

CPSC 231 Tutorial #4

<https://goo.gl/RU5R78>

Reminders

TOMORROW

Assignment 1 Paired Component Due
Bonus Question 1 Due

NEXT TUESDAY

Quiz #3

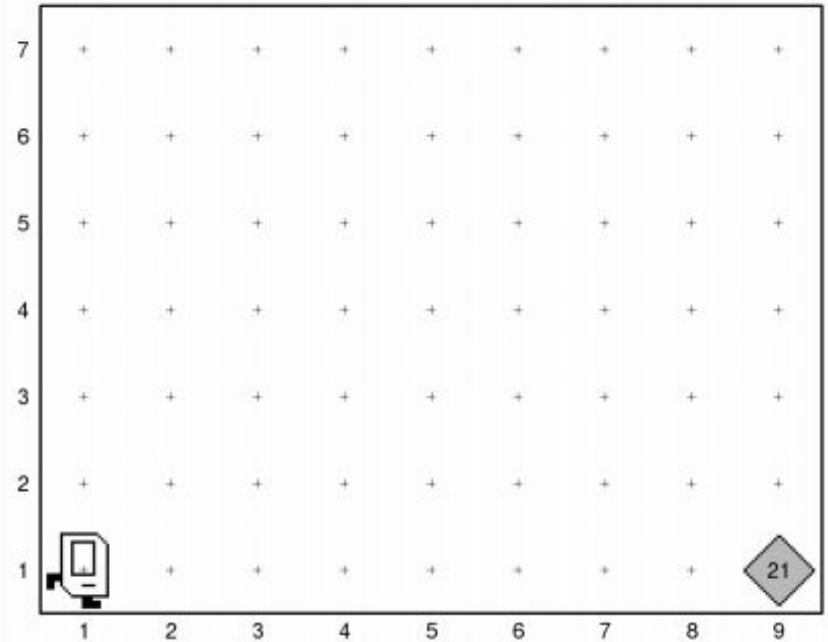
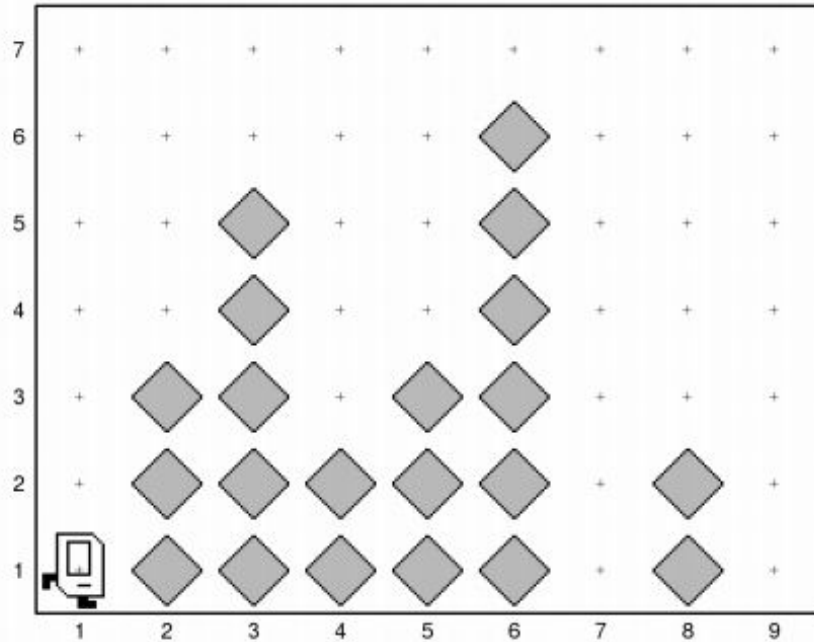
Reminders

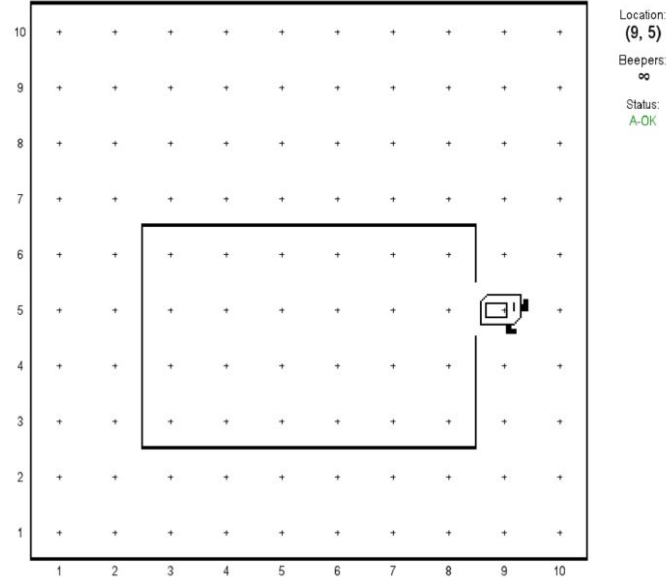
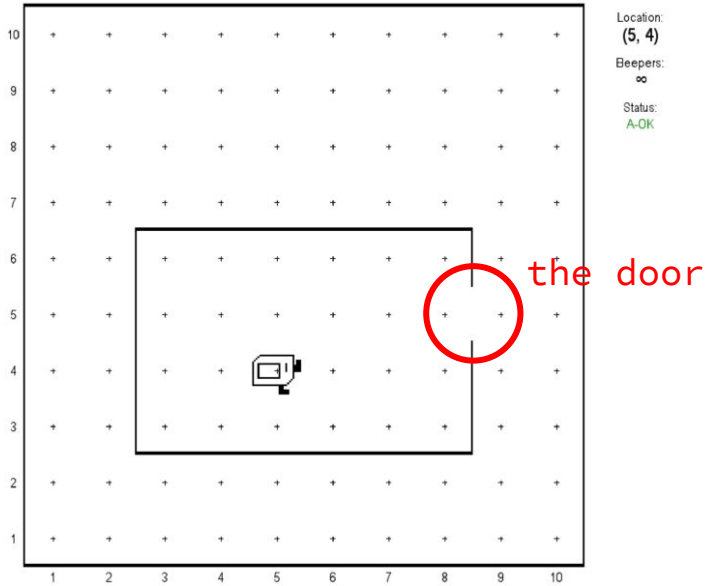
- Get a CS account
- Join Piazza
- Bookmark the course website
- Check out [Microsoft Imagine](#)
- Bonus questions give you bonus marks!

Last time...

- Stepwise Refinement/Top-down Design
 - Beeper Tower Example
- Bonus Question 1 (Escape Room Karel)

ex-towers-9x7.w





GOAL

Have Karel find the open door and stop just outside of it

ASSUMPTIONS

- Karel starts **anywhere inside** the room, facing **any** direction.
- The room is a **rectangle** of any dimension (smallest is 1x1)
- The door can be **anywhere**, and there is only **one** door.

Debugging tips

— — —

`print("your debug message here")`

- Sends a text output to the Terminal/Command Prompt
- Useful for keeping track of things

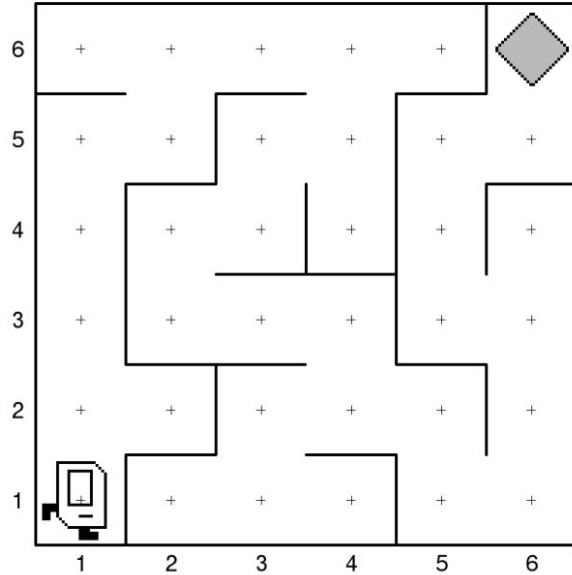
`preconditions / postconditions`

- infinite loops

`error messages`

- syntax
- indentation

Karel Solves a Maze



GOAL

Karel needs to find the exit, marked with a single beeper.

ASSUMPTION

Karel starts facing East at (1,1)

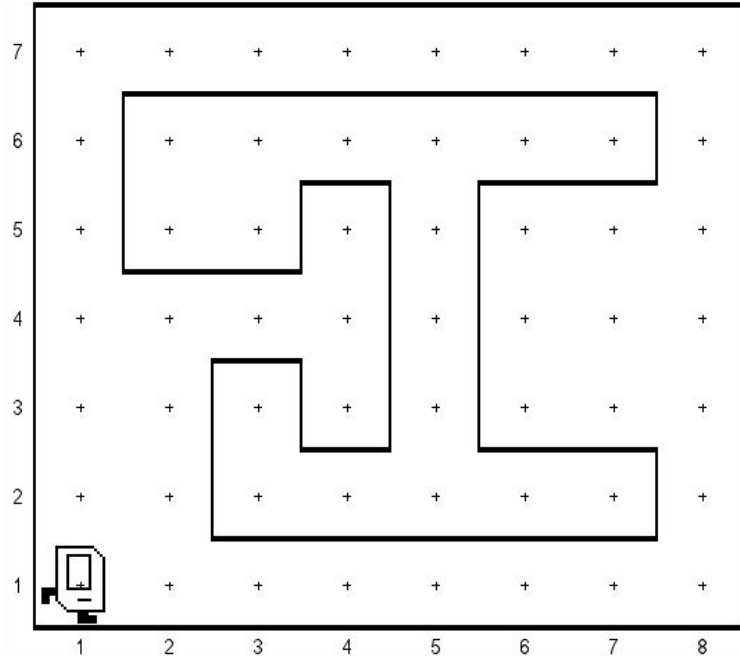
The Keep-Right Algorithm

Keep-Right

1. Make sure the wall is on Karel's right side
e.g. In case Karel moves forward and the path opens to his right, turn right immediately
2. If the front is blocked, turn left until the front is clear.
3. Move forward

Bonus Problem #2: Carpet-Laying Karel

[carpet-room-1.w](#)



Location:

(1, 1)

Beepers:

∞

Status:

A-OK

GOAL

Place a **single beeper** on **every** accessible tile

ASSUMPTIONS

- Karel starts at **any** location, facing **any** direction
- There are **no** beepers in the world on startup
- Karel has **infinite** beepers