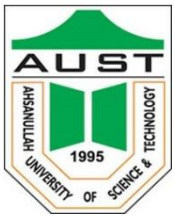


Ahsanullah University of Science and Technology

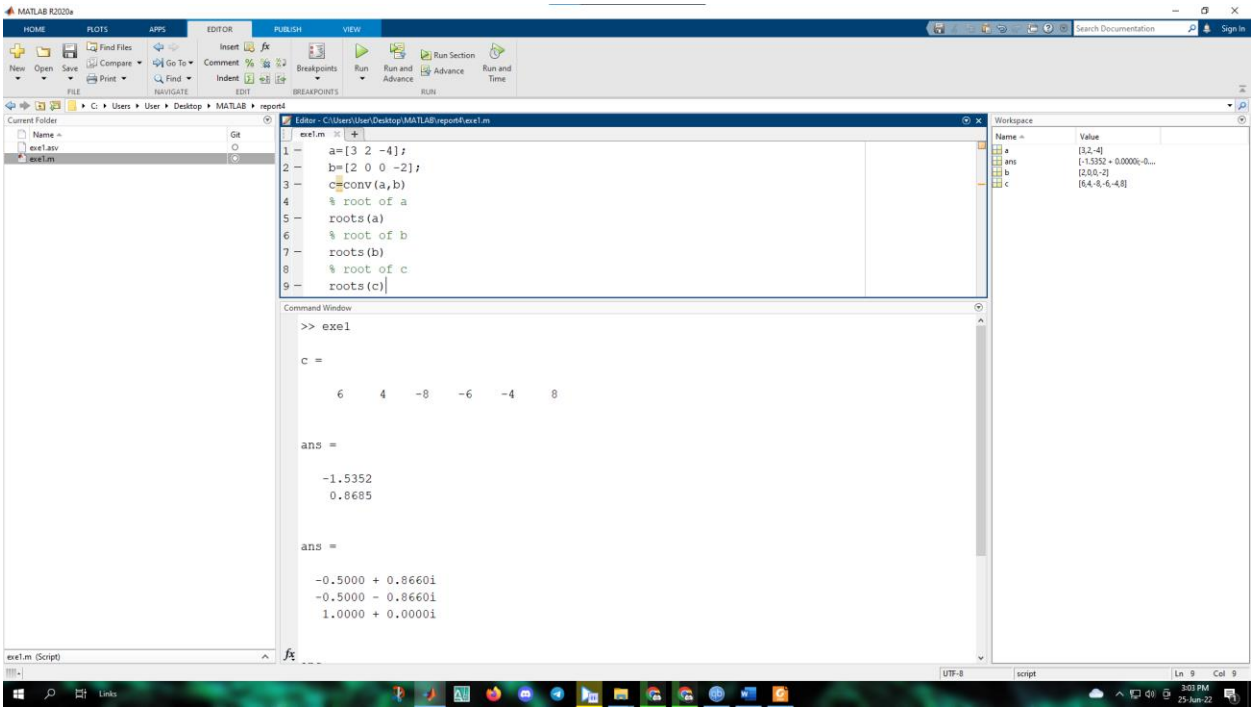
LAB REPORT

Course No: *EEE3110*
Course Name: *Numerical Technique Laboratory*

Exp No:07
Exp Name: Interpolation

- Name: *Md. Idrak Efaz*
- ID: *190205121*
- Year: 3 , Semester: 1
- Section: B-2
- Department of *EEE*.

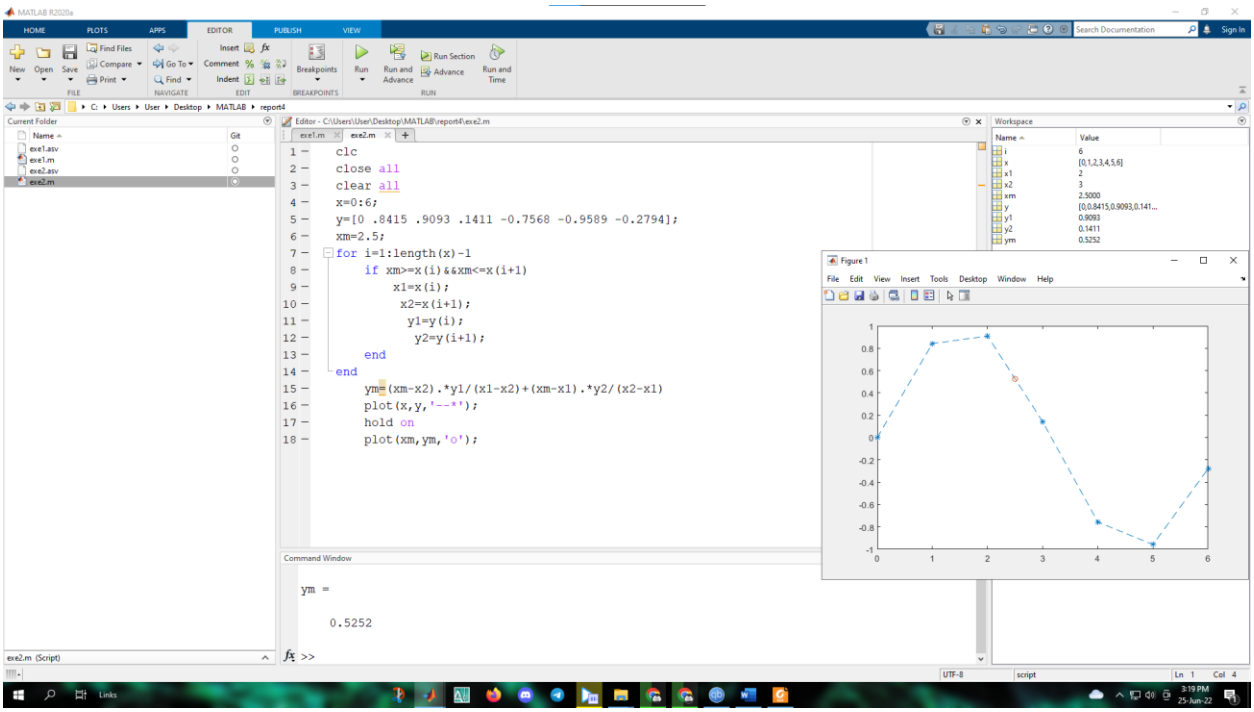
Exercise1



```
a=[3 2 -4];
b=[2 0 0 -2];
c=conv(a,b)
% root of a
roots(a)
% root of b
roots(b)
% root of c
roots(c)
```

```
>> exe1

c =

     6     4    -8    -6    -4     8


ans =

   -1.5352
    0.8685


ans =

  -0.5000 + 0.8660i
  -0.5000 - 0.8660i
   1.0000 + 0.0000i
```

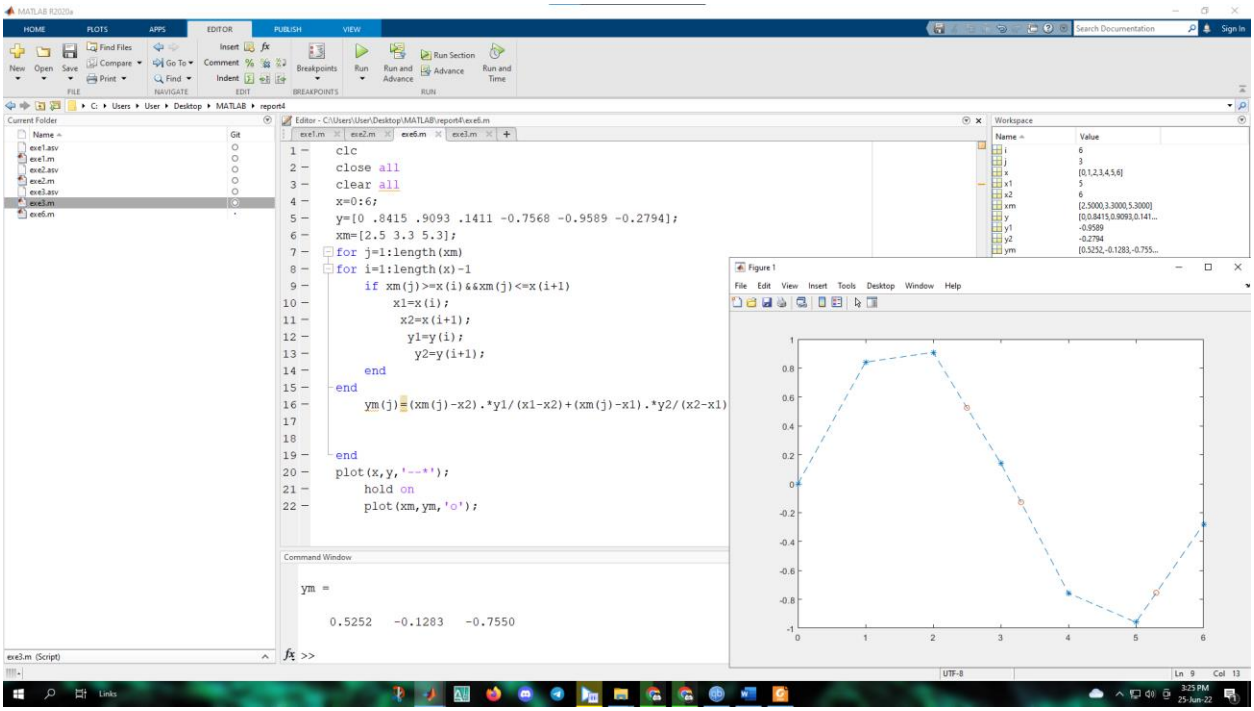
Exercise2



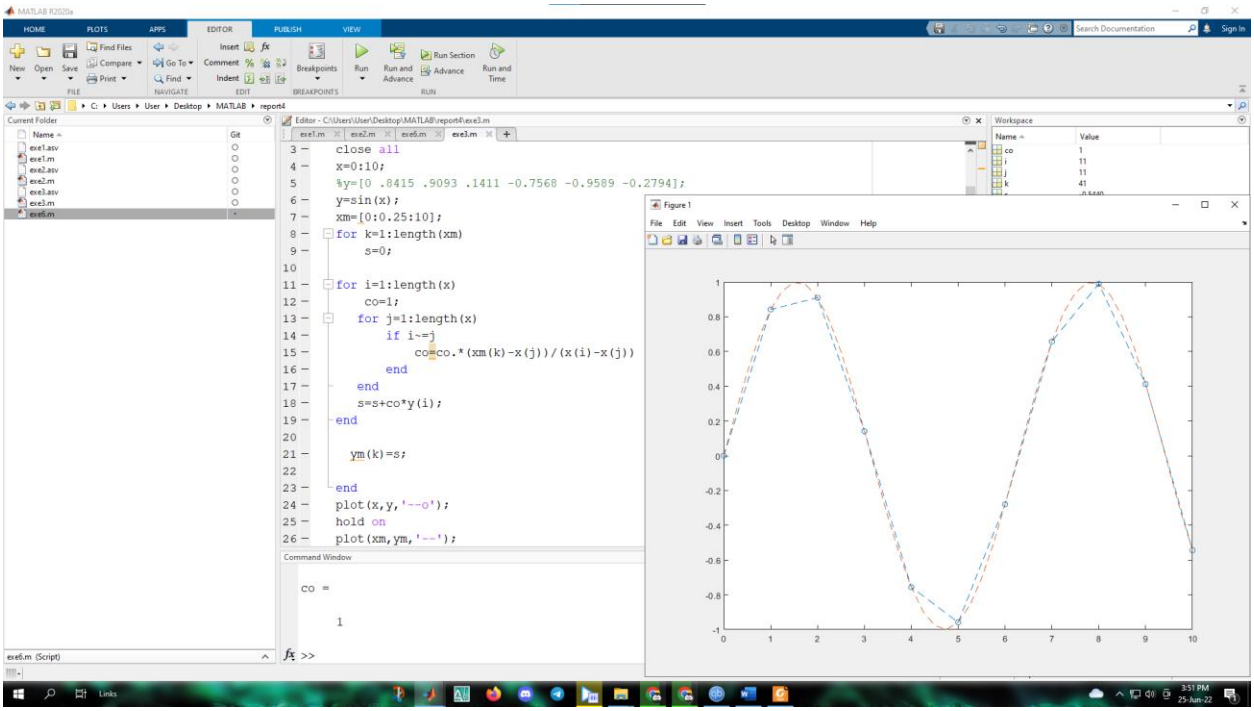
```
clc
close all
clear all
x=0:6;
y=[0 .8415 .9093 .1411 -0.7568 -0.9589 -0.2794];
xm=2.5;
for i=1:length(x)-1
    if xm>=x(i)&&xm<=x(i+1)
        x1=x(i);
        x2=x(i+1);
        y1=y(i);
        y2=y(i+1);
    end
end
    ym=(xm-x2).*y1/(x1-x2)+(xm-x1).*y2/(x2-x1)
    plot(x,y,'--*');
    hold on
    plot(xm,ym,'o');
```

```
ym =

    0.5252

>>
```

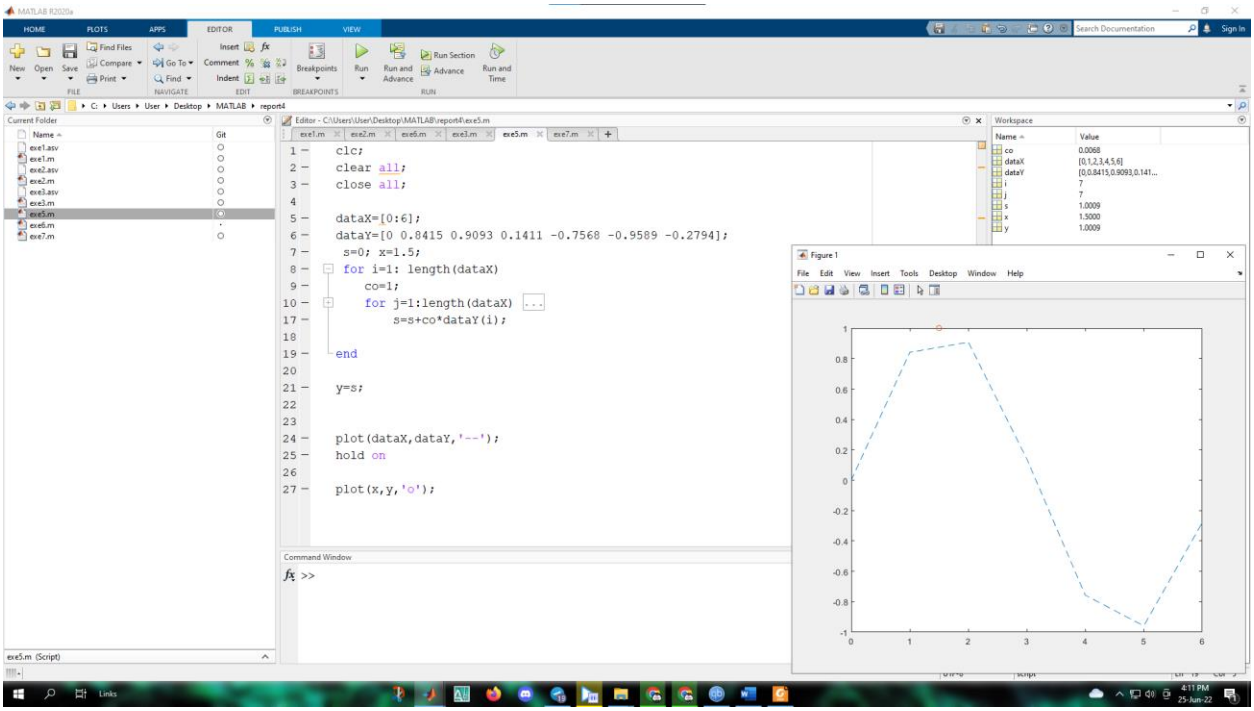
Exercise6 (multiple data)



Exercise3

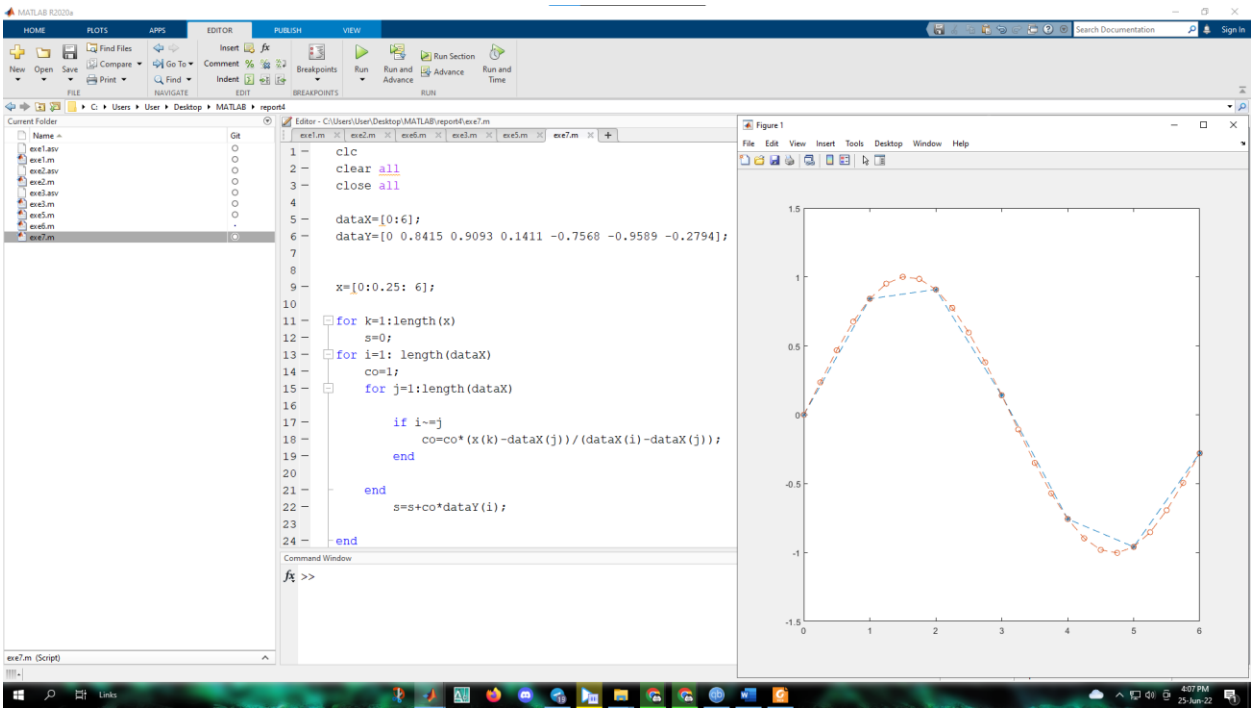


Exercise5



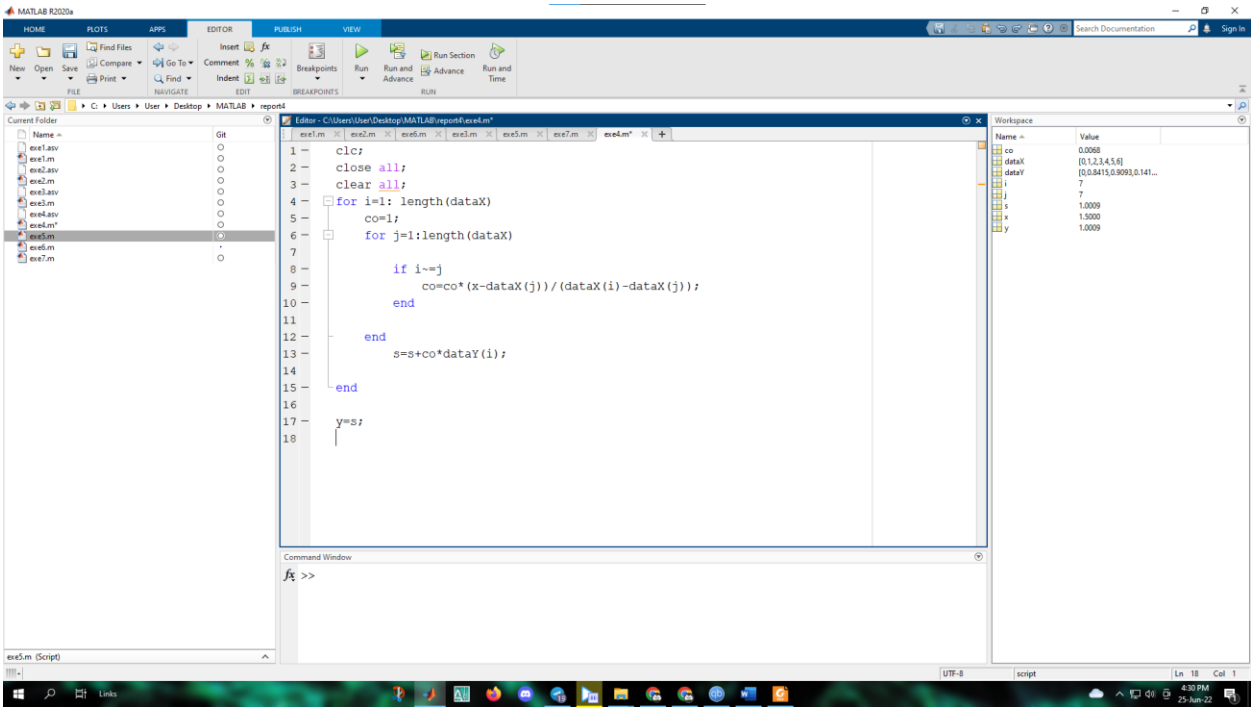
```
clc;
clear all;
close all

dataX=[0:6];
dataY=[0 0.8415 0.9093 0.1411 -0.7568 -0.9589 -0.2794];
 s=0; x=1.5;
for i=1: length(dataX)
    co=1;
    for j=1:length(dataX) ...
        s=s+co*dataY(i);

end

y=s;


plot(dataX,dataY,'--');
hold on

plot(x,y,'o');
```

Exercise7 (multiple data)



```
clc
clear all
close all

dataX=[0:6];
dataY=[0 0.8415 0.9093 0.1411 -0.7568 -0.9589 -0.2794];


x=[0:0.25: 6];

for k=1:length(x)
    s=0;
for i=1: length(dataX)
    co=1;
    for j=1:length(dataX)

        if i~=j
            co=co*(x(k)-dataX(j))/(dataX(i)-dataX(j));
        end

    end
        s=s+co*dataY(i);

end
```

Exercise4


clc;
close all;
clear all;
for i=1: length(dataX)
co=1;
for j=1:length(dataX)
if i~=j
co=co*(x-dataX(j))/(dataX(i)-dataX(j));
end
end
s=s+co*dataY(i);
end
y=s;