

BE - Discussion #3, 2020-09-18

Good morning and happy Friday!

* please unmute, show video, and fully participate

* make sure you are in the correct discussion!

TA Open Hours:

- Sunday 4-10 pm
- Tuesday 6-10 pm
- Thursday 4-10 pm

(Devin's OH: 6-8 pm Thur)

Announcements

- make sure you get all 3 exam dates on your calendar! The first is two weeks from today
- quiz at 4:40 pm EDT until 4:55 pm. Good luck!!!

Review of Material

- scripts
- input/output (i/o)
- simple plots
- functions that calculate and return one value
 - note that these functions should not have i/o statements
- simple programs: scripts that have i/o and call a func, and have at least one function

Function, script, loading + save examples

perimeterRectangles.m perimeters.m new.m +

```
1 - function perimeter = perimeterRectangles(sl, s2) ← function header
2 -     perimeter = 2*sl+2*s2; ← function body
3 - end
```

function file (.m extension)

```
1 - a = 3.0;
2 - b = 3.0;
3 -
4 - perimeter1 = perimeterRectangles(a,b);
5 -
6 - c = 12.0;
7 - d = 3.0;
8 -
9 - perimeter2 = perimeterRectangles(c,d);
10 -
11 - e = 6.0;
12 - f = 3.0;
13 -
14 - perimeter3 = perimeterRectangles(e,f);
15 -
16 - perim = [perimeter1 perimeter2 perimeter3];
17 -
18 - save perim.dat perim -ascii
```

using the function

script file
(also has a .m extension)

new file name

variable to save

always need the ascii specifier!

example of saving the data to a newfile called 'perim.dat'

*additional notes:

- adding block comments is a great idea!
- if want to add more data to a file, use -append as well

Plotting Example

```
x = linspace(0, 2*pi, 1000);
siny = sin(x);
cosy = cos(x);
```

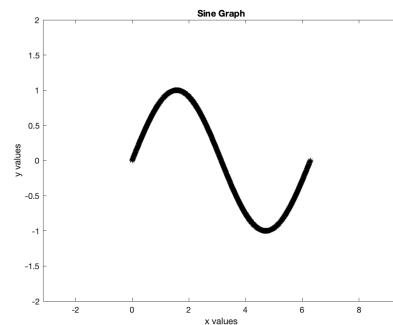
```
% plot sine graph, black stars
figure(1)
plot(x, siny, 'k*')
title('Sine graph')
xlabel('x values')
ylabel('y values')
axis([-pi, 3*pi, -2, 2])
```

black	k	*
red	r	x
blue	b	o
green	g	.

[x-min, x-max, y-min, y-max]

```
% plot cosine graph, blue circles
figure(2)
plot(x, cosy, 'bo')
title('Cosine graph')
xlabel('x values')
ylabel('y values')
axis([-pi, 3*pi, -2, 2])
```

Figure 1 =>



```
% plot on same figure window
figure(3)
plot(x, siny, 'k+')
title('Plotting Example')
xlabel('x values')
ylabel('y values')
axis([-pi, 3*pi, -2, 2])
hold on
plot(x, cosy, 'bo')
legend('sin(x)', 'cos(x)')
hold off
```

Figure 2 =>

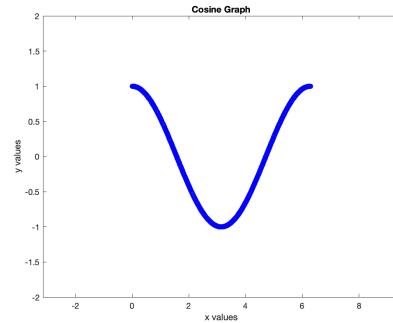
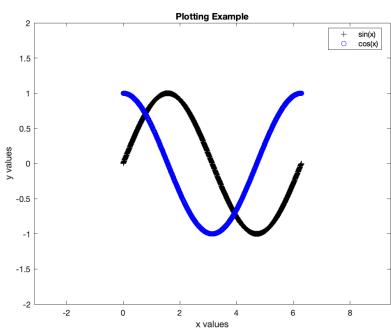


Figure 3



Pup says
good luck on
the quiz
today!!!

