```
T = 4;
n=1000;
t=linspace(0, 4*T, n);

figure(1)
%plot(t, s(t) , 'r')
axis([0 4*T 0 1.1])     %xlim([0 1])   %ylim([0 4])
title('Signal carre de rapport cyclique 1/2')
grid
set(gca, 'xtick', [0:1:16])

omega= 2*pi/T;

for k=1:n
 if ( t(k) - T*floor(t(k)/T )  >1 && t(k) - T*floor(t(k)/T )  < 3)
 f(k)=0 ;
 else
 f(k)=1 ;
 endif;
endfor;

% Décomposition en série de Fourier
moy = mean(f);
for k = 1:3
  a(k) = 2*mean( f.*cos(k*omega*t) );
endfor;
a

SF = moy;
subplot(5,1,1)
plot(t,f,'*r')
axis([0 16 0 1.1])
title('Signal carre de rapport cyclique 1/2')
grid
set(gca, 'xtick', [0:1:16])


subplot(5,1,2)
plot(t, SF,'b', 'linewidth', 2)
axis([0 16 -1 2])

for k=1:3
  SF=SF+a(k)*cos(k*omega*t);
  subplot(5,1,k+2)
  plot(t,SF, 'b','linewidth', 2)
  axis([0 16 -1 2])
endfor;
```