PRCO304

Final Stage Computing Project

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*Dissertation Report*

# Acknowledgements

# Abstract

CoJo - The Coding Dojo is to aid in the learning and production of code using a variety of programming languages. The web application will give users the knowledge on what each language is used for as well as help to reinforce what has been learnt by providing practice opportunities to build confidence through an instant feedback mechanism to enable meaningful learning.

Furthermore, the application tracks user progress throughout via their own account. This tracking system can show the user what topics they are currently working on as well as what other topics could be of interest to them to help broaden their knowledge and encourage developmental growth.

Contents

[Acknowledgements 1](#_Toc35182376)

[Abstract 1](#_Toc35182377)

[Intro 2](#_Toc35182378)

[Background, Objectives & Deliverables 2](#_Toc35182379)

[Method of approach 2](#_Toc35182380)

[Legal, Social, Ethical and Professional Issues 3](#_Toc35182381)

[Project Management 3](#_Toc35182382)

[Stages of project lifecycle – weekly reports / create a journal which entails all modifications and change to the project as and when they are committed / made. 3](#_Toc35182383)

[End-Project Report 3](#_Toc35182384)

[Project Post-Mortem - Now the project is over reflect on what it’s like now, how things are now the project lifecycle is finished 3](#_Toc35182385)

[Conclusions 3](#_Toc35182386)

[References/Bibliography 3](#_Toc35182387)

[Appendices 3](#_Toc35182388)

**Word Count: 1089**

*Link to code repository*: **ADD LINK TO GIT HERE**

MAIN SECTION

# Intro

For my final year project, I have created a web application named “CoJo – A Code Learning Application” with the aim to provide users of different computing backgrounds a platform which promotes learning without having the stress of expected deadlines and due dates.

It is more common then not to think that coding and programming are very difficult fields to get into with many of ***my census data participants*** believing that these elements of computing are the hardest. Therefore, CoJo was designed and the building blocks to provide a platform that’ll help change these opinions started to be constructed.

As CoJo is an application about self-teaching and learning, it could be seen as a tool to aid alongside studies that users are already carrying out or as a stand-alone application that can be used to get a handle on what is coding and programming if the user has no prior knowledge which in turn helps to lay the foundations and provide these necessary basic concepts.

# Background, Objectives & Deliverables

**BG**

As more and more people migrate into the world of computing through more and more companies relying on computers to carryout their day to day jobs and certain life styles, companies are half-expecting new employees to have at least a basic concept of what programming is and so IT is being taught at a higher standard earlier in schools then it has been less then 10 years ago! This statistic as well from personal experience led to my decision to create CoJo and provide a free to use application that’ll be able to teach and evolve the mind of an individual so that they can tell their future employer or start their own business with a solid knowledge in programming.

**OBJ**

The main objective of this application is to be able to provide a service for users that will enable and promote the learning of programming within an environment that helps to reinforce what has been learnt by providing practice opportunities, building confidence through an instant feedback mechanism to enable meaningful learning. This application also aims to be user-friendly through a progress tracking system in which users will be able to track their progress on each topic and see a visual representation of what they’ve learnt as well as progress through tests and quizzes.

**Deliverables**

* To provide a web application that can teach and aid the learning of programming and coding practices.
* To provide an instant feedback system that is integrated into the application allowing users to view progression within most aspects of the application.
  + This is done through an account system and the data of each user is stored within a database.

# Method of approach

The application had the aim to provide a platform for learning, therefore the first step I had to take to achieve this goal was to focus on a user account driven approach which in turn will give the user a personal progression feature allowing them to track where there are in certain areas of the application. This helps to build a foundation for the application but doesn’t mean the user has to be signed into the application to benefit from it.

Secondly, the application will also benefit the user by providing a clear and instantaneous feedback system after completing tests and quizzes as these are good ways to see how much the user has learnt and there is also a ‘Contact Us’ section within the application to provide further channels of communication for users in the case that they need more assistance or if they wish to ask questions to myself.

I would then start creating some basic UML diagrams to get an idea for what needs to go into my database and this will then aid me for the future so I don’t need to try and add a lot more to my database later on even though this will be a guarantee due to the database probably expanding as the projects lifecycle continues.

# Legal, Social, Ethical and Professional Issues

## **Legal**

The project, as a whole, does not bare many issues legally due to there being zero profits to be gained from the application as well as the parameters of use are confined to purely that of the user who has a copy of the application as the application is not hosted on any 3rd party webserver. The application was also developed for a university project therefore, by following the university’s guidelines and jurisdiction, was prevented from breaching most legal policies and regulations due to project management and meetings with the project’s client on a bi-weekly basis. The only potential breach of any legal policies would have been the use of the official logos of the computer languages that were talked about and used within the application. This however, was carefully looked into and the use of the logos complies with the terms of fair use that were laid out by each of the companies that owned them as well as that of the ‘World Wide Web Consortium’ which provides some of these logos for commercial download and usage.

The application conforms with both the Data Protection Act 2018 and General Data Protection Regulation as the application database is stored locally on the device it was developed on and the user login information has been pre-populated with test information meaning that there is no factor of user personal information from being leaked. If the user so wishes to create a new account within the application, the password they would of created is hashed with the database and so there is a level of data protection if there were to be a case of a data breach.

## **Social**

As the project aim is to produce a web application for computer science students, there are a few implications that come with its development in the terms of social interactions and adapting the application to make it as user-friendly as possible.

Firstly, the application needs to be accessible to as many users as possible therefore the application needs to be modified as to accommodate for these users. This can be done in a variety of ways such as the use of accessibility tools or by developing the application in a way that means any user can use the application without running into any complications that may cause them distrust in the application such as personal data leakage or in that of using the application can make the user feel less confident in themselves. This issue has been minimised by using more clearly labelled elements within the application as well as by using a design layout which stays consistent throughout the application as this way of learning aids those who find

## **Ethical**

## **Professional**

# Project Management

I have then planned out Sprints as the project is being developed within an Agile Methodology and so the use of Sprints helps me to manage every iteration and helps to keep track of what parts of the application I need to work on first or which parts I can work on later.

I have also been tracking my progress throughout the project using a Trello Board to show what aspects I need to work on as well as the current objectives I am working on. All the tasks and documents I need to produce are also logged within my Trello board which, when they are created, then become a part of my GitHub repository for version control of my project.

I have also produced a Risk Management document which details what aspects of my project I felt needed to be focused on as they can potentially set my project back if they are not considered and then counter-measures put into place.

# Stages of project lifecycle – weekly reports / create a journal which entails all modifications and change to the project as and when they are committed / made.

# End-Project Report

# Project Post-Mortem - Now the project is over, reflect on what it’s like now, how things are now the project lifecycle is finished

Now that the projects lifecycle has come to an end, it is clear to say that the project could have been bigger then it was but at the same time, the project contents could have been more tightly thought about in the sense that the project’s contents are quite vast and so the content for each topic included within the application are not as detailed as they could have been. The project could be expanded upon further and this is something that could be considered as the application does have potential and the software’s and other similar applications currently online, don’t have the same appeal as these seems to focus more on having a broader perspective that also incorporates other companies and businesses that know of them to gain more traction on a globe scale. As a whole, the project wasn’t a complete success but neither was it a complete failure as there were elements that put the application in a light which could be adapted by other projects or applications to allow them to evolve further and be more beneficial then they already are today.

# Conclusions

In conclusion…

# References/Bibliography

* <https://www.quizalize.com/blog/2018/02/23/teaching-strategies/>
* 22 April 2015, <https://www.jisc.ac.uk/guides/networking-computers-and-the-law/laws#:~:text=Computer%20Misuse%20Act%201990%20%2D%20creates,interference%20with%20computers%20and%20data&text=Data%20Protection%20Act%202018%20and,any%20other%20organised%20filing%20system>

# Appendices