COMP1200-MatLab - Lab 10
Due midnight – Thursday – November 17
Submit `auburnStats2011.xls` and `Lab10.m` **via Blackboard**

Before you start writing your program:

Read all of these instructions carefully. Submitting a development plan is not required for this assignment. I suggest that you create one and use it when writing your program.

TRY USING `xlsread()` and `xlswrite()` EARLY ON YOUR MAC. MAC USERS MAY NOT BE ABLE TO USE THIS COMMAND. USE A LAB COMPUTER, INSTEAD.

FINAL EXAM
Thursday Dec. 1
during class

***Problem*:**

***Program*: Lab10.m**

The number of touchdowns, extra points, and field goals made by Auburn are on the from the `teamStat` spreadsheet in `auburnStats2011.xls`. Compute the points made, and write a summary on the `pointSummary` spreadsheet in `auburnStats2011.xls`. Create a stacked bar chart and pie chart to compare the category points.

Instructions:

- ☐ Insert comments at the top and throughout each file
  - Include the follow comments at the beginning of this (and ALL) files.
    - % your name
    - % assignment number
    - % date you completed the assignment
    - % a short narrative about what the file does
  - Use your development plan as a guide for comments throughout each file

-5 points per file for absence of these required comments at the top

- ☐ Use `clc` and `clear all` at the beginning of your program.
- ☐ Use descriptive variable names.
- ☐ Use Sample Input/Output as a guide.
- ☐ No extra output, i.e., use semicolons!
- ☐ Use **Smart Indent** to ensure correct indenting.

- ☐ Using the data file
  - Protect your program from crashing by making sure that the file exists. If the file doesn't exist, print an error message and end the program.

- ☐ CONSTANT variables
  - Save the names of the file AND the spreadsheets in CONSTANT variable names; use the variable names as the argument with the `xlsread() and xlswrite()`.

- ☐ Input
  - Read the Auburn 2011 season game scoring statistics from the `teamStat` in `gameResults2011.xls and` into a numeric and a text matrix. Note the difference and relationship of the number of rows in the two matrixes.
  - Your program should work for any number of games in the file. Use **size** obtain the number of games (rows) and columns. YOU DO NOT KNOW THE NUMBER OF GAMES, SO ALL REFERENCES TO ROWS DEPEND ON THE SIZE.

New commands
`xlswrite()`
`subplot()`
`sprint(),text()`
`pie()`
`"stacked" bar()`
`title(),legend()`
`xlabel(),ylabel()`
cell array `{}`

- ☐ Computation
  - Compute the number of points made for each category for each game. Store in a matrix.
    Each TD is 6 points; an extra point is 1, and field goal is 3. Store in vectors.
  - Compute the total points for each game and for each category.
  - Use indexes with vector and matrix names as needed.

☐ Output

- Refer to the Sample Output for the information that should be included in the `pointSummary` spreadsheet. Build a cell array to write to the spreadsheet.
  - Use the column headers from the input text array for the output cell array.
  - Add the "Game Points" column header.
  - Add the row label "Category Points"
  - Use **row and column indexes** when assigning values to the output cell array from the text array and the computed points matrix and sum vectors.
- Graphs
  - Place two graphs as subplots in one figure, one under the other.
  - Use data from text array for legends and from numeric matrixes and vectors for values.
  - Note: The legends are free floating and were moved for the example below.
  - Create a pie chart.
    - Add a title, legend.
    - Use the headers in the input text array for the legend.
  - Create a "stacked" bar graph that displays the points for each category for each game.
    - Add a title, x-axis label, y-axis label, legend.
    - Use the headers in the input text array for the legend.
    - Add text giving the season percentage for passing and rushing. Use sprintf. Locate the text a little above the maximum game score.

Sample Input/Output:

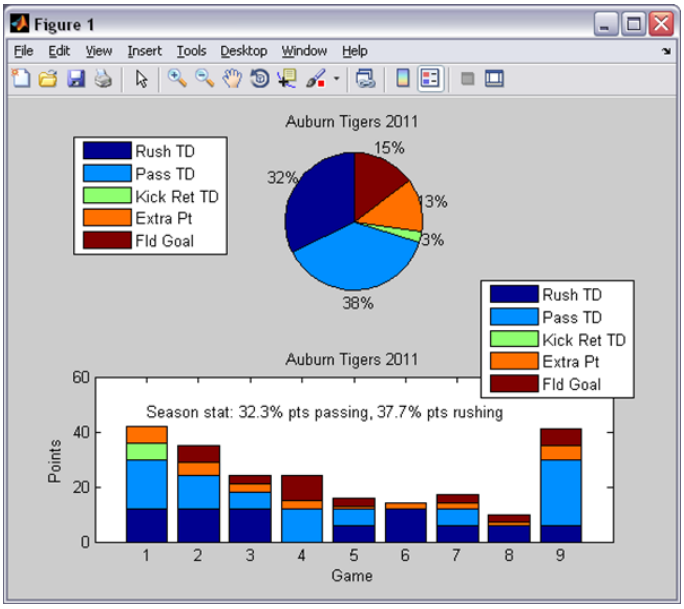
	A	B	C	D	E	F	G	H
1	Date	Away	Opponent	Rush TD	Pass TD	Kick Ret TD	XPT	Fld Goal
2	Sep. 03		Utah State	2	3	1	6	0
3	Sep. 10		Mississippi State	2	2	0	5	2
4	Sep. 17	away	Clemson	2	1	0	3	1
5	Sep. 24		Florida Atlantic	0	2	0	3	3
6	Oct. 01	away	South Carolina	1	1	0	1	1
7	Oct. 08	away	Arkansas	2	0	0	2	0
8	Oct. 15		Florida	1	1	0	2	1
9	Oct. 22	away	LSU	1	0	0	1	1
10	Oct. 29		Ole Miss	1	4	0	5	2

teamStats

auburnStats2011 [Compatibility Mode]

	A	B	C	D	E	F	G	H	I	J
1	Date	Opponent	Rush TD	Pass TD	Kick Ret T	Punt Ret T	XPT	Fld Goal	Game Points	
2	Sep. 03	Utah State	12	18	6	0	6	0	42	
3	Sep. 10	Mississipp	12	12	0	0	5	6	35	
4	Sep. 17	Clemson	12	6	0	0	3	3	24	
5	Sep. 24	Florida At	0	12	0	0	3	9	24	
6	Oct. 01	South Car	6	6	0	0	1	3	16	
7	Oct. 08	Arkansas	12	0	0	0	2	0	14	
8	Oct. 15	Florida	6	6	0	0	2	3	17	
9	Oct. 22	LSU	6	0	0	0	1	3	10	
10	Oct. 29	Ole Miss	6	24	0	0	5	6	41	
11		Category I	72	84	6	0	28	33		

teamStats pointSummary



Submit via Blackboard:

`Lab10.m`	MATLAB script file
`auburnStats2011.xls`	Data file

NOTE: Your submitted file(s) MUST be spelled and cased as instructed. [-5 points per file for not doing so.]