IMAT3451 PROJECT CONTRACT

TERRIFIC DISPOSITION: PROCEDURAL STORYLINE GENERATION

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Project Title	*Terrific Disposition: Procedural Storyline Generation*
Project Proposer	*Dr Jethro Shell, jethros@dmu.ac.uk* *Senior Lecturer, School of Computer Science and Informatics*

SUPERVISOR

Dr Jethro Shell: Senior Lecturer for the School of Computer Science and Informatics at DMU.

INTRODUCTION

This project will result in a playable game that implements natural language processing and fuzzy logic in order to generate a storyline tailored to the user's input. Multiple programming languages in conjunction with available third-party libraries an exploration into the feasibility of procedurally generating a storyline, rather than game elements.

PROJECT BACKGROUND

PROPOSED MECHANICS

This project, as proposed, was designed to explore the use of procedural generation in the realm of a game's narrative in order to determine if a more tailored experience is possible through this method. Typically, game elements have been previously constructed and then presented based on what decisions the player has made, but generating a storyline as the user interacts with the game has not been explored as often.

This project should provide:

- An insight into the possible use of procedural generation to tailor simple narratives to a user.
- A simple prototype in the use of natural language processing in games, as a primary feature.
- A simple example of fuzzy logic being employed to assign language a numerical classification.

THEMATIC TIE-IN TO MECHANICS

The proposed game is being designed to fir the text-adventure genre with a command prompt along with some additional user interface elements to aid usage. This decision was made in order to better highlight the importance and implementation of natural language processing by using user input in procedural generation.

The implementation of fuzzy logic will be to help differentiate in the meaning that the user intends to impart when interacting with the game's entities. However, as this is ostensibly a proof of concept a focus on merely demonstrating the proper usage of this to better tailor generated content to the user.

AIMS AND OBJECTIVES

AIM

The student will create a basic game in the text-adventure style in order to demonstrate the use of fuzzy logic and natural language processing in the pursuit of procedurally generating a storyline.

OBJECTIVES

Preliminary tasks to be undertaken:

- Review the use of natural language processing in conjunction with fuzzy logic for the purposes of text generation, this will then be the basis for the literature review.

Development tasks to be undertaken:

- A game in the text-adventure style, with the following characteristics:
  - A graphical user interface similar to a command prompt, designed to display game content, as well as content entered by the user.
  - A preliminary stage in the style of the escape the room genre, designed to act as a calibration of the user's playstyle.
  - A core stage in which the player has a simple task to undertake, with the information and context needed to flesh out this simple task being procedurally generated.
  - The ability to start a new game of resume a previously started game.
- Testing regiment:
  - An array of unit tests designed to cover the core functionality of the game.
  - A series of playtests by multiple people, whose information will be anonymised in order to protect sensitive information.

Final tasks to be undertaken:

- A full report on the project's development including the following:
  - A full and in-depth literature review regarding the use of fuzzy logic and natural language processing, including any similar software or projects.
  - An overview of the testing undertaken including preliminary analysis and descriptions of both fail-states and the relevant fixes.
  - An overview of the different life-cycle stages the software went through throughout its development, with some exploration regarding maintenance and expansion.
  - An overview of the software, programming languages, and APIs used in the development of this project, along with any used assets.
  - A full analysis and retrospection of the development process, the decisions made and what can be taken away from the development of the software and its success in the aim described above.

PRELIMINARY HYPOTHESIS

Seeing as the main focus of the proposed project requires a focus on fuzzy logic and natural language processing, it is most likely that the most work will be directed towards the proper implementation of the natural language processing.

Fuzzy logic is being covered in a formal academic scope by the student, and as such will likely not be a source of risk or much a matter of focus by itself. However, seeing as natural language processing is not typically used in a video game environment and is the main focus of this project, it is the most likely source of risk due to its crucial and novel nature.

PROJECT CONSIDERATIONS

APPROXIMATE SCHEDULE AND RISK ASSESSMENT

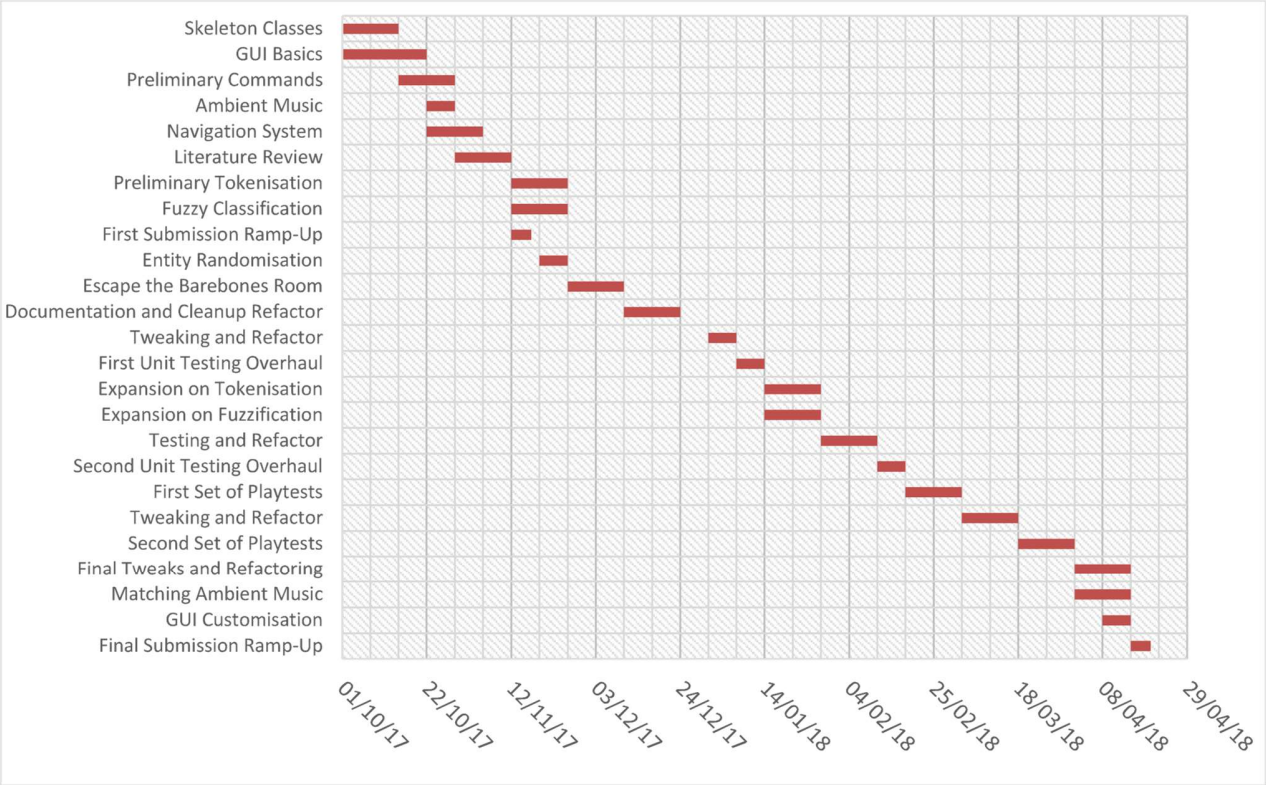
Task Description	Projected Start Date	Projected End Date	Duration In Days	Risk	Priority
Skeleton Classes	01/10/2017	15/10/2017	14.00	0	5
GUI Basics	01/10/2017	22/10/2017	21.00	0	5
Preliminary Commands	15/10/2017	29/10/2017	14.00	0	5
Ambient Music	22/10/2017	29/10/2017	7.00	0	3
Navigation System	22/10/2017	05/11/2017	14.00	1	5
Literature Review	29/10/2017	12/11/2017	14.00	3	5
Preliminary Tokenisation	12/11/2017	26/11/2017	14.00	2	5
Fuzzy Classification	12/11/2017	26/11/2017	14.00	1	5
First Submission Ramp-Up	12/11/2017	17/11/2017	5.00	3	5
Entity Randomisation	19/11/2017	26/11/2017	7.00	1	3
Escape The Barebones Room	26/11/2017	10/12/2017	14.00	2	5
Documentation And Clean-up Refactor	10/12/2017	24/12/2017	14.00	1	4
Tweaking And Refactor	31/12/2017	07/01/2018	7.00	1	3
First Unit Testing Overhaul	07/01/2018	14/01/2018	7.00	3	4
Expansion On Tokenisation	14/01/2018	28/01/2018	14.00	4	5
Expansion On Fuzzification	14/01/2018	28/01/2018	14.00	4	5
Testing And Refactor	28/01/2018	11/02/2018	14.00	3	4
Second Unit Testing Overhaul	11/02/2018	18/02/2018	7.00	3	4
First Set Of Playtests	18/02/2018	04/03/2018	14.00	2	4
Tweaking And Refactor	04/03/2018	18/03/2018	14.00	3	4
Second Set Of Playtests	18/03/2018	01/04/2018	14.00	2	4
Final Tweaks And Refactoring	01/04/2018	15/04/2018	14.00	3	4
Matching Ambient Music	01/04/2018	15/04/2018	14.00	2	2
GUI Customisation	08/04/2018	15/04/2018	7.00	1	1
Final Submission Ramp-Up	15/04/2018	20/04/2018	5.00	3	5

	0	1	2	3	4	5
Risk	Basic Tasks	Simple Tasks	Complex Experienced Tasks	Seemingly Simple New Tasks	Complex New Tasks	Complex Crucial New Tasks
Priority	Negligible	Optional	Optional but Desired	Somewhat Important	Very Important	Imperative

Fuzzification: Relates to the fuzzy logic components in the resulting program.

Tokenization: Relates to the natural language processing components in the resulting program.

GANTT CHART



END OF CONTRACT

Student	Justin Alexander Shanks	**Date**	25/10/2017
Proposer	Jethro Shell	**Date**	26/10/2017
Supervisor		**Date**	26/10/2017

Keep the signed copy somewhere safe: include it with your initial submission. Your supervisor will require a copy as well.