CS 1713
Introduction to Computer Programming II
Recitation 10

1. (100 pts) Declare a structure to represent a circle. Each circle stores information about the center and the radius. Center is represented with x and y coordinates. Both center and radius uses doubles. Allocate an array of 50 circle pointers and dynamically allocate memory to store a circle pointed by each array entry. Randomly generate circles using the following function.

```
double rand_float(double a,double b)
{
 return ((double)rand()/RAND_MAX)*(b-a)+a;
}
```

   We want all the circles to fit an area of 1000x1000. So, x and y coordinates are randomly selected from (100,900) and radius is randomly selected from (0,100) using above function.

   After you insert the random circles, find the circle with the largest area and print the information for this circle. You can use 3.14 for PI and area of a circle is given as $PI * radius * radius$. Don't forget to free the pointers when you are done with the array. Use valgrind to find any memory leaks.

   Sample execution is given below

```
Circle with largest area (31380.837301) has
center (774.922941,897.436445) and radius 99.969481
```

Submit your program electronically using the blackboard system