Introduction to programming and simulation

Computers accomplish complex tasks by following simple instructions contained in a program. To help you to understand how programs work, you will try to guide a robot mouse to a piece of electronic cheese using only these six simple instructions:

Movement instructions	**Control instructions**
step forward	:label
turn left	goto *label*
turn right	if obstacle goto *label*

For example, this simple program directs the robot mouse to walk forward in a straight line.

:straightline	***:straightline*** is a label. Labels are remembered as placeholders.
step forward	This command causes the robot to take a single step, and then stop.
goto straightline	***goto*** commands cause the program to continue from the specified label.

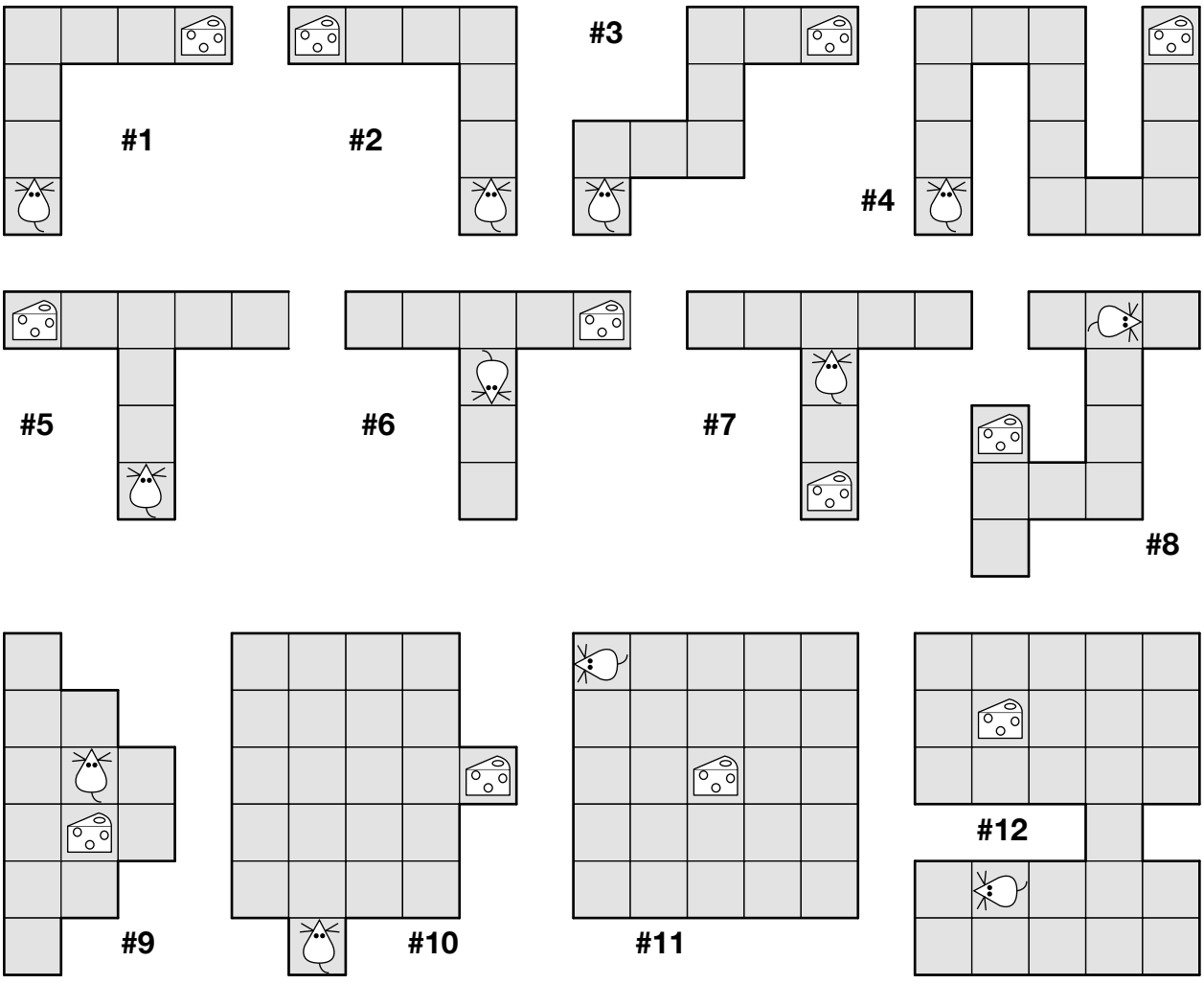
This program uses a conditional branch to avoid obstacles. Can it wander around a room?

```
:walk
if obstacle goto turn
step forward
goto walk

:turn
turn right
goto walk
```

Each of the labelled sections of this program is known as a sub-routine, or function, and accomplishes a particular task. Is it advisable to take a step without checking for obstacles?

The best programs successfully accomplish tasks under a variety of conditions, and using the fewest instructions. Write one single program that will navigate the most possible mazes.



Introduction to Programming - Program Sheet

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