```scilab
// T13modRay.sce
// SIMULATION OF RAYLEIGH MODEL  f(y)=f(y)=(y/r)*exp(-y**2/(2r))
// Experiments
// - change parameter of the model
// -------------------------------------------------------------------
exec("ScIntro.sce",-1), mode(0)


nd=1000;                                                          // 1
rS=40;                              // parameter                  // 2
                                                                  // 3
// SIMULATION                                                     // 4
y=zeros(1,nd);                                                    // 5
// loop of simulation                                            // 6
for t=1:nd                                                        // 7
  y(:,t)=sqrt(-2*rS.*log(rand(1,1,'u')));                         // 8
end                                                               // 9
                                                                  // 10
// INITIALIZATION                                                 // 11
S=0;                            // statistics - sum               // 12
ka=0;                           // statistics - counter           // 13
                                                                  // 14
// ESTIMATION                                                     // 15
// loop of estimation                                            // 16
```

```
for t=1:nd                                                              // 17
  S=S+y(t)^2;                         // update of statistics           // 18
  ka=ka+1;                                                              // 19
end                                                                     // 20
rE=.5*S/ka;                           // final point estimates          // 21
                                                                        // 22
// RESULTS                                                              // 23
disp('Estimate of the parameter r',rE)                                 // 24
                                                                        // 25
set(scf(),'position',[600 100 600 400]);                               // 26
histplot(20,y);                                                         // 27
title 'Histogram of generated values'                                  // 28
```

Description of the program

- Row 2 sets parameter of the model

- Row 5 declares variable y

- Rows 7–9 perform the time loop for simulation

    - 8: simulation form Reyleigh distribution

- Rows 12–13 are initialization of statistics

- Rows 17–21 perform time loop for estimation

- 18–19: is update of statistics

- Row 20 computes point estimate of the parameter