

Game Development Projects

The purpose of the Game Development Projects is to introduce you to modern game development tools, exercise your game design skills, and help you build a portfolio of game development work. Each project has three parts: a proposal, a deliverable, and a post-mortem.

Project Types

For each assignment, you should choose one from the five kinds of games below. Then choose one or more of the development tools associated with that kind of game. You can choose projects in any order. You may not repeat a project or a tool (even if it is listed for multiple projects). If you wish to make a type of game that is not listed below or use a tool not listed, you must get approval from the instructor *before* submitting the project proposal.

1. *Physical Board or Card Game*
Tools: Paper, Cardstock, Markers, Game Pawns, Dice, 3D Printing, etc.
2. *Adventure Game*
Tools: Inform, Twine, Adventure Game Studio
3. *Puzzle Game*
Tools: Game Maker Studio, Torque 2D, Unity, HTML 5, Java, Objective C
4. *Arcade Game*
Tools: Game Maker Studio, Torque 2D, Unity, HTML 5, PyGame
5. *3D Action Game*
Tools: Unity, Unreal Engine, Torque 3D

Scope

The difficulty of implementing your project determines how innovative it needs to be. The projects above are listed from “requires most innovation” to “requires least innovation.” All projects require some original design on your part. It is expected that a physical game will require the least development effort and should therefore demonstrate that you have put a lot of thought into the design process. On the other hand, making a 3D Action Game will require significant development effort, so you are not expected to do much more than complete the tutorial for using the tools.

Some examples of good projects would include:

1. Board Game: The *Sibling Rivalry* game described in *Rules of Play*
2. Adventure Game: An escape-the-room puzzle involving a half dozen items in Inform
3. Puzzle Game: An Android app for playing Tic-Tac-Toe on a 4x4 grid
4. Arcade Game: A scrolling space shooter game based on a Game Maker Studio tutorial but with a new type of enemy
5. 3D Action Game: The stealth game tutorial described on Unity’s website, but with a different level layout

You are encouraged to be creative with your design and to break established genre conventions. Points will not be deducted for games that are not fun, so you are encouraged to be experimental. It is better to make a game which tries something new and creative but ultimately fails than to rely on the tried and true observations of other designers. If you have questions about the scope of your project, please ask the instructor for guidance as early as possible.

Please note that game development projects almost always take longer than you expect. You should start early and work on a regular schedule.

Proposal

Before the deliverable is due, you must submit a short proposal in PDF format that includes the following information:

- Your name
- The working title of your project
- Type of project, taken from the list above, and tools, taken from the list for that project
- The number of hours you expect to spend on the project
- A short (1 to 3 paragraphs) description of the features your game will have

Deliverable

Digital projects can be submitted on the course Moodle page. They must be delivered as binary files that can run on a Windows computer. They must include a README file (as ASCII text, HTML, or PDF) that explains how to start the program and how to play.

If you choose to create an application for a mobile device (one that cannot run on a Windows computer), you may instead submit a video of your finished project as an MP4 file. You must then bring a working example of your app to the first class that meets after the project due date.

For physical projects, you should submit a written description of your game's materials and rules. You must also submit a video (in MP4 format) of at least one complete play session. If a complete play session lasts more than 15 minutes, you should edit the video to reduce it to the 15 minutes that best highlights the important parts of the game. The video must show the start, the end, and at least some parts of the middle of the game. If you create novel physical objects (e.g. game board or game pieces), these should be shown in the video. If your game is for multiple players, the video must show multiple people playing the game. This video is *required* for all physical projects, no matter what form the game takes. Any exceptions to this rule must be granted in writing by the instructor before the proposal is submitted.

All projects, regardless of medium, must include instructions for how to play a complete game. The format for this depends on the project. It might be in the form of a transcript for one play session or a walkthrough that explains how to win the game. The purpose of these instructions is to allow your instructor to play a complete game, so write accordingly.

Post-Mortem

After the deliverable has been submitted, you should reflect on your experience and submit a short writeup (in PDF format) that includes:

- Your name and final project title
- The number of hours you actually spent on the project
- The challenges you faced during development (if any)
- Changes made to the design during development, including new and cut features (if any) and the reason you made those changes
- Ways you would improve the game in the future (if any)

Game Development Project Grading Rubric

Student: _____

Proposal (5 points total)

___ / 1 : Identifies student's name.

___ / 1 : Identifies working title of game.

___ / 1 : Identifies the type of game to be made (must not be used in any previous project).

___ / 1 : Identifies the tool(s) to be used (must not be used in any previous projects).

___ / 1 : Describes the planned features of the game and estimated number of hours.

[Note: If a game type or tool is repeated, student will receive a 0 for the project.]

Deliverable (40 points total)

___ / 10 : Deliverable was submitted.

___ / 5 : Deliverable includes executable binary file that runs on Windows. OR

___ / 5 : Deliverable includes a video of the mobile app or physical game being played.

___ / 5 : Deliverable includes written documentation (required for *every* project).

___ / 15 : Written documentation includes all the necessary information.

___ / 1 : Identifies student's name.

___ / 1 : Identifies the title of the game.

___ / 1 : Identifies the type of game created (must match proposal).

___ / 1 : Identifies the tools used (must match proposal; may include additional tools).

___ / 2 : Explains how to run the game (or, for physical games, the materials used).

___ / 2 : Explains the controls of the game (or, for physical games, the rules).

___ / 2 : Explains how to win the game.

___ / 5 : Cites any sources used (tutorials followed, ideas given by other people, graphical assets used from other games, etc.). If no outside sources were used, this *must be explicitly stated* in the documentation to receive these points.

[Note: If game type or tools does not match proposal, student will receive a 0 for the deliverable.]

___ / 15 : Game works and is sufficiently innovative.

___ / 2 : Game installs and runs on Windows. OR

___ / 2 : Game is a physical / mobile game.

One of the following factors may reduce the required amount of innovation:

___ / 2 : Physical game can be played using only common items (e.g. cards, dice).

___ / 4 : Student created novel physical objects for the game (e.g. board, game pawns).

___ / 4 : Game is an Adventure Game.

___ / 6 : Game is a Puzzle Game.

___ / 6 : Game is an Arcade Game.

___ / 8 : Game is a 3D Action Game.

Remaining points must be earned from any combination of the following:

___ / 2 : Game does not crash (for physical games, contains no ambiguity).

___ / 2 : Game can be won or lost and has a clear ending.

___ / 2 : Game contains most of the features described in the proposal.

___ / 2 : Game contains new content (e.g. levels, enemies) created by the student.

___ / 2 : Game contains a tutorial.

___ / 3 : Game contains new mechanics not usually seen in this genre.

___ / 3 : Game solves a common problem faced by games in this genre.

___ / 3 : Game is very visually appealing.

___ / 3 : Game is a commentary on an important social or political issue.

___ / 3 : Game is educational.

[Note: If a digital game does not install or run, student will receive a 0 for the deliverable.]

[Note: Physical and mobile games will be graded based on the video submitted, *not the written documentation*. Only features which are clearly demonstrated in the video will receive credit.]

[Note: Physical games for multiple players must show multiple players playing in the video. If not, the student may lose points for any of the above items that require multiple players.]

Post-Mortem (5 points total)

___ / 1 : Identifies student's name.

___ / 1 : Identifies final title of game.

___ / 1 : Identifies the actual number of hours spent on the project.

___ / 1 : Identifies at least 1 challenge faced by the student during design.

___ / 1 : Identifies *why* a features was cut or *why* a features was added.

[Note: If deliverable not submitted, student automatically receives a 0 on the post-mortem.]

Total: _____ / 50