

Game Engine Programming

GMT Master Program
Utrecht University

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Course code: INFOMGEP
Credits: 7.5 ECTS

Lecture #16

Final lecture

The final assignment

- Submit your assignment 4 by Thursday 19th
 - deadline at 11:59pm via the submission system
<http://www.cs.uu.nl/docs/submit>
- This is after the demonstration and the exam
- Do not forget to include
 - game assets (textures, meshes, scripts, *etc.*)
 - third party libraries (ODE, boost, irrKlang, *etc.*)
 - demonstration material (slides, movies)
- Double check that the submission compiles and runs on a fresh machine



The final assignment

- Demo on Thursday April 12
 - in BBL 201 or 079 from 9:00 to 10:45
 - in BBL 103 or 106 from 11:00 to 12:45
- See the webpage of the course for your convocation
 - You do not have to attend the sessions your are not involved in
 - You are encouraged to ask questions at the end of each presentation



The final assignment

- Presentation of 10 min per group
 - ~7 min talk
 - ~3 min demo
 - followed by few questions / comments
- At the time of the presentation, the three mandatory tasks have to be implemented
- Some optional tasks can be implemented between the presentation day and the deadline



The final assignment

- The presentation should include
 - 1 slide with your names, student numbers, game (engine) name, a screenshot ...
 - 1 slide on the general overview of your engine
 - possibly with a class diagram / engine architecture
 - 3-4 slides listing the implemented functionalities of the game engine (refer to assignment tasks)
 - possibly with implementation details
 - indicate what you did yourself and what you used
 - 1 conclusion slide
 - most challenging difficulties, implemented game, *etc.*



The final assignment

- That means about 1 min per slide
 - respect of timing is part of the grade
 - practice few times before and test your presentation/demo
 - number of speakers is up to you



The final assignment

- The demo of your engine is short (~3 min)
- Demonstrate the capabilities of your engine, not how cool your game is
 - actual quality and quantity of game assets are not major grading criteria
- Prepare a demonstration scenario to show these capabilities as best as you can



The final assignment

- Between the demo day and the deadline
 - to allow you to correct/tune your game engine according to the comments made during the presentation
 - to implement extra optional tasks
 - add a text/doc/pdf file to the archive describing the corrections / improvements made since the demo day
 - add the pdf/ppt/avi files of the presentation to the submission
 - add a text/doc/pdf document indicating the game controls



The final assignment

- Grading system (tentative)



The final exam

- April 16, 2012 in EDUC-GAMMA
- Three hours (17:00 – 20:00)
- **Is allowed to have**
 - lecture notes (with personal annotations)
 - books
- **Is not allowed to have**
 - non lecture related hand written material
 - any printed material (other than lecture notes)
 - laptop, calculator, phone ...



The final exam

- Can deal with any topic presented during the lectures or encountered during the practical sessions
 - C++ programming and OO concepts
 - Game engine programming
- Can include different types of questions
 - Multiple choice
 - (Pseudo-) Code writing
 - Open question



The retake exam

- May 31, 2012 in BBL 079
- Three hours (9:00 – 12:00)
- Retake needs a minimum final grade of 4



Next year



Game Engine Programming will be removed from the GMT Program

- No direct consequences for you except
 - Impossible to keep practical grades for next year if you fail this year
 - No follow up experimentation and master projects



Research in game engines

- Computer games have been around for more than 50 years
- Until about 25 years ago, most games were developed by small teams or individuals
 - usually from scratch with very few reusable components
 - from a project-based vision of game industry
- As industry as grown, abstraction levels have been proposed
- We now call these reusable components the game engine



Research questions

- The terminology issue
 - An exact description of what a game engine is still needs to be defined
 - Due to the blurry line between game components (such as rendering engines) and game engine
 - Demonstrate the need to establish a game development language
 - boundary between game engine and game logic



Research questions

- The game genre and design
 - How do different genres affect the design of a game engine?
 - Commercial engines tend to be specialized towards a targeted genre
 - to provide genre specific optimizations
 - but at the expense of flexibility
 - A formal study of the cross-genre commonalities should lead to the definition of a game engine



Research questions

- Design dependencies
 - How do low-level issues affect top-level design?
 - Low-level technology evolves at a very fast rate
 - hardware and software
 - Functionalities are re-affected to different parts of the engine
 - What about Cloud Computing Gaming?
 - Is there any engine design methods that could be employed to minimize the impact of future developments?



Research questions

- **Best practice**
 - Are there specific design methods or architectural models for the creation of a game engine?
 - Top-down and bottom-up implementations
 - But uneasy when original goals are poorly defined at the beginning



Research questions

- Research is mostly done on the components or sub-engine systems
 - Graphics and rendering
 - Physics
 - Animation
 - AI
 - Network
 - *etc.*



Exam rehearsal

- 2010/2011 INFOMGEP
 - Final and retake exam



End of lecture #16