Simulation

The factory is considering to buy one of the following three palletizing robots:

Bumblebee1, Bumblebee2 and Bumblebee3.

These palletizing robots will move along a lane that consists of 100 tiles in length and 5 tiles in width as shown in Figure 1.

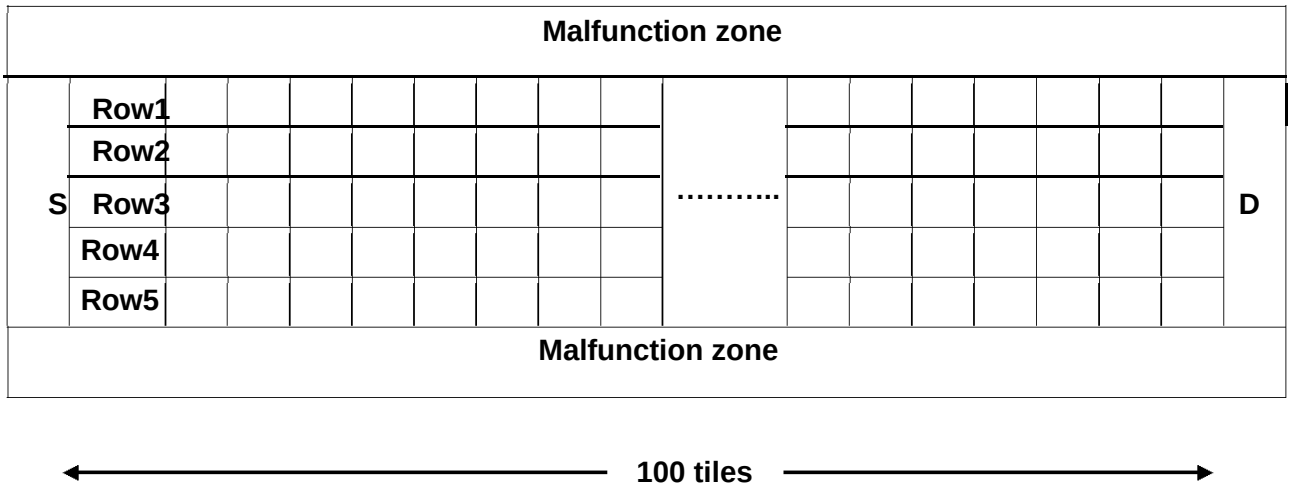

Figure 1 Transportation lane

The palletizing robots will travel from S to D, load some chocolates from D and then carry these chocolates back to S. This is named as a "round-trip". All three robots start from position Row3 when in S.
The robots have some problems with their guiding software and therefore they do not move in a straight line. You have analyzed these defects and you have found out that:

- **Bumblebee1 no matter where it is located it would move straight with an 80% probability, with a 10% probability up and with a 10% probability down.**

- **Bumblebee2 if it is in row3 it moves with a 50% probability straight, 25% probability up and 25% probability down. In any other row than row3, Bumblebee2 moves towards row3 with a 50% probability, straight with a 40% probability and 10% probability to the opposite direction with respect to row 3.**

- **Bumblebee3 if it is in row3 it moves with a 20% probability straight, 40% probability up and 40% probability down. Bumblebee3 if it is in row2 or row4 it moves in any direction with the same probability. Bumblebee3 if it is in row1 or row5 moves straight with a 30% probability, with a 60% probability towards**

row3 (that is to row2 if in row1 or to row4 if in row5) and with a 10% probability towards the other direction.

If the robot moves outside these 5 rows (row0 or row6) then it malfunctions.

Write a Python program that simulates these three robots moving in this lane for 1 million times (1 million “round-trips” for each robot) and decide which robot would have the least malfunctions.