Laboratory 7 MS

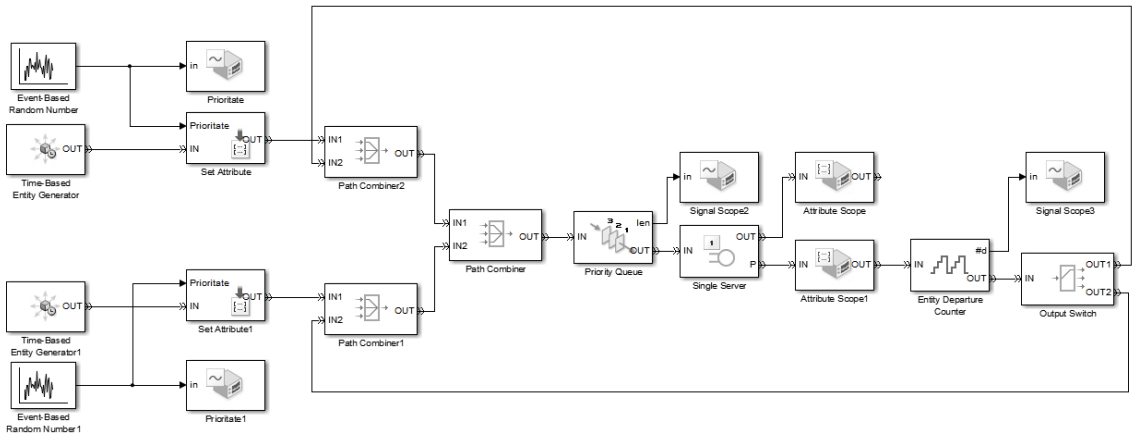
Problem 1:

1. Fie un sistem de operare de timp real care trebuie să planifice la execuție două tipuri de taskuri ce vor fi executate la intervale egale. Taskurile de primul tip sunt generate la intervale de 2s, cele de tipul doi la intervale de 5s. Taskurile vor fi generate de două blocuri Entity Generation. Durata de deservire a taskurilor de primul tip este de 1s, a celor de tipul doi este 2.5s. Se va simula modelul în următoarele cazuri:

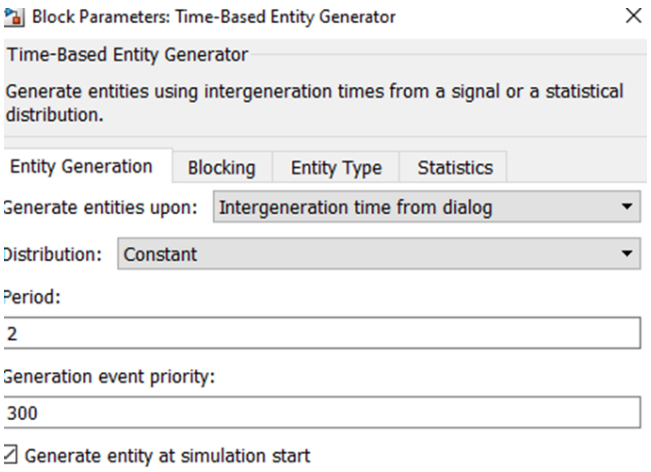
- Ambele tipuri de taskuri au aceeași prioritate
- Taskurile de primul tip au prioritate mai mare
- Taskurile de tipul doi au prioritate mai mare.

Modelul se va simula pe o durată de 50s. Unitatea de timp este secunda. Se va considera cazul când entitatea preluată reintră în server cu timpul de deservire rezidual.
Entitățile vor avea următoarele atribute: prioritatea, timpul de deservire și tipul taskului.
Se vor înregistra: prioritatea entităților generate, lungimea cozii, timpul de deservire rezidual, numărul de entități preluate și numărul de entități deservite pentru fiecare tip de task. Se vor explica rezultatele.

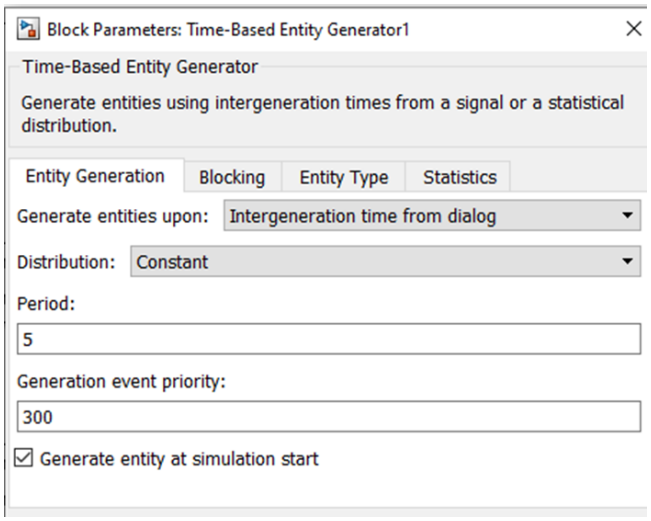
We designed the following schema:



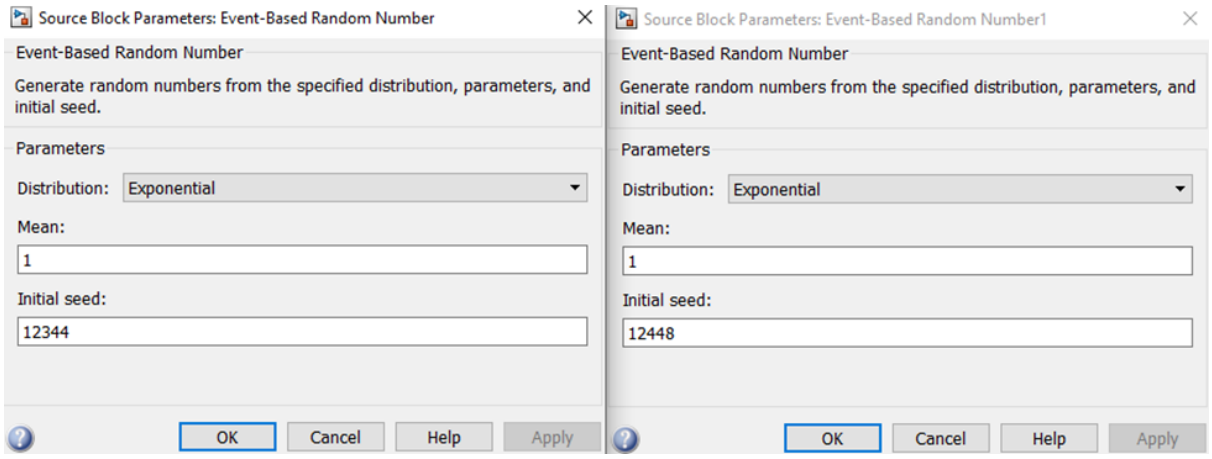
First entity generator that produces entities of type 1 every two seconds:



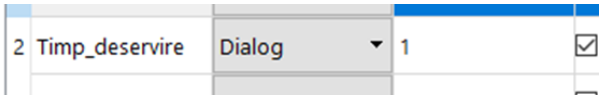
Second entity generator (5 seconds):



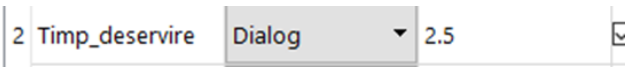
The priority is decided in a random number generator



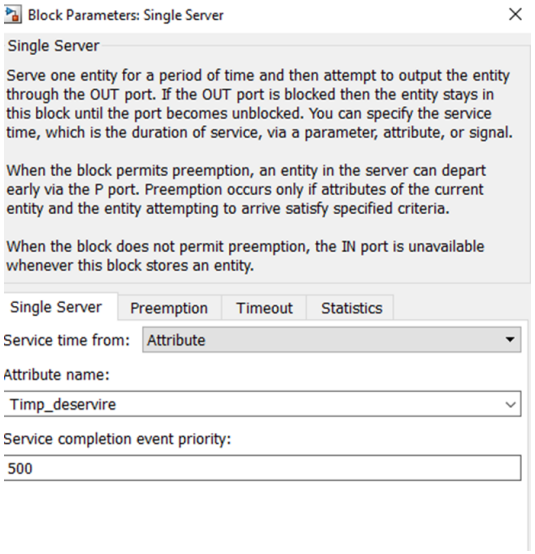
Serving time for the first task:



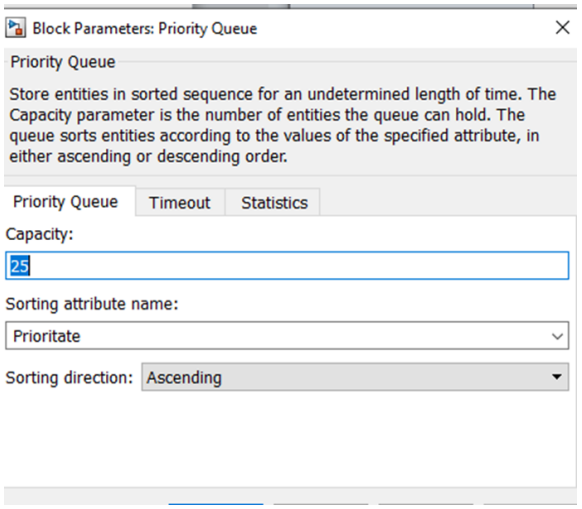
Serving time for the second task:



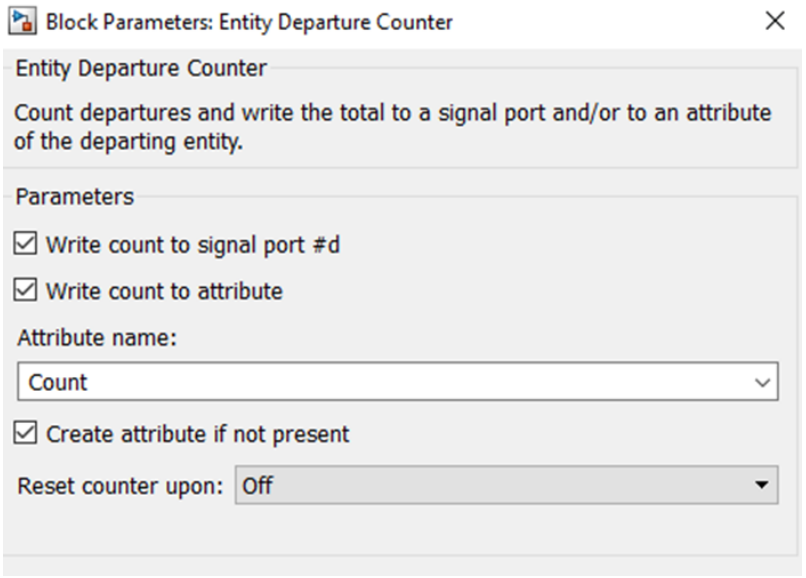
The server settings:



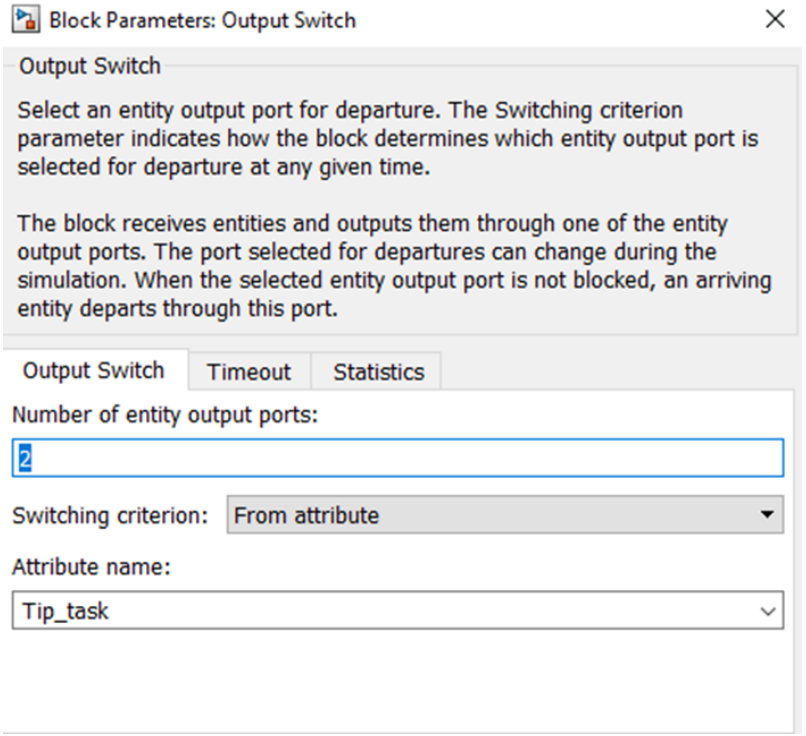
The priority queue:



The entity departure counter:

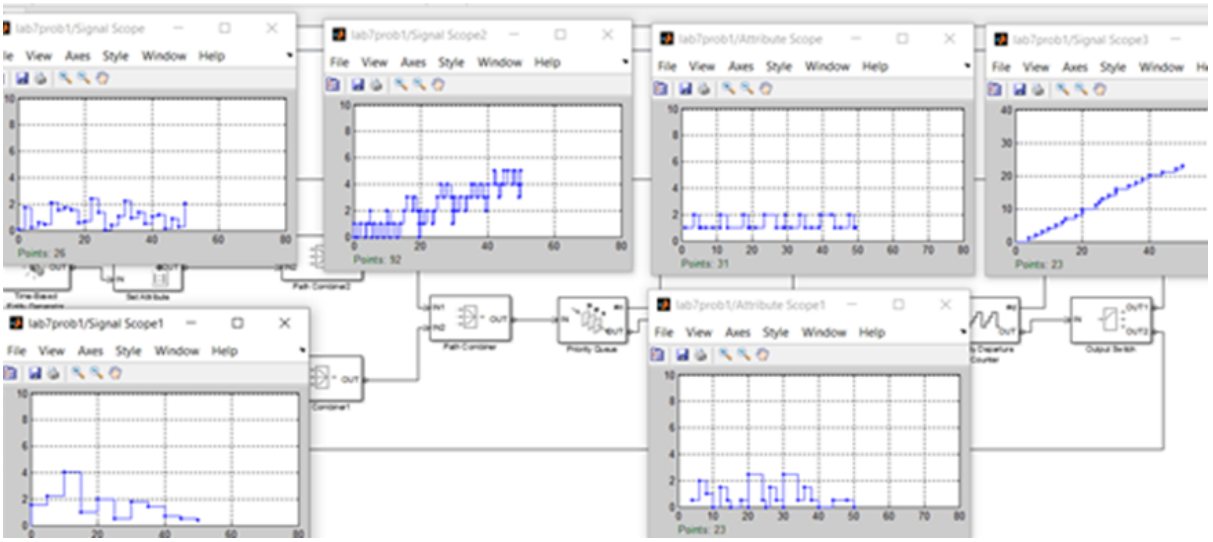


The output switch depending on the task:

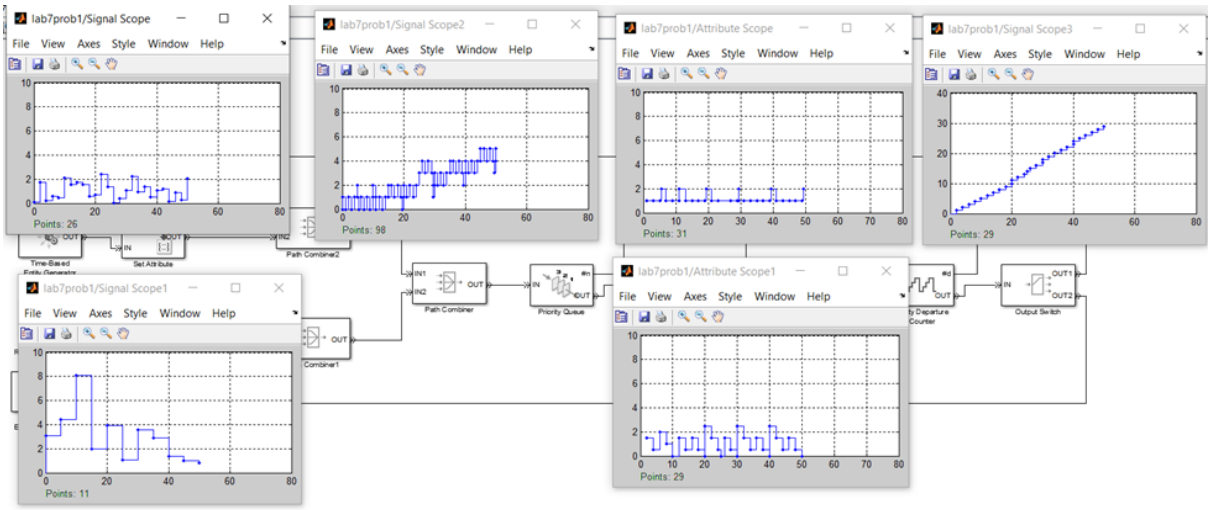


We got the following results:

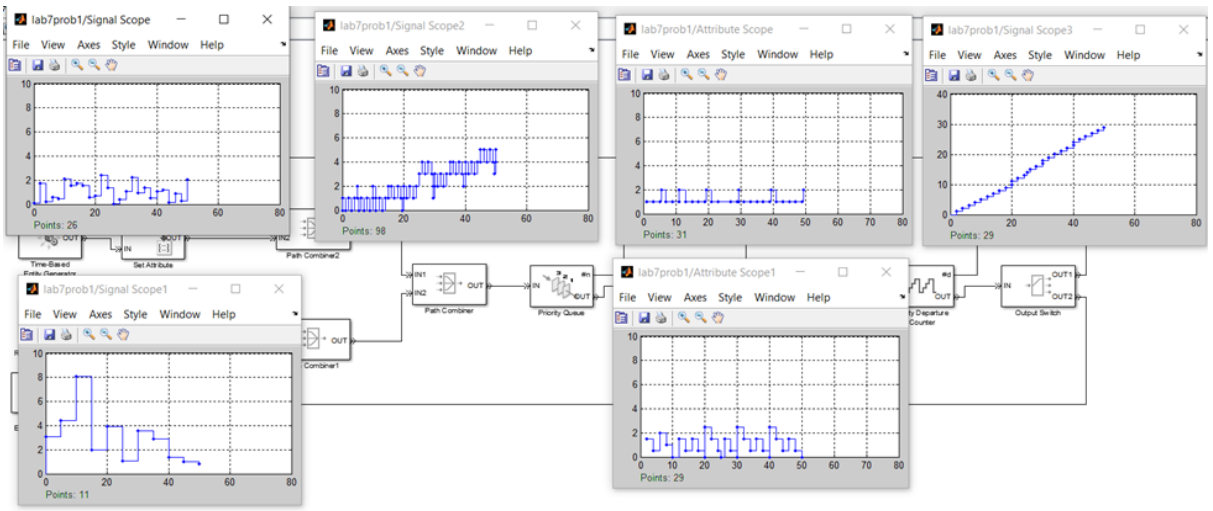
Equal priority



First task with higher priority:



Second task with higher priority:


lab7prob1/Signal Scope
File View Axes Style Window Help
Points: 26
lab7prob1/Signal Scope2
File View Axes Style Window Help
Points: 98
lab7prob1/Attribute Scope
File View Axes Style Window Help
Points: 31
lab7prob1/Signal Scope3
File View Axes Style Window Help
Points: 29
lab7prob1/Signal Scope1
File View Axes Style Window Help
Points: 11
lab7prob1/Attribute Scope1
File View Axes Style Window Help
Points: 29
Time-Based
Set Attribute
Path Combiner2
Path Combiner
Priority Queue
Combiner1
Departure
Counter
Output Switch