# Project Description

## **Overview**

Our project for assignment 3 will be the development of an application to be used in the Childcare industry of Australia to monitor and track the required observations of learning outcomes for children in a day care setting.

In the Child Care industry each child’s learning outcomes are assessed on a monthly basis which is primarily a manual task. Our project deliverable is to design and develop a Java application that will be to be used across multiple platforms that aims to reduce the amount of time spent on paperwork and thus allowing educators to focus their time on children, improving their education experience.

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This project will involve work in several IT areas including:

* Developing the application using a Java IDE
* Server-side knowledge for hosting and potential data storage
* Using a GitHub repository to store and access the project files
* Applying a testing and QA methodology to identify any issues and provide a feedback on changes
* Providing an easy to use and effective UI experience
* Implementing secure data security, storage, and encryption for private information

## **Motivation**

Currently in Australia there are more than 15,000 childcare and education services that operate under the national quality framework. Workers across these services must record the observations of multiple learning outcomes for each child in their care, today this is a manual process which involves tracking these observations manually.

Improving the working capacity of employees in an essential industry by providing an alternative that is easy to learn and use for all users, regardless of background of IT knowledge is a key motivation for our team and this project.

Providing an easy to use mobile application – or application that can be used across multiple devices – to replace potentially redundant manual work is something that is all too familiar in today’s IT landscape. Improving business processes and ways of working is a key aspect of Information Technology and targeting an industry as critical as child care in Australia will provide a lot of exposure and potentially a lot of users.

Technically using a programming language such as Java and utilising a cloud storage option providing essentially 24/7 availability is becoming the norm with most applications in the IT industry.

Completing this project would demonstrate to a future employer a number of positive aspects:

* Competency in a commonly used development language (Java)
* Knowledge in maintaining storage of data – and potentially exposure to encryption and various aspects of data security
* Working effectively in a team – assigning tasks, high-level communication and escalation management
* Showing initiative in learning new skills and exploring what options are available for designing and completing a project

## **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.*

## **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.

**Aim: ‘Provide an application to record observations of learning outcomes of children in the day care industry’**

*Goals:*

* *Replace current manual processes with an easy to use application*
* *Practical UI so users with no/limited IT knowledge can easily use the application*
* *Utilise a commonly used but robust programming language (Java) so that future developers/employees who are exposed can maintain or help develop*
* *Eventually allow test users to gauge feedback from day-to-day target user group*
* *Meet all government regulations and requirements for storing and encryption of sensitive information (names, DOB, other child details)*

### 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.*

1. ***How application began – history and background***
2. ***What has progressed since Assignment 2?***
3. ***Tools used for development and development process?***

The primary tool that has been used is Java SE Development Kit (JDK) which is a software development environment used for development of Java applications. Our team has also continued to use a Git Hub repository, so all members have access to the project files, and the ability to make changes, complete testing, and quality assurance throughout this project phase.

Although not a development tool, Microsoft Teams has been extensively utilised throughout the project. Teams has allowed the entire group to stay in regular communication, used to assign deployment tasks and provide feedback and updates to other team members. Project management is a key and potentially underestimated aspect of a development project, keeping on top of tasks and admin work is vital to ensure that deadlines can be met.

1. ***What stage are we at now that Assignment 3 has finished?***
2. ***Development problems that have been encountered (ask Ryan)***
3. ***Any changes from the original idea? (Ryan)***
4. ***Testing and QA process in Assignment 3***

Given that the project had to be completed in a fairly short amount of time along with the fact that there were a number of development changes and subsequent testing, we required a proven testing & QA methodology to follow to ensure that a robust and well tested application was the end result. Several popular methodologies were considered (Agile, Waterfall, Extreme programming) however we decided that the iterative method would be the most effective for a project of this size and number of team members.

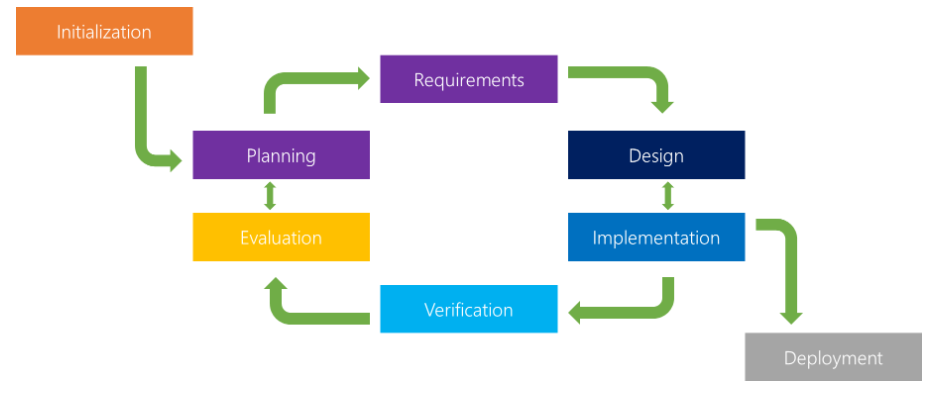


Figure 1 Example Iterative QA Methodology Workflow

Following assignment 2 we had an initial version of the Childcare Observations application – this meant that for the planning & requirements we could simply build on the original version and add a subset of requirements and goals that would be targeted for assignment 2.

During the assignment there were a number of iterative changes made to the application (Code changes, UI changes, changes to executable file) which resulting in a various ‘cycles’ of the QA process to ensure that all changes were tested, verified and evaluated by the team before any further changes were planned and developed.

The strength of this QA process is that it allows for smaller, ongoing changes to the application to be completed and tested prior to the final deployment. This means that any issues or bugs with the changes or usability of the application are identified quickly and are less likely to impact a final deployment or deadline.

1. *Future plans and opportunities to improve application*

* **Improved Program UI**
* **No pop-up windows – program to run in 1 window**
* **Save securely to a secure file type**
* **Help files/menu**

### 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.

* **Development (Multiple Roles)**
* **Project Management**
* **Testing and QA**

### 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.

* **In scope v out of scope diagram. Out of scope would be future items we intend to include.**

### 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.*

* **Java**
* **Word, PDF**
* **Any prior experience for members?**

### 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 and 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.*

* **Ongoing Testing plan & feedback required (refer to Plans & Progress: Testing section and possibly reuse some aspects)**

### Timeframe

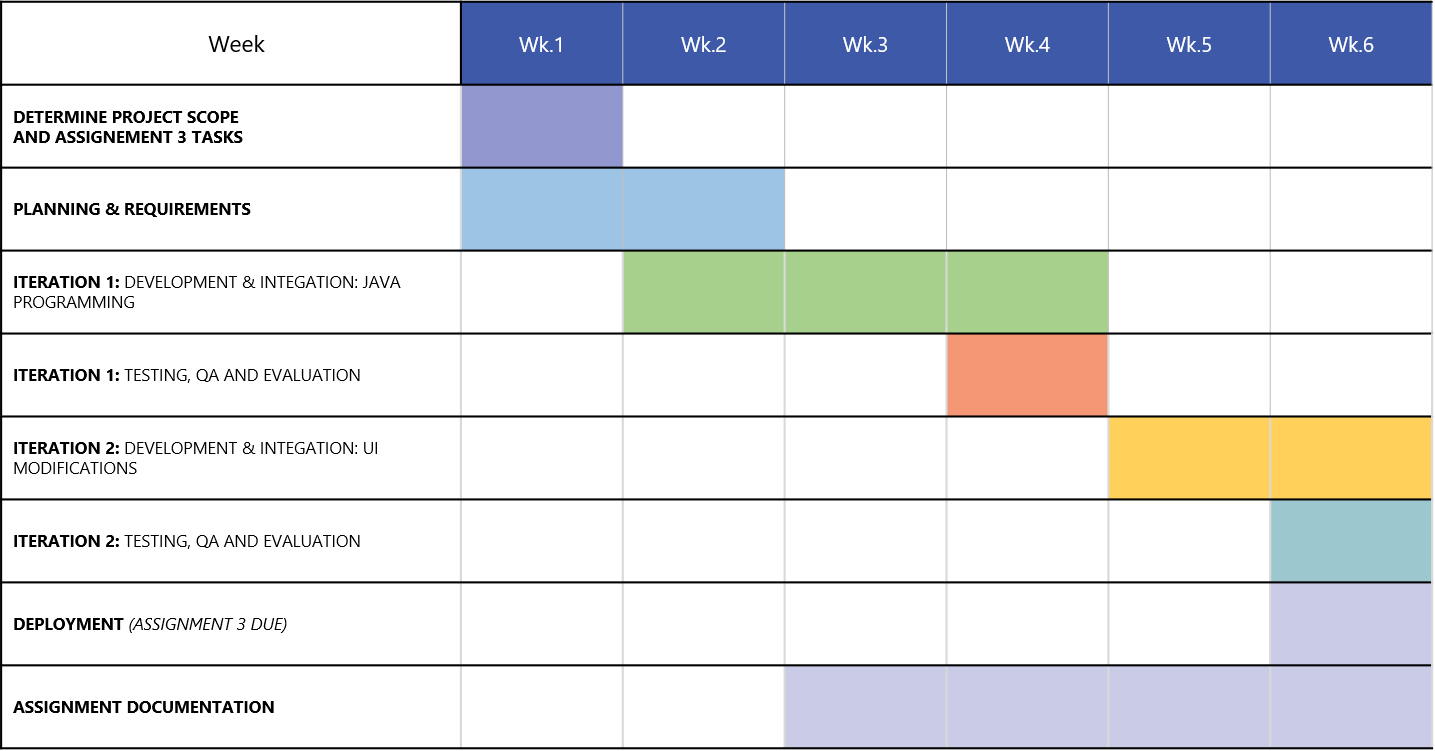
Another difficult aspect of project planning is knowing how much time to allow. You will have something like 36 hours per person for this assignment. In order to develop a plan for further work beyond the end of this course, let us assume that you will have an extra 10 hours per week per person for 10 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.

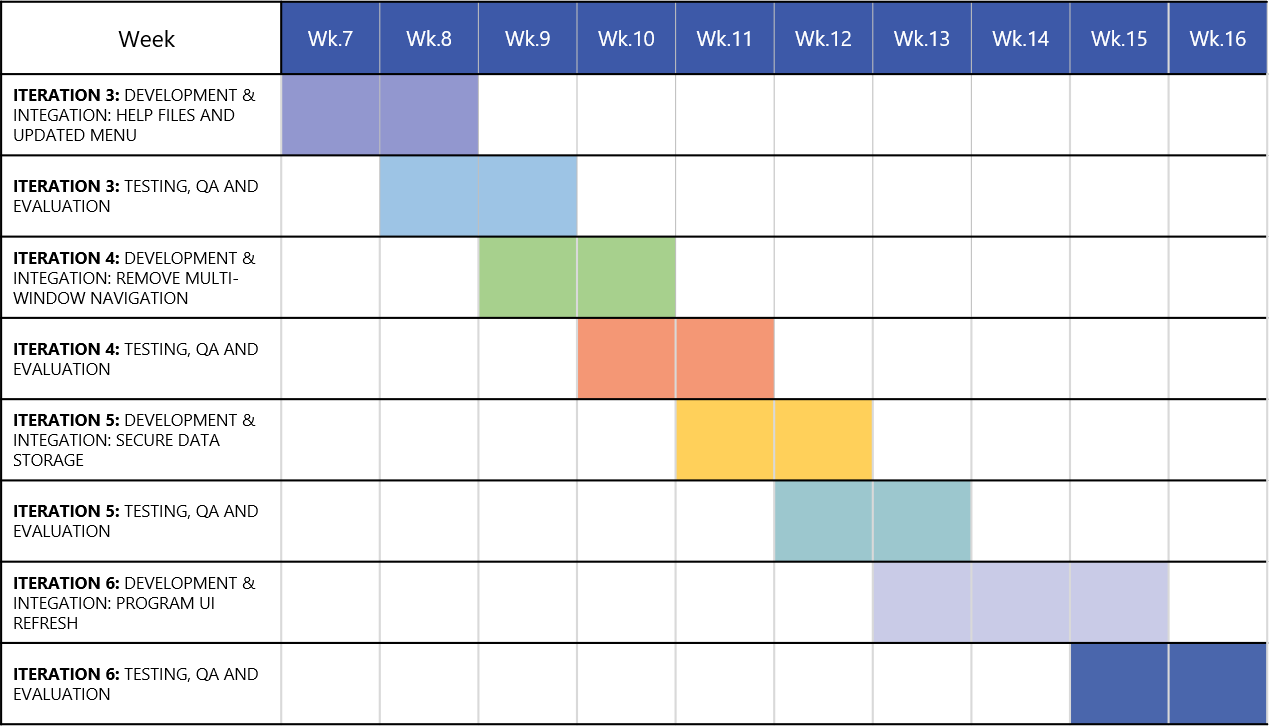
*This should be presented in the form of a table, with one row for each week, specifying as best you can the work for each person for each week.* This means that the first six rows of the table will describe your progress so far, and the remaining 10 your best guess at how the remaining time would work.

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.

* Use timeline from PowerPoint



**Future Plans to Improve Application:**

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### 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

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* **Changes in child care industry – especially impacted during COVID restrictions**
* **Changes in Gov’t regulations (data storage, child care policies)**
* **User Adoption: implementing change especially around**
* **Minor: server/hosting issues**

### 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.*

* **Communication and PM tools – Microsoft teams, Asana.**
* **Escalation and dealing with people who don’t respond to messages or requests/work that has been assigned**
* **Online communication (due to distance course, team members living in different cities)**