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| **Serial No** | 1 |
| **Program description** | Given input n and collection of elements. First remove the duplicates if any and then sort the collection of elements and search whether n exists or not. If exists, then print the index of the element. If doesn’t exists, then print “Given element doesn’t exists”. There shouldn’t be any capability to override these functionalities.  Write sorting /Search logic generic to any type, i.e., the logic should accept int, long, float,.,.. |
| **Technologies to use** | JAVA |
| **Concepts to use** | JAVA Generics, collections, binary search, static |
| **Concepts / libraries do not use** | Collections.sort() |
| **Validations required** | Validate whether given element exists or not in collection of elements. Don’t accept alphanumeric/alphabets. |
| **Sample Input** | N=56, Collection {23,23, 46,56,78,29, 90,56,34,2,78} |
| **Expected output** | Sorted elements : {2,23,29,34,46,56,78,90}  Element 56 exists at index 5 |

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| **Serial No** | 2 |
| **Program description** | Write a JAVA program where we  Should be able to get and set the name and address of a person  Person can be student, teacher, or a doctor  Roles and responsibilities should be different for student, teacher, and doctor. |
| **Technologies to use** | JAVA |
| **Concepts to use** | Abstract class |
| **Expected output** | Implement abstract class concept and display roles and responsibilities for student, teacher, and doctor. |

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| **Serial No** | 3 |
| **Program description** | Write a JAVA program,   1. Create an interface, restrict the speed limit of a bike to 90 KMPH and get the bike speed from default method concept in interface. 2. Create one more method with more than one implementation classes like manufacturing from different companies. |
| **Technologies to use** | JAVA |
| **Concepts to use** | Final, Interface(JAVA 8) |
| **Expected output** | Try to implement as above using specified concepts. |

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| **Serial No** | 4 |
| **Program description** | Write a Java program to find all pairs of elements in an integer array whose sum is equal to a given number |
| **Technologies to use** | JAVA |
| **Concepts to use** | JAVA Collections |
| **Sample Input** | Input Array: [4, 6, 5, -10, 8, 5, 20]  Input Number: 10 |
| **Expected output** | Pairs of elements whose sum is 10 are:  4 + 6 = 10  5 + 5 = 10 |