Project 1: Simulation of the plane boarding strategies (simplified version)
(based on https://www.youtube.com/watch?v=oAHbLRjF0vo)

The project can be done in pairs or individually. The compressed **python code** of the project and the report should be sent to kmiazga@cs.put.poznan.pl until **midnight of 31.12**. The report should contain a brief description of the implementation and the results of the experiments (with a commentary).

- The passengers enter the plane through the entrance at the front of the plane.
- The corridor used by the passengers is made of patches and is one patch wide. There can be at most one passenger on any given patch at any time.
- Each passenger is assigned a specific seat number.
- Before taking a seat, each passenger spends a while stowing their bag (the stowing duration should be drawn from the normal distribution https://en.wikipedia.org/wiki/Normal_distribution)
- If the passenger's seat is blocked by other, already seated passengers, these passengers must leave their seats and move to the corridor, towards the end of the plane. We will call such a situation a seat shuffle. **In the simplified version of the problem, the seat shuffles do not need to be simulated directly. Instead, you can assume that in the case of a seat shuffle the time required for the bag stowing is increased by the approximated time required for a seat shuffle.**
- The passengers board the plane in ordered boarding groups. The order of entering the plane within the group is random.
- **The visualisation of the simulation is not required (it may, however, be helpful for testing purposes).**
- Examine the efficiency of a number of different boarding strategies:
    - Random order (just one group)
    - Back to front (each passenger is their own group)
    - Front to back (each passenger is their own group)
    - Back to front (four groups)
    - Front to back (four groups)
    - Window-middle-aisle (three groups)
    - Steffen Perfect
    - Steffen ``Modified''
- Create a plot comparing the probability distribution of boarding times for each of the considered strategies:
    - Perform at least 100 independent simulations for each of the boarding strategies.
    - Use different random seed for each of the simulations.
    - Compute the boarding time for each of the simulations and gather the results obtained for each strategy to their unique files.
    - You can present the results in the form of a histogram (https://en.wikipedia.org/wiki/Histogram)