# DevOps Framework

## Justification

For a company to successfully transition to the DevOps methodology there are many things that need to be considered such as the current processes or methodologies the company is using, what timeline is available to make these changes and what budget is available? This company has a small timeline due to the state it is currently in. As it is only a small company, it makes it a bit easier to introduce these changes efficiently.

Upon speaking with Pat, it is clear there are many changes needed and the company’s future relies on how quickly and successfully this can be done. In order to get the people in this company to start thinking about taking DevOps onboard, I have spoke with Ren, who has been at the company for a long time. He has talked me through the current processes and Methodologies the company uses when creating or updating current software. I was able to the then plan for the best approach the company can take going forward. In order to gain trust from the staff and Management at the company, they were shown a presentation of a process about the transition of introducing DevOps into the company and why this would be necessary. The presentation clearly outlined the roles of each person that would be involved this process and was done in flowchart approach in order to make is more consumable for each person that would need to be involved. They were shown how DevOps can be used for Continuous Integration and Continuous Delivery of software and the benefits that come with this approach. The Management could see how this would be cost affective in the future, meaning less hours or manual implementation and having more reliable and error-free code.

The Manager allocated some time for this transition and Management allocated a budget. Management also provided measures that they would like to see achieved at the end of this transition to know that the implementation has been successful. These measures included the transition coming in on time and within budget, automation being in place so changes can be implemented quicker in the future, and a new culture of collaboration within the company being established.

Upon reviewing the budget and timeline, I was able to come up with a list of realistic changes that could be made. The steps that were going to be taken for this transition were outlined to staff members and their roles were identified and assigned, this provided for accountability from them throughout the process. After changes were prioritised based on timeline, budget and skills available, tasks were assigned to each staff member. The Manager made training available to the staff on the DevOps methodology and tools which allowed them to implement some of the small changes identified. The use of Version Control and Agile practices were identified as priorities for using the DevOps framework, and staff began by introducing those.

A demo with updated code using DevOps practices was brought to the manager. The updated implementation was compared against measures set out at the beginning. With the use of Version Control, Agile practices and introducing automation to the process, clear benefits such as cost savings for future changes and implementation time reduced, were noted. The management could see that by taking this approach, they were more likely to get future investments into the company.

# Modernising Code Process

# Justification

The goal for the process defined above is to define steps we need to take in order to modernise existing pieces of code within the company. The process outlines how we can do that and the approach that should be taken. By reviewing the code initially, we can try to identify the purpose of the code. Firstly by identifying the language used, and by taking time to learn the language. This will help us understand what the code is currently trying to do and how useful it is. The code has already been reviewed and we can see comments made telling us what may need to be fixed or what currently works well. In order to find out the importance of the code, we can identify when it was last updated and if it is being maintained. This may tell us whether prioritise this or look for another piece with higher business value to spend our time on, given the short timeline that we have. If we choose another piece, we can start the process again of reviewing the code to find out its value.

Ren will be our main contact for identifying staff that may have worked on this code before and also helping to navigate the current systems and processes that are in place within the company. Current staff will be able to help us understand the usage better and any documentation that may be available to us. Ren and current staff can point us to stakeholders with an interest in improving this and we can use them to gather requirements and get their values for the outcome to be meaningful, ensuring it adds impact to the company.

Once we have the requirements and know what we are trying to achieve, we can set priorities, identify our resources, have a timeline in place and have management set a budget. Staff members will be assigned roles and tasks to complete to implement these changes and we will introduce DevOps to the project by introducing Agile practices and the use of Version Control. These are two crucial elements used in a DevOps implementation. Use cases are created based on the requirements that were gathered for the project and used for the successful coding and testing throughout the project. They will also be used upon completion of the proof of concept to measure the success of how well the implementation has been created.

Management will be able to use this process to demonstrate the capabilities of the company to stakeholders and gain trust from them that the company is turning around its way of working and implementing new strategies to distribute more reliable code in a quicker turn around time. The process allows stakeholders to easily identify what steps the staff within the company will be taking to make these changes and identify at what stages they will contribute. Continuous integration and Continuous Delivery of code can be easily implemented once using this process as it is broad to allow for usage with any language and any code.

# Sample Code Modernisation

The process above has been created in such a way that allows for use with any project that may need updated or modernised. As myself, Ren and Jalen are going to be managing the transformation of the code, we will spend time going through the current code, analysing the comments made on the code to discover its purpose and use. The importance of the code can be identified by seeing how well it is maintained and by finding out the purpose of the code, where it is used and who uses it. As the language may not be familiar, it is important to gain understanding on it, by researching the code and updating our knowledge through training.

As Ren has been with the company for a long time, he will be overseeing the communications between the staff and stakeholders. He will identify the relevant people with previous experience working on this system and anybody that was involved with this code in the past. Staff and Stakeholders can help us understand what the code should do and help prioritise the level of contribution it provides to the business. Use cases can be created to understand what the code does and help identify a piece of code with the highest priority to work on.

We move through the process by speaking with current staff, find out their abilities and experience, and speaking with stakeholders to get their requirements for this project and their values, to have measurable outcomes put in place. With these requirements, changes can be prioritised, allowing for a timeline and budget to be set my management.

Jalen will be used to bring fresh ideas and introduce the use of the Agile Methodology having just completed her degree and having the most up to date knowledge on trends in the tech industry. This is a key element to the DevOps approach along with the use of a version control system such as Git. Other DevOps tools and techniques could be thought about at this stage also and implemented as the DevOps becomes a key methodology used in this company.

Each team member working on the project will work through the implementation stage to provide a proof of concept piece that can be used to showcase the capabilities of the company. The project will be managed through development, testing and release stages by the project manager with continuous communication and collaboration between teams during each stage. Jalen will assist in the organisation and documentation of progress while also taking part in small elements of coding, applying and learning new skills.

Once a demo version of the updated code has been completed, this can been brought to management to showcase updates made, the process that was used to make these updates, new techniques that were implemented and how these new techniques will contribute towards quicker more reliable software in the future. Measurable outcomes were outlined earlier in the process and once implementation has been completed, the expected outcomes can be used to measure the success of the process. They should be compared against what has been achieved and identify what could be done better. If the measures have been met, the process can be reused for future change through continuous integration and continuous delivery of the code, and also used for the next project that has been identified on the list of priorities.

# Conclusion

In the previous sections, I have created a process for bringing DevOps into a company that is currently in dire straits and transitioning from legacy systems to more modern practices and a process for modernising code within that company.

There was a short timeline for this assignment which meant creating processes by making decisions on what was best to prioritise. I have done this by Identifying DevOps practices that could be introduced in a short time without creating an extensive process that includes all DevOps practices. Throughout the process creation, I learnt that it was important to understand and manage timelines when trying to prioritise change in a company. Understanding who best to contact for eliciting requirements is a challenge when you are new to a company, but to overcome this, using the resources available in the company, such as Ren, can help to move this part of the process along quicker.

The process for modernising code could be much lengthier than what is stated in this assignment. There may be much more testing involved and introducing an Agile approach to this process could involve a much bigger timeline than what has been allowed due to the need to train all staff members on these new techniques as a result of outdated and old practices being used in the company.

Continuous Integration and Continuous Delivery is a key element when introducing DevOps to a company. The processes have been created in a way that allows for CI/CD to be implemented when creating or updating existing code. They are broad and can be easily applied to a wide range of projects, that have various uses and use different development languages and tools.

The processes introduce a new way of thinking for people at the company. They will help members of staff transition into a DevOps Framework and clearly identify what part they will play in this transition. The management at the company will gain by showcasing their new capabilities and having leverage when seeking financial support for investors. This is a key outcome that is required for the company and the main purpose of needing these new changes. Measuring the outcomes of these processes will play a crucial role in the company securing that interest and trust in management and the company to allow for investment.