Game Development

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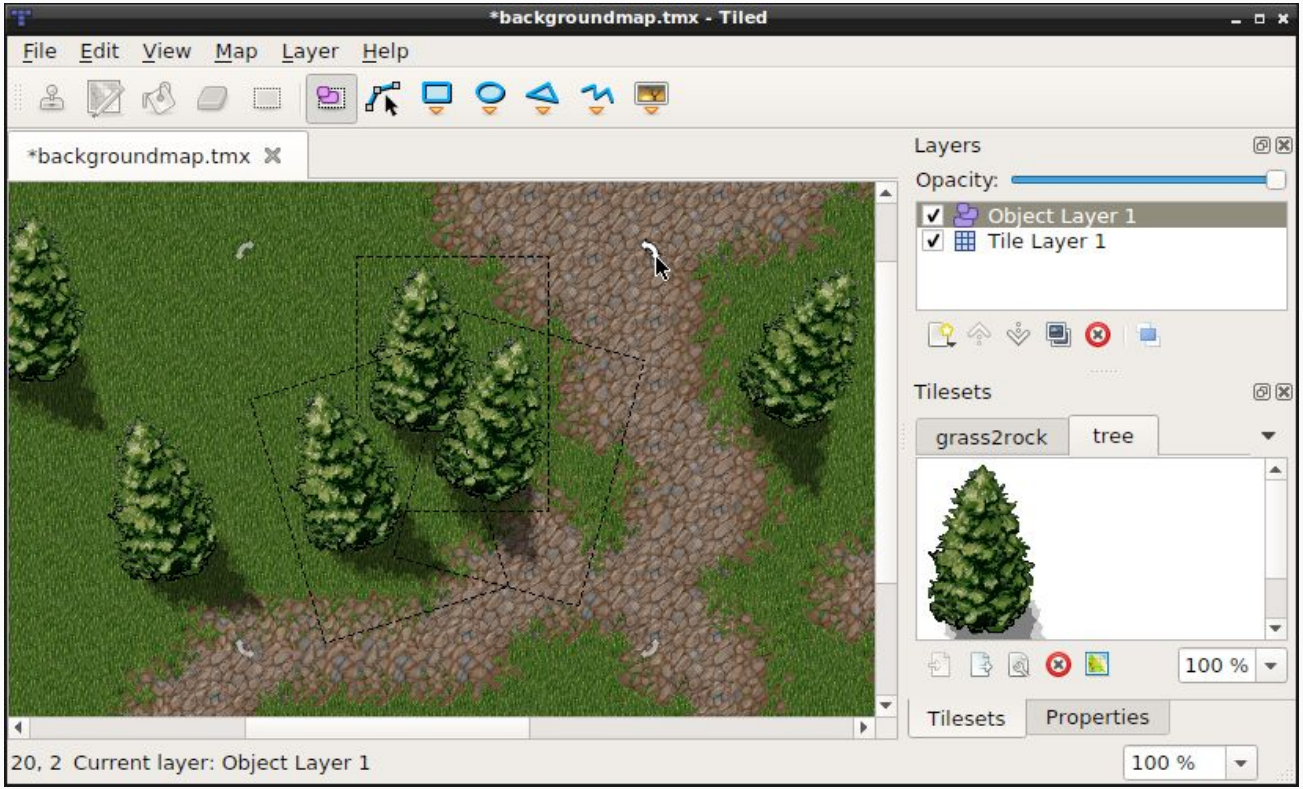
Contents

- Learning goals
- What we will learn
- Evaluation
- Rules
- Tools
- Observations

Learning Goals

- Become proficient with C++
- Understand the building blocks of video games
- Get into data driven programming
- Understand isometric perspective
- Develop debug tools
- First glimpse into GUI programming

Proper data read and write



What we will learn

- Data Formats (XML)
- Load / Save
- Loading maps

Map isometric rendering in Diablo 2

What we will learn

- Orthographic vs. Isometric
- Metadata information on maps
- Pathfinding!

Max Payne

What we will learn

- FPS control
- Game Logic Time control
- Entity Management
- Event Systems

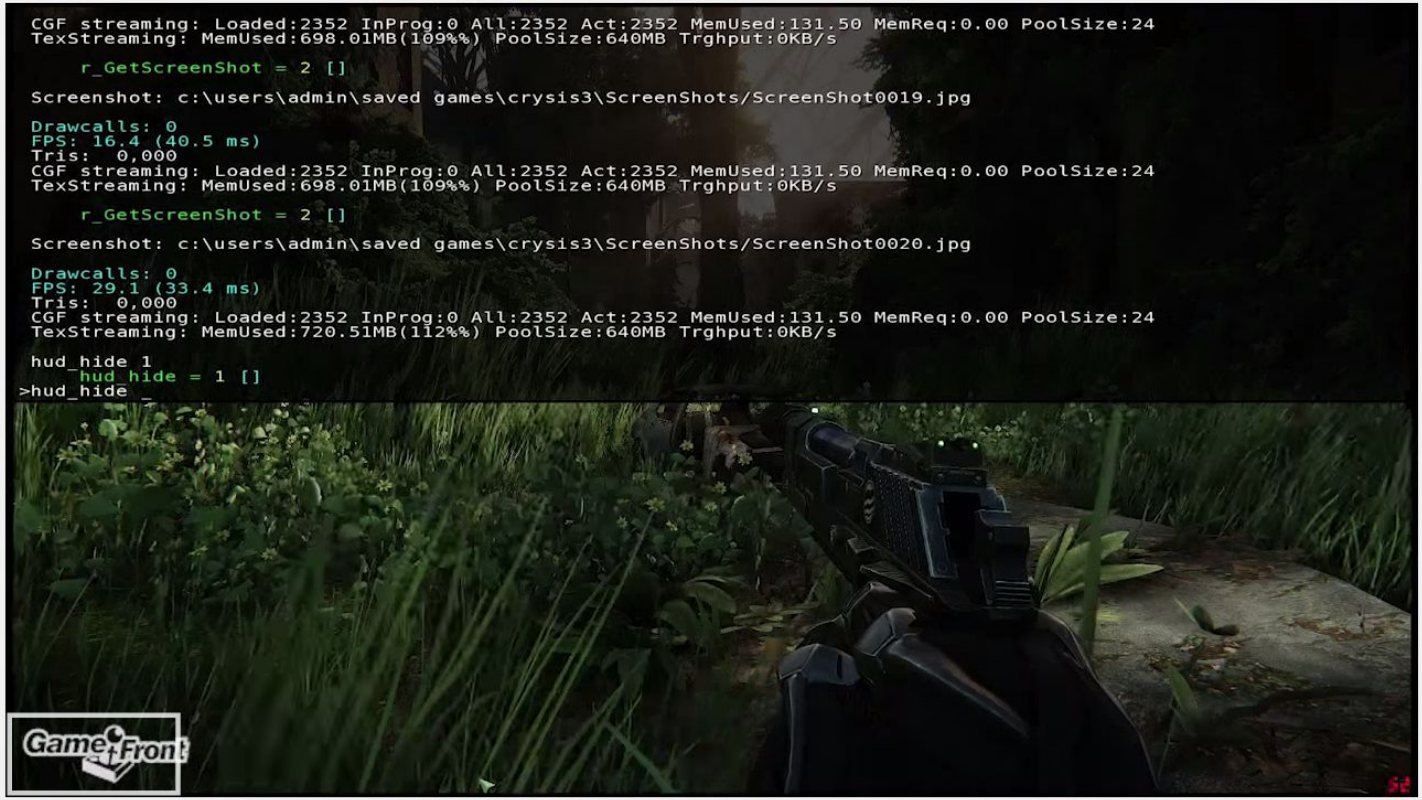
GUI - WoW

Next Pact of the Darkfallen 17.9
Unsuccessful Attempts and Retreat: 20 of 20
Spell is not ready yet.
Spell is not ready yet.
Spell is not ready yet.
Swiftmend Ready!
Range Check (10 yd)
Vemi
Ariya
REJUVENATION 2.0S
MEMORIES OF LOVE 6.5S
ENERGIZED (8) 9.6S
SOOTHING (8) 14S
19.1K/26.5K
7886/25.5K
REJUVENATION 5.6S
87.2% SHADOW BOLT
BLOOD-QUEEN LANATHEL 38.1
Healing Done
1. Inarei 2340797 (10380.0, 18.5%)
2. Chromosome 2114995 (9279.1, 16.8%)
3. Ariya 2004485 (8917.1, 15.9%)
4. Colb 1834072 (8226.0, 14.5%)
5. Nakatsu 1426336 (6378.1, 11.3%)
6. Lance 998698 (4492.6, 7.9%)
7. Rofnik 258477 (1145.8, 2.0%)
GUILD: 33 FRIENDS: 3 ARMOR: 10% 10416 99S 0C 94MS 9FPS

What we will learn

- In Game Graphical User Interfaces:
  - Labels
  - Buttons
  - Text Input
  - Windows
  - Scrollbars

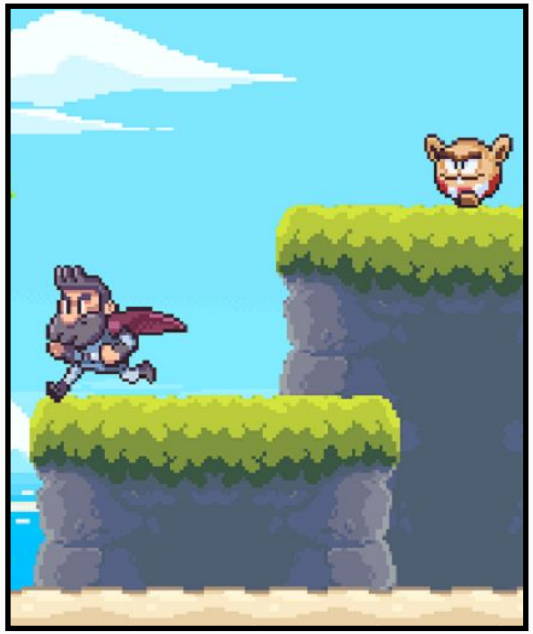
Quake style console || Crysis console



What we will learn

- Performance analysis (Brofiler)
- Development console
- Cvars for configuration

We will build a platformer: Map + A* + UI



Worth mention “*Parallax Paradox*” from 2018

Marc & Pol project from 2018 ended up winning some contest !

Evaluation

First Assignment:

- Counts as **15%**
- Before October 14th 23:59
- *Save/Load*
- *XML Parsing*
- *Map Rendering*
- *Collision and Logic import*

Second Assignment:

- Counts as **15%**
- Before November 11th 23:59
- *Pathfinding*
- *Time control*
- *Performance monitoring*

Evaluation

Third Assignment:

- Counts as **20%**
- Before December 16th 23:59
- *All GUI*

Game Innovation:

- Counts as **10%**

Final Exam (theory):

- Counts as **40%**
- January 7th - 16th

Revaluation exam:

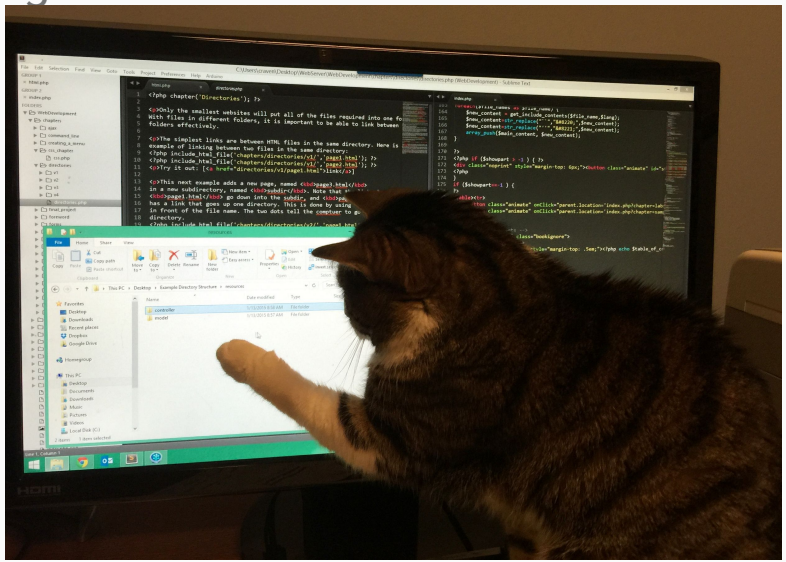
- Counts as **40%**
- Max grade is 5
- January 30th - February 5rd

Rules

- Work is **done in groups of two**
  - Not to be change later but in extreme circumstances
  - Each github user should be used only by its own student!
- Code is expected to be:
  - **Clear**
  - **Consistent**
  - **Optimal**
  - **Original:** only once can trigger a zero for the whole subject

Rules

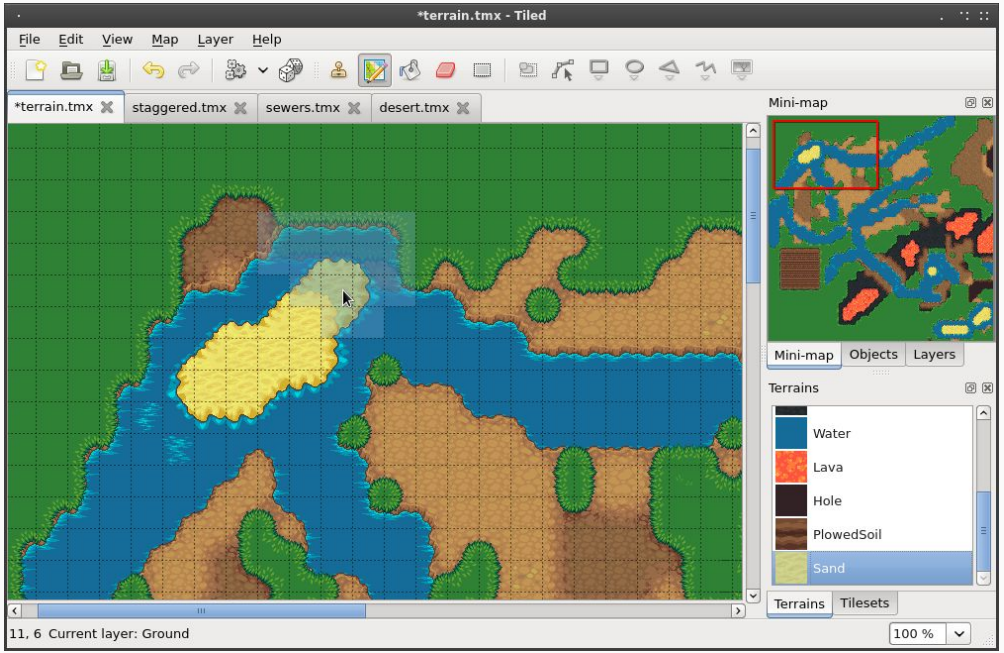
- For the 10% grade for innovation on assignments:
  - Go beyond what is requested
  - Do some interesting **tech**
  - It is not an easy grade!
- Final exam will be done on paper:
  - It is done individually
  - Can be revaluated
  - No teamwork :)



Tools

We will build on last year code structure:

- Visual Studio 2017
- Github.com
- Tiled
- Brofiler



Observations

- We will learn coding *for* video games
- Everything is about spending time coding
- You will start understanding the games you play
- All those building blocks will be used on **Project II** Subject next semester
- Have fun! :)
- https://www.youtube.com/watch?v=nxtMnaDp6M4

Homework

Let’s test our C++ skills: Create a new vec3 class with

- Contains three values x,y,z with templatized type
- Think of at least three handy constructors
- Operators +, -, +=, -=, =, ==
- Methods: normalize(), zero(), is_zero(), distance_to(vec3 …)
- Mind references and const!

Upload it to your github and will be reviewed next class.