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Administrivia

- Reminder: Midterm Tuesday. Review sheet on Web.
- Reminder: Homework 3 code due Tuesday.

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A Little About the Midterm

- Review class notes, example programs from class, minute essays, and quizzes.
- Most questions will likely be more difficult (or at least longer) than quiz questions, but similar in format. Might be a few short-answer / multiple-choice questions too.
- Open book, open notes, some access to Web.
- If you want extra non-game “practice problems” to try, send me mail.

Homework 3 Hints — General

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- Remember that most game framework interfaces and classes are generic, so to use them you should supply two “type parameters” (your block and entity interfaces). Why is it written that way? should start to become clearer with this assignment.
- Two groups of methods to define:
 - Methods of two framework interfaces (`Player` and `GameEntity`). Called (probably) once per game tick.
 - Methods of appropriate listener interface(s). Called when human player provides input.
- What variables do you probably need? (In general — if there’s something that’s part of the object’s “state” and needs to be used by more than one method, it should be an instance variable.)

Homework 3 Hints — Drawing Things

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- Individual blocks and entities: What’s drawn is controlled by `getImage`. Blocks all scaled to same size. Entities scaled based on `partialSizeX/Y`. Positions of entities based on locations.
- “Partial”? The framework allows you to define, for the purposes of moving and scaling, a “partials in whole” number (to allow moving in fractions-of-a-block units).

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Homework 3 Hints — Drawing Things, Continued

- Laying out screens: You can do this in code (probably in your screen class) or using the “screen editor” (brief description and links to more info in writeups for Homeworks 2 and 3).

Potential “gotcha”: If you set “partials in whole” to a non-default value (in your game setup class), and you want to use the screen editor, you also need to set “partials in whole” in your screen class.

- Notice / recall that not everything has to be part of the playing field: Your game can also include “panels” on any or all four sides.

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Homework 3 Hints — Responding to Input, Moving Around

- Game ticks and keyboard/mouse events aren't particular in synch.
- So listener methods should probably just record information, to be processed by `update` method.
- Look at documentation of (Java library) listener interfaces to know what methods to write. Follow links to find out about other useful classes (e.g., `KeyEvent`).
- “Move” by changing location. Useful methods in (framework) `Location` class.

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Homework 3 Hints — Interacting With Blocks

- At least some code for interacting with blocks goes in player classes. Similarly for other entities. However, good use of block hierarchy can help.
- Example — how do you not go through walls?
(Contrast the “old way” using `instanceof` versus the “new way” using polymorphism and your interfaces.)
- Interacting with other entities starts in Homework 4, and is done in a similar (but not exactly the same) way.

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Additional Java 5.0 Features

- A while back we talked about “generics” as a Java feature introduced with Java 5.0 (a.k.a. 1.5).
- Additional features you may find useful:
 - Enumerated types.
 - A simpler syntax for loops.
 - A library class (`Scanner` for reading from “standard input”).

Enum Types

- Useful for defining a fixed set of constant values. Old way was to explicitly define `static final` values. (Consider example(s) in game framework's `Player`.)
- (Example program.)
- Use with caution, though — sometimes there are more object-oriented ways to do what you want to do.

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New Loop Syntax

- Simpler syntax for looping over all elements of an array, or over all elements of a collection.
- (Example program.)

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Scanner Class

- Many other mainstream languages provide an easy way to read integers / doubles / strings from “standard input” (of a command shell). Previously, Java didn’t. Now it does.
- (Example program.)
- This might be useful in writing short “throw-away” programs . . .

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Minute Essay

- Usually in this course students initially find working with game framework confusing, and then at some point it all “clicks” and makes sense. Are you at that point? close?
- Any other concerns about Homework 3 or the midterm? (I will respond by e-mail.)

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