Lab06

Code:

https://github.com/co012/Pedestrians/tree/improvements
Hint: Every commit corresponds to one improvement.

Improvements:

1. ### Random order of pedestrian's movement.

   Added every moveable field to ArrayList movablePointsArrayList, then before every iteration called Collections.shuffle on it.

2. ### Improve calculation method for static floor field.

   First we looking for every exit and adding it's position to exits list, then for every point on field staticField value is calculated by this formula:

   $$\forall_{p \in Points} : staticField(p) = \sum_{e \in exits} \frac{-1}{d(p,e) + \epsilon}$$

   Where d(p1,p2) is the euclidean distance between points p1 and p2.

3. ### Add repulsive force between pedestrans and walls.

   Now we look not only for exits, but for exits and walls, then we store found walls positions in walls list. Then we calculate staticField using slightly altered previous equation:

   $$\forall_{p \in Points} : staticField(p) = \sum_{e \in exits} \frac{-1}{d(p,e) + \epsilon} + \sum_{w \in walls} \frac{0.1}{d(p,w) + \epsilon}$$

   Where d(p1,p2) is the euclidean distance between points p1 and p2.

4. ### ?Define more than one exit.?

   You can place more than one exit but the choosing an exit is solely based on the static field.