Project 3 – The merry-go-round

A merry-go-round (MRG) has N seats, and children occupying a seat pay one coin for a ride. A ride takes T units of time, during which the MRG does not take anyone else on board. Children arrive and queue up at the MRG with some interarrival times (see later), and the owner may decide to run a ride even when the MRG is not full. Children may drop out of a queue with an increasing probability after a threshold time Q.
Evaluate at least the earnings per unit of time of the MRG owner depending on the threshold he/she chooses to start a ride on the MRG and the threshold Q.

More in detail, at least the following scenarios must be evaluated:

- Exponential distribution of the interarrival times.
- Burst arrivals: interarrival times are still exponential, but the number of children in one arrival is geometrically distributed.

In all cases, it is up to the team to calibrate the scenarios so that meaningful results are obtained.

Project deliverables:

a) Documentation (according to the standards set during the lectures)
b) Simulator code
c) Presentation (up to 10 slides maximum)