Module 27: 11/19

Exceptions, P4 Hints, P5 Hints

Review

- Polymorphism Wksts
  - 1) pick signature based on ~~comp~~ *ref var type*
    - Check ref var class, look for exact match
      - Move up the hierarchy looking for exact match
    - If not found, go back to ref var class, look for closest is-a
      - Move up the hierarchy looking for closest is-a
    - Do the same with converting (autoboxing)
    - If not found, WC

  -
  - 2) USE the signature from #1...do not change it
    - See if overridden by actual object type

Failure

Failure: inability of system, at run-time, to accomplish its intended purpose

Method failure:

method
1) cannot get resource from environment
2) logical error in implementation

Would Like:

Exceptions

Exception

Exception: occurence of detectable, abnormal situation, which might lead to system failure 🚫
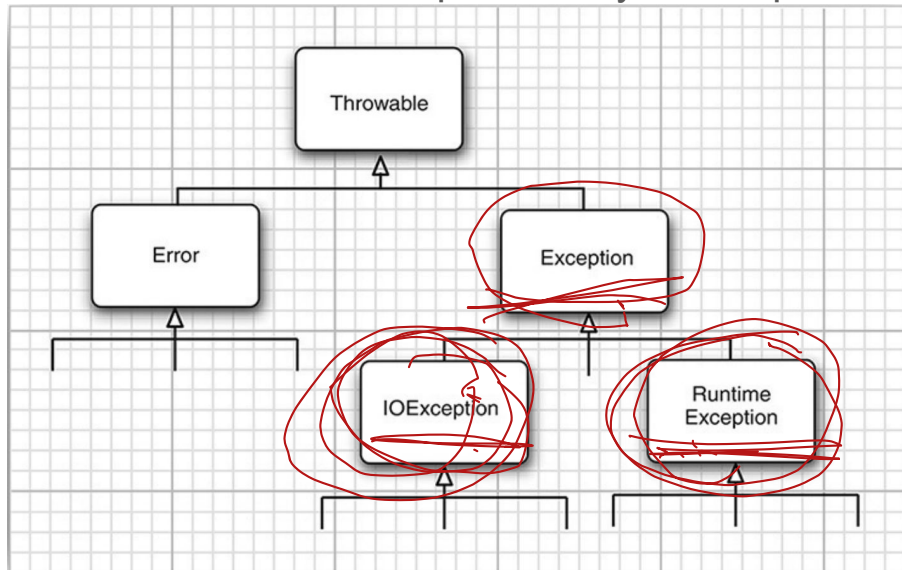
Exception mechanism:

- not a control structure like if / while.

- Use for _abnormal situations that might lead to failure_

Runtime System - Example 1

Will catch Runtime exceptions for you and print stack trace

Figure 7.1 Exception hierarchy in Java

RuntimeExceptions Ex:
- ArithmeticException
- ClassCastException
- IllegalArgumentException
- NullPointerException

Show example 1

Catching Exceptions Ourselves (so no stack trace) - Example 1 part 2

```
try

{


} catch

{


} finally

{


}
```

Throwing Exceptions
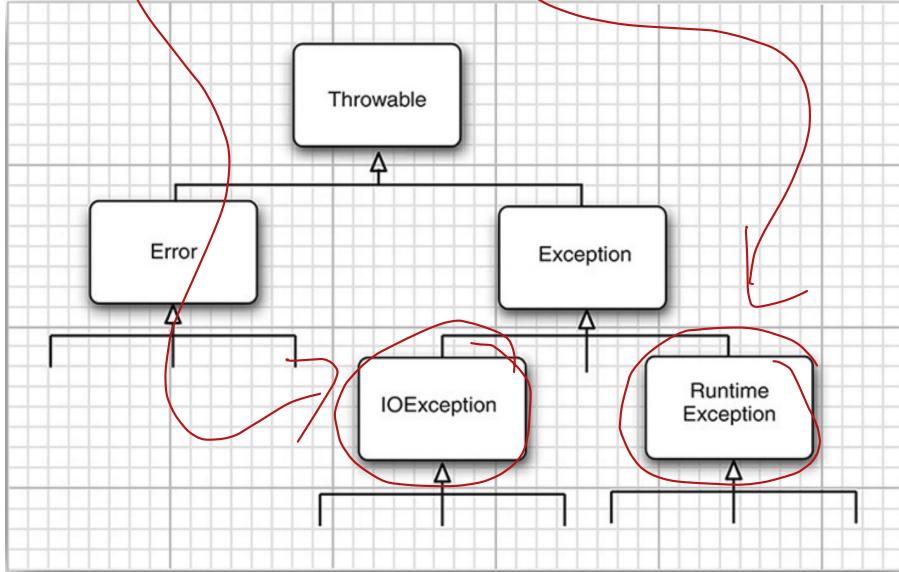
Checked vs Unchecked - Example 2

Figure 7.1 Exception hierarchy in Java

Making your Own Exceptions - Example 3

Project 4

Hints / Debugging

If freeze in program:

- What is different about program than sandbox?

  ○ Be sure to check ~~PSAF~~ _arguments to computePath_

  _canPassThrough → withinBounds && (_____)_

- Do some detective work:
  ○ Which loop are you stuck in? Building path or the big loop or the loop outside computePath?
  ○ Is the openList growing too fast? Are there ever duplicates?
  ○ Do you ever pick the same current node twice?
  ○ Is your closedList empty or growing?
  ○ Are you actually getting off the node with lowest f value? (bug with queue?)
  ○ Does your path include start or end node? (it shouldn't) Is it in reverse order?
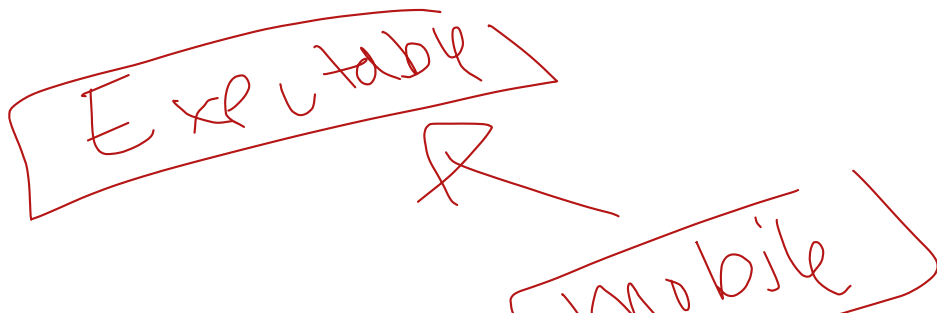
Narrow Problem

In Sandbox:

- Use debugger (check for questions on previous slide)
- Try moving the goal to (5, 5) instead of down in 13 / 14 range

Fill out Survey

- On canvas let me know if you want me to grade for potential early submission

Project 5
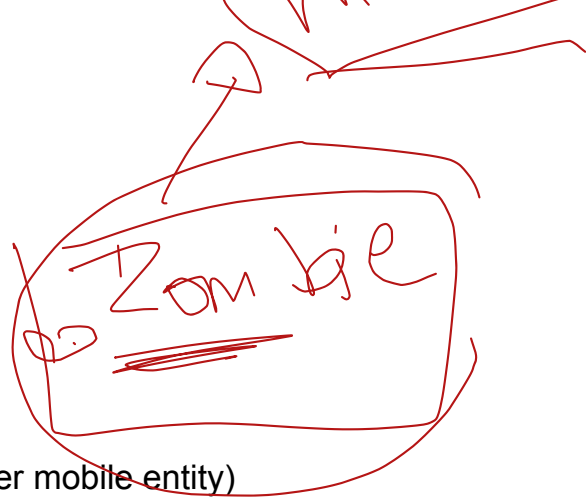
Executable

R

mobile

Project 5 - Overview

- Starting Place:
  - mousePressed (Virtual World)

- Background tiles change
- One mobile entity nearby transforms (to another mobile entity)
- One mobile entity *added*
- Text file with description
- Must create / find bmps
- Present

Project 5 - Group Work

Breakout rooms

Mobile Entity

1) For your new / edited mobile entities, which class will you have them extend?

2) For your new / edited mobile entities, how many / which functions will you need to add in their class?

3) Where will you add their create method?

Images

1) You will have to have new images (bmp files)...which file should you write the name of these images in?

2) Which method will help you change the background tiles?

3) Which method will grab the list of images for each entity?

4) Open the imagelist...what do you think each column represents?

Color Wheel

1) get images,
   add to images folder

2) imagelist

3) instantiate
   zombie,
   use images
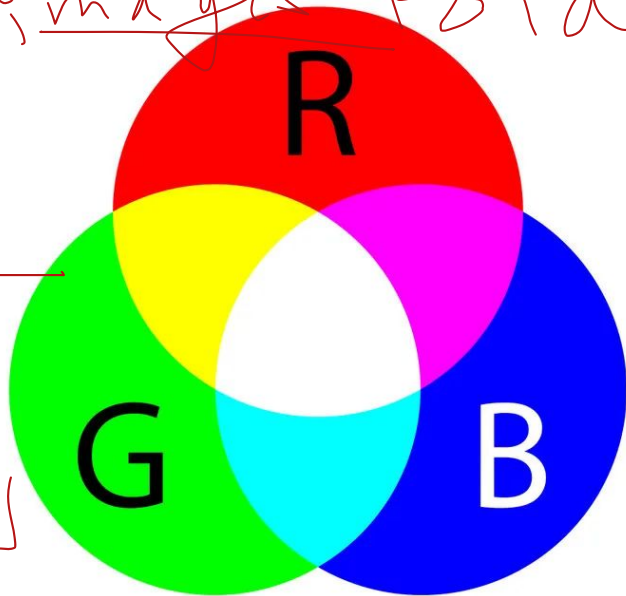
Project 5 Homework

Who are you working with / brainstorm.

Assignments

Final Quiz:

- Wed week 10

Lab 8:

- Due Mon Week 10

Project 4:

- Today 110% option
- Monday 100% option
- **Fill out survey tonight**

Project 5:

- Brainstorm / partner list checkpoint - submit tonight