Format Saved by Web Interface

3 columns

Vgs	Vds	Id
0	-	-
0	-	-
0	-	-
.	.	.
.5	-	-
.5	-	-
.5	-	-
.	.	.
1.0	-	
1.0	-	
1.0	-	
.	.	

Load web interface provided filename into a spreadsheet program.

Format that MATLAB Script Requires.

Use Excel or another spreadsheet to get it to text tab delimited.

(3 x no. of Vgs steps) columns

Vgs	Vds	Id	Vgs	Vds	Id	Vgs	Vds	Id
0	-	-	.5	-	-	1.0	-	-
0	-	-	.5	-	-	1.0	-	-
0	-	-	.5	-	-	1.0	-	-
.	.	.	.	.	.	.	.	.

Remember to delete the headings. No text in data matrix.

In Excel or a spreadsheet program:

1. Copy and paste the Vds and Id data for each Vgs value into the following form.

2. Write down the columns headings and delete the text labels and units so the data is in a matrix of numbers.

3. Save data in a text, tab delimited format. -> filename.txt

What the MATLAB Script Does.

Vgs	Vds	Id	Vgs	Vds	Id	Vgs	Vds	Id
0	-	-	.5	-	-	1.0	-	-
0	-	-	.5	-	-	1.0	-	-
0	-	-	.5	-	-	1.0	-	-
.	.	.	.	.	.	.	.	.

plot plot plot

Matlab script loops through this matrix plotting each Vds and Id value for each Vgs value.

How to use this script for the other plots - For the other plots, use same script but change the labels on the x and y axis and the title. This script requires that variable 2 the step parameter such Vgs in the output characteristics, Vds in the transfer characteristics, and Vbs in the backgate characteristics be the 1st, 4th, 7th, etc. column just as Vgs is shown above.

Disclaimer - You do not have to use this script. It is provided so that students can spend more time evaluating the device characteristics and less time struggling with programming and Matlab issues.

```
% MATLABscript for plotting Vds vs. Id for multiple Vgs values
% Can be used for other plots just change title, axis labels. Note this script requires
% that there are three columns for each step parameter…in other words just copy
% and paste the data as it is shown on the previous page.
% email dwhite@ftl.mit.edu with questions…

% Load text file called filename.txt
load filename.txt

% A matrix called filename is created and is
% saved in a dummy variable Y
Y=filename;
% Determine the number of Vds and Id pairs or the number
% of Vgs step values for Vds vs. Id plot.
[m,n]=size(filename);

% Find number of blocks of three or the number of Vgs steps
vgsloop=n/3;

% Sets the figure number for plotting
figure(2)

% For-loop to plot Vds vs. Id for each Vgs parameter
% the plot command plots each Vds and Id column for each Vgs block
% So for the first block we plot column 2 (Vds) vs. column 3 (Id).
% For i=2 or second Vgs step value, we plot column 5 (Vds) and column 6(Id)

for i=1:vgsloop
  plot(Y(:,(i*3-1)),Y(:,(i*3)))
  % The hold on command allows each Vds vs. Id line to be plotted as we
  % step through the Vgs values.
  hold on
end

grid
% Sets the title for the x-axis, the underscore forces the "d" and "s" as subscripts
xlabel('V_d_s (Volts)')
ylabel('I_d (Amps) for multiple V_g_s values ')
title('1. Output Characteristics')
```