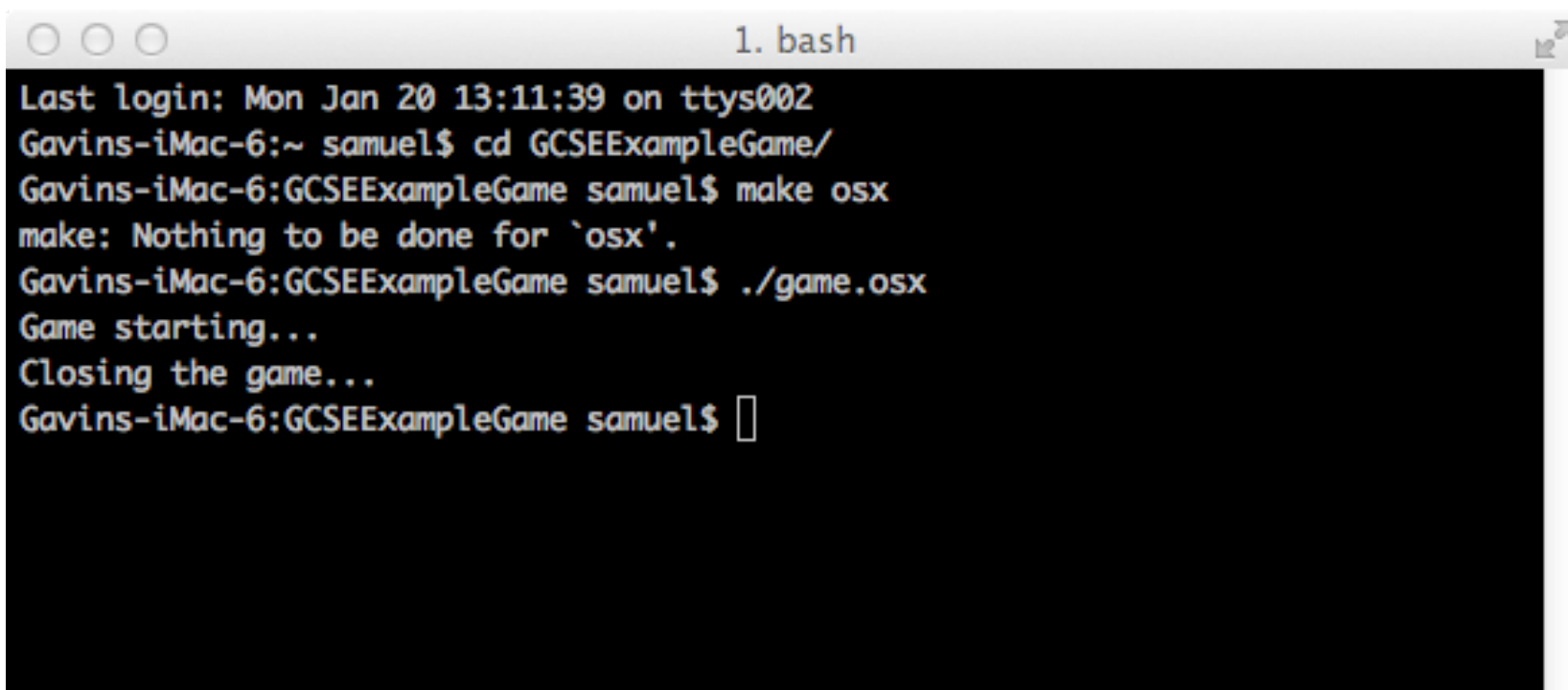


GCSE-Computing Project

Maze Game

How to test the program

To see the program for yourself, type 'make pi' into the console if you are on a computer which is not a Mac, or 'make osx' if you are on a Mac. Then type './game.pi' if you're not on a Mac, and './game.osx' if you are.

A screenshot of a terminal window titled '1. bash'. The window shows the following text: 'Last login: Mon Jan 20 13:11:39 on ttys002', 'Gavins-iMac-6:~ samuel\$ cd GCSEExampleGame/', 'Gavins-iMac-6:GCSEExampleGame samuel\$ make osx', 'make: Nothing to be done for `osx`.', 'Gavins-iMac-6:GCSEExampleGame samuel\$./game.osx', 'Game starting...', 'Closing the game...', and 'Gavins-iMac-6:GCSEExampleGame samuel\$' followed by a cursor. The terminal has a standard macOS window title bar with three buttons (red, yellow, green) on the left and a close button on the right.

```
1. bash
Last login: Mon Jan 20 13:11:39 on ttys002
Gavins-iMac-6:~ samuel$ cd GCSEExampleGame/
Gavins-iMac-6:GCSEExampleGame samuel$ make osx
make: Nothing to be done for `osx`.
Gavins-iMac-6:GCSEExampleGame samuel$ ./game.osx
Game starting...
Closing the game...
Gavins-iMac-6:GCSEExampleGame samuel$
```

← Like this!

Analysis

Create a maze game that has the following features:

- A character that rotates in the direction it's moving, and teleports back to the start if it touches any wall.
- Scores and a scoreboard
- A victory condition (Touching the checkered flag)

Analysis Part 2

We will also add these features:

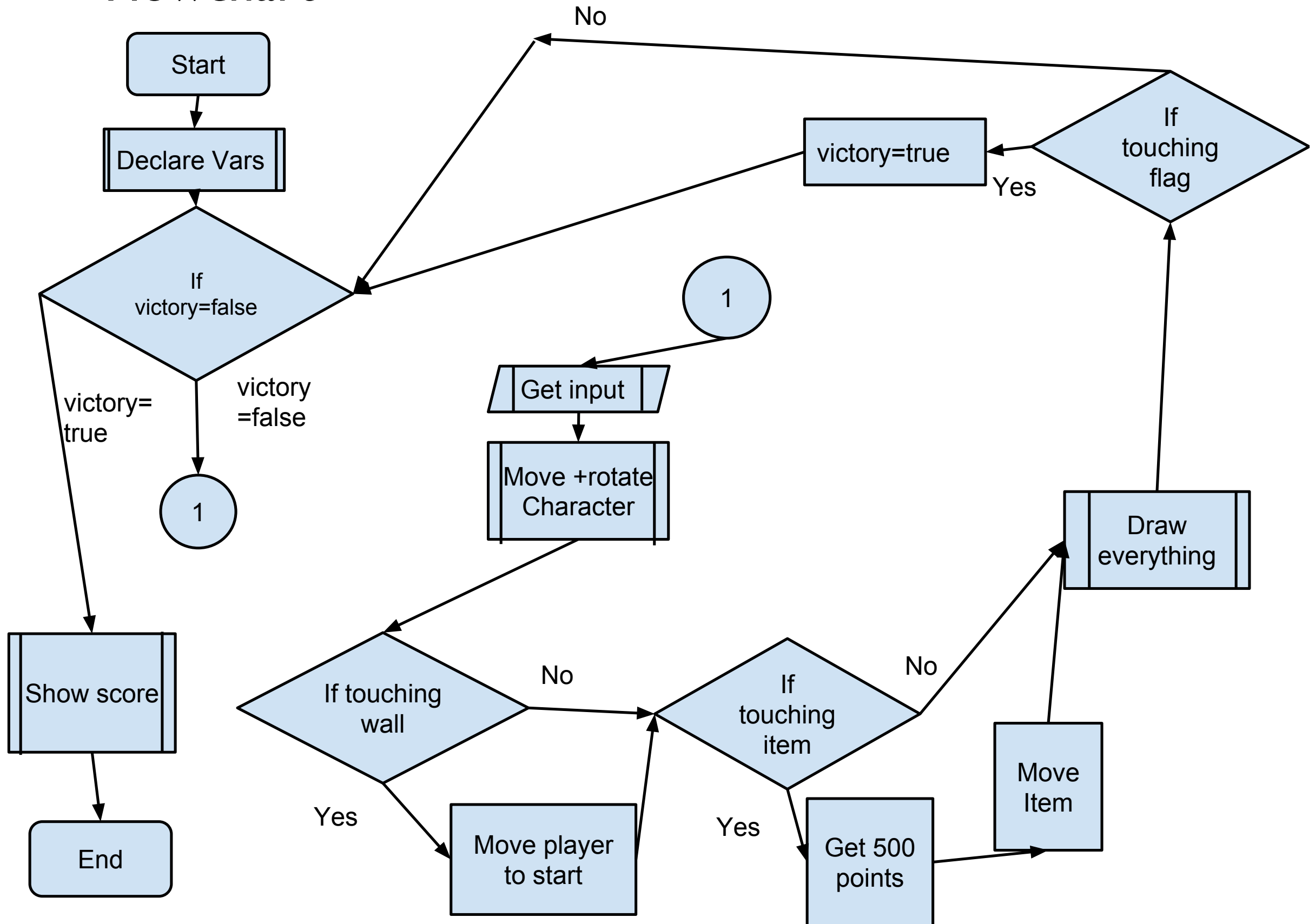
- Walls that are initialized from a text file
- An area around the maze that tells you your score
- Cherries (An item that gives you more points)

Pseudocode

- 1.Input keys
- 2.Rotate character accordingly
- 3.Move character accordingly
- 4.If colliding with wall, move to start
- 5.If colliding with item, get 500 points & move item
- 6.Draw everything
7. If colliding with flags, victory=true
8. If victory=true, show scores and close game

In the game.c file, there will be comments that show you where these events occur.

Flowchart



```
graph TD
    subgraph Init [Initialization]
        A[Declare Vars] --> B[Declare Img Holders]
        B --> C[Declare Numbers]
        C --> D[Declare Walls]
        D --> E[Load Imgs]
        E --> F[ ]
    end

    subgraph Input [Input Handling]
        F --> G[Get Input]
        G --> H{If quitting}
        H -- Y --> I[Quit]
        H -- N --> J[Next...]
        J --> K[ ]
    end

    subgraph Movement [Movement and Rotation]
        K --> L[Move+rotate Character]
        L --> M{If pressing left}
        M --> N[Rotate left]
        N --> O[Move left]
        O --> P{If pressing right}
        P --> Q[Move right]
        Q --> R[Rotate right]
        R --> S{If pressing down}
        S --> T[Move down]
        T --> U[Rotate down]
        U --> V{If pressing up}
        V --> W[Move up]
        W --> X[Rotate up]
        X --> Y[Next...]
        S --> Y
        P --> Y
    end

    subgraph Drawing [Drawing]
        Y --> Z[Draw Everything]
        Z --> AA[Draw Background]
        AA --> AB[Draw Player]
        AB --> AC[Draw Item]
        AC --> AD[Draw flag]
        AD --> AE[Draw walls]
        AE --> AF[Draw score etc.]
        AF --> AG[Apply all draws to screen]
        AG --> AH[ ]
    end

    subgraph Scoring [Scoring/End Game]
        AH --> AI[Show score]
        AI --> AJ[Draw Background]
        AJ --> AK[Draw Score etc.]
        AK --> AL[Wait 3 secs]
        AL --> AM[Draw Background]
        AM --> AN[Get hi-scores]
        AN --> AO[Draw hi-scores]
        AO --> AP[Wait 3 secs]
        AP --> AQ[Stop!]
    end
```

Development and testing

Things to test:

Does the character rotate?

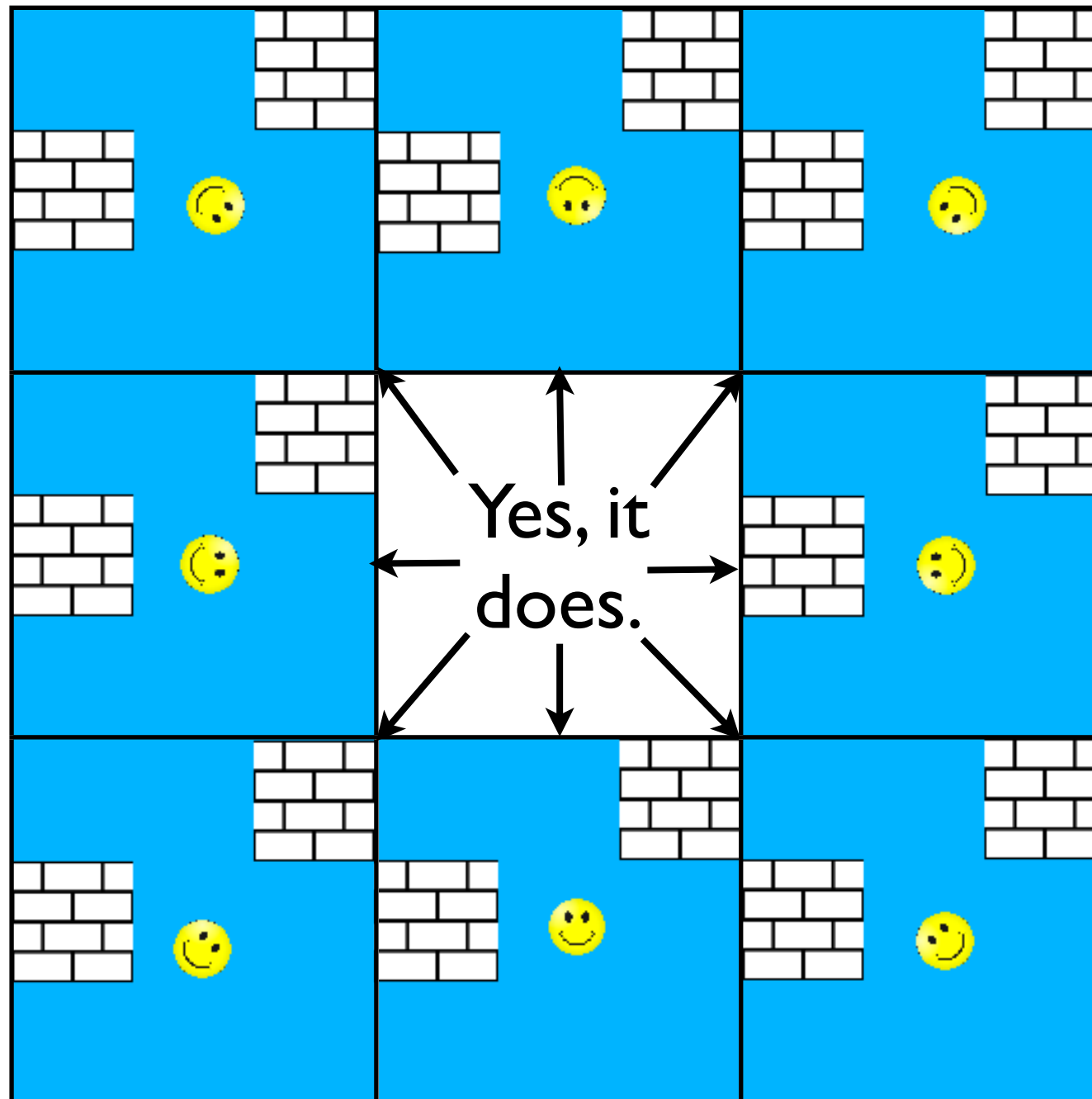
Can you finish?

Does the hi-score table work?

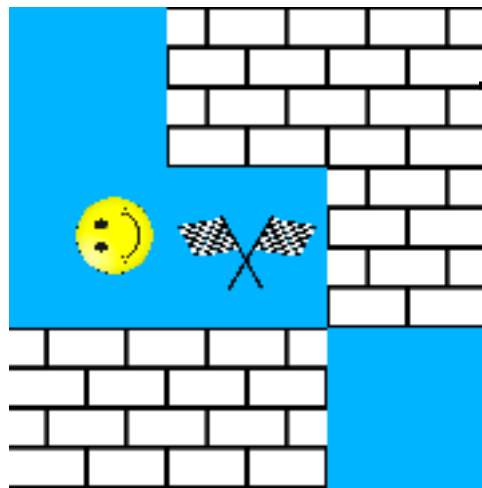
Do walls send you back to the start?

Evidence

Does the character rotate?



Evidence
Can you finish?

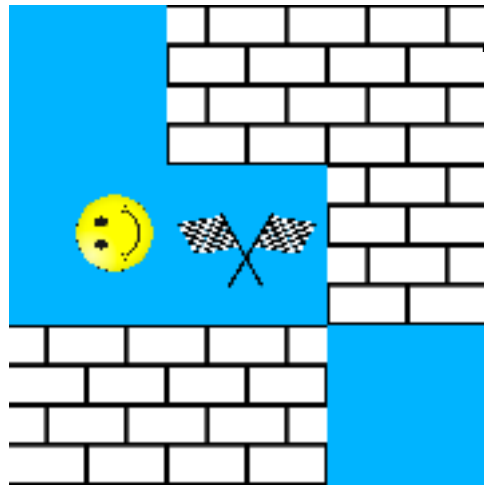


Yes, you can.



Evidence

Does the hi-score table work?

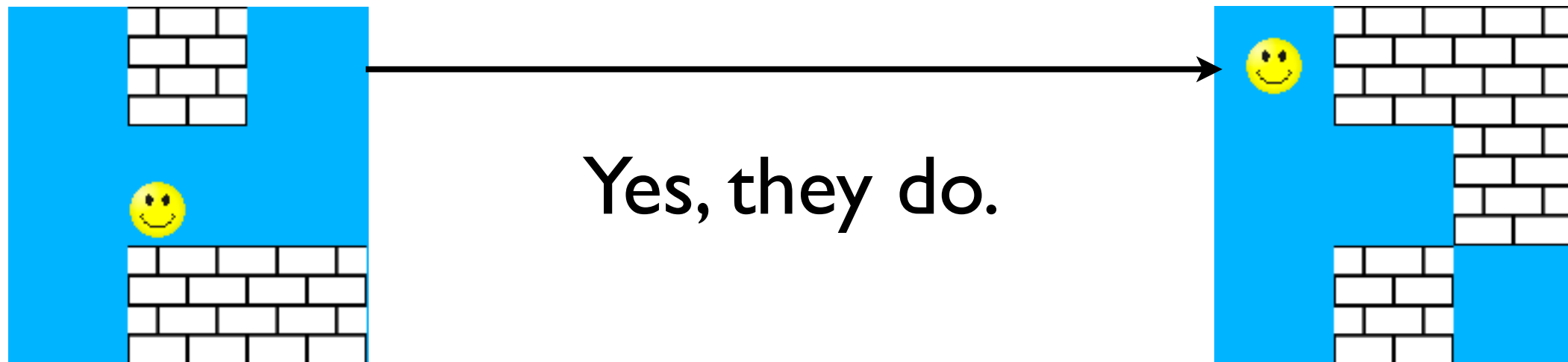


It does.



Evidence

Do walls send you back to the start?



Evaluation

I enjoyed this task.
It was quite easy, and very rewarding.