
CSSE 120—INTRODUCTION TO SOFTWARE DEVELOPMENT

EXAM 2, SPRING 2009-2010

This exam contains two parts.

- The first part is to be done on paper without using your computer.
 - This part is closed-everything except you may use a “cheat sheet” that is one 8.5 by 11 sheet of paper (both sides, or two sheets each using only one side).
 - Complete this first part and turn it in before beginning the second part.
- The second part of the exam is to be done on your computer.
 - This part is open-everything except that you may not communicate with anyone except an exam proctor.
 - So, you can use Angel, the course web site, any projects on your computer, the entire World Wide Web, and search engines like Google, among other sources.
 - If you have questions on the on-the-computer part, you may ask an exam proctor. In particular, we don’t expect you to be experts on understanding error messages yet, so if you get an error message, first try to understand it, but then ask for help as needed.
 - Obtain the on-the-computer part of this exam by checking out the **Exam2-201030** project from your SVN repository. It has 5 modules. Do the TODO’s in each. Turn in your work by committing your project.

Time limit: You have a total of 2 hours to complete the entire exam, plus an hour of “bonus” time, so a total of up to 3 hours. Don’t spend more than 30 minutes on the paper-and-pencil part.

Paper-and-pencil score:

Problem	Points	Score
P1	5	
P2	5	
P3	5	
P4	3	
P5	5	
P6	7	
Total	30	

Totals	Points	Score
paper	30	
computer	70	
Total	100	

On-the-computer score:

Problem	Points	Score	Explanation of points deducted
P1	19		
P2	19		
P3	19		
P4	13		
Total	70		

PROBLEMS

1. (5 points) What gets printed by the following code?

```
def silly(x):  
    print "start silly"  
    print x  
    goofy(x - 1)  
    funny(x + 2)  
    print "end silly"  
  
def funny(y):  
    print "start funny"  
    print y  
    goofy(y * 2)  
    print "end funny"  
  
def goofy(x):  
    print "start goofy"  
    print x  
    print "end goofy"  
  
silly(3)
```

Output:

2. (5 points) What gets printed by the following code?

```
a = 8  
b = 64  
while a < b:  
    print a, b  
    a = a + 1  
    b = b / 4
```

Output:

3. (5 points) What gets printed by the following code?

```
def foo(x, y, z):  
    x = x + z[1]  
    y = [1, 2, 3]  
    z[0] = z[1]  
    z[1] = z[2]  
    print x, y, z  
  
a = 4  
b = [5, 10, 15]  
c = [8, 30, 60]  
foo(a, b, c)  
print a, b, c
```

Output:

4. (3 points) What gets printed by the following code?

```
circleA = Circle(Point(25, 25), 10)  
circleB = Circle(Point(50, 50), 20)  
circleC = Circle(Point(75, 75), 30)  
  
circleC = circleB  
circleB = circleA  
  
circleA.move(100, 0)  
circleB.move(200, 0)  
  
print circleA.getCenter().getX()  
print circleB.getCenter().getX()  
print circleC.getCenter().getX()
```

Output:

Name: _____

5. (5 points) Explain what a *sentinel* value is and give a concrete example of its use.

6. (7 points) Write a function called *between* that takes a list of numbers and two integers, and returns a list of all numbers in the given list that are between the two integers (including the endpoints). You may assume that the first of the two integers is less than or equal to the second of the two integers.

Here is an example:

```
between([17, 22, 8, 0, 13, 18, 6, 12, 21, 25], 13, 22)  
returns [17, 22, 13, 18, 21]
```

When you have completed this part of the exam, turn it in to the exam proctor so you can use your computer for the next (on-the-computer) part of the exam.

Begin the on-the-computer part by checking out the project called

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in your SVN repository. Do the problems therein, each of which has TODO's that specify what to do. Commit your work when you are done.

Name: _____

Recall the instructions on the computer part: Open everything EXCEPT that you may NOT communicate with anyone except the exam proctors.