

# C++ Game Design Project

## Important Dates:

- **Project Proposal Due: Wednesday, 10/30, 11:59 PM**
- **Code, Game Instructions, and Demo Video Due: Tuesday, 11/26, 11:59 PM**
- **ECE114 Game Design Show: Thursday, 12/5, 3:25-5:00 PM @CSB601** (Pizza and soft drinks will be provided at the reception. **You are required to attend it.**)

## Submission Instructions:

- Used the provided project proposal template `LastName_FirstName_proposal.docx` and update the file name with your full name. **You must submit a Microsoft Word document, not a pdf file.** You will get 5 points deducted if you submit a pdf file.
- Compress your project folder, including your source file(s), header file(s), and text file(s), into a single zip file. Name the zip file as `LastName_FirstName.zip` and update it with your full name. Then submit it to Blackboard. **Do not submit executable files.**
- **Late submissions will incur a 20% penalty if submitted within 24 hours past the deadline. Submissions more than one day late will not be accepted.**
- Ensure your work is original. **Do not copy code from others, share your code, or ask others to write your program.** Violations of academic integrity will result in a zero on the project and a report to the Board on Academic Honesty, potentially leading to course failure.
- If you encounter issues submitting to Blackboard, email your project to Professor Lee by the deadline.

## Grading (15% of the Final Score):

- Project Proposal: 20%
- Code and Design: 50%
- Demo Video for the ECE114 Game Design Show: 20%
- Web Post Design, Game Instructions, Peer Review: 10%

## Project Guidelines:

- Design a C++ **console** game for single or multiple players.
- **Never refer to existing game programs, follow tutorials, or use AI tools.** The game must be your own creation.
- Avoid designing popular games like Tic-tac-toe, Hangman, and Snakes & Ladders.
- **Do not use graphics, sound, or platform-specific libraries (e.g., windows.h, conio.h).** Ensure your game program is portable and can be compiled successfully on both Windows and macOS.

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- You may refer to the following class example in the C\_Chapter6\_Code folder for using the `system` function to clear the screen. If you use it, you must submit both Windows and macOS versions of your program in separate subfolders (LastName\_FirstName\_Windows and LastName\_FirstName\_macOS).

```
C_Chapters3_4_5_6_Code > C_Chapter6_Code > C do_while_random.c > ...
1 // Listing 6.15.2: do_while.c (modified by Ming-Lun Lee)
2 // Using a random function
3 #include <stdio.h>
4 #include <stdlib.h> // for srand() and rand() and system()
5 #include <time.h>   // for time()
6
7 int main(void)
8 {
9     int secret_code;
10    int code_entered;
11    srand((unsigned)time(NULL)); //seed
12    secret_code = rand() % 10 + 1; // random number between 1 and 10
13    // clear the screen
14    system("clear"); // on Mac; on Windows (with VSCode)
15    // system("cls"); // on Windows (with Command Prompt)
```

## Game Requirements:

- Your game should be enjoyable for colleagues, friends, or family members.
- The teaching assistants and Professor Lee will judge the games, and colleagues can vote for the best designs at the Game Design Show.
- Your program must have at least 100 lines of code (excluding comments and empty lines). Quality of code and design is more important than length.
- Ensure your program compiles successfully with Visual Studio Code on both Windows and macOS. Test your program on lab computers in Gavett 244.
- Use procedural or object-oriented programming techniques. Avoid using these C functions like `printf()`, `scanf()`, `getchar()`, `putchar()`, and `fgets()`. Use equivalent C++ classes or functions.
- You may use C++ object-oriented programming features, including classes & objects, overloading, inheritance, and polymorphism; however, you don't have to use them.
- Provide clear game descriptions and rules on the console. Comment your code effectively.

## Project Proposal:

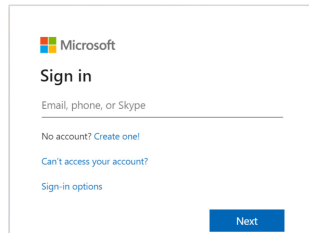
- Format:** Download the provided LastName\_FirstName\_proposal.docx template and change the file name with your full name. The proposal should be at least 500 words, double-spaced, with 1" margins and 12-point text. Use Microsoft Word (not Google Docs). You can download free Microsoft Office on your computer via <https://tech.rochester.edu/tutorials/how-to-install-microsoft-office-365-proplus/>

### Step 1

Open a web browser and go to <https://portal.office.com/account/>

### Step 2

In the "Email, phone, or Skype" field, enter your username@ur.rochester.edu and click "Next". This will re-direct you to the University's Office 365 login page.



- **Content:** Write an essay (not bullet points) describing your game. Include a proposed title, concept art, and any relevant C code screenshots.
- **Writing:** Use **Microsoft Word** or **Grammarly** to check typos, grammars, and format issues.
- **You must write an ESSAY (Do not just provide some bullet points.) for your proposal. You must provide a proposed title for your game.** You may include illustrations such as concept art that show how your game will look and play. There is no limitation on illustrations. You may also write a piece of C code to show your graphical interface on the terminal (use screenshots).
- **Goal:** Describe your game in detail, explaining how it will be played, why it will be fun, and what tools you will use. Highlight the novel aspects of your game.
- **Review:** Your proposal will be reviewed by TAs and Professor Lee. You may need to revise it or meet with Professor Lee. Any significant changes to your game concept must be approved.

## Recommended Outline for Proposal:

1. **Brief Statement of Game Concept:** One-sentence overview capturing the key idea and why it will be fun and novel.
2. **Explanation of Novel Idea:** Detailed explanation of what makes your game novel and why it will be interesting and fun.
3. **Outline of Gameplay:** Describe the game from the player's perspective, including the setting, broad goals, and specific actions.

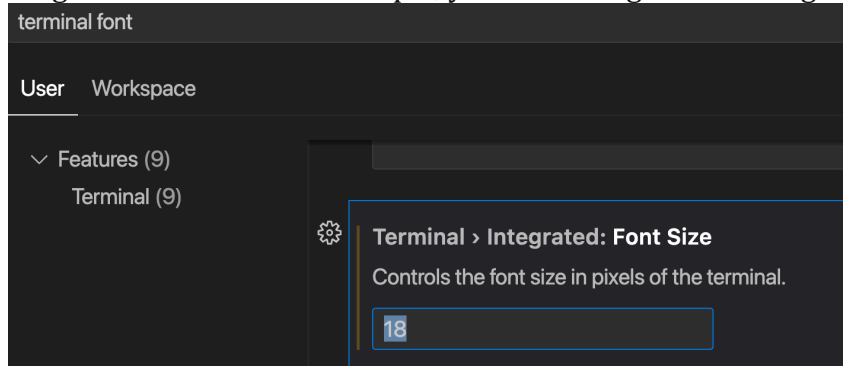
## Game Instructions or Rules:

- Post your game instructions on the ECE114 course website (not Blackboard). Refer to this guide for writing instructions.
- Use screenshots to illustrate how to play your game.

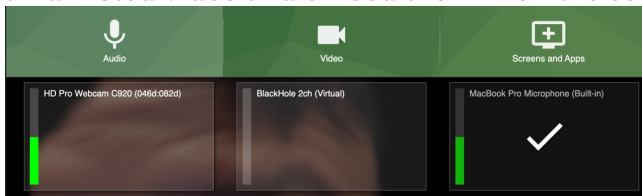
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## Demo Video:

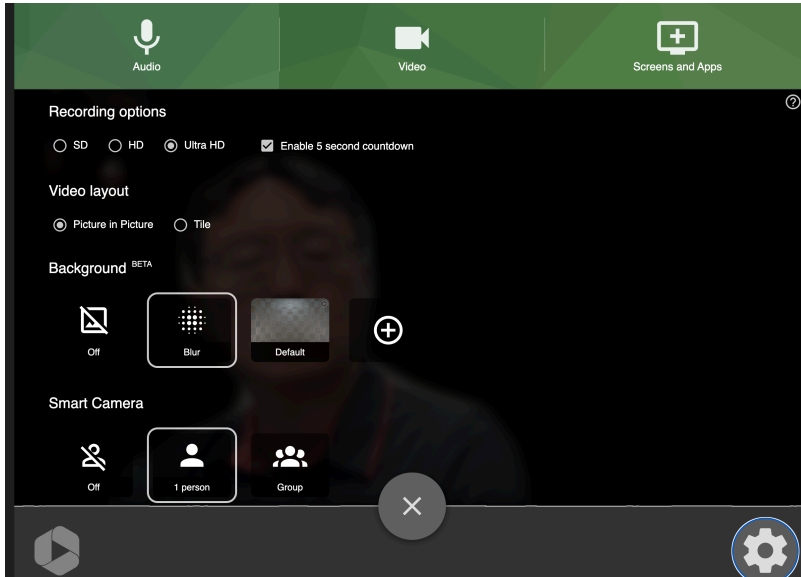
- Record a demo video with a length between 2.5 and 4 minutes (You will get points deducted if it is longer than 4 minutes.) and post it on the course website for peer review. You may also provide a longer demo video showing all features.
- You don't need to show your C++ code but do use a large font size for your demo using the Terminal. For example, you can change this setting in VSCode.



- Use a desktop video capturing application to record your demo, including screen and camera view (turn on your webcam if available). **You must explain your game with your voice.** Do not just record a silent video. You may use the free Panopto Express to create screen recordings.  
<https://www.panopto.com/record-now/?capture>
- Ensure clear audio by checking microphone levels. Upload your video to YouTube as an unlisted video and embed the link on the course website.



- Change the recording options from the settings and make sure you use **UltraHD** for the best video resolution.



## Web Post Design and Peer Review

You are required to create a post on the ECE114 course website to showcase your game instructions and demo video. You may also provide your game application (executable files for macOS and Windows) so your colleagues can play your game. Professor Lee will demonstrate how to create a post using WordPress on the ECE114 course website: ECE114 Course Website.

You will receive an invitation email from WordPress to log in to the website. The password will be the same as your UR username, but you may change it if you wish.

### Steps to Follow:

#### 1. Create Your Post:


- Include your game instructions and demo video.
- Optionally, provide your game application (executable files for macOS and Windows).

#### 2. Category and Visibility:

- Select “Game Design Show” as the category for your post.
- Change the visibility from “Private” to “Public” once your post is complete. This will allow everyone to see your post under “Game Design Show.”

#### 3. Peer Review:

- Review your colleagues’ posts and videos.
- Leave constructive peer review comments on their posts.
- Vote for 10 of your favorite games. The designers of the top three selections will receive awards from Prof. Lee.

Save draft Preview Publish ⚙️

## Ming-Lun Lee: "Cat & Mouse"

*Introduction:*

The Cat & Mouse game is a...

*Rules:*

1. ...
2. ...
3. ...

*Demo Video:*

(Upload your video to YouTube and insert its URL link here. DO NOT UPLOAD YOUR VIDEO TO THE COURSE WEBSITE.)

*Download:*

Windows:

macOS:

PostBlock

Status & visibility

VisibilityPublic

PublishImmediately

☐ Stick to the top of the blog

☐ Pending review

AuthorMing-Lun Lee

Permalink

Categories

- ☒ Game Design Show
- ☐ Uncategorized

[Add New Category](#)

Tags

Featured image

*Ming-Lun Lee: "Cat & Mouse"*

Introduction: The Cat & Mouse game is  
a.... Rules: ... .. Demo Video: (Upload  
your video to YouTube and insert its  
URL link here. DO NOT UPLOAD YOUR  
VIDEO TO THE COURSE WEBSITE.)

Download: Windows: macOS:

*Have fun coding and  
Gaming!!!*