

Code2.1: example2

```
close all

clear;clc
A=[1 -1;2 -1];
B=[0.5 0.2;0.5 -1];
h=0.01;%%%%%%%%step=h
tend=200;
x_0=[1 -2]';
tt=0:h:tend;
x=x_0;
xx=x_0;
for t=h:h:tend
    F=tanh(x);
    x=x+(A*x+B*F).*h;
    xx=[xx,x];
end

plot(tt,xx,'linewidth',1.2);
xlabel('t','FontSize',14);
ylabel('x(t)','FontSize',14);
legend('x_1','x_2','Location','Best')
```

Code2.2: example2

```
close all
clear;clc
A=[1 -1;2 -1];
B=[0.5 0.2;0.5 -1];
h=0.001;%%%%%%%%step=h
tend=30;
x_0=[1 ;-2];
t_result=0:h:tend;
x=x_0;
xx=x_0;

t_k=0;%%%%%%%%initial instant
x_k=x_0;
T_k2=[];%%%%%%%%record event-triggering instants
P=[110.1028 -25.8098;-25.8098 190.4531];
I=eye(2);
D=[-1.3816 -0.0873;-0.3314 -1.3600];
for t=h:h:tend
    F=tanh(x);
    x=x+(A*x+B*F)*h
    if (t-t_k>0.0 && (x'*P*x)>=exp(0.48)*(x_k'*P*x_k)) || t-t_k>=9.63
        t_k=t;
        T_k2=[T_k2;t_k];
        x=(I+D)*x;
        x_k=x;
    end
    xx=[xx,x];
end
plot(t_result,xx,'linewidth',1.2);
xlabel('t','FontSize',14);
```

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ylabel('x(t)', 'FontSize', 14);
legend('x_1', 'x_2', 'Location', 'Best')

ylim([-3, 4])
hold on

```

Code2.3: example2

```

close all
clear;clc
A=[1 -1;2 -1];
B=[0.5 0.2;0.5 -1];
h=0.01;%%%%%%%%%step=h
tend=80;
x_0=[1 -2];
tt=0:h:tend;
x=x_0;
xx=x_0;

t_k=0;%%%%%%%%%initial instant
x_k=x_0;
T_k2=[];%%%%%%%%%record event-triggering instants
P=[110.1028 -25.8098;-25.8098 190.4531];
I=eye(2);
D=[-1.3816 -0.0873;-0.3314 -1.600];

T_k2=[];%%%%%%%%%record event-triggering instants
for t=h:h:tend
    F=tanh(x);
    x=x+(A*x+B*F)*h;
    if (t-t_k>0.0 && (x'*P*x)>=exp(0.48)*(x_k'*P*x_k)) || t-t_k>=9.63
        t_k=t;
        T_k2=[T_k2;t_k];
        x=(I+D)*x;
        x_k=x;
    end
    xx=[xx,x];
end
plot(tt,xx, 'linewidth', 1.2);
hold on
y2=-0.2*ones(1,length(T_k2));
plot(T_k2,y2, 'b.')
ylim([-3, 6])
legend('x_1', 'x_2', 'Location', 'Best')

hold on

```

Code2.4: example2

```

close all
clear;clc

aa=[0.48 0.25 0.4 0.08];
c={'c'; 'm'; 'g'; 'r'};%colors

```

```

for i=1:4
    a=aa(i);

A=[1 -1;2 -1];
B=[0.5 0.2;0.5 -1];
h=0.001;%%%%%%%%step=h
tend=40;
x_0=[1 ;-2];
tt=0:h:tend;
x=x_0;
xx=x_0;

t_k=0;%%%%%%%%initial instant
x_k=x_0;
T_k2=[];%%%%%%%%record event-triggering instants
P=[110.1028 -25.8098;-25.8098 190.4531];
I=eye(2);
D=[-1.3816 -0.0873;-0.3314 -1.600];

T_k2=[];%%%%%%%%record event-triggering instants
for t=h:h:tend
    F=tanh(x);
x=x+(A*x+B*F)*h;
    if (t-t_k>0.0 && (x'*P*x)>=exp(a)*(x_k'*P*x_k)) || t-t_k>=9.63
        t_k=t;
        T_k2=[T_k2;t_k];
        x=(I+D)*x;
        x_k=x;
    end
    xx=[xx,x];
end
y2=a*ones(1,length(T_k2));
plot(T_k2,y2,c{i})
hold on

end
ylim([0,1])

legend('t_k(a=0.48)', 't_k(a=0.25)', 't_k(a=0.4)', 't_k(a=0.08)', 'Location', 'Best')

```