) asks for significant experience in application development using a lot more programming languages not intended for web development. BHP requires significant knowledge using Linux systems and creating and using a virtualisation software known as Docker. This contrasts significantly with the other member of our group also wishing to be a full stack developer Tetsu Watanabe. A full stack developer at BHP is very different to a full stack developer somewhere else.

Hugo Hughes told us that he would like be a Cyber Security Technical Officer. The specific position which Hugo provided is with the Australian Military, this would likely lead to different requirements than the same position in the public sector. Interestingly this position requests developed artefacts in communication skills and analytical skills, this is to allow the individual to educate other individuals within the company structure. This is interesting in contrast to Cyber security roles located in the private sector which generally put more of an emphasis on the security hardware than the people using it.

Taylen Anderson chose this position within the firmware engineering segment of IT. This was an interesting choice as it lead into not only development of software but also hardware which was not common with the others in our team. There was a high level of programming skills required with languages including c, c++ and java. The languages requested do have some crossover into the software development segments of the it industry though this is becoming less and less frequent. This job also requested knowledge in basic electronics with measurement of current, resistance and noise being noted as important. As such it seems that firmware engineering is another special category within the information technology industry to be exploited.

Tetsu Watanabe chose the position of full stack developer along with Brandon. Though the position title was the same the actual jobs in which they both applied were very different in scope. The job that was provided here has much more emphasis on the development side of websites and web applications. This has some significant impacts on the kind of work being done along with the programming languages being used to achieve the desired results. Due to the heavy emphasis on web development this is yet another separate category of IT to be explored

Timothy Prast showed interest in the business analyst line of work. This was another position advertised in the public sector which created some interesting criteria. There was a need to be able to follow planning protocols called SCRUM, this is a methodology where a bigger problem is broken down into smaller steps, these small parts are worked on and the problem is analysed and broken down again. Upon analysis of this job it seems to differ significantly to many others within the IT industry, and thus it paints a very large picture about the size of this industry.

# Tools

***Website:***

[**https://rmitstockit.github.io/stockIT**](https://rmitstockit.github.io/stockIT/Assignment3/assignThree.html)

***Github:***

[**https://github.com/rmitStockIT/stockIT**](https://github.com/rmitStockIT/stockIT)

***Reflection***Upon reflection of our GitHub audit trail of 281 commits we found that our team was able to use it much more effectively than when we initially started working with the service. Over the last month on assignments 3 and 5 we as a team have pushed 74 commits. Over those commits around 75% of those have had sufficient comments from the author. Looking at pulse by github, which is one of their analytical tools we determined our standard deviation had reduced from 36.6% to 14.7% which shows that the group members commits have become much more evenly distributed from assignment 2 to assignment 3. In summary it appears that our use of GitHub has had significant improvements since our introduction to this software.

Please refer to addendum for the full audit log

# Project plan

## Overview

### Topic

The application **stockIT** will require a significant amount resources to implement a complete product. These resources are not available to our team in regard to the project timeline or our individual skills. In our time frame of five weeks, we will have a fully fleshed out wire-frame including graphical content, we will have a start up site containing a desktop oriented mock site and have a stretch goal of creating an application for android. These developments will show our abilities to work together well within a team environment and achieve measurable success with the resources available.

The wire-frame shows our design implementation and continuity. Using a non functional sketch or three-dimensional plan is one of the best ways to start any serious project. This allows your team to create an application layout quickly showing basic functionality in the form of navigation and design. This allows your team to know what the agreed look for the project will be allowing the team to create the necessary code making the project functional.

Our desktop oriented mock site show the basic functionality required for our project. Our development from wire-frame will make it easy to develop the final deliverable part of our project. This mock site will have basic functionalities allowing any user to add or remove stock from the database, insert new stock items and run a stock take using the supplied database.

This database will be populated with data pulled from the hospitality industry supplied to us from one member of the team. This website allows the team to present a functional part to our project.

Creating an android application is our teams stretch goal. This will be developed right up to the due date to show our intention of creating a meaningful product out of this. This will allow the team countless opportunities to develop skills and knowledge useful in the information technology(IT) industry. Additionally it shows a drive to take away more from this class and earn more than just a passing grade. As this is a significant step up in complexity from creating a mock site or a wire-frame the quality of the product delivered will be indicative of a first years work.

### Motivation

stockIT was born from a single team member’s desire to fill a perceived gap in the current market of inventory management software. After detailed discussion between all parties we have expanded the initial stock-taking application to a full inventory management system. This change occurred due to the increased future potential of a full inventory system rather than a stock taking application. A project such as this allows our team to provide an exposé based upon our skills both individually and also when working together as a team.

As a development project stockIT covers a lot of knowledge and skill bases within the IT industry that we as a group would like to develop further. At its end point the software will require a working knowledge of various programming languages (SQL, XML, C++, Java etc), networking, user interface development (websites, apps, software design), project management and teamwork, cloud infrastructure, software integration and artificial intelligence(AI) implementation. The software taps into many different aspects of the IT industry and intersects with many of our planned future career paths. This is why a team we decided it would be a worthwhile project to pursue.

Our team views stockIT as a start-up. Start-ups have always been a defining factor of the IT industry, whereby a group of individuals unite to create a piece of software or to solve a problem using IT technologies. We believe stockIT achieves both of these things as it uses a tech-based approach to solve a problem that affects every business that buys or sells inventory on some level. A big development within the IT industry over the past decade has been in the use and development of AI technology. As stockIT is centered around handling and making sense of large amounts of data, we believe that AI integration is an important part to the software’s utility and marketability. AI technology is at the cutting edge of the IT industry and from it has spawned many new fields of study and different career paths.

### Landscape

Inventory management software is a somewhat crowded marketplace. As with most software markets there are a variety of competing products that all provide very similar services but that all have their own delineations that set them apart. stockIT straddles the line between pure inventory management software and enterprise resource planning (ERP) software, placing it into a market with large established companies such as MYOB and XERO. MYOB and XERO have established accounting software systems that integrate into a range of existing Point of Sale (PoS) systems. The plan aim is for stockIT to have similar integration, in this situation MYOB focusses on being more of an enterprise resource planning software solution and XERO focusses on the accounting integration side of things. StockIT will have a heavier focus on direct supplier integration and communication than either of these.

Cin7 is designed to be more of a retail inventory solution with a strong leaning towards online retail whereas Peach Software has a strong focus on more traditional retail (agriculture businesses, auto parts etc) and managing inventories between stores and across the group. In this situation, stockIT is designed to operate as a one stop shop by facilitating all these different functionalities into the one software bundle. Oracle Netsuite is one of the closest competitors to the finalized version of stockIT, with real time inventory visibility, direct supplier purchasing available and the ability to push purchase orders directly to shipment and sales tracking – all of which will be available through stockIT. Katana offers robust manufacturing inventory management, live tracking with real-time manufacturing planning and end to end traceability. This makes Katana a slight outlier on the list as it leans towards the manufacturing process and handling the data related to that area. While this is something that stockIT does handle, our product is designed more and an inventory management tool rather than a direct Manufacturing tie-in.

## Detailed Description

### Aim

***“To develop a financially viable, simple inventory management system”***Businesses are asking for an easy to use solution that will increase productivity. Our team wishes to create the solution to this problem ensuring businesses will be able to flourish in this post covid world. *“71% of retailers are looking to inventory management technology to improve their supply chain efficiency.”* (Square, 2021) This has made significant impact to businesses due to the expense of many solutions along with the training necessary for competence. We will make the software easier by including a modern interface with big touch enabled buttons and hiding unnecessary detail in the simple display. Our product will be financially viable by saving both the operators time and companies money. Our pricing will be subscription based for our web enabled services and licence based for software installed directly on hardware.

### Goals

***Create an application wireframe***

Our team’s initial objective is to develop a wireframe for our project. This will ensure that we have a vision of our product that we can work towards. Our decision to make the visual design the first goal stems from our groups perceived abilities in the IT space. Much of our team have little to no programming experience and we are unable to find a suitable solution which provides application design in an easy to learn format. The other significant reason for this is our time constraints in development, if we were to create a full application in five weeks’ time, we would not provide anything of substance, or we simply would not be able to complete our initial goal to a satisfying conclusion.

***Create a mock website with sample data.***

Secondarily to our initial goal we wish to create a pseudo functional website. The reason we chose to this as a secondary goal as it is a significant step up from creating a wireframe. This will require the use of some more complicated programming and potentially a database backend with a webserver. Including this is a measurable jump for the skills of our team and will show progression in both the project and our team. This has been defined as one of our stretch goals and as such will most likely not be delivered to a complete standard by the end of week 12.

***Create a mobile application.***

Finally, we wish to embark upon development of a mobile application which can host a small business’s inventory. This has been presented to our team as an unattainable goal for the original time frame of 21st of November. This was included as an attainable goal for the 6 month project defined within our skills and jobs segment.

### Risks

Undertaking a project such as stockIT is an exercise in risk taking, risk management and risk mitigation. In all such situations it is important to fully understand the risks and challenges you may face before you can attempt to manage or mitigate the affects of those risks. Because of the vast undertaking that is facing the stockIT development team with the creation of software, there are a variety of issues that act as roadblocks to the development lifecycle of our product and to seeing it through to its full implementation. The key risks facing the development of both our Project and the Assignment itself are listed out in the table below

|  |  |
| --- | --- |
| **Risks** | |
| **Assignment** | **Project** |
| **Market & Landscape**   * Is there a place for stockIT in the world of ERP and Business? * Does it fit into marketplace? * Limited access to immediate market data (group members business data) * Can a start-up compete with the established market players? | **Financial**   * Funding is required for the project to be developed at good pace. * Too saturated for financial investment? * Who do we approach for investment? * What is our runway with or without investment? * How much is required? |
| **Temporal – deadline**   * Can we complete deliverable(s) in 6 weeks? * Do we all have enough time to develop the Project. | **Market**   * Is the market too saturated for stockIT to be successful? * Can we get access to more Market data? |
| **Software**   * Python issues with creating functioning GUI and being able to code the program to act the way we had originally planned. * MIT app creator did not meet the requirements for what we wanted. | **Temporal**   * Time to develop project. * Project Development lifecycle. * Time for potential investor contracts. * Will stockIT ever really be finished? |
| **Skills**   * No prior coding experience. * No prior UX and UI experience. * No prior database experience. | **Supply Chains**   * Covid world |
| **Hardware**   * No cloud infrastructure or local storage database. * Using our own personal hardware to develop all assets. * Budget limitations. | **Staffing**   * Can we hire the right people? * What is the skill barrier? |
|  | **AI**   * Will we be able to license the AI from academia? * If we cannot license it, how will we go about creating a functional AI. * Can we use code that operates in a predictive manner using datasets from users? |
|  | **Software**   * Technical skills to develop functional software. * Will we have to develop software or can we license utilities and tools to suit our needs? |
|  | **Features and functionality**   * Software integration * SILo Feature functionality * Supply chain integration * Storage Database infrastructure * Reporting functionalities * AI integration * Direct purchasing integration * Unit Profiles * Stock Taking functionality |

The single biggest risk to both the development of stockIT and the project itself is the timeline. To mitigate the temporal factor facing the completion of the assignment, we have allocated tasks to each group member, the time required to complete the task (to give ourselves a better indication of the actual time required to complete it) and created a visual timeline to provide an at-a-glance roadmap and development timeline. The timeline for the development of stockIT extends far beyond both the 6 week and 16 week deadline imposed on us, as such, we have created an accurate as possible post deadline that sets clear goals and deliverables for a period of up to 6 months. At the end of the 6 month period, we believe it will be feasible to have a base-line product ready for market.

This leads into the second shared risk (between both the assignment and stockIT). The market. The target markets for stockIT have witnessed the hardest hit over the past 12-18 months with Covid-19 closures, reduced trading hours and risk to staff. Bringing a new product to market (even as an exercise as part of this assignment) in the current economic climate can be a very difficult thing to do. The single biggest risk here that is common amongst both Project and Assignment is that of the Market. Market can mean a few different things in this type of situation and while the specter of Covid will continue to loom for the foreseeable future, posing a significant risk to stockIT’s target market is not something that can truly be overcome by our development group. In this situation, we would use the uncertainty given by Covid to develop stockIT before going to market as covid has paused businesses unnecessary spending – giving the development team more time to create the product. The uncertainty here can also be used to our advantage as stockIT allows the user to do more, have more control and a greater level of oversight with less staff hours required, therefore not requiring a business to have a large pool of staff which is difficult to retain in these current circumstances.

Secondly, bringing a new upstart business to an already established marketplace poses risks to the future financial stability and success of the business as the development group will need to place a larger focus on taking customers away from established software suites. This will mean a large investment in marketing for customer acquisition which will divert funding away (albeit initially) from the development of the software. One way to mitigate this risk is to focus on a freemium offering at first, with reduced functionalities and features, but aimed at capturing a portion of the market and getting a foothold in the small retail and hospitality businesses. With an established freemium foothold stockIT can then pivot to the full offering and upsell current customers to a more feature rich subscription model. Alongside this, stockIT can offer referral bonuses to current customers to help organically grow the userbase of the software.

The range of non-shared risks (between the Project itself and the assignment) largely fall into hard skill shortages, software, and hardware. The hard skills of the development team pose the biggest risk to the development of stockIT and to the assignment. Because of the skills shortfall, we are unable to create coded and functioning deliverables with fully formed features that would best display the capability of the stockIT software. This negatively impacts both the marketability of the software suite and our ability to create tangible artifacts for the assignment project. To mitigate this risk, we plan to hire experienced developers and programmers to help create the software. On the assignment side of things, we have stuck to deliverables that are within our skill set – this includes a wireframe created using Figma that best displays what our finished product would look like and creates a visual aid for our product vision.

Having to hire developers and programmers leads into another risk facing stockIT’s development. That being the financial risk of pursuing a project such as this. Initially, the project plan is to pitch the idea to a series of investors and seek financial assistance to speed up the development of stockIT’s software. Without financial assistance, the timeline for software development is greatly delayed as it relies on the original development team being able to teach and learn programming.

While ideally all development team members will be able to upskill through-out the course, any delays in bringing the product to market creates further financial burden on the group, delaying the product coming to market and therefore decreases the chances of stockIT’s success and viability of the software. All business ideas and their creation are time sensitive to a certain degree, none more so than new software packages. The earlier stockIT comes to market, the more users we can capture and the more time there is to work on growing the market and developing the features and functionalities of stockIT.

There are always risks in life however with business, the risks can seem insurmountable. This is because there are real world implications if a business fails, negative financial implications and the risk that all the time investments could be for nothing. What we have addressed documents the risks that we have been able to foresee but there are always more that are unknown and cannot predict. The only way to mitigate the unknown is to focus on the known.

### Group Process and Communications

Team meetings will be conducted over Microsoft Teams. As this project is large in scope, it will provide us the opportunity to seek specialized roles across the country. Ideally it is best to seek roles within Australia as this will allow the team to get together formally in person biannually. Each week, 2 stand-up meetings will be conducted essentially discussing on “*what was completed the day prior, what we are working on today, preventions on completing the work”*. As we still have Covid-19 restrictions for international travel, it is safer to hirer our staff within the same country. Due to our budget limitations, an Agile project management style is best used. This will allow our project to take a realistic approach on what would be nice to have and what we can actually achieve (Adams, 2018, p. Para 6).

What we plan to do to help mitigate poor communication, working in a virtual world is to implement connecteam which is a productivity app. The application also allows tasks to be allocated to members of your team to track progress and capture historic comments. The Roles that we are after for our project is a Full Stack Developer to build the front-end and back-end of our stockIT system, a mobile application developer to develop the mobile application for our customers, A database administrator to manage the customer data that we will be collecting and UX Developer to design both mobile and systems interconnection.