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Tourist website for staffordshire tourism accosiation

By team 15

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# 0 Introduction

This document is for required documentation that is too small to justify a separate document. It contains documentation for version control, change management, etc

# 1 Version control system

For version control the project will use the service to store and control the development of the project as a group. GitHub allows the project to effectively allow multiple members to work on the same project simultaneously with features being developed on an individual’s pc then uploaded to as a separate version to the cloud with every other member of the team downloading the new version when needed. 2 version control systems were set up one for storing documents and another for storing the project which can then show who has made changes to which documents. An example of this being used can be seen in (appendix 5.2) with a GitHub repository being used to store documents and changes to documents.

# 2 Change management system

With the use of a change management software like Trello tasks are assigned to each person but these can be changed at anytime to suit changes in workload with each member of the team (see appendix 5.1). To decide when a change in an activity such as feature development or documentation the requesting person simply asks the other members of the team and when all members agree the change is made by editing, adding, or removing a feature on Trello. Documentation of these changes should be made to keep track of what was changed and when as well as changes to the relevant documents like requirements or designs.

Due to the team being small having only 3 members with multiple disciplines and the project being a small website this method of change management will be effective as the features being managed is small in scope and thus easy to keep track of the individual features and who will be working on them.

# 3 Costing

Costing will be based on the estimated lines of code per hour (LOC) without commenting with the estimated output for each developer on the team being around 50 LOC for HTML, 20 LOC for CSS, JS, PHP with the estimated average annual salary for a software engineer being around £49,000 in the UK according to (Indeed, 2023). this means that the hourly rate for a software engineer will be around £26/hr not including operation costs. With operation costs this will be increased to £50/hr per worker days to ensure that operation costs are also being paid for with 2 hour days making daily operation costs around £300/day.

This is as mentioned by (Little, 2006) the cone of uncertainty is the idea that as a project continues the likelihood of the project having issues such as time constraints with only 20 percent if projects being completed on time. The project should be planned with extra time to increase the odds of it being completed on time which will in turn increase costs. To ensure the project does not fail due to probable uncertainty the budget should be doubled to increase the chances of the website being completed on time with more cash flow into the project means that developers can be hired for longer which also as mentioned by (Little, 2006) is the median average cost of the average finished project costs 1.8 times more than the initial estimated costs which should be applied to the final cost to increase the success rate of this project.

# Expected lines of code

* CSS 200 lines
* Home page: 150 lines of HTML
* About page: 150 lines of html
* Location page: 150 lines of html
* 5-Star review system: 20 lines of PHP, 30 lines of JS
* Comment/ review system: 50 lines of PHP
* Login system: 50 lines of PHP
* Search bar: 50 lines of PHP
* Search categories: 20 lines of PHP
* Database: 500 lines of PHP

# 5 Appendix

## 5.1 Trello Change Management system

Graphical user interface, application

Description automatically generated

Figure 1: image showing the use of Trello to create a Kanban management system

## 5.2 version control usage

Graphical user interface, text, application, email

Description automatically generated

Figure : example of version control being used to show how a document or project will change over time with names for accountability of changes as well as the ability to revert changes.

# References

Indeed, 2023. *Software engineer salary in United Kingdom.* [Online]   
Available at: https://uk.indeed.com/career/c%2B%2B-developer/salaries  
[Accessed 13 1 2023].

Little, T., 2006. *Schedule estimation and uncertainty surrounding the cone of uncertainty.* [Online]   
Available at: https://ieeexplore.ieee.org/abstract/document/1628940  
[Accessed 13 1 2023].