Expression of Interest

Project Title	Galaxian 2019
Organisation or Supervisor	UoN
Contact person	Graham Hutton
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Team Members	
Name	**Email Address**
Kejia Wu	scykw1@nottingham.ac.uk
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Gurjyot Kaur	psygk2@nottingham.ac.uk

Description of Team Skills (You must provide clear evidence of to what extent the team has the Highly Desirable and where possible the Desirable Skills detailed on the Original Project form)

Project Motivation:

Our team's interest towards this project has been inspired by our love of classic gaming and game producing. We also want to help preserve and improve this game so that more people could enjoy playing it.

We have admired professor Graham Hutton in his contribution to the Haskell field for a long period. We are also glad that we have a shared interest in classic arcade games together. Our team is sincerely looking forward to working with professor Graham.

Project Understanding:

The object of this project is to use modern computer and programming languages to remake the arcade game Galaxian as close as possible to the original one. Extra custom features of our own could be added to the game as extensions.

Highly desirable skills and desirable skills

- *Experience in game producing:*

  Every member of our team has produced simple games in Java and other programming languages;

- *Experience of real game playing:*

  Most members of our team played the original one or similar games before;

- *Ability to work with clients and other students; Experience in working in a team:*

  Kejia and Liam have worked in business environment provided them with experience of team managing. Which makes them particularly suitable for this project;

- *Experience with version control by applying Git:*

  All of our team members have used Git in an academic or business environment;

- *Knowledge of Software Engineering:*

  Most of our team members have a good command of software engineering.

Preliminary Analysis and Solutions:

After some research done by our team, we listed out five points main points:

1. Performance problem could be observed on former project "2084". Its operating fluency decreases dramatically as the game's elements' number increases. In order to solve it, we would like to build this project in C++ and apply special data structures to store bullets and enemies;

2. As a result of applying C++, we decided to use SFML, a C++ multimedia library, to develop this project, though the latest vision of SFML is quite old (only fit in visual studio 2017);

3. The flying tracks set of enemies includes hovering and semi-hovering (when flying towards the player's plane). The relationship between these two tracks, and how to reproduce the tracks, are both challenging problems. As an extra feature, we want to increase the game's difficulty to improve its playability;

4. The input data structure or OS API should be considered as well. There are two former projects which have been implemented on different hardware platforms. The "2084" project is built on Xbox, and the Pac-Man project is built on modern PC. It is been solved by professor's email. It told us there are no requirements for the platform and language;

5. Our team administrator should ensure the code follows <<clear code>> standard, which maintains project code developability and readability. We planned to use Microsoft Teams to conduct our sources and minutes. Besides our campus GitLab repository, we planned to use our personal GitLab accounts as well.

Project Management

We have planned to use a hybrid of agile and incremental development throughout the project. The main process has been divided into three stages, and after every stage we will demonstrate our project so far.

In the first stage, two people will focus on graphic design. Gurjyot is responsible for the sprite work due to her studying Art. Teana will develop the UI system, such as the score and enemy waves demonstration. Kejia and Liam will develop the underneath implementation, including the flightpaths. Xuanhao and Nicole will handle the data input and connecting the graphic sources to the code implementation of the game. This stage should end before February.

In the second stage, Nicole, Teana Liam and Kejia will implement more flexible enemy abilities in order to create more difficulty to the game. Xuanhao and Gurjyot will test the game's basic operations and rule system. This stage should end before the end of April.

In the third stage, we are going to put Easter Eggs into the game to improve the game's playability.

Progress Tracking:

Our team leader will offer his phone number and a link to his GitHub account to project's contact person. By following this link, a weekly undated conference minutes could be accessed. In this way contact person could track the progress of our project whenever he or she likes. For further information or deep communication, our team leader would be glade to raise an online or offline conference.

(Max 750 words)

Date of Submission of EoI	16 October 2019
Date of Pitch	22 October 2019
Notification of award	

Please make sure to attach a CV for each member of the group.