

1.	<p><b>FizzBuzz</b></p> <p>Time: 30 Minutes</p> <p>Write a method named <i>getFizzyBuzz</i> in a class <i>FizzBuzz</i>. The method should take an integer <i>n</i> as a parameter and return a string. The logic should be:</p> <ol style="list-style-type: none"> <li>1. If <i>n</i> is divisible by 3, return "Fizz".</li> <li>2. If <i>n</i> is divisible by 7, return "Buzz".</li> <li>3. If <i>n</i> is divisible by both, return "Fizzbuzz".</li> <li>4. Otherwise, return "Gotcha".</li> </ol> <p>Write at least 4 unit tests to validate each of the cases.</p>	5
2.	<p><b>MinStack</b></p> <p>Time: 50 minutes</p> <p>You need to create a class named <i>MinStack</i> that represents a last-in-first-out (LIFO) data structure with the following properties:</p> <ol style="list-style-type: none"> <li>1. It has <i>push(int)</i> and <i>pop()</i> operations that work the same way as a normal stack.</li> <li>2. In addition, it has a <i>min()</i> operation that returns the minimum value in the current stack.</li> </ol> <p><b>Constraints</b></p> <p>The <i>min()</i> operation should operate at constant complexity, <math>O(1)</math>. This means you cannot use a loop or recursion to find the minimum value.</p> <p><b>Test cases</b></p> <ol style="list-style-type: none"> <li>1. Push 3, 2, 5, 1. Assert min = 1.</li> <li>2. Push 3, 2, 5, 1. Then, Pop. Assert min = 2.</li> <li>3. Push 12, 3, 4. Assert min = 3.</li> </ol> <p><b>Hint</b></p> <ol style="list-style-type: none"> <li>1. You can use the built-in Stack class if necessary.</li> <li>2. An additional hint will be given after 15 minutes if you ask for it.</li> </ol>	10
3.	<p><b>Practice Generics (Implement the concept discussed in the Theory class)</b></p> <p>Time: 30 minutes</p> <p>You have to create a generic method <i>printList</i> in <i>Printer</i> class that takes a list of <i>Faculties</i> or <i>students</i> i.e., can support an Inheritance hierarchy.</p> <ol style="list-style-type: none"> <li>1. Create a <i>Person</i> class having a name, address, and age attribute. Override <i>toString</i> method.</li> </ol>	5

	<ol style="list-style-type: none"> <li>2. Create a Student class that extends the Person class and has one additional attribute studentID. Override toString method.</li> <li>3. Create a Faculty class that extends the Person class and has one additional attribute designation. Override toString method.</li> <li>4. Create a generic Printer class and declare a generic method.</li> </ol>	
	<p><b>Bonus Generics</b></p> <p>There is no given time for this task.</p> <p>Convert task 2 into a generic implementation [If you can complete this you will get 5 marks bonus.]</p>	