

Computer Science 145

Exam 1—Fall 2011

Name: _____

Problem	Score	Possible
1		6
2		14
3		8
4		12
Total		40

This is a closed-book, no-calculator, no-electronic-devices, individual-effort exam. You may reference one page of handwritten notes. All answers should be clearly written. Questions that require code should be written using correct Java syntax. Please do all your work on these pages. Partial credit will be given if work is shown and is partially correct. You may write `SOP` to represent `System.out.println`.

Class	Method/Constructor	Description
Scanner	<code>Scanner(System.in)</code> <code>Scanner(String text)</code> <code>String next()</code> <code>double nextDouble()</code> <code>boolean nextBoolean()</code> <code>int nextInt()</code>	create <code>Scanner</code> for parsing <code>System.in</code> create <code>Scanner</code> for parsing <code>text</code> get next delimited word get next delimited double get next delimited <code>boolean</code> get next delimited integer
String	<code>int length()</code> <code>char charAt(int i)</code> <code>boolean startsWith(String other)</code>	get number of characters get the character at index <code>i</code> return true if this <code>String</code> starts with <code>other</code>
Random	<code>Random()</code> <code>nextInt(int i)</code> <code>nextDouble()</code>	create a random number generator. get a random number between 0 and <code>i - 1</code> , inclusive. get a random number between 0.0 and 1.0.

1. *Blanked*

Complete each blank with the most appropriate data type, variable name, or method call.

```
(a) public static _____ isLong(String _____) {  
    return text.length() > 10;  
}
```

```
(b) public static int getNumber(Scanner in) {  
    return in._____( );  
}
```

```
(c) public static _____ tax(int _____, double taxRate) {  
    return price * taxRate;  
}
```

```
(d) public static _____ getGenerator() {  
    return new Random();  
}
```

2. Primitive Thinking

Using these declarations and assignments:

```
int a = 6;  
int b = 4;  
double m = 3.0;  
String s = "foo";
```

Complete the table below.

Expression	Value	Type
<code>a + b</code>	10	<code>int</code>
<code>a / b</code>		
<code>a * m</code>		
<code>a / m</code>		
<code>s + b</code>		
<code>s.charAt(2)</code>		
<code>s + s</code>		
<code>s.length()</code>		

3. *Squaring Off*

Complete the `main` method below so that it prompts the user for an integral number n , gets the number from `System.in`, and prints the squares of 1 through n . For example, if 5 is entered, the following interaction is seen on the console:

```
Enter n: 5
1
4
9
16
25
```

```
public static void main(String[] args) {
```

4. (a) Write a method `getRandomChar` that takes a `String` argument and returns as a `char` (does not print) a random character from the `String`. (Watch your indexing.)

- (b) Write a method `bind` that takes two `double` arguments and returns a `String` of the form “(num1, num2)”, where `num1` and `num2` are the argument values.