

CPSC 223n Assignment 1

Circles

Introduction

The purpose of this assignment is become acquainted with C# as a programming language and to experience working with graphical output.

Requirements

Make a C Sharp program that will display a user interface (UI). The UI will draw circles having one of three possible radii. On the next page is an artist's concept of how the UI may appear. You may organize your UI differently if desired.

The title and your name should appear as text near the top of the output area.

In the bottom area there are nine buttons organized by groups. The first group of three buttons allows the user to select the color of the circle to be created.

The second group of three buttons allows the user to pick a radius of the circle to be created.

The group contains three buttons: clear all the circles, draw a new circle, and quit will close the UI window.

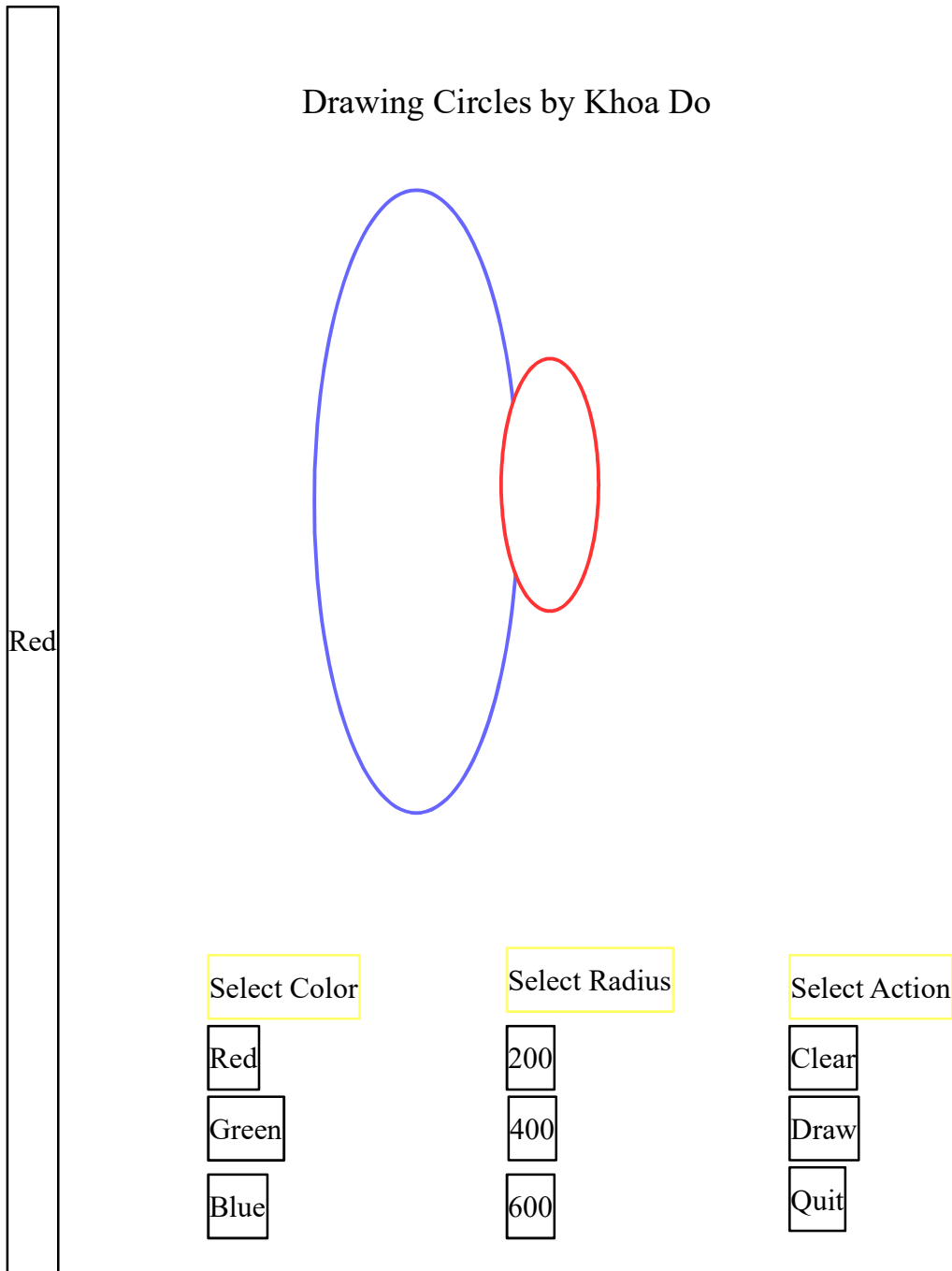
After a circle is drawn it remains on the user interface until the user clicks on "Clear", or quits the program.

A user may draw the same circle repeatedly. For example, let's suppose the user clicked on "Red", "500", and "Draw". Then a red circle of radius 500 is drawn. If the user clicks on "Draw" a second time then the same red circle is re-drawn in the same location. However, if the user clicks on "Blue" followed by "Draw" then a new blue circle is drawn on top of the existing red circle. Any existing circle remains visible until the user clicks on "Clear" or draws a new circle on top on an existing circle.

All the circles have the same center. You pick a suitable center for the circles.

The next page shows an artist's concept of the UI.

Drawing Circles by Khoa Do



Sample user interface (UI) for this assignment.

You may modify the layout of the UI if you wish. For example, you can place the buttons vertically along one side of the window. The outer rectangle represents the edge of the window. You do not need to draw an outer boundary.

Google for a technique to place large font in the graphic area so that your name can be easily seen.

Partitioning the solution.

It is possible to place all the C# source code in one file, but the result is bulky, awkward, and usually unmanageable. In this course every program every program is partitioned into usually three files as follows:

File 1. This is the software driver. It contain the function “Main”.

File 2. This is where the layout is defined. Each component of the UI is described here.

File 3. This is sometimes called the “business logic” class. The algorithms are defined here.

However, this specific program (Drawing circles) does not appear to need an algorithms file. The professor has the view that all algorithms are simple enough to be contained in UI file.

How to get started with this programming assignments

Try the book “Computing with C#” Chapter 8. Section 8.2 describes drawing several different geometric shapes. There is also a short sample program there.

Study the posted program “Rectangle with Diagonal”. That program has a single button that draws a rectangle of a fixed size. Using information from Chapter 8 discover how to make that program draw a circle in place of a rectangle. After you can draw a single circle then the next step is to draw a circle of a different color. The last step is to make the program draw circles of a different sizes.

What to do when your program is completed.

When you feel that your program is complete you should put it to rest. Put professional looking comments on each file of source code just as if you were making this program for your employer. Give the program a name which is usually two or three or four words. Give it a “status” condition such as “Fully functional” or “Sufficiently complete to show drawn circles” or “In development – to be resumed later”. The posted sample programs show organized comments.

In the comment area of each source file show how to compile that file. This is for the benefit of future programmers in the company that may be assigned to further develop the program you started.

Now you have a choice:

(1) You may email your program to me. I will evaluate your program and send you feedback. I will give your program a score based on a range from 1 to 100.

(2) You may simply keep your program in a secure place for use during the midterm or the final. Those two test allow open notes and open programs, and you will want to bring with you all the C# programs you have made this semester.

Suggested due date: September 19, 2018

If you complete Assignment 1 by this date you are making normal progress in the course.

Planned calendar for 223N: These dates are approximates. They are not fully fixed.

Assignment 0: Sept 9 (Mon) at 11:59pm

Assignment 1: Sept 19 (Wed)

Assignment 2: Oct 1 (Mon)

Assignment 3: Oct 10 (Wed)

Midterm: Oct 15 (Mon): This is the 8th week of the 15 week semester.

Google Announcement

You have probably heard that Google is considered to be the “Elite Employer” of the world. It is simply legendary: no other employer treats its employees as well as Google does. Specifically, Google has a myriad of really nice benefits for its employees – too many to mention in this paragraph. Of course, Google pays more than any other employer for the same kind of work.

This semester only the CS Department is fortunate to have Google programmer here during the entire semester. He says he has worked for Google for 3 years and he appears to me to be about 24 years old. I have spoken with him a few times and he seems to be a very helping type of person.

The Google engineer is “Luis Larco” and he occupies room CS538. He has stated that he has an “open door policy” not an office hour policy. He says that when he is in that office the door will be open and anyone is welcome to come in and ask any question – about technology, of course.

So, take advantage of the situation. Ask him for help with homework in this course or any other course of this major that you are enrolled. You should even ask him what are the best elective courses to take in order to be hired by Google.

Most of the time none of us will have direct access to a Google person. This is a rare chance.

Party Announcement

There will be a Linux party soon. Each semester the ACM student club sponsors a party where Linux fans gather. Bring a laptop with you and you will receive free assistance from an expert in the process of installing a full Linux OS. This is not about Tuffix. This is about installing a Linux distro on bare metal. Music, games, all you can eat pizza, and many Linux experts will be provided at no charge.

If you have no need of an installation then that’s fine. Simply come to enjoy the fun.

Date: September 7
Time: 5pm to whatever
Location: CS-300