More Shortest Path

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Opening Discussion

- Nicholas Cage in Next.

- Minute Essays
    - Do we have to check ALL paths?
    - Can recursive methods ever get long?
    - What if two paths are a tie for shortest?
    - So is the mouse running all the paths or is the computer "mentally" going through them?
    - When checking a path with multiple ways, does it test them all before moving on?
    - Benefits of recursion over loops.

Coding Shortest Path

- Last time we came up with a plan for a recursive algorithm that will find shortest path.
  - Base cases of at end, in walls, or out of bounds.
  - Recursive cases check up, down, left, and right. Add one to minimum of those.
  - Bread crumbs
  - We are using a 2-D array to help make things easier.
- Now we need to code it.

Making the Mouse Move

- We wrote shortest path so that we could use it to make our mouse move.

- Our method doesn't give us back a path. It only tells us the length of the shortest path. Getting paths is harder, but we don't need it.

- How can we move the mouse with what we have?

Optimizing Shortest Path

- One problem with our current method is that it really checks ALL paths. When the maze has large open spaces there can be huge numbers of paths.

- We can make this more efficient by making our bread crumbs just a bit smarter.

Minute Essay

- Can you think of problems where the only way to know if you have the right answer is to check all possibilities?

- Do you have any questions about other things?

- Enjoy your long weekend.