Programming Project 1

Due: Tue, Sept 16.

Objectives:

- Learn to find your way around Visual Studio 2005.
- Learn about the structure of game projects using the XNA Framework.
- Learn how your Java knowledge maps to C#.

Part 1: a very simple game – step by step

Reading: On the Resources page are links to two beginners' tutorials that show how to create simple 2D games.

Step 0: Download the files *JustPictures.zip*, *StillNoGame.zip*, *SuperSimpleGame.zip*, and *Pong.zip* from the Resources page, put them into your Visual Studio Projects folder (probably at "(My)Documents\Visual Studio 2005\Projects") and unzip them (right click and select "extract all").

Step 1: Open the project *JustPictures* in Visual Studio and build it and run it (press the play button). You should see a red balloon and a green balloon; the green one partially overlapping the red one. Study the code in Game1.cs.

Question 1.1: Explain why the green balloon is drawn over the red one instead of the other way round.

Task 1.1: Add a third balloon. (You either reuse the red or green balloon or you can use a new picture. To add a new picture right click on Content in the Solution Explorer and select "add existing item".) Position this third balloon so that it is partially overlapping the others but is drawn on top of them.

Use comments to clearly mark all changes that you make to the code in this and the following exercises.

What you should learn from this example: drawing images.

Step 2: Open the project *StillNoGame* in Visual Studio and build it and run it. You should see a red balloon and a green balloon moving around the window and bouncing off its edges. (Note how the green balloon is always passing in front of the red balloon.)

Task 1.2: Extend the "game" so that the animation freezes when you press the F-button on the keyboard and resumes when you let go. The method `void Update(GameTime gameTime)` has an example of how to access the keyboard and check whether a particular key is being pressed.

What you should learn from this example: polling keyboard input and reacting to it. Understanding the game loop.

Step 3: Open the project *SuperSimpleGame* and run it. You will see the same red and green balloon moving around, but now, when you click on them, they jump out of the way.

Task 1.3: Modify *SuperSimpleGame* so that the balloons become a little faster every time that they are clicked.

What you should learn from this example: polling mouse clicks and reacting to them.

Part 2: Pong

Reading: Chapter 13 of *XNA Game Studio Express: Developing Games for Windows and the Xbox 360* by Joseph Hall.

Step 0: If you haven't done so, download *Pong.zip*, put it into your Visual Studio Projects folder, and unzip it.

Question 2.1: Explain (in your own words) how the scores are drawn.

Task 2.1: Color the higher score in one color and the lower score in another.

Task 2.2: Exercise 1 from chapter 13 of Joseph Hall's book. After 10 volleys without a score, have the ball blink by toggling its color between red and white every 250 milliseconds. Be sure to disable the blink once one of the players finally scores a goal.

For this task, you will probably want to use the *GameTime* class that is part of the XNA Framework. (Note that *Update* method has a parameter of type *GameTime*.) For example, given a variable time of type *GameTime time.ElapsedGameTime.TotalMilliseconds* gets the time elapsed since the last time Update was called. Check the XNA Framework documentation for more info: http://msdn.microsoft.com/en-us/library/microsoft.xna.framework.aspx

What you should learn from this example: working with time and using the online documentation.

How to submit:

Submit everything (your answers to the questions as well as your code) on Blackboard. For the code, submit whole projects. That is, using Windows (File) Explorer go to the directory where you are keeping

your C# projects; that's probably "(My)Documents\Visual Studio 2005\Projects". Right click on a project name and select "send to compressed (zipped) folder". That should create a .zip file of your project. Submit that zip file on Blackboard.

All in all you should submit FIVE files. One text document (pdf or doc) with your answers to the questions and four zip files with your modified game projects (i.e., your extensions of *JustPictures*, *StillNoGame*, *SuperSimpleGame*, and *Pong*).