CS1115 Lab 7 (October 11, 2012)

Completing the lab is very important, but your work is not graded and it is not submitted. If you finish before the hour is over, then you can leave early or you can work on the "Finished Early" problems. If you do not finish the problems before the end of class, then be sure to ask enough questions so that you can complete the exercises in the next day or two on your own.

1. Cell Array Practice

Download `CellArrays` from the syllabus page. If you run the script a column of state names is displayed. (a) Modify it so that the displayed list is alphabetical:

```
Alabama
Alaska
Arizona
   :
West Virginia
Wisconsin
Wyoming
```

Hint: Use `sort`. (b) Continue to modify `CellArrays` so that the displayed list is "right justified:

```
      Alabama
       Alaska
      Arizona
         :
 West Virginia
     Wisconsin
       Wyoming
```

Hint: Use `blanks` and concatenation. (c) Continue to modify so that each state is displayed with its "reverse alphabetical partner:"

```
      Alabama Wyoming
       Alaska Wisconsin
      Arizona West Virginia
         :        :
 West Virginia Arizona
     Wisconsin Alaska
       Wyoming Alabama
```

2. Structures Practice

Download `Structures.m` from the syllabus page and study how it works. If you enter "`Structures`" in the command window then colored disks will be displayed against a black square. (a) Modify `Structures` so that it only displays disk `D(k)` if it does not intersect the boundary of the square. (b) Continue the modifications so that `Structures` only displays disk `D(k)` if does not intersect the boundary of the square and does not intersect disk `D0`. Hint, Write a boolean-valued function `Disjoint(D1,D2)` that returns 1 (true) if disks `D1` and `D2` do not intersect and returns 0 (false) otherwise.

3. Finished Early

Continue with the modifications of `Structures` so that it only displays disk `D(k)` if it does not intersect the boundary of the square, does not intersect disk `D0`, and does not intersect disks `D(1)`,...,`D(k-1)`. Hint: Write a boolean-valued function `DisjointFromAll(G,D)` that returns 1 (true) if disk `G` is disjoint from every disk in `D`, a structure array of disks.

Please delete your files from the computer before you leave the lab!