Southampton Solent University

SCHOOL OF MEDIA ARTS AND TECHNOLOGY

**BSc Computer Games (Software Development)**

**2017/2018**

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***“Balanced First Person Shooter Level Generator Engine Plugin”***

Supervisor : Mark Bennett

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Acknowledgements

Write a paragraph here acknowledging everyone who has helped you while you have been preparing the content of your dissertation.

This may be you supervisor or other academic staff that have provided guidance and support, other students or colleagues with whom you have collaborated on any research or project work, interviewees, librarians, or perhaps any external bodies that have given you assistance, such as access to data or the opportunity for hands on experience.

My many thanks to Mark Bennett, who was my supervisor for the project, in providing suitable guidance for the direction of my project, helping me to keep the scope sufficiently narrow and making sure I kept on track with the goals of the project.

I am also grateful for the assistance of my parents, Frederick Moran and Christine Moran, for helping me with proof-read various versions of the documents for this project and talking with me daily (via Skype or in person), to make sure my mood and focus for the project, were kept in check.

Abstract

The abstract is a summarised version of your complete paper. A reader could get the main ideas from just the abstract, or use the abstract to decide whether to read the rest of the paper.

Briefly outline what your paper aims to do.

Briefly outline the results and the conclusions you have drawn from them.

Note: Any pages which come before the content of your dissertation are given using roman numerals, with the traditional numbering starting with the Introduction on page 1. This is achieved by inserting a continuous section break at the heading for your introduction, then setting the page numbers differently for each section.

This report details the process of development, for an engine-plugin (for Unreal Engine 4 (UE4)), that generates a level for a First-Person Shooter, by considering the coefficients of Defensiveness, Flanking and Dispersion, for the placement of Zones (sub-divisions of a level), in a manner that would not favour one side or the other.

This tool was able to be developed for UE4, with access via a custom menu option, allowing the User to define the starting point and dimensions, of the level to generate. Only the Defensiveness and Dispersion coefficients are considered by the Level Generator, when it is assembling the level. Although levels generated by the tool, are mostly traversable, balance for one side or the other, is not clear in the levels generated.

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List of Tables

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3. Title for your third table ?

List of Figures

1. Title for your first figure 3
2. Title for your second figure ?
3. Title for your third figure ?

Note:

‘Figures’ refers to all charts, graphs, photographs, drawings and other illustrations. Number everything in the sequence it appears in the text

1. Introduction

Paragraph. Explain the purpose of your paper and a little background to your area of research (though not the literature survey which comes next)

New paragraph. Leave a line space between each paragraph, or, if you know how to, set the spacing after the line to 6pt or 10pt.

Considering the competitive play of recent First-Person Shooters (FPS) titles (such as Counter Strike: Global Offensive (CS: GO)). (Valve Corporation, 2012) It has become apparent, that creating balanced levels for FPS titles, could be considered a project in of itself. That is, levels that would not favour one side or the other, (with advantages and disadvantages for each team, given where they start in a level, that the Players must overcome). For the creation of balanced levels, having a team dedicated to such a purpose seems necessary, with them using a substantial quantity of the overall project’s resources (the game’s), to create balanced levels. (LevelCapGaming, 2014)

This can lead to Players having feelings of unfairness, in relation to how they are at a disadvantage from the start of a game (irrespective of Player skill-level). This is in respect to the paths Players can take through the level, along with where they would have to look to find enemies at certain points in a path, or from entrances/exits to/from a path, as well as entrances to other paths. (LevelCapGaming, 2014)

2. Literature Survey

Paragraph. In this section you give a summary of the research you have done in your topic area.

Paragraph,

Indented quotation – must be more than 3 or more lines long. Notice there are no quotation marks on an indented quote. Remember to reference your quotation. (Name, Year, p.?)

Paragraph with quotation in text: ‘It must have quotation marks. Use single quotes outside and “double” quotes if you need to use them inside as well. Also must be referenced’ (Name, Year, p. ?).

Paragraph that includes another quotation: Notice that you can use a quotation as ‘part of the sentence’ (Name, Year, p.?). You do not need a comma before the quote if it is grammatically part of the sentence.

4. Methodology

Paragraph. Here you will describe the scope of your research and all of your research methods. Start by describing the process you went through in selecting particular methods of research.

Paragraph. Make sure you also describe any limitations or shortcomings in your research methods.

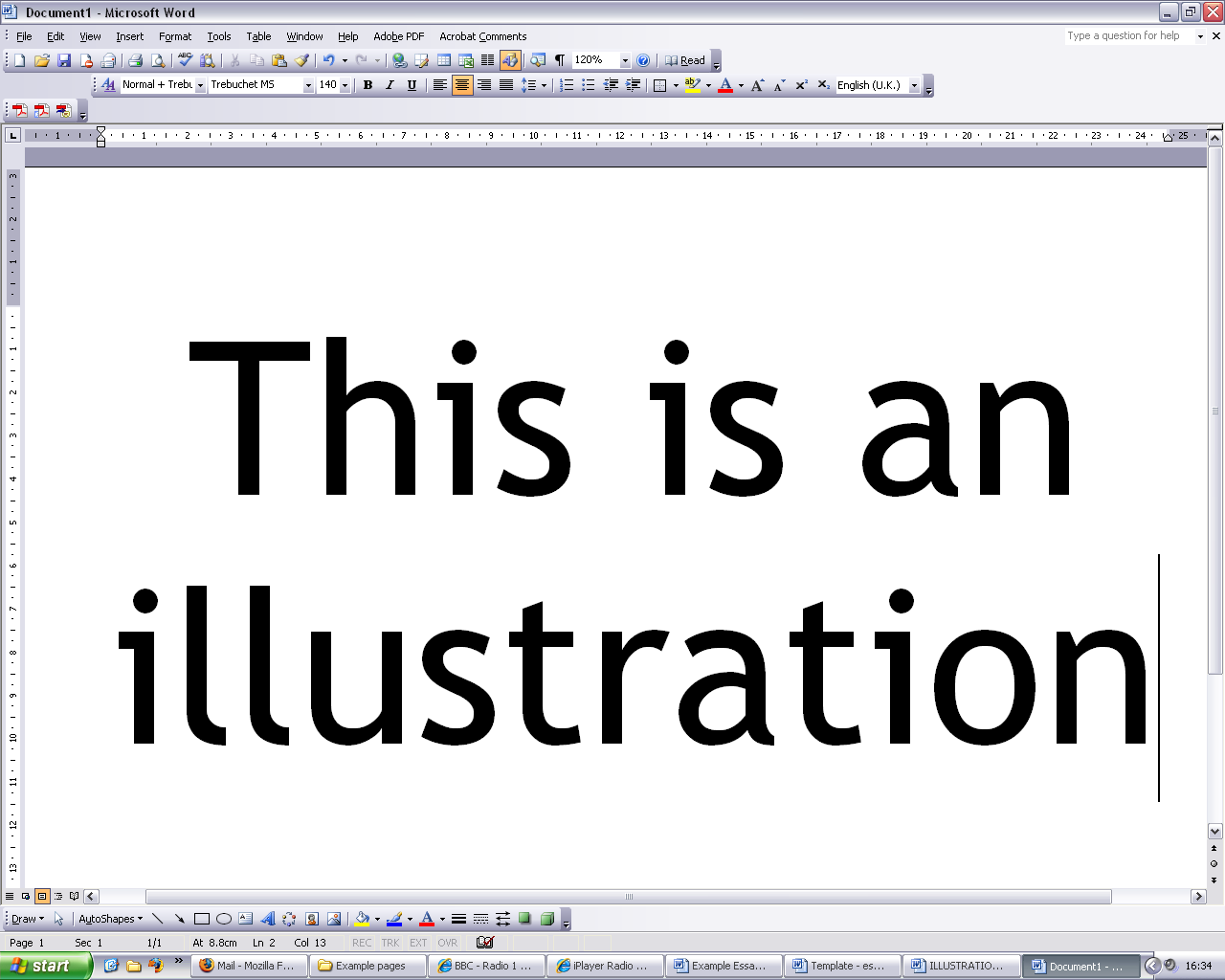
**4.1 Subsection heading**

Paragraph. If you have different elements to your research, perhaps separate case studies, or a variety of testing procedures, you may want to describe them in separate subsections. Notice that subsections are numbered within the section.

**4.1.1 Sub-subsection**

You can continue to add further subsections if these are necessary. However, try to avoid if possible as the structure may get too complex.

If you are using graphs, charts or illustrations, write a paragraph introducing the figure here and then make sure each figure is numbered sequentially.



**Figure 1: Write a descriptive title for your illustration or graph here**

5. Results

Paragraph. Here you will detail all of the results you collected. You may choose to use tables or graphs to show your results.

Paragraph. If you are using a table of information, write a paragraph introducing the figure here. Make sure each table is numbered sequentially.

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**Table 1: Write a descriptive title for your table here**

Paragraph. You may only need brief, connecting text between your tables of results.

6. Discussion

Paragraph. In this section you give your own explanation of what the results of your research show. You need to make interpretations and judgements in this section.

Paragraph.

7. Conclusions

Paragraph. In this section you apply your own reasoning and judgement on the findings of your research in order to draw conclusions.

Paragraph. Contextualise your thinking within the literature you surveyed in section 3, but make sure that you draw some of your own, unique conclusions from your work.

8. Recommendations

The recommendations arising from this report are as follows:

1. Make sure you number your recommendations.
2. You may also want to give levels of priority or suggested dates for implementation of your recommendations
3. However, do find out whether your supervisor or faculty expect your dissertation to include a recommendations section.

9. Reference list / Bibliography

SURNAME, Initial., YEAR. *Title*. Place of publication: Publisher

SURNAME, Initial., YEAR. *Name of Webpage*. [online]. Available: http://? [accessed: Date Month YEAR]

NAME OF UNIVERSITY/NEWSPAPER/WEBSITE, YEAR. *Name of Webpage*. [online]. Available: http://? [accessed: Date Month YEAR]

Etc.

LEVELCAPGAMING, 2014. *FPS Level Design – LevelCap Bashes BF4 Map Design* [viewed 02/12/2017]. Available from: <https://www.youtube.com/watch?v=FN7iLKUR8eY>

Note:

Check whether your faculty requires you to include a reference list or a bibliography (in some cases they may want to see both, if so, put them on separate pages).

Make sure your list is given in **Alphabetical** order of the Author’s surnames, or the Name of the company or institution providing the website if no author is given.

10. Appendices

10.1 Appendix A: Title

An appendix is for anything you feel is useful for your reader to see, but which isn’t essential for understanding your dissertation. It is optional.

Paragraph.

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| **Column heading 1** | **Column heading 2** |
| Write table text here. | Write table text here. |

Note: Notice that the sequence of your appendices is given using letters ‘Appendix A’, ‘Appendix B’, etc.

Also, the numbering of the pages in your appendix is done at the bottom of the page as ‘A-1, A-2’/ ‘B-1, B-2’ etc.

To get this separate numbering, you need to insert a continuous break at the heading of the appendix, this will start the numbering again. Then click into the footer and uncheck the box which says ‘same as previous’. You should then be able to change the letter next to the number (e.g. ‘A-1’ changed to ‘B-1’)to match the letter of your Appendix.

10.2 Appendix B: Title

Paragraph.

Paragraph.

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| **Column heading 1** | **Column heading 2** |
| Write table text here. | Write table text here. |

10.2 Appendix C: Title

Paragraph.