Introductory Activities with Karel the Robot

Using the Stanford Online Python Karel World

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Activity 1: Meet Karel

Objective: Get familiar with Karel's world and basic commands.

- Navigate to Karel The Robot
- Read Chapter 1 and Chapter 2
- Do you have any questions? Ask me.

Activity 1: Meet Karel

- At this point you should be getting a general idea of how to use the Commands: `move()`, `turn_left()`, `pick_beeper()`, `put_beeper()`

Activity 2: Writing Your First Program

Objective: Practice program structure and comments.

- Navigate to Chapter 11: Code
- You will see an editable code block with some choices for the "world" of karel. For now, keep the default 8x8 world.
- Attempt to Navigate Karel through a grid, pick up a beeper, place it elsewhere. [hint: see next couple of pages for some simple code ideas]
- Observe how Karel interacts with walls and beepers.

Activity 2: Writing Your First Program

- Observe what happens with the code below

```
# simple movement
from karel.stanfordkarel import *
def main():
    move()
    move()
    turn_left()
    move()
```

Activity 2: Writing Your First Program

- Observe what happens with the code below

```
# simple movement
from karel.stanfordkarel import *
def main():
    move()
    move()
    turn_left()
    turn_left()
    turn_left()
    move()
```

Activity 2: Writing Your First Program

- Now observe what happens with the code below

```
# simple movement
from karel.stanfordkarel import *
def main():
    move()
    move()
    turn_left()
    move()
    move()
    put_beeper()
    move()
    move()
    move()
    move()
```

Loops

Objective: A first intro to the notion of loop

- We have several repeated statements in our last version of the code. Can we make the code look more efficient?
- Now observe what happens with the code below
- feel free to change the number within the range() to see what effect it has

```
# simple movement
from karel.stanfordkarel import *
def main():
    for i in range(4):
        move()
```

Loops

- Now try this code and then feel free to play around with the ranges of the loops

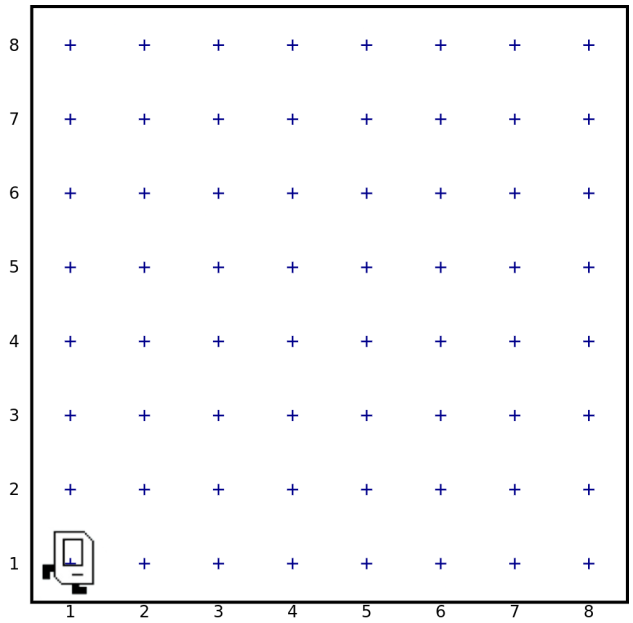
```
# simple movement
from karel.stanfordkarel import *
def main():
    for i in range(4):
        move()
    turn_left()
    for i in range(4):
        move()
    turn_left()
    for i in range(4):
        move()
    turn_left()
    for i in range(4):
        move()
```

Loops

- Clearly loops are a very nice way to avoid repeated commands.
- Any questions?

Activity 2: Writing Your First Program

Objective: Write code to go from the initial picture to the final picture shown below:



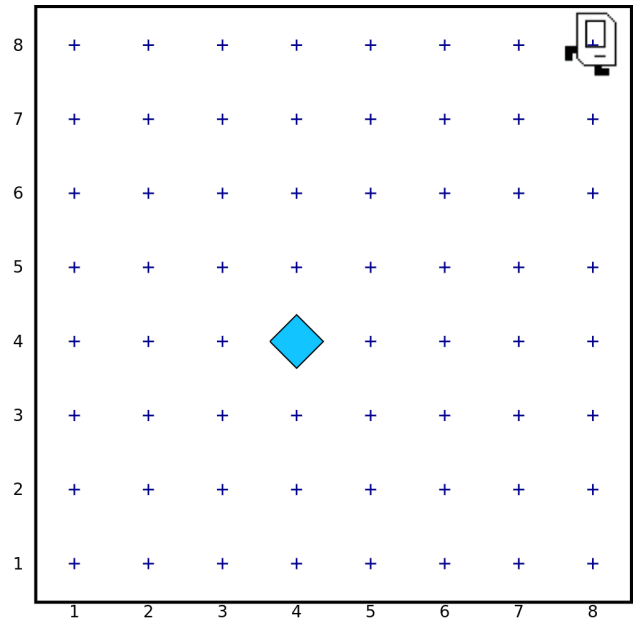


Figure: Initial (left) and final (right) positions

Activity 2: Writing Your First Program

Solution: See next page. But please first attempt to write the code by yourself.

Activity 2: Writing Your First Program

Objective: Practice program

```
# Excercise 1
from karel.stanfordkarel import *
def main():
    for i in range(3):
        move()
    turn_left()
    for i in range(3):
        move()
    put_beeper()
    for i in range(4):
        move()
    for i in range(3):
        turn_left()
    for i in range(4):
        move()
```