

BA - 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

Simple function with single output example

```
perimeterSquare.m
1 function perimeter = perimeterSquare(s1, s2)
2 perimeter = 2*s1+2*s2;
3 end
4
5
```

function header

function body

```
perimeters.m
1 a = 3.0;
2 b = 3.0;
3
4 perimeter1 = perimeterSquare(a,b);
5
6 c = 12.0;
7 d = 3.0;
8
9 perimeter2 = perimeterSquare(c,d);
10
11 e = 6.0;
12 f = 3.0;
13
14 perimeter3 = perimeterSquare(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 filename

variable to save

always need the ascii specified!

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);
% sine plot, black stars
```

```
figure(1)
```

```
plot(x, siny, 'k*' )
```

character vector
for your formatting
of data values

```
title('Sine of x')
```

```
xlabel('x values')
```

```
ylabel('y values')
```

```
axis([-pi 3*pi -2 2])
```

```
% cosine plot, blue circles
```

```
figure(2)
```

```
plot(x, cosy, 'bo' )
```

```
title('Cosine of x')
```

```
xlabel('x values')
```

```
ylabel('y values')
```

```
axis([-pi 3*pi -2 2])
```

```
% example of plotting on one 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
```

↑ make sure your legend arguments
are in correct order of when
you began plot!

know these for plotting!

black	k	+	plus sign
red	r	*	stars
blue	b	o	circles
green	g	.	dots
		-	dash-dot solid line

[x_min, x_max, y_min, y_max]
we pass a vector to format axes

Figure 1 =>

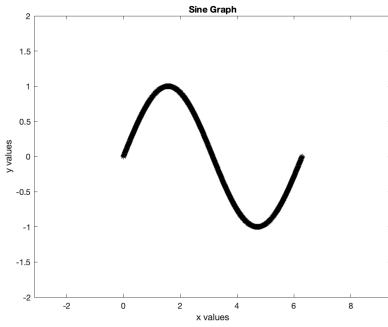


Figure 2 =>

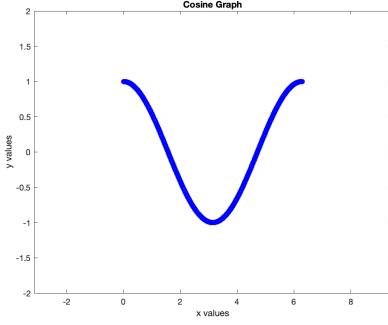
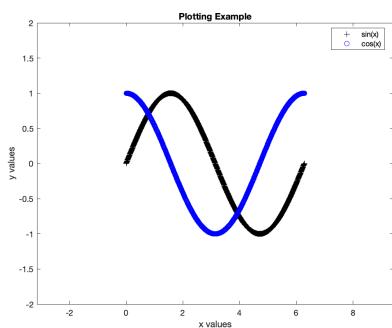


Figure 3



Pup says
good luck
on the
quiz today!

