Algorithm (A-Star):

```
initial = pacman.location
positions = [initial]
while positions is not empty:
    current = argmin(cost, positions)
    positions.remove(current)
    if current == goal:
        SUCCESS
    for direction in [UP, LEFT, DOWN, RIGHT]:
        if current.valid_move(direction):
            new = current.move(direction)
            new.G = current.G + 1
            new.H = distance(new, goal)
            new.cost = new.G + new.H
            positions.add(new)
FAILURE
```