Assignment 18 - Discrete events

1 Problem

Using the pseudocode of a discrete event simulator as a guideline, simulate a system with:

- a single machine,
- a single queue,
- customers arriving at: t= 0, 2, 4, 7, 8
- service times: 5, 1, 3, 3, 1.

2 Solution

We can use the pseudo-code in Figure 1 in order to resolve the problem proposed:

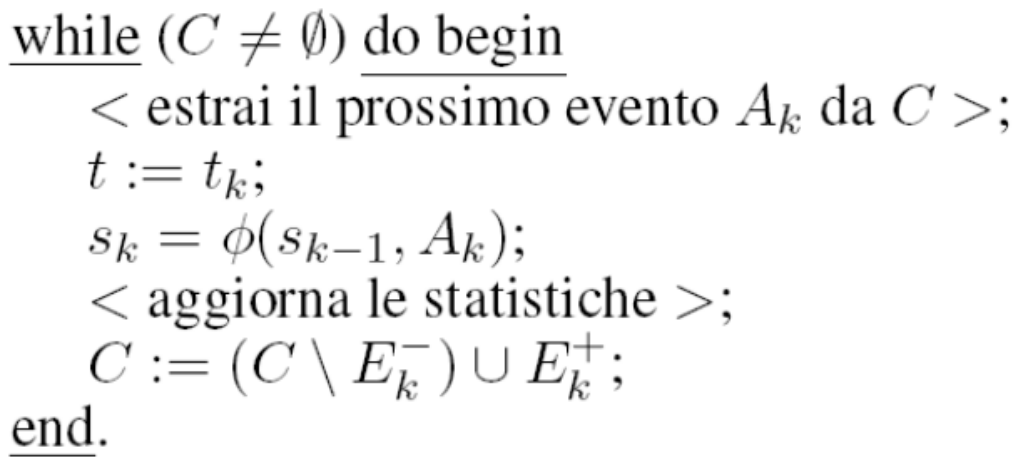

Figure 1: Pseudo-code of discrete events simulator

The step that we can find following the previous code are:

1. t=0. First client arrival. Server occupied. Number of client in system: 1.
2. t=2. Second client arrival. Server occupied. Number of client in system: 2.
3. t=4. Third client arrival. Server occupied. Number of client in system: 3.
4. t=5. First client departure Server occupied. Number of client in system: 2.
5. t=6. Second client departure. Server occupied. Number of client in system: 1.
6. t=7. Fourth client arrival. Server occupied. Number of client in system: 2.
7. t=8. Fifth client arrival. Server occupied. Number of client in system: 3.
8. t=9. Third client departure. Server occupied. Number of client in system: 2.
9. t=12. Fourth client departure. Server occupied. Number of client in system: 1.
10. t=13. Fifth client arrival. Server free. Number of client in system: 0.

In conclusion the resolution of the problem can be seen in figure 2.

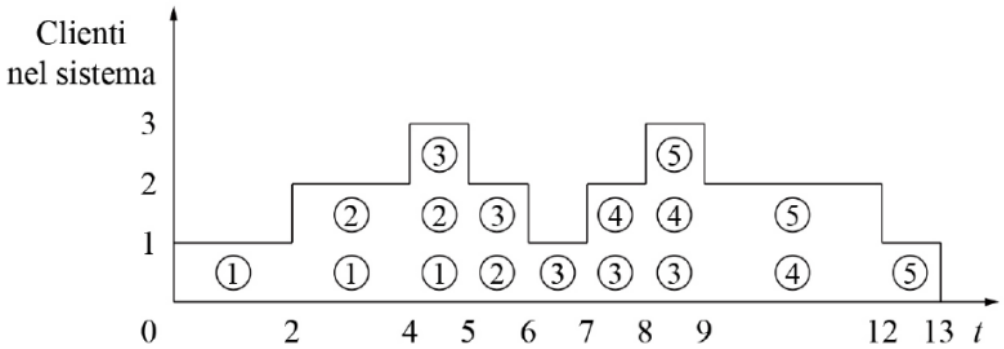

Figure 2: Solution of the problem