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Java Puzzle Ball

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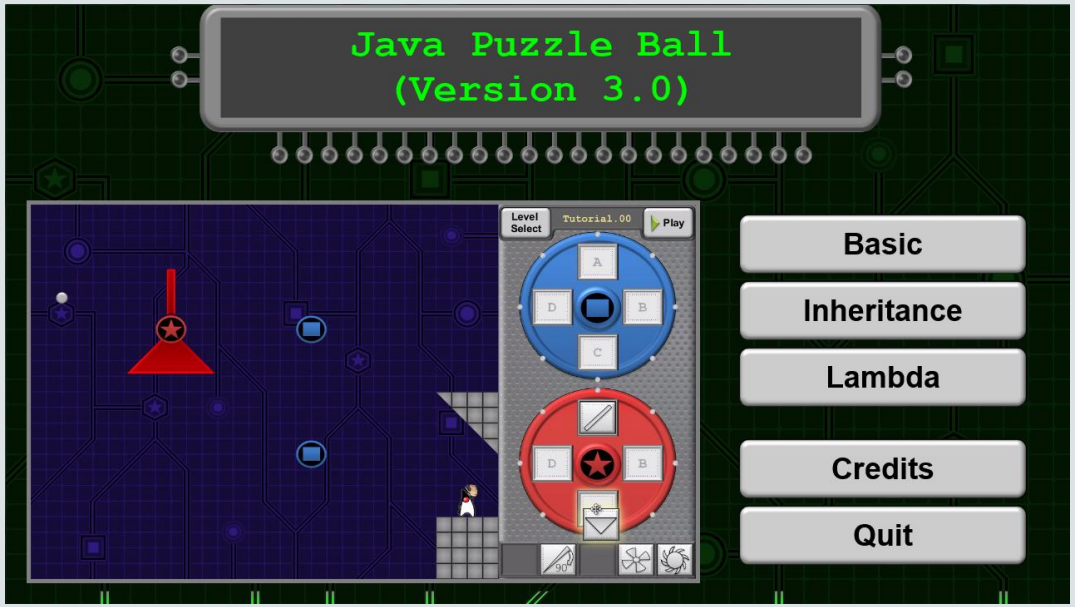
Lesson 3-1
Implementing Inheritance Puzzles



Developing from Specifications

- Labs 1 & 2 ask you to write classes based on design specifications.
- Specifications are often recorded in a design document.
  - The design document explains what the program must do. In other words, what features the program must implement.
  - The design document shouldn't tell you how to implement these features. It's up to programmers to decide on the best implementation solution.
    - Designers and Marketing probably don't understand code.
    - Programmers could record their implementation plans in a separate document.
- The order you implement features is based on a production schedule.
  - Let's go behind the scenes of Java Puzzle Ball again to examine this…

Production Schedule

Notable Build	Sprint	Sprint Goal
August 16, 2013	First Runnable	Just get stuff working in JavaFX
August 22, 2013	First Playable	Allow bumpers to be designed by players The ball bounces
September 27, 2013	Alpha	Add more behaviors
October 16, 2013	Alpha	Most core features are implemented This includes Inheritance puzzles
November 21, 2013	Beta	Most features are implemented
December 31, 2013	Polish	Fix Bugs Make things prettier

October 16, 2013

- We created additional game modes (Inheritance & Geometry Test).
  - Inheritance was planned, Geometry Test was incidental.
- There is a pop-up for choosing levels.
  - Because we didn't know how to unload/swap between levels.
  - You have to close the program to load a different level.
  - Levels are for testing features, and aren't quite puzzles for players.
- More notable features:
  - Level geometry
  - A GreenBumper and GreenWheel
  - Level-building instructions are read from a text file

November 21, 2013

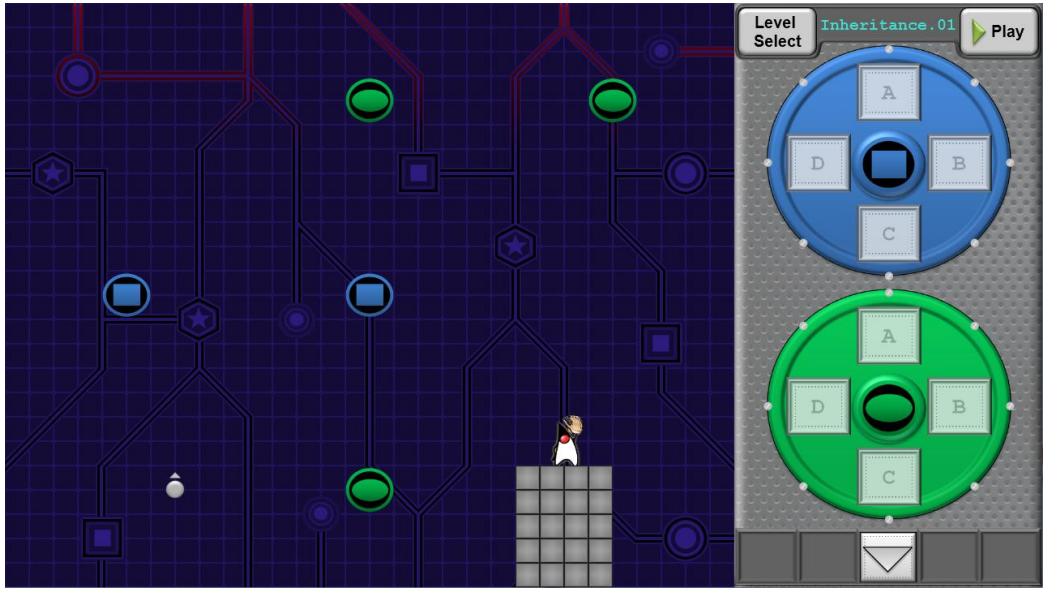
- Over one month later:
  - We figured out how to unload levels!
- Use the Options button to choose levels.
  - It's a temporary solution until we learned to create menus.
  - Levels are actual puzzles instead of tech demos.
- More notable features:
  - Fancy new background art.
  - More levels.
  - Slots are labeled ABCD instead of NESW (People thought their solutions were wrong if the N slot didn’t face north.)

Both Designing and Programming are Iterative

- Periodically tested the application. Made changes based on the results.
  - See where users get confused.
  - See where performance is slow.
- Because design specifications change, your documents need to be somewhere that's accessible for viewing and editing by the team.
- Storing documents in **version control** is one option.
  - Oracle accommodates a version control solution for developers through **Oracle Developer Cloud Service.**
- Alternatively, store documents in a **content management system**.
  - Oracle accommodates this through **OraDocs**, or **Oracle Content and Experience Cloud**.

Why Label the Slots?

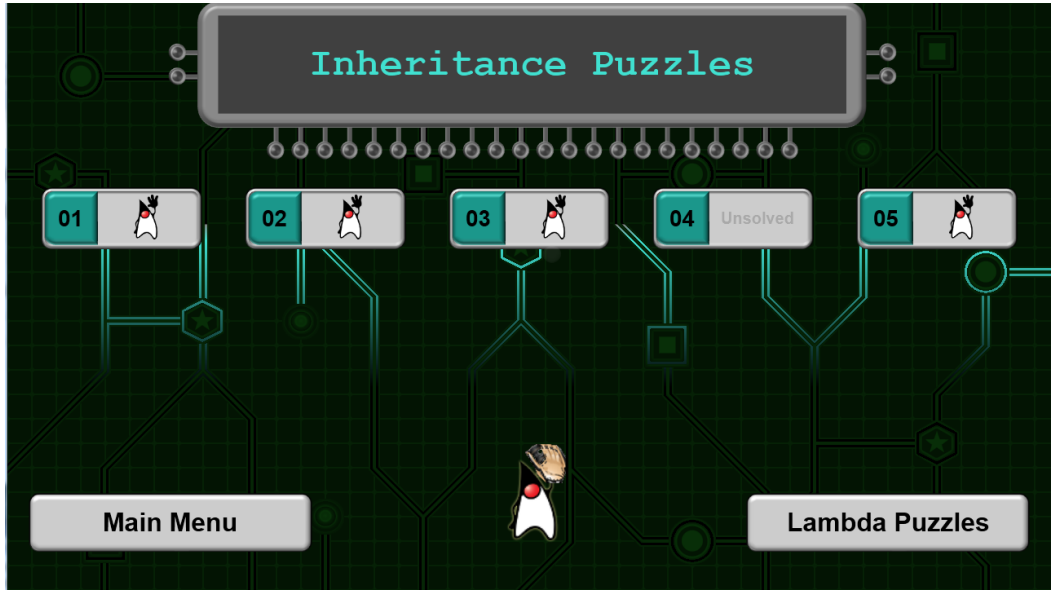
- There's a very specific reason why we needed to label the slots.
  - This will make sense with Inheritance Puzzles.
- Don't understand what inheritance is? That's ok. The game will teach you.
  - Students who have never programmed before are able to come up with a fairly close definition for inheritance.



Exercise 3

- Play **Inheritance Puzzles 1 through 3.**
- Consider the following:
  - What is inheritance?
  - Why are these considered "Inheritance" puzzles?

4 & 5 too, if you want to play more inheritance puzzles

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