

## CMSC 330 Quiz #1

Name	UID			
Discussion Section:	9am Vicky	10am Vicky	11am Richard	12pm Richard
	9am Varun	10am Varun	11am Tammy	12pm Tammy

### Instructions

- Do not start this test until you are told to do so!
- You have 15 minutes for this quiz.
- This is a closed book quiz. No notes or other aids are allowed.
- For partial credit, show all of your work and clearly indicate your answers.
- Write neatly. Credit cannot be given for illegible answers.
- This quiz is for 20 points.

1. (8 pts) There are some errors in the following class definition.

```
class PhoneBook
  def add_contact(name,number)
    if contacts[name] == nil
      contacts[name] = number
    else
      contacts[name].push(number)
    end
    puts "#{name}: #{contacts[name].join(", ")}"
  end
end
```

Your task will be to modify the code according to the questions below so that the following lines of code would run without error and would print what's shown to the right of "=>":

```
p = PhoneBook.new
p.add_contact("Fibonacci",1123581321) # => Fibonacci: 1123581321
p.add_contact("Avogadro", 60221415) # => Avogadro: 60221415
p.add_contact("Fibonacci",3455891440) # => Fibonacci: 1123481321, 3455891440
```

a. (4 pts) Write any methods that are missing from the class definition that would be necessary to make it work as above.

b. (4 pts) `add_contact` is broken; how would you modify it to provide the above output?

2. (4 pts per part) The following code is adapted from the Point examples from lecture. Write the output for parts (a) through (c) assuming you have the following Point class.

```
class Point
  attr_accessor "x", "y"
  def initialize(x, y)
    @x,@y = x,y
  end

  def to_s
    return "(" + @x.to_s + "," + @y.to_s + ")"
  end

  def *(point)
    d = dup
    d.x *= point.x
    d.y *= point.y
    return d
  end
end
```

a. `(0...5).each { |x|  
 puts Point.new(x, x*x)  
}`

```
b. a, b = Point.new(1, 2), Point.new(3, 4)
   puts "#{a*b}"
   puts "#{a}"
```

```
c. arr = [ Point.new(1,1), Point.new(2,2), Point.new(3,3) ]
   arr.push(Point.new(4,4))
   puts "#{arr[0]}"
```

```
arr.pop
puts "#{arr[0]}"
```

```
arr.unshift(Point.new(5,5))
puts "#{arr[0]}"
```

```
arr.shift
puts "#{arr[0]}"
```