Simulating human civilisation and the evolution of society based on factors such as culture, religion, and technology – Project plan

James Benjamin Brimelow Gorman - 100505349

College of Engineering & Technology, University of Derby

100505349@unimail.derby.ac.uk

1. Introduction And Hypothesis

In 1958 the US army commissioned “Bay Model” construction in San Francisco first went into use. The concept of the model was to simulate the affects of modifications to the San Francisco Bay region and did so by physical means – with a 1:1000 horizontal and 1:100 vertical pool filled with water and a topography made to imitate the real-life bay (History of the Bay Model, n.d.). These days, physical models have been almost entirely replaced with computer simulations, which allow for far better customization and measurement of data (among other factors), which is likely the reason the aforementioned bay model ceased usage in 2000. In recent years, simulation has moved past simulating physical matter and now encroaches on the realm of humanity, with systems like neural networks able to generate new works such as music or literature just by analyzing what has been created in the past, with results often becoming uncanny with how believable they are as human-made media.

In October of 2017, inspired by these productions, I began to work on a simulation of my own which I called “Iron Age” (Gorman, 2017), with the concept being to create software that could simulate a world and its history from the view of a political map of nations. This software, in its completed form, was able to generate a new world map filled with different peoples, who over time would develop nations that would expand and develop, eventually waging wars over territory with neighbors.

While this software was successfully created and did complete my initial goal of generating a believable world from scratch, it did not meet my expectations for the project. The final build was filled with errors and performance issues due to my own inexperience at the time, and relied heavily on factors such as random chance which ideally an accurate simulation would keep to a minimum.

This is why for my project for my independent studies module at the University of Derby, I will be making a second attempt at this concept, using my newly acquired knowledge and experience to answer the hypothesis I originally proposed: “*Can human history and civilization be simulated by software to a believable degree using various modelled factors and elements that influenced real human history*?”.

1. Aims and Objectives

As previously mentioned, the aim for this project will be to develop software that can simulate the history of a new world, and populate that world with different peoples and nations, which will expand and shrink depending on factors that will appear as time progresses (Such as culture, technology, and religion). By the end of the simulation, the software should have created a random world map that has been filled with different countries, with their borders being defined by their history. This final product will be defined by the following key objectives which must be completed in order for the project to meet its goal.

1. Develop basic tools for the simulation to make use of, including basic camera controls and rendering methods.
2. Create a new geography as a backdrop for the events of the simulation to take place upon. This map should be entirely randomly generated based on factors provided in world creation
3. Populate this world with various preliminary factors, such as names of locations, cultural regions, naturally occurring resources and prehistoric faiths.
4. Develop the ability for the model to update and change over time, primarily in the form of the borders of nations and relations between said nations
5. Add the ability for conflict to occur over the course of time and allow the map to update to reflect the results of these conflicts.
6. Implement a saving mechanic which allows a user to stop the simulation at any time and resume it using a file created by the software

It should be noted that the artefact developed will not make use of any code or development from the original software, and all references to this pre-existing project will be in the form of comparison in the documentation. My goal in this project is not to expand on what I have already created, but to recreate and reimagine the product using the concept from the original software only.

1. References

* US Army Corps of Engineers San Francisco District Website. n.d. History of the Bay Model. *https://www.spn.usace.army.mil/Missions/Recreation/Bay-Model-Visitor-Center/The-Bay-Model-Journey/History* [Accessed 11 October 2021].
* Gorman, J., 2017. GitHub - JaVonox/Iron\_Age. GitHub. *https://github.com/JaVonox/Iron\_Age.*