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**Masters GradEx**

**Let’s Go Gambling!**

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Contents

[Project Overview 3](#_Toc199233194)

[Introduction to the Project 3](#_Toc199233195)

[Inspiration from Existing Game Examples 3](#_Toc199233196)

[Prototype I – Slot Machine, Semester I 4](#_Toc199233197)

[Concept 4](#_Toc199233198)

[Development 4](#_Toc199233199)

[Prototype II – Blackjack, Semester II 5](#_Toc199233200)

[Concept 5](#_Toc199233201)

[Development 5](#_Toc199233202)

[Prototype III – Roulette, Semester II 6](#_Toc199233203)

[Concept 6](#_Toc199233204)

[Development 6](#_Toc199233205)

[Future Development – Games Masters Project 7](#_Toc199233206)

[Craps 7](#_Toc199233207)

[Snooker 7](#_Toc199233208)

[Future Development – Post-Masters Development 8](#_Toc199233209)

[Phase I – Extensions of Existing Games 8](#_Toc199233210)

[Poker 8](#_Toc199233211)

[Pool 8](#_Toc199233212)

[Phase II – Major Changes to Existing Prototypes 9](#_Toc199233213)

[Blackjack 9](#_Toc199233214)

[Slot Machine 9](#_Toc199233215)

[Snooker 9](#_Toc199233216)

[Phase III – AI Players 10](#_Toc199233217)

[Future Development – Potential Avenues for Alternate Development 11](#_Toc199233218)

[Business Management and Building systems 11](#_Toc199233219)

[Combine the Casino with other Stuff I did this Year 11](#_Toc199233220)

[References 12](#_Toc199233221)

# Project Overview

## Introduction to the Project

Let’s Go Gambling! is the culmination of my year-long Masters Computer Games Design course at the University of Staffordshire. Here, I made 1 different kind of casino game for each module (where possible/applicable) as individual submissions, then given the chance to combine them with some major changes, bug-fixes and new additions for the final Games Masters Project module.

## Inspiration from Existing Game Examples

My main inspiration was the “Grand Theft Auto V” (Rockstar North, 2013)[[1]](#endnote-1), specifically “The Diamond Casino & Resort” added as part of a 2019 Online content update[[2]](#endnote-2). This intended to be a realistic, modern casino that was grounded and functioned the same as it would in real-life. To this end, all the games use the real-world rules, and each of them could be played in a real casino. They could also all be played in first-person, so I had the idea to make an Unreal Engine-based, first-person equivalent with additional games. Although not all prototypes are preferable or ideal to do so, I would like to make as many as possible, if not all of them played in first person, as to maximise the immersion factor of Let’s Go Gambling!

# Prototype I – Slot Machine, Semester I

## Concept

For the Advanced Games Design and Research module I had the idea to make a slot machine. Here, we had to come with a question to answer and a hypothesis about games design and game experiences, so my original premise was to make 2 identical-looking machines, one with true random and one with fixed random outcomes, with the aim of analysing perception of fairness in video games. I had tried to make one during a 1 week games jam ran by the course, in which anything would go as long as there was only 1 input button, thus I could just use x key to spin the machine, however I didn’t know how at the time so I made little progress, and resumed development of said prototype here.

## Development

I only ended making a single true random machine, however this was a mostly working and relatively bug-free widget-based prototype, in which the 3 reels were scroll boxes that I could trigger and un-trigger auto-scroll, the different outcomes images in each scroll box that I could get the scroll distance of to find the outcome. Going forward, the plan is to add the widget to a world space slot machine actor and have the player play in the environment, surrounded by the sounds and music, the rushing of people etc., as opposed to just on their own, stuck in a menu and detached from the game world and wider casino experience.

# Prototype II – Blackjack, Semester II

## Concept

For semester 2 we had the “Advanced prototyping” module, in which we basically just the development process of a game of your choice. I struggled for ideas before I remembered the slot machine and thought forwards to both the Games Masters Project and GradEx, and here I had the idea for a year-long casino project. I thus decided on Blackjack, since here I could also learn how to make an Unreal Engine card game. For this, I decided on using cards in the world space as opposed to a more conventional widget/HUD-based game since I wanted to learn real-space spawning, as well as having already done one UI-based game in the Slot Machine.

## Development

The first stage of development was getting a technically playable game, here relying on the Blueprint Debugger tool to see the player and table values such as their hand values, chips, and a win/loss condition. To my surprise this was actually very quick to get working, since here I used a Struct of individual card data including value, suit, the card design etc., which I could make a deck out of, shuffle, and then add to the player and dealer hands. I then just added the values of each card to a total and added drawing, standing and double-down events.

I then moved to visualising the cards in the world space on top of the table actor. Here, I used an ordinary plane with the card textures on, a different front and card back texture, using a black and white albedo so that I could swap the white parts for the different metallics, here another Struct and Data Table including base colour, metallic and roughness values.

# Prototype III – Roulette, Semester II

## Concept

The “Game Feel and Polish” module required 2 prototypes, a larger and smaller one. For the smaller prototype, since I had a slot machine and had just started on Blackjack, I went with another casino game, here Roulette, since the premise of betting on a grid, putting a ball in a spinning wheel and getting the result seemed very simple.

## Development

The end prototype had a spinning wheel into which a ball would be inserted spinning on a timeline, then dropping to one of the wheel slots, passing the value to the outcome event and resolving that round. The betting table was fully working with all bets working correctly, including red/black, odd/even, thirds and halves etc. This was done via a Struct and Data table defining which of these each outcome possessed.

# Future Development – Games Masters Project

## Craps

Craps is one of the more popular casino dice-betting games in which players bet on the value of 2 dice rolled together. I had never actually heard of Craps until starting the project, since I intended to make prototypes based off existing content from earlier in the year, however I was advised against it as not to fall into self-plagiarism. Deciding on Craps, I had then already worked on betting tables and top-down camera-based betting games in Roulette, which had a uniform betting grid using an invisible widget, and I would also get to work with dice and roll detection, which might come in use for future projects, in particular board games, strategy games or something like fantasy games like Dungeons and Dragons, in which most gameplay is based off dice rolls.

## Snooker

Growing up I was a big fan of watching the snooker with my family, so in designing the casino concept I had the idea for a lighter “entertainment” category on top of the gambling, if only to give the player the chance at a break between games. Here, the original plan was to make an animated, first-person game, however this is way too much work, and I do not currently possess all the skills or time that I would need for this, thus the base game shall be in top-down view, later developed into a first-person experience. As with Craps teaching me about dice detection, Snooker would allow me experience with physics objects, here the Snooker balls.

# Future Development – Post-Masters Development

## Phase I – Extensions of Existing Games

### Poker

Poker would use the same card design and deck-building mechanics as the Blackjack prototype, all that would really change would be A) the distribution of cards, and B) the results calculations to best hand instead of just 21. I wanted to do this as part of the Games Masters Project submission, however given the Blackjack prototype was already submitted this would be self-plagiarism, thus I shall leave development to post-Masters.

### Pool

Pool would be actually an easier version of Snooker to make, since instead of the complicated colour system, foul rules etc., it would be as simple as yes/no red and yellow or solids and stripes. I personally prefer Snooker however, and getting it done before the end of the project I thought would be more technically impressive, so I went with snooker first, and then to fill out the casino I can go back and essentially re-skin the Snooker game into Pool, which then adds to variety and gives players the choice of either or both.

## Phase II – Major Changes to Existing Prototypes

### Blackjack

Among other major changes, I want to add the Split option into Blackjack, the ability to split the player hand into 2 separate hands with individual bets and win/loss outcomes. I feel like this will be a large undertaking since I might have to re-make most, if not all of my existing Blueprint made on the basis that there would only be one player hand.

### Slot Machine

For the Slot Machine I had some ideas for a secondary side-game played through the main game, be it a passive scrolling ability, or earned through getting specific icons or lines on the Slot Machine. This might be something like the Slots in “Dragon Quest XI: Echoes of an Elusive Age” (2017, Square Enix)[[3]](#endnote-3), which is detailed and complicated enough that the tutorial page needs 5 slides to explain it all. This could be played on the above screen on the Slot Machine asset.

### Snooker

With the Snooker prototype done, I want to as mentioned convert it to a first-person experience. In the Game Feel and Polish module, one of my proposed prototypes which was thankfully shot down as being far too ambitious for the time we had, was to make the BBC Crucible broadcast-quality Snooker with animated characters, different shots of the table etc. In a smaller, cozier environment without a crowd I think this would be really cool, and if the prototype development goes well, I look forward to seeing what I can do with this.

## Phase III – AI Players

To populate the casino, I had the idea to fill it with AI players that roam around and play some of the games to add life to it, and to allow for a larger and more impressive environment. Some of these the player will be able to interact with, such as joining in on their games like Blackjack or Roulette, while they will react to winning/losing, go and get food and drink, relax around the casino etc. At least one of each game would be left alone at all times in case the player wanted a solo experience.

I could also have different kinds of AI players, each with different wants and needs. In reference again to Casino Inc., here there are a variety of AI types with different amounts of income, each seeking different types of games, thus my own version might look like the following:

Blackjack

* More likely to double-down
* More or less cautious players, more or less likely to hit when close to 21
* High rollers will spend much more per round

Craps

* High rollers
* Low-rollers, longer time playing

Roulette:

* Mr Green – Only bets on green 0
* Red or Black better
* Character who spreads evenly among options e.g. odd/even, thirds, halves etc.

Snooker

* Variety of skill levels, less likely to miss, better awareness of higher scoring options
* Gloater or sore loser, will gloat over their victory or leave before the player can finish their round, or complain with voice lines that the player had somehow cheated

# Future Development – Potential Avenues for Alternate Development

## Business Management and Building systems

One idea I had for future development was to expand the game to include building and management systems, where the player could freely design a casino as part of a management game, with income put back into expansion, hiring staff, running events etc. This would be in-line with management games such as “Casino Inc.” (Hothouse Creations, 2003)[[4]](#endnote-4), a 2003 strategy game in which the player runs a casino competing with rivals for customers, offering games, entertainment, food and drink etc. I also took inspiration from “Big Ambitions” (Hogvaard Games, 2023)[[5]](#endnote-5) which works similarly to Casino Inc., on a city-wide scale, except here you can create and run a variety of businesses including fast food and retail to law firms and international importing companies. Both of these games are played from the top-down, thus the game could be broken into a first-person play perspective and top-down management/simulation camera.

## Combine the Casino with other Stuff I did this Year

Among other things I started on animation for the first time this year, as part of the Game Feel and Polish module, specifically first-person weapon animations following the Infima Games YouTube tutorial series[[6]](#endnote-6), which when I got into, I really enjoyed. As part of a wider world, maybe I could combine FPS action with the casino for a varied game experience, in which maybe the casino is a sidepiece in a larger world, or alternatively the casino is the centre-point in said world or story. As part of this, I would then get better and faster at animating, which I could then implement in my casino prototypes, such as animated Snooker cueing, win/loss reaction animations etc. This could also extend to the AI with idle animations, eating/drinking animations etc.

# References

1. Grand Theft Auto V. (2013). PC [Game]. Edinburgh, Scotland: Rockstar North. [↑](#endnote-ref-1)
2. Gamer, PC. “GTA Casino: Everything We Know.” *PC Gamer*, 23 July 2019, www.pcgamer.com/gta-casino-release-date/. Accessed 26 May 2025. [↑](#endnote-ref-2)
3. Dragon Quest XI: Echoes of an Elusive Age (2017). PC [Game]. Shinjuku, Tokyo, Japan: Square Enix. [↑](#endnote-ref-3)
4. Casino, Inc. (2003). PC [Game]. Bristol, England: Hothouse Creations. [↑](#endnote-ref-4)
5. Big Ambitions (2023). PC [Game]. Denmark: Hogvaard Games. [↑](#endnote-ref-5)
6. https://www.youtube.com/playlist?list=PL003KdcgTi5t0raF1MQNIKcDh6wg8arJ4 [↑](#endnote-ref-6)