

Production Assignment: A Car Game

Game Programming at ITU, Spring 2005

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April 1, 2005

Purpose

The purpose of this assignment is to give you practical experience in implementing a simple game using the techniques you have learnt on the course Game Programming. Furthermore, you will get experience in developing a game using a game engine. Your game should be developed using the Panda3d game engine and Python and/or C++.

Description

Your assignment is to write a simple car game using the Panda3d game engine and Python and/or C++. The actual game play is up to you, but the game must cover the following aspects of the theory taught on the course:

- The game should include some graphics, either 2D or 3D. It can include animation.
- The user should be able to interact with the game, e.g. by using the keyboard.
- Your game should include some form of collision detection and response.
- Your game should use simple physics, e.g. for modelling acceleration of the car or to do collision response.
- Some aspect of AI for games must be included, e.g. including opponent cars in your game.
- The game must have a good program design, e.g. object-oriented using various design patterns.

Notice, that if you have solved the sub-assignments during the semester, you have already solved a major part of this production assignment.

Write a report (no more than 10 pages) that describes the design and the choices you made while developing your game. The focus of the evaluation will be on the program design not on the actual design of the game play or its visual appearance. The source code for the game must be included as an appendix to the report. You must put comments in your code in order to make it readable.

You should also justify your choice of programming language for the individual components of the game, i.e. why did you choose Python scripts for doing component X instead of C++ or vice versa. Notice, that it should be possible to write the game using only Python.

You may produce new models and graphics for your game or use already existing graphics, e.g. taken from the model repository on the course home page. If you borrow models and graphics from the Internet or elsewhere, please make sure that you honour any copyrights.

Deliverables

Your solution to this assignment must include:

- A working game and a description on how to run your game.
- The source code, model and graphics files for your game.
- A report describing the choices you made while developing your game. The report may be written in either English or Danish.

You must hand in 4 paper copies of your report including source code for your game, as well as 4 copies of a CD-Rom with the game, source code, model and graphics files, and the report in PDF format. Make sure that you include all files needed in order to run your game of the CD-Rom.

Formalities

This assignment is the mandatory production assignment on the course Game Programming at the IT University of Copenhagen, spring semester 2005. The solution to this assignment is an integral part of the exam of this course. The course examination is an oral exam without preparation time based on the solution to this assignment. Questions in the entire course curriculum, that is, also outside the scope of the production, should be expected. The oral exam will be a group exam with individual grading.

You may solve this assignment in groups of no more than 5 persons.

Your solution to this assignment must be handed in at the ITU exam office no later than 15:00 on Friday April 29, 2005. The exam office is located in room 1C 04 at the IT University of Copenhagen, Rued Langgaards Vej 7, 2300 København S.

It is a prerequisite for the exam that you hand in a solution to the production assignment on time.

Any questions regarding this assignment may be posed to Kim Steenstrup Pedersen (kimstp@itu.dk) or Ole Fogh Olsen (fogh@itu.dk).