Discussion 14: Final Review

Binary

1. YouTube now uses 64 instead of 32 bits to count views. How many more is that? ______

Drawing/Movement in Snap

Question 1: Mr. Robot 2

We tried to rewrite our midterm maze script to visit all the letters A-H in the maze. Here are our four attempts, let us know the letters they each visit.

<table>
<thead>
<tr>
<th>move forward</th>
<th>rotate left</th>
<th>rotate right</th>
<th>turn around</th>
<th>can move left?</th>
<th>can move forward?</th>
<th>can move right?</th>
<th>dead end</th>
</tr>
</thead>
<tbody>
<tr>
<td>The robot moves INPUT squares forward in the direction it’s facing.</td>
<td>The robot turns, in-place. left = counterclockwise, right = clockwise, around = u-turn</td>
<td>Reports true if the robot has a free square to its {left, front, right}; otherwise reports false. The last one reports true if can’t move left, forward and right.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Question 2: Magical Mystery Tour

Consider the following two blocks and setup code:
a. Now, given that the sprite starts out in the bottom left corner facing right, and that the pen is in the middle of the sprite, shade in the pixels that will be colored after calls to Mystery with levels set to 1 and levels set to 3. You may use the top left grid for scratch work. Levels = 0 has been given to you.

b. Runtime

Recursion

Question 1: Ready, Set, Go!
In this problem, we have created three different blocks to see if a given list is a set, that is, it has no duplicates. For each of the blocks below, select one of the following answer choices:
a. For this subpart, note that the or and and blocks don't even look at their right input if the left one is true or false, respectively. For example,

![Diagram of logic gates]

b.  

```
set? data:
if empty? (data)
  report true
else
  if all but first of data contains item 1 of data
    report false
  else
    report true
report set? all but first of data
```

```
O A
O B
O C
O D
O F
O G
O H
```

c.  

```
set? data:
for each A of data
  for each B of data
    if A = B
      report true
  report false
```

```
O A
O B
O C
O D
O F
O G
O H
```
Question 2: Constructing the set block

How could we construct the set block using the following occurrences of block? Note that you may only choose one option from each section A-C.