

天主教輔仁大學英國語文學系學士班畢業成果
ENGLISH DEPARTMENT, FU JEN CATHOLIC UNIVERSITY
GRADUATION PROJECT 2020

指導教授：周德嫻老師
Prof. Lynn Chou

Game-based Programming Project

學生：潘乙睿撰
Zavier Pan Yi-Ruei

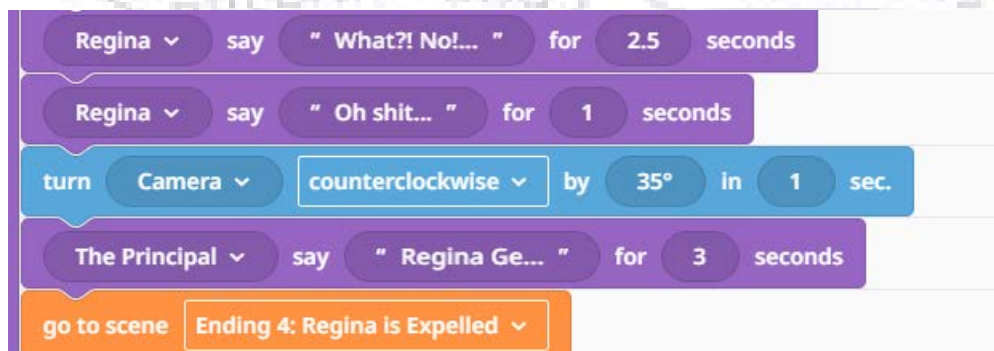
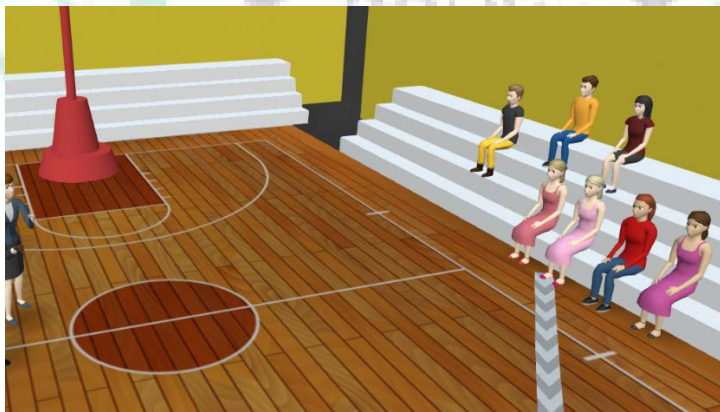
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Zavier Pan

Professor Lynn Chou

LOD: Game-based programming

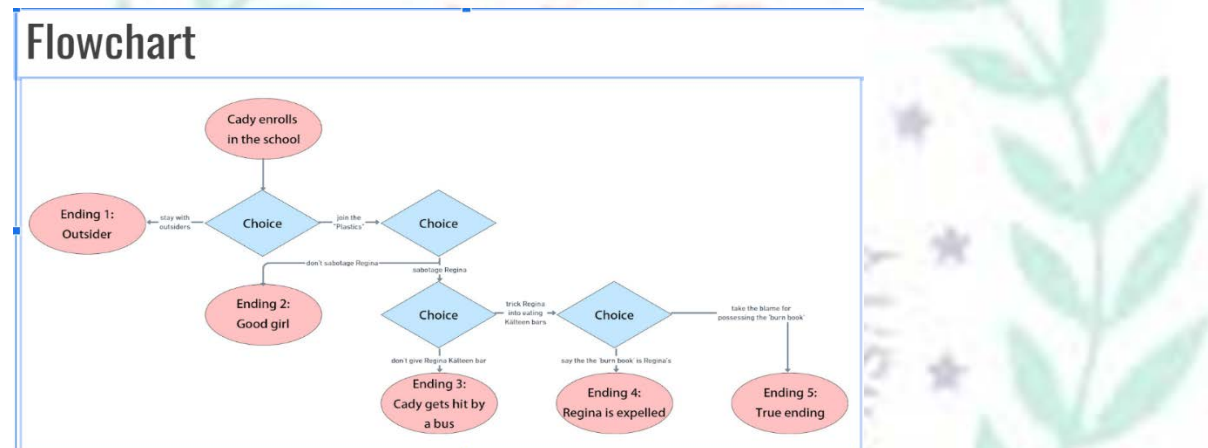
Cospace is an educational tool for students to understand the concept of coding and create their own virtual worlds. Cospace's simplicity makes it accessible to students of all grades but it's also complicated enough for more advanced learning. Students can operate cospace by putting characters and objects in their custom environments and combining CoBlocks to make them perform actions. These CoBlocks are divided into different categories according to their functions. And by mastering them the user can create all kinds of animations or games.



Our projects in the Game-based Programming course is about adapting a film into an interactive game with CoSpace. Since the targeted audience of our games was high school

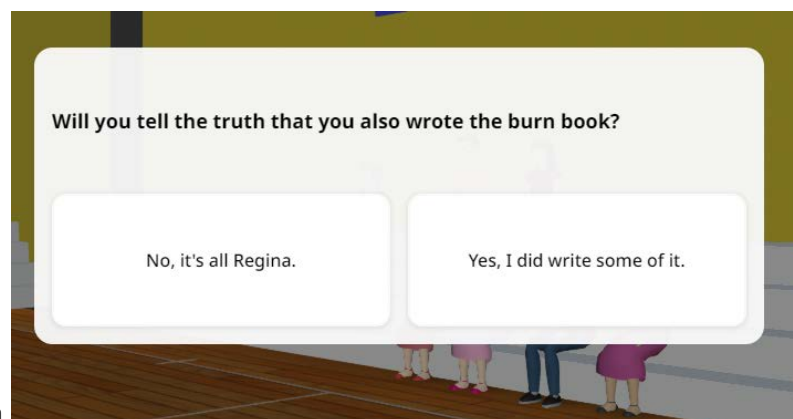
students, we had to make our games interesting, simple but also educational. The films professor Chou provided for us to choose from all fit these criteria. The challenge lied in preserving them in our adaptations and allows players to interact with the plot and characters. My group, which consists of Lizzie Michele and Ceria, decided to choose Mean Girl for our project. Fortunately, I was quite familiar with the movie's plot, and I had also made games with CoSpace before. Therefore, I was confident in my ability to produce a satisfactory work. However, the process was soon proven to be much more difficult than I thought. I was the only member in my group who has past experience of using CoSpace, and my skill had fallen off since then. Thus the first few weeks we had little to no progress, still busy learning the basic. Furthermore, due to Covid-19, the professor mainly used distance learning to conduct the course. And not all of our computers were capable of running CoSpace. So it's difficult to gather all four group members to make our project together. Since it took time for us to grasp the essences of CoSpace, we decided to focus on the plot and content first. Mean Girl was a teen drama describing an intelligent and home-schooled fifteen-year-old girl, Cady, going to public school for the first time and learning how to integrate into its social circle. This film stood out from its peers of teen dramas for its piercing dark humor, three dimensional characters and accurate social commentary. At the same time, it's also too optimistic as all characters get good endings despite the horrible things they have done. We wanted to keep the moral of the story, the positivity and humor in our game. Yet we also wanted to add a healthy dose of realism. Therefore, we made a game with multiple endings. In each stage of the game, players are given choices, and their decision can determine the fate of Cady. The most ideal outcome, which is the original ending of the movie, can be achieved if players make the choices that help Cady fit in but also keep her integrity. However, if they choose the options that harm Cady socially, the alternative endings they receive will be more depressing, even if the choice may appear morally correct. We had several discussions over what the

alternative endings and choices should be. Eventually we decided to examine some of the turning points in the movie and imagined the scenarios that might have followed had Cady chosen differently. Based on the results, we made five different endings for Mean Girls.



Some of our decisions might be rather controversial. The most glaring one was the choice of whether to sabotage Regina George, the antagonist of Mean Girl, or not. The moral and correct decision generally would be not to do any harmful things to others. However, Regina was actively manipulating Cady and isolating her from other people. Not listening to Janis and instead standing by Regina could greatly damage Cady herself. We trust that high-school students are mature enough to understand the moral ambiguity in this dilemma. However, self-preserving does not always lead to the best ending. Later in the scene at stadium, the player can choose between confessing Cady's mistakes to the school faculty and students or let Regina get all the blame. This time honesty can yield a better result. If Cady refuses to

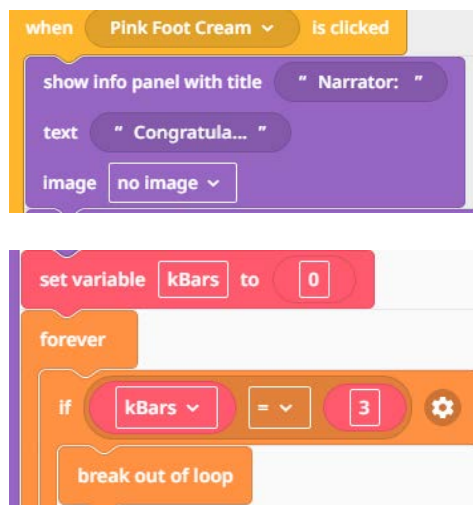
acknowledge her part in writing the “burn book” that harms other innocent students, then she



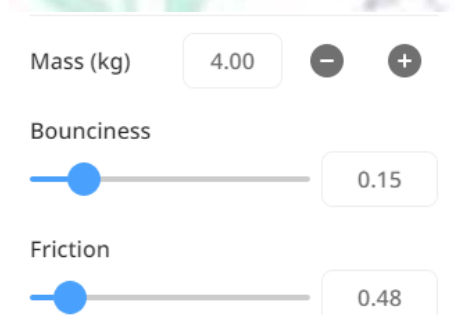
is just as bad as Regina.

After finishing the first draft of the plot, we began to make our imagination come alive on CoSpace. At this point we had all become familiar with the system, so setting up environment and writing basic CoBlocks were no longer an issue. We could have very quickly finished the game if we had just followed the script. However, our game still lacked humor and interactivity, which are both essential elements that can attract high school students. To improve these two aspects, Ceria added two mini games. One is to simply find and click an object and the other is to collect three. Two mini games appear to be very similar. However, the latter is considerably more complicated to code than the former. The first one only requires us to use an “Event” CoBlock to give a simple command. However, to make the system understand that all three items need to be clicked to enter the next scene, we couldn’t just simply use the “Event” CoBlock like before because it doesn’t understand the concept of math. After numerous attempts, we finally found that by using the “Data” CoBlock we could set variable for the object. It was still quite confusing for us initially but thanks to Ceria’s experience in other coding system, she realized that if we set the object’s variable to zero and let it increase every time one of the item is clicked, we could let the system understand that it should go to the next scene after the variable reaches three. This part was genuinely difficult

for me as I have never used the Data CodeBlocks before. Without my teammates help, I definitely could not produce a game half as completed and creative.

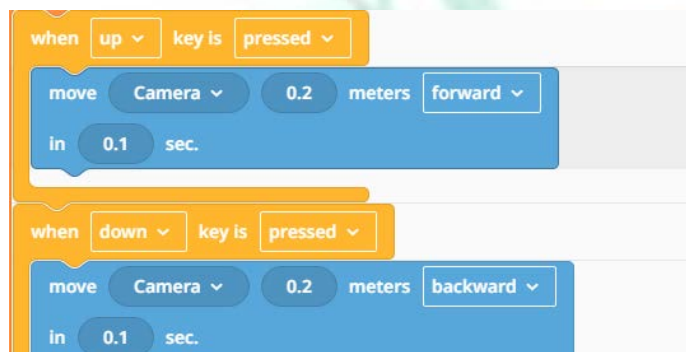


After overcoming this obstacle, we started focus on making the game more hilarious by adding some comical elements to the depressing alternative endings. One of our ending is about Cady getting hit by the bus. Our initial plan was to just let the bus run over her. But I thought we could use the Physic CoBlocks to give Cady and bus weight and momentum, so when the bus hit Cady, she would actually fly away and thus make the scene more natural and lively. This was no easy task as changing any of the physical attributes can considerably affect the outcome. If the characters are too light or heavy, they may collapse on themselves. After numerous attempts I managed to find a set of numbers that allowed both the bus and Cady to function properly.



However, after understanding the function of physics, I came up with a new idea for a mini game. What if more than just point and click, the player can also use keyboard to move the

characters? One of our scenes is about Cady chasing Regina on the road. To make this part more interesting, I tried to write a function that pressing W A S D keys gives Cady momentum to move so the player can catch Regina by controlling her. This minigame was certainly the most challenging part of this project for me. The major problem was Physic. No matter how I adjusted the number, Cady always fell down due to the increasing momentum. For a while we decided to cancel this part as none of us knew how to solve this problem. But I couldn't stop the desire to find the right function. Finally, an idea dawned on me, and it was so simple, obvious yet unexpected. The camera in CoSpace already can move and change direction itself when it is not attached. If I didn't use Cady's character model and just camera itself, then I could move and change direction without using any physic function. All I had to do was combining some basic Events and Transform CoBlocks to adjust the speed of camera. The idea was extremely simple yet it worked, and we managed to create an action mini game that no other groups could make.



Creating this project is tremendously educational and inspiring to me. I have always been interested in games and writing stories. Working with a competent group to write a game with completed story makes me understand how difficult the process is yet how rewarding the experience can be. CoSpace provides everyone an opportunity to create their own worlds using codes even with limited technological skill and experience. The time is changing and digital media is becoming increasingly more popular every day. As an English majors, I want to embrace and understand the advancement of technology. So the timeless tale of literature

can gain presence and new life in new media as well. Retelling any story in different forms and explore its possibility is both an incredible privilege and responsibility. This project gives me the priceless experience and knowledge to pursue further achievement in the future.



Cady Heron is a hit with The Plastics, the A-list girl clique at her new school, until she makes the mistake of falling for Aaron Samuels, the ex-boyfriend of alpha Plastic Regina George.

Director: [Mark Waters](#)

Writers: [Rosalind Wiseman](#) (book), [Tina Fey](#) (screenplay)

Stars: [Lindsay Lohan](#), [Jonathan Bennett](#), [Rachel McAdams](#) | [See full cast & crew »](#)

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Reviews
653 user | 126 critic



Popularity
221 (▲42)

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