

MEFTAH I Hanane

## Solution TP

1. ce programme calcule la transformée de fourier du signal triangulaire et le dessine .

2. les équations :

%fonction rectangle

```
function res=rect(x)
res=1/2*(sign(x+1/2)+1)-1/2*(sign(x-1/2)+1);
```

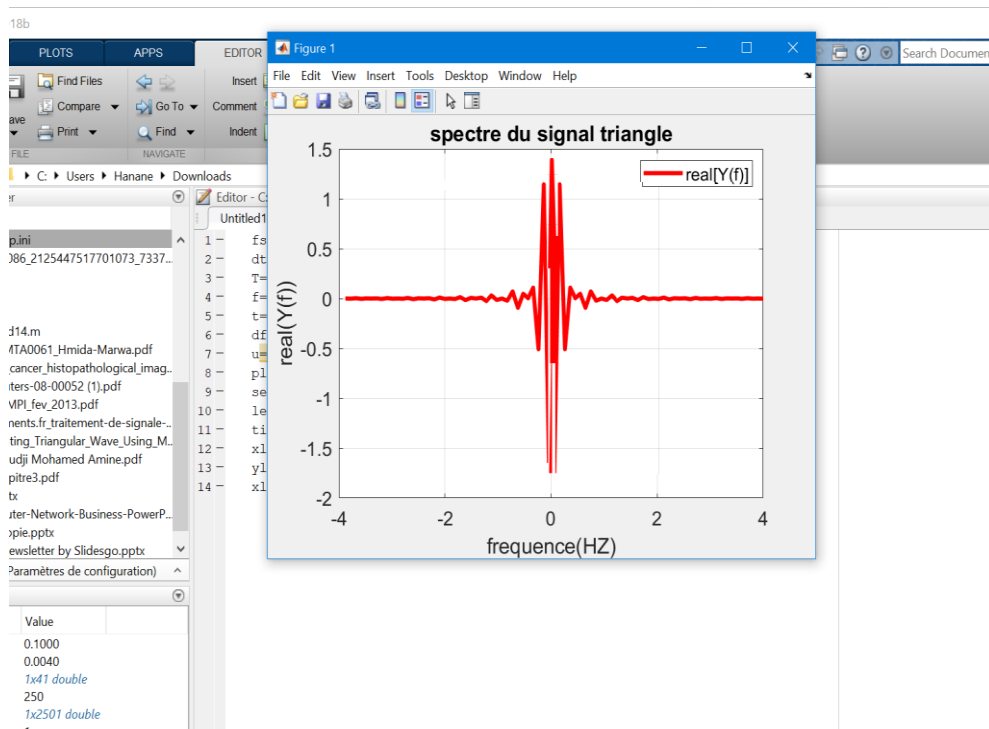
%fonction triangle

```
function res=tri(x)
res=(1-abs(x)).*rect(x/2);
```

%fonction qui réalise la tf d'un signal

```
function res=tfsc(x,t,f)
s=0;
dt=t(2)-t(1);
df=f(2)-f(1);
n=0:1:length(f)
for k=1:length(t)
    s=s+x(k)*dt*exp(-2*j*pi*n*df*k*dt);
end
res=s;
```

3. execution :

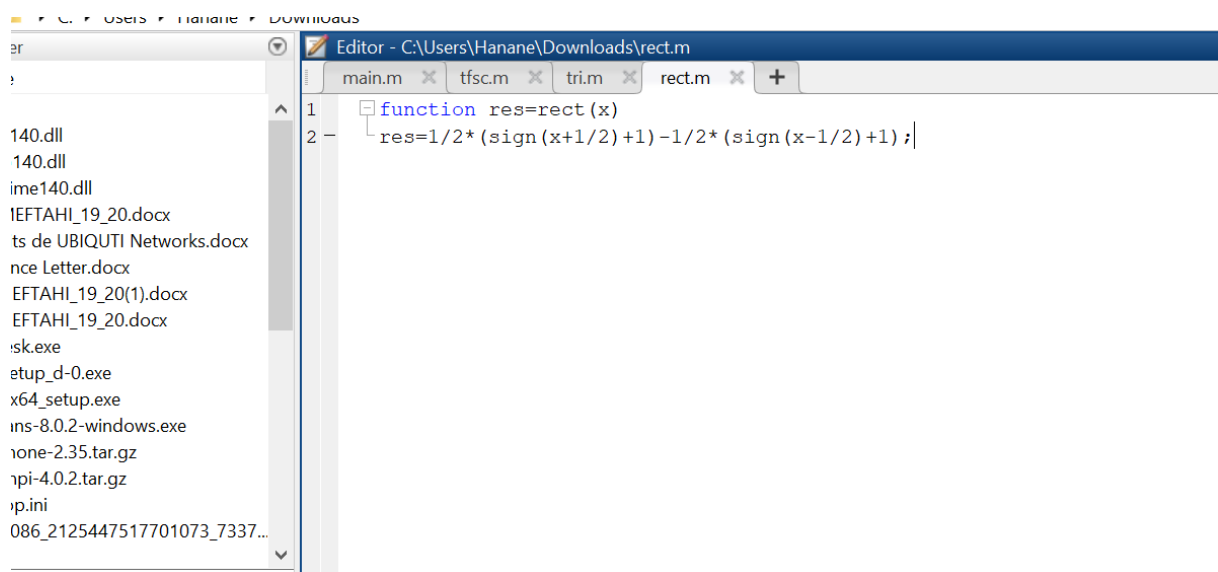


#### 4.les fonctions en pointillés :

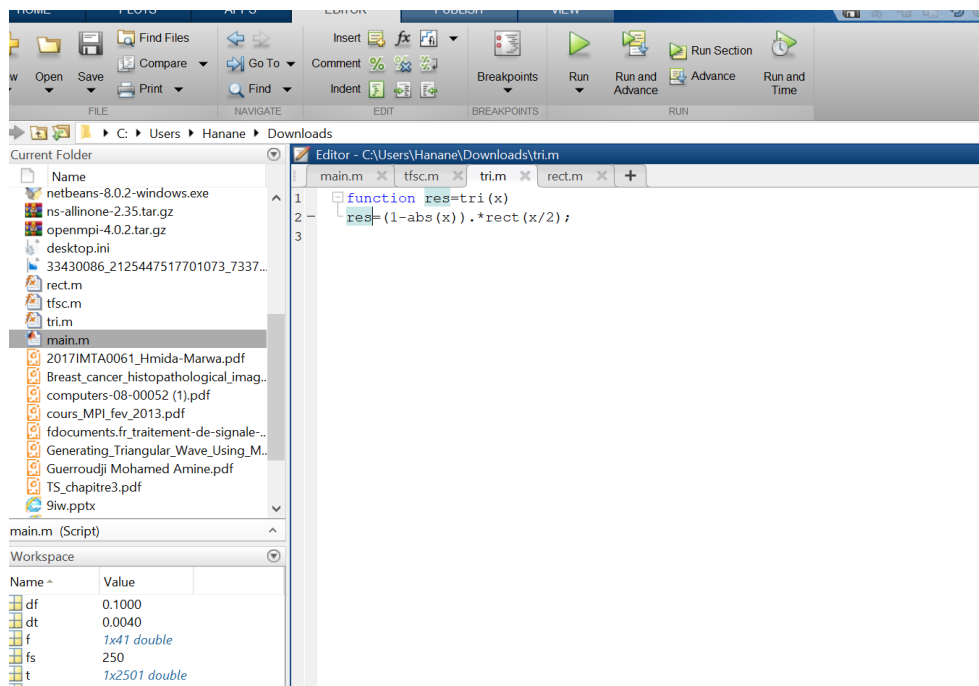
```
fs=250;  
dt=1/fs;  
T=1;  
f=-4:0.1:4;  
t=-5:dt:5;  
df=0.1;  
u=tfsc(tri(t/2*T),t,f)  
plot(f,real(u),'r','linewidth',3); grid on;  
set(gca,'fontsize',14);  
legend('real[Y(f)]');  
title('spectre du signal triangle')  
xlabel('frequence(HZ)');  
ylabel('real(Y(f))');
```

des captures d'écran :

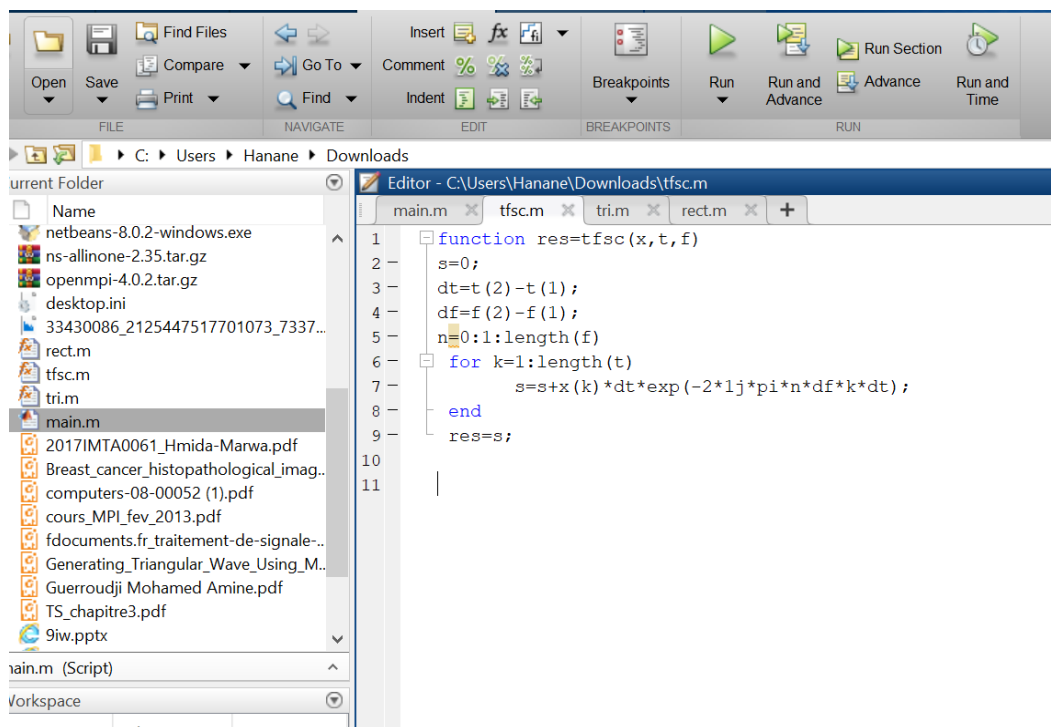
fichier : rect.m



fichier : tri.m



fichier : tfsc.m



fichier : main.m

netbeans-8.0.2-windows.exe  
ns-allinone-2.35.tar.gz  
openmpi-4.0.2.tar.gz  
desktop.ini  
33430086\_2125447517701073\_7337...  
rect.m  
tfsc.m  
tri.m  
main.m  
2017IMTA0061\_Hmida-Marwa.pdf  
Breast\_cancer\_histopathological\_imag...  
computers-08-00052 (1).pdf  
cours\_MPI\_fev\_2013.pdf  
fdocuments.fr.traitement-de-signale...  
Generating\_Triangular\_Wave\_Using\_M...  
Guerroudji Mohamed Amine.pdf  
TS\_chapitre3.pdf  
9iw.pptx

main.m (Script)

Name ^	Value
df	0.1000
dt	0.0040
f	1x41 double
fs	250
t	1x2501 double
T	1
u	1x41 complex...

Editor - C:\Users\Hanane\Downloads\main.m

main.m x tfsc.m x tri.m x rect.m x +

```
1 fs=250;  
2 dt=1/fs;  
3 T=1;  
4 f=0:0.1:4;  
5 t=-5:dt:5;  
6 df=0.1;  
7 u=tfsc(tri(t/2*T),t,f)  
8 plot(f,real(u),'r','linewidth',3); grid on;  
9 set(gca,'fontsize',14);  
10 legend('real[Y(f)]');  
11 title('spectre du signal triangle')  
12 xlabel('frequence (Hz)');  
13 ylabel('real(Y(f))');  
14
```