Using Games Technology to Help Students Interpret a Health Environment

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Introduction

This project aims to address one of the major issues with the development and deployment of computer information systems is the lack of understanding between the designers of the system and its users

- Systems are over complicated to address situations which rarely if ever occur
- They demonstrate more about the underlying architecture of the system than an understanding of how they will actually be used
- Users have unrealistic expectations of what the system can actually do for them
- Designers have unrealistic expectations of the level of computer literacy of their users

This is done by:

- bringing together student designers and users in an important domain (health)
- encouraging dialogue to develop an effective and useful product

The objective is to produce an economic trading game to illustrate some of the decisions that health service managers have to make the software is intended to be used as a teaching tool within Health & Wellbeing

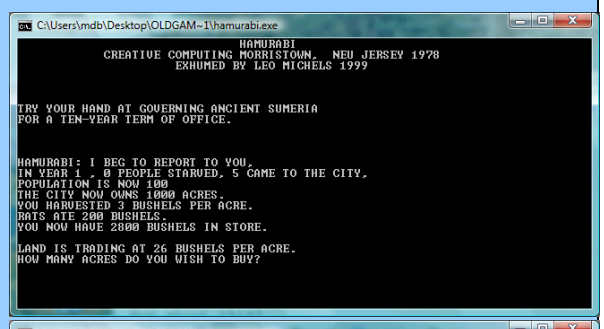
Games Technology

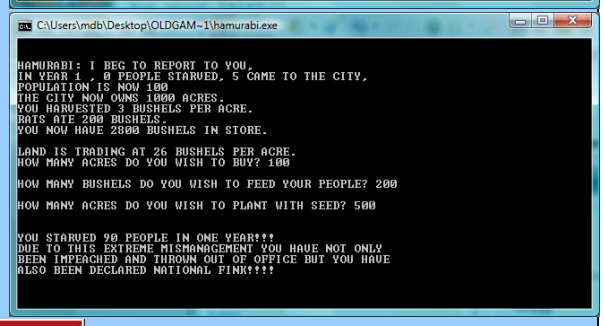
Economic simulations have a long history going back to the earliest days of computer games. One of the first examples was Hammurabi (http://www.atariarchives.org/basicgames/showpage.php?page=78) which was written in BASIC and could be run on some of the most primitive home computers of the late '70s and early '80s

The objective was to manage a primitive city state successfully for a ten year period

If you failed to maintain the city you were sacked and the game ended

This basic game type has been developed continuously and is now very complex in the form of Civilisation type strategy Games. See http://freeciv.wikia.com/wiki/Main_Page for more details.



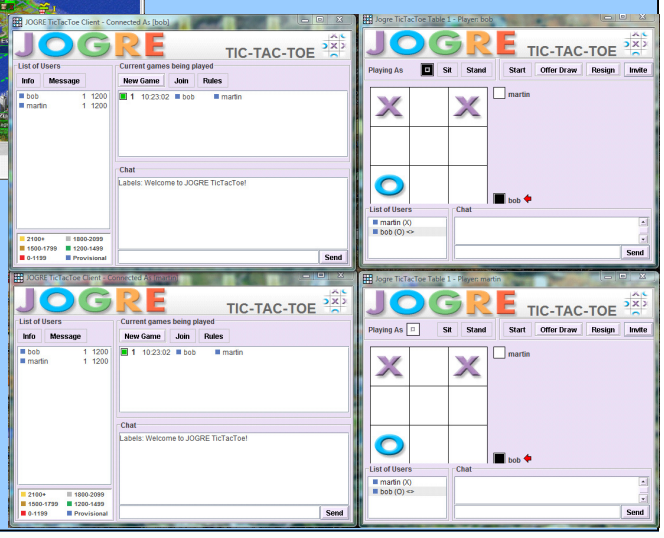


These include Artificial Intelligence driven virtual players so that complex multi-player scenarios can be developed even with a small number of real players.

A number of game development systems are available that make the development of your own multi-player games much simpler and speedier

An example of this is *JOGRE* (http://jogre.sourceforge.net/) which can be used to develop graphical multi-player games very quickly

This is an example of tic-tac-toe



The Game

We intend to bring together these technologies to provide a believable game scenario in which groups of students can experiment with different health management scenarios and assess their effectiveness.

A typical game scenario would contain the following actors, who would interact to deliver effective healthcare in their area. Each group of students would play a different role, which they would choose (or have allocated) at the start of the session.

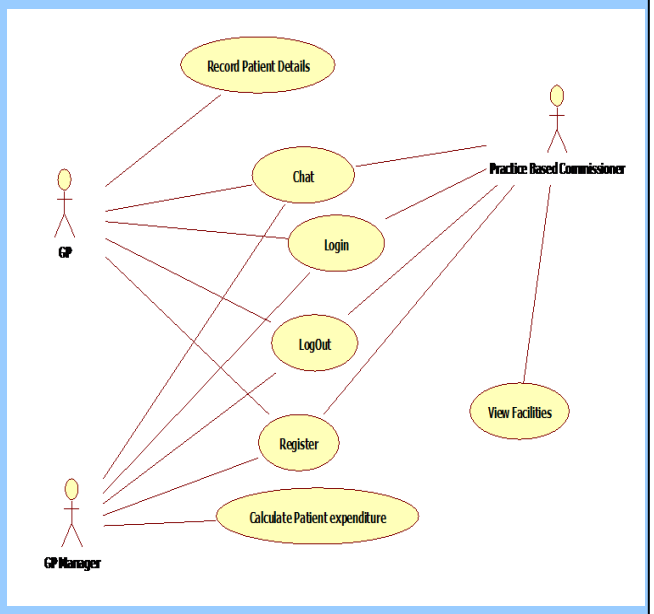
Certain roles would be Artificial Intelligence Helper Agents who would guide the students and make suggestions as to how the Trust is performing and what the consequences of their actions might be.

So, for example, the Trust Finance Director might intervene to tell the group that they are likely to run out of money at some stage of the year, or the Department for Health could give warning of a potential influenza epidemic, or the local police notify the hospital of a major train crash with a large number of casualties.

Other artificial intelligence agents can give advice on appropriate actions in different scenarios to guide the group in their decision making.

The simulation progresses as a turn by turn game, where each group make its decisions and the simulation is updated at the end of each round. Each round is typically one decision making cycle for the Trust.

The groups are presented with a simple interface to display the current status and to enter their decisions. This interface is customised for each role.



Conclusions

This project demonstrates how a number of innovative technologies can be brought together to deliver an effective and engaging learning experience

It is only possible to design such experiences if students with the necessary technical background engage with students from the target domain. Otherwise, the final product is neither engaging not effective as a teaching tool.

Such engagement reduces non-computing students fears of the technical development process and gives them a much better understanding of how they might engage better with the IT development process, leading to more effective and usable systems being deployed throughout the Health Service

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