

# Solutions to Quick Exercises

## 1 What is Programming?

### 1.1

The mouse moves:

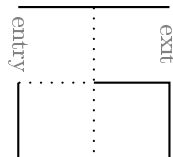
```
step forward;  
turn right;  
step forward;  
turn left;  
step forward;  
turn left;  
turn left;  
step forward;  
turn right;  
step forward;  
turn right;  
step forward;  
step forward;
```

### 1.2

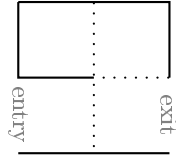
If there is no exit from the maze, then the algorithm causes the mouse to exit through the entry point.

### 1.3

Hugging the wall on the left would work better for this maze:



It works worse on this maze:



#### 1.4

The complete trip is:

Step forward.  
Turn right.  
Not facing a wall; move forward.  
Turn right.  
Facing a wall; turn left.  
Facing a wall; turn left.  
Facing a wall; turn left.  
Not facing a wall; move forward.  
Turn right.  
Facing a wall; turn left.  
Not facing a wall; move forward.  
Turn right.  
Not facing a wall; move forward.  
Turn right.  
Not facing a wall; move forward.  
Turn right.  
Facing a wall; turn left.  
Not facing a wall; move forward.  
Turn right.  
Facing a wall; turn left.  
Facing a wall; turn left.  
Not facing a wall; move forward.  
Turn right.  
Facing a wall; turn left.  
Facing a wall; turn left.  
Not facing a wall; move forward.  
Turn right.  
Not facing a wall; move forward.  
Turn right.  
Not facing a wall; move forward.

Turn right.  
Facing a wall; turn left.  
Facing a wall; turn left.  
Facing a wall; turn left.  
Not facing a wall; move forward.  
Turn right.  
Facing a wall; turn left.  
Facing a wall; turn left.  
Not facing a wall; move forward.  
Turn right.  
Not facing a wall; move forward.  
Turn right.  
Not facing a wall; move forward.  
Turn right.  
Facing a wall; turn left.  
Facing a wall; turn left.  
Not facing a wall; move forward.

## 1.5

The algorithm for hugging the wall on the left is:

```
step forward;
while (inside the maze?) {
    turn left;
    while (facing a wall?) {
        turn right;
    }
    step forward;
}
```

## 1.6

1. 1010101 in decimal is 85.
2. 1010110 in decimal is 86.
3. 1111111 in decimal is 127.

## 1.7

The ASCII code for “a” is “97”, for “z” is “122”, for “A” is “65”, for “Z” is “90”, for “0” is “48”, for “9” is “57”, and for “&” is “38”.