NANYANG TECHNOLOGICAL UNIVERSITY SINGAPORE

School of Computer Science and Engineering

College of Engineering

Make Computational Thinking Course Full of Fun

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Abstract

This report describes and discussed the how game-based course project could be implemented to make novice students learning computational thinking and basic knowledge of programming in a more efficient manner, at the meantime keep their passion on the course project. Furthermore, by applying such a method, the project is aiming to find out whether this method will have better learning outcome than other types of course projects such as building a canteen information system.

G A M E S

An untraditional snake games. While the player need to control the snake to eat the food and the Dollars, he also needs to dodge Thunders and Cutters which will lead to game overs.


Back to school is a puzzle game about answering varies type of games within limited time period. The game story is about player and another transfer student compete on the class representative in the new semester.
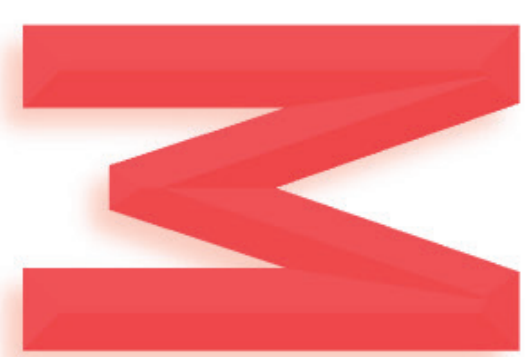

A card game. You will play with 3 computer players. Use your wisdom to arrange the cards. The one who first play all his cards will be the game's winner!
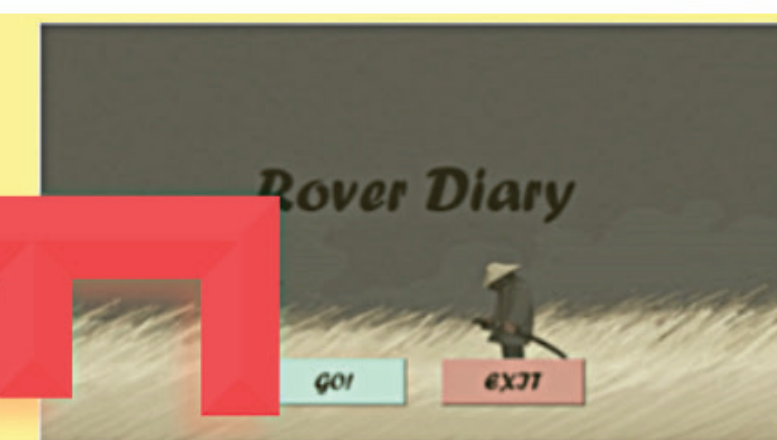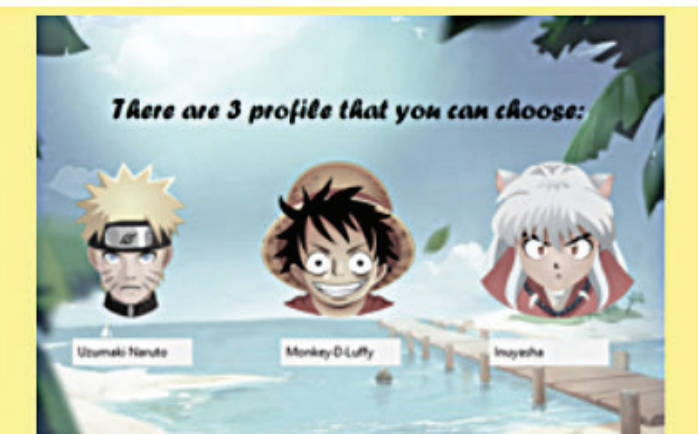
A text-based adventure game in which you play as a teenage runaway. Each day, to maintain a daily life and to upgrade your fighting skills, you must keep exploring around...
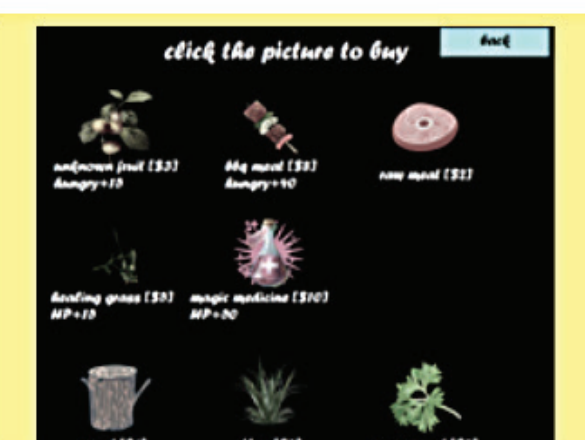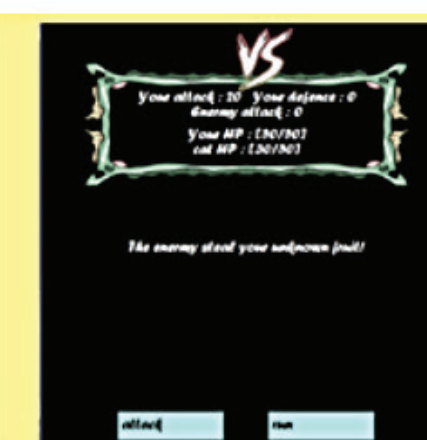
A maze game in which the player need to control the character exploring the dark forest, try to survive and get the key to escape from it. And always be careful to avoid being attack by the dinosaurs...
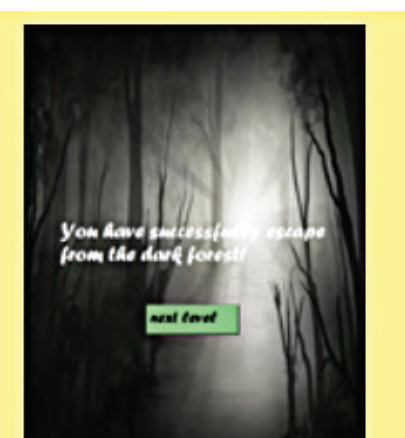
Games designed in the project.

Advantages of Game-based Course Project

1. As majority of the students play computer games as a common spare time activity, the enthusiasm towards game could be a starting point in programming education for students.

2. Game development will have better coverage for wide student's background, novice students are given fixed simpler game features while other with strong programming backgrounds are allowed to add in their own features.

3. The most boring part "testing" will be full of fun in game development life cycle.

4. Playing each other's game would be a good point to encourage students to share their knowledges among different groups.

5. Building game AI and holding competition among the teams could be a new trend of programming project.