**Outline & introduction:**

Good afternoon, ladies and gentlemen. We are team 35,

**Team introduction & roles:**

Kejia Wu is our team leader. He is responsible and have participated in summer research project in Ningbo campus before. We believe he could keep in close touch with our supervisors. He is good at coding and will take charge of most part of this project.

Liam is a very responsible programmer; he is going to work with Kejia to implement several features of the original games.

This is Nicole, our team administrator, she has a good command of project managing and will ensure everyone’s code style is readable and clean.

This is Gurjyot, our git master, she has studied in art in Glasgow, so she is taking charge of the art design of all the elements in the game, including figures and characters.

And Tajin, she is an experienced programmer and interesting in realizing user interface lay out. She and Gurjyot will implement the entire graphic system together.

And this is Xuanhao, he is interested in doing research and generate patterns, so he is taking over the rule system. He will collect all the details of the game’s rules system according to online material.

**Preliminary Research**

Stimulate tracks and actions

The flying track of different types of aircraft is different:

Green: Fly to two sides, then player

Purple: Fly to

Red:

Yellow:

Suicide attack

Round hovering

Group attack

Attack order

Rotate

Reappear

Performance problem:

Background:

Two fixed ones with 1.5 length of the whole screen, switch between and move the “stars” downwards.

Bullets:

Enemies': kill it when out of position or hit player

Players’: kill it when out of position or hit enemies, one bullet one screen

The first time created, it will be put into objects pool, and be reused later. Pool will automatically increase when the number of bullets increases.

Enemies:

Use object pool as well, once malloced, never free until termination.

Player ship:

Rough collision detect system, which implements like rectangles. Detect bullets head’s and tail’s position.

Multi-threads to preload

Difficulty increase

Interval time:

Reappear

Mean time attack

Bullet number

Personal features

Settings like Pac-Man

For higher score --- basic rules, no change

UI

Pixel conversion

There are several reasons that we are the best choice to complete and implement the project.

Firstly, our team members have developed some small games on different platforms and languages. **Gurjyot** has created Space Invaders style game in Swift during an internship; **Kejia** and **Tajin** has developed some mini games for PC in Java and C. They can give good opinions when we creat Galaxian.

(There are several examples to show our achievement like Hungry Snake, Flappy Bird and Minesweeper, we have put it on the power point.........)

Besides, other teammates have good programming skill and have interested in game. **Nicole** can organize and work under pressure and have experience in programming in Python, C, Java and Haskell. **Liam** and **Xuanhao** is an attentive and creative programmer who has created several applications in a variety of different programming languages. Because of these skills, they are the guarantee of the object.

(This is ….. This is ..... )

Therefore, we considered our team capable of remaking Galaxian and we promise you we will try our best to make it as close as possible to the original one.

Second point, we have great amount of experience in teamwork. **Tajin** currently works in campus IT service, so she is good at solving problems with other team members together; **Kejia** has worked with other programmers in a business and academic environment, Besides, he also have experience in working with university professors to do research, this experience provided him with experience of team managing.

**Nicole** had the work experience in JBA Risk Management, so she knew how to work as team totally. **Liam** have joined the Nottingham mavericks Ice Hockey and he really enjoy the teamwork. **Gurjyot** learned teamwork skill from the Co-operative as a customer assistant. **Xuanhao** gain the important teamwork experience from the volunteers’ cooperation on the campus sports conference.

In addition, we have done a great job of cooperating with our teammates to solve some programming problems as well as give a speech with random teammates. These experiences can support us to achieve the object.

Therefore, we believe that we can do well in this year's cooperation.

Last but not the least, we are interested in the game. Before we start to make choice, we were already attracted by the game machines in the building and have spent our time on the old Galaxian to scrambling for the spots. Then, when we first see this object, we realize that we can produce an exclusive game on exclusive game machine by ourselves. It was a rare opportunity, and out of love for game, we agreed to choose this object as the first choice.

We have done some search on the game. Galaxion is a successful game, which is more successful than pac-man in Japan. Galaxian’s programmers created 8x8 pixel tiles to reduced processing and memory requirements and give game betteer performance. We are going to use this to on our Galaxian. The prequel to this game called Space Invader had more achievements and can be described as Design Icons, by 1982, it had grossed $3.8 billion. Space Invader collect some great elements and with the brave innovation, become a first video game phenomenon. Such as the difficulty Curve: Game difficulty increases throughout level one, than drop down it something a bit more manageable for the start level two, and increase again and so on. However, this is caused by a coincidence. If you are interesting, you can asked me latter.( the microprocessors is slow)

In addition, we expected to add some other elements to make the game as entertaining as possible and dig out the hidden rules underneath the original game to make the game more interesting. For example, we want to add some eggs into the game, like hidden levels and weapons. We know produce a game is not a simple thing, but we’ll do our best because we all love games.