This folder contains the PRISM model described in Section IV.A of the the paper

"Equivalence Classes in Performance Evaluation Programming"

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- PRISM is a widely used probabilitic model checking tool

`www.prismmodelchecker.org`

- This file describes two experiments corresponding to the PRISM model presented in Section IV.A of the paper. The experiments are based on
  - The PRISM model contained in file `epollingsystem-1.prism`
  - The PRISM properties contained in file `epollingsystem-1.props`

- In the experiments presented below `vs2`, `vs` and `va` are the PRISM counterparts of $\mathcal{L}_{PEP}$ variables v_{s2}, v_s and v_a, respectively, and `serve1` is the PRISM counterpart of the action name a_{serve1}, from the $\mathcal{L}_{PEP}$ example program presented in Section III.A (further explanations regarding the meaning of PRISM variable names employed below are provided in the paper). Section IV.A of the paper considers a partitioning scheme based on abstracting from the order of elements stored in variable `wfile`.
  - The experiments presented below were performed using the following options (available from the PRISM GUI): "linear equations method" = Gauss-Seidel (Jacobi, the default method, does not converge for some experiments), and "Termination max. iterations" = 100000 (the default limit is 10000).

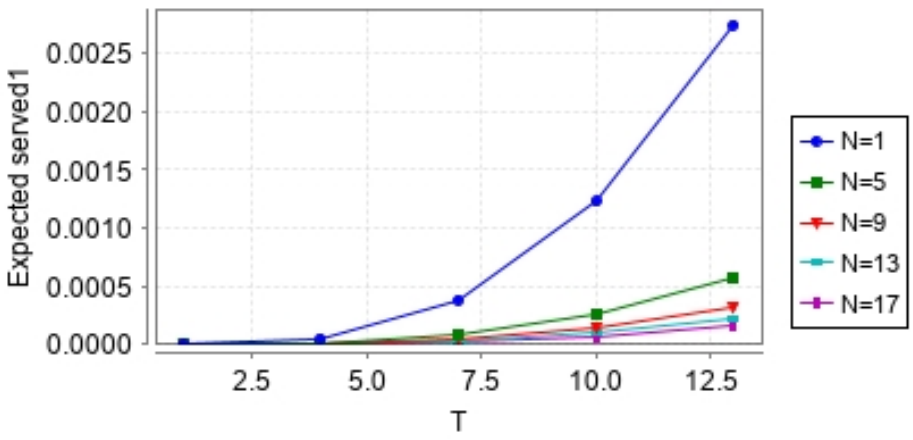

Figure 1: Expected number of times station 1 is served

- The experiments presented below are based on the the PRISM model presented in Section IV.A of the paper. The PRISM model is contained in file `epollingsystem-1.prism`. To run the PRISM experiments presented below you can use the PRISM properties contained in file `epollingsystem-1.props`.
- To compute the expected number of times station 1 is served we define a rewards structure "served1"

```
rewards "served1"
  [serve1] true : 1;
endrewards
```

We can compute the expected reward (number of times station 1 is served) accumulated by time T as follows:

```
R{"served1"}=?[C<=T]
```

In the experiment given in Figure 1, we fix the value of `sched` to 50, `N` ranges from 1 to 20 with step 4, and `T` ranges from 1 to 15 with step 3.

To obtain the result plotted in Figure 1, you should select `T` for the `x` axis ("Select x axis constant" $\Rightarrow$ `T`).

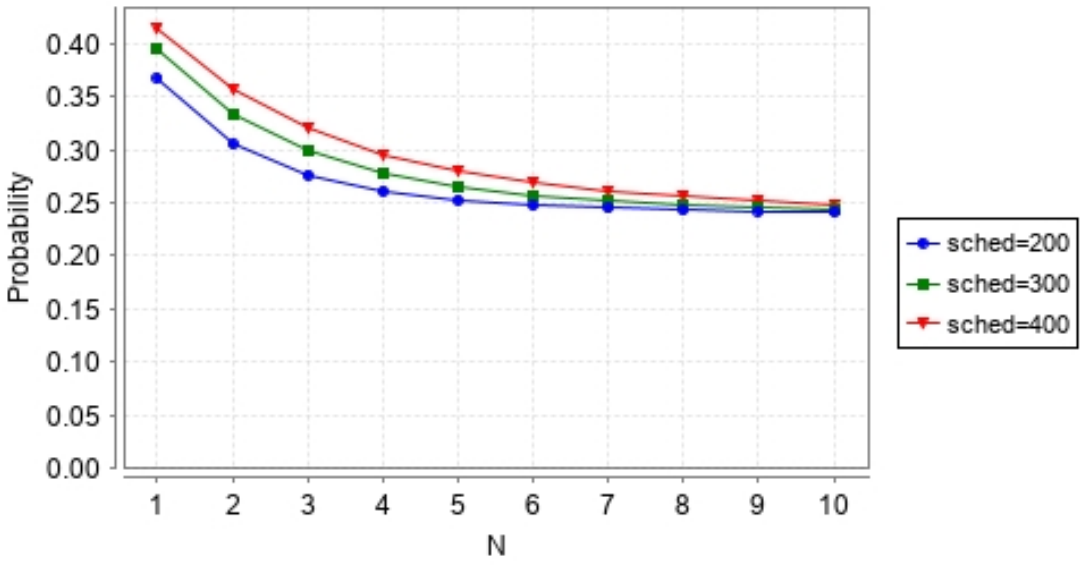

Figure 2: Probability that in the long run station 2 is awaiting service

- The following property specifies the probability that in the long run station 2 is awaiting service:

```
S=? [ vs2>1 & !(vs=2 & va>0) ]
```

In the experiment given in Figure 2, `N` ranges from 1 to 10 with step 1, `sched` ranges from 200 to 400 with step 100 (in this experiment `T` is fixed, `T = 10`)