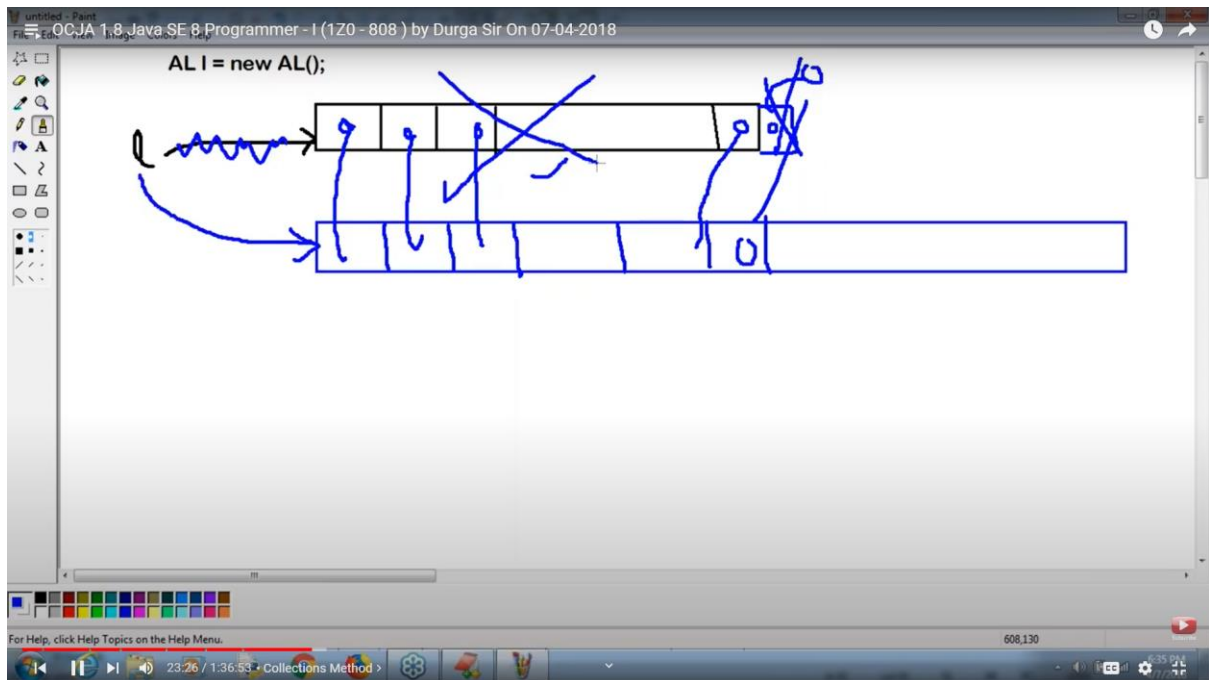


```
OCJA 1.8 Java SE 8 Programmer - I (1Z0 - 808 ) by Durga Sir On 07-04-2018
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14
15 Student[] s = new Student[10000];
16
17
18 1. Fixed in size
19 2. Homogeneous Data Type Objects
20
21 s[0]=new Student();
22 s[1]=new Customer();
23
24 Object[] a= new Object[10000];
25 a[0]= new Student();
26 a[1]= new Customer();
27
28 3. Not developed based on some standard ds
29     complexity increases
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```

By default a specific size list is created and when a new object is added a new object with increased size will be created and copied. Performance issue occurs, don't go with Collection if performance is a factor , Most of the collection this is the case except few



Benefits

1. Size – growable, Array fixed
2. Memory is not properly used array, when allocated unused will be wasted
3. Performance wise arrays are good , collections are slow
4. Array->Homogeneous, Collections- Homo and Heterogeneous
5. Predefined features support are not available for array , collections has method support
6. Collections supports only objects and not primitives, Arrays can support both

Collections and Map

Collection Framework contains two concepts

Collection and Map

42
43
44 **Growable nature:**
45 -----
46
47 **Collection(I)**
48
49
50
51 **Map(I)**
52
53
54
55
56
57

D	101
R	102

Questions

X	Question	Asker	R...
	ok sir clear	Shubham Gupta	..
	Sir can we call contains on multidimm. array?	Deepankaj Yadav	..
	fixed in size	Shubham Gupta	..
	fixed in size	Govindu Rayapur	..
	s	Shubham Gupta	..
	yes	Shubham Gupta	..

Send Privately Send to All

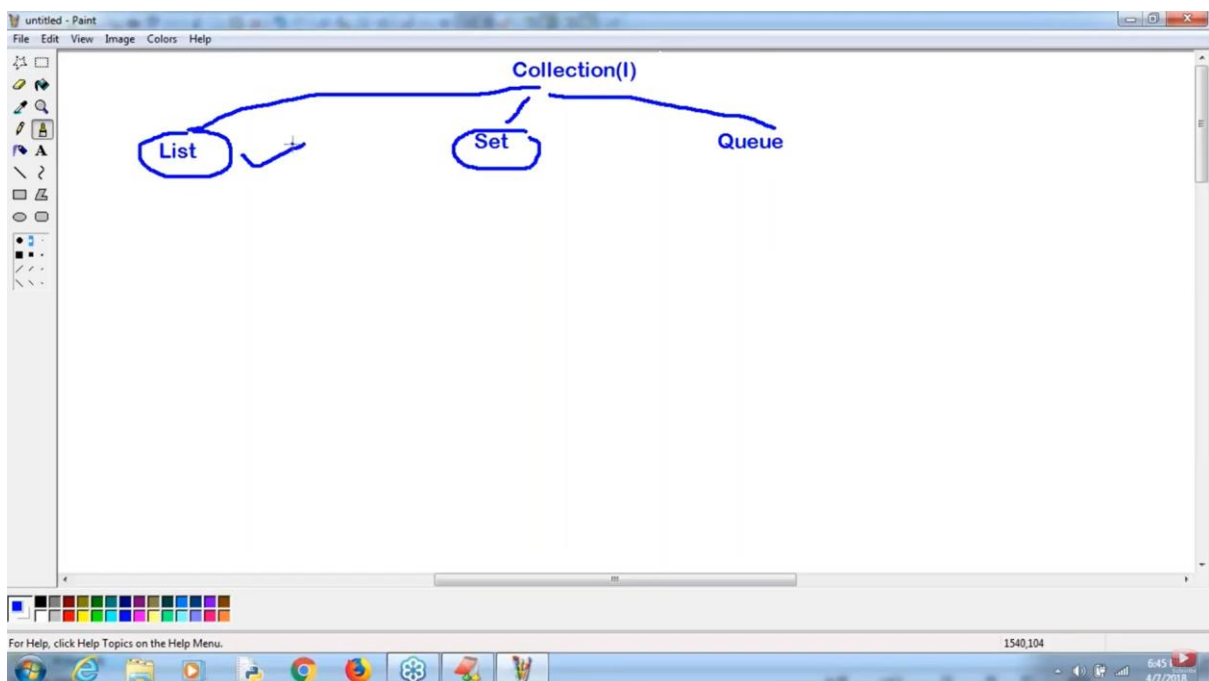
For Help, press F1

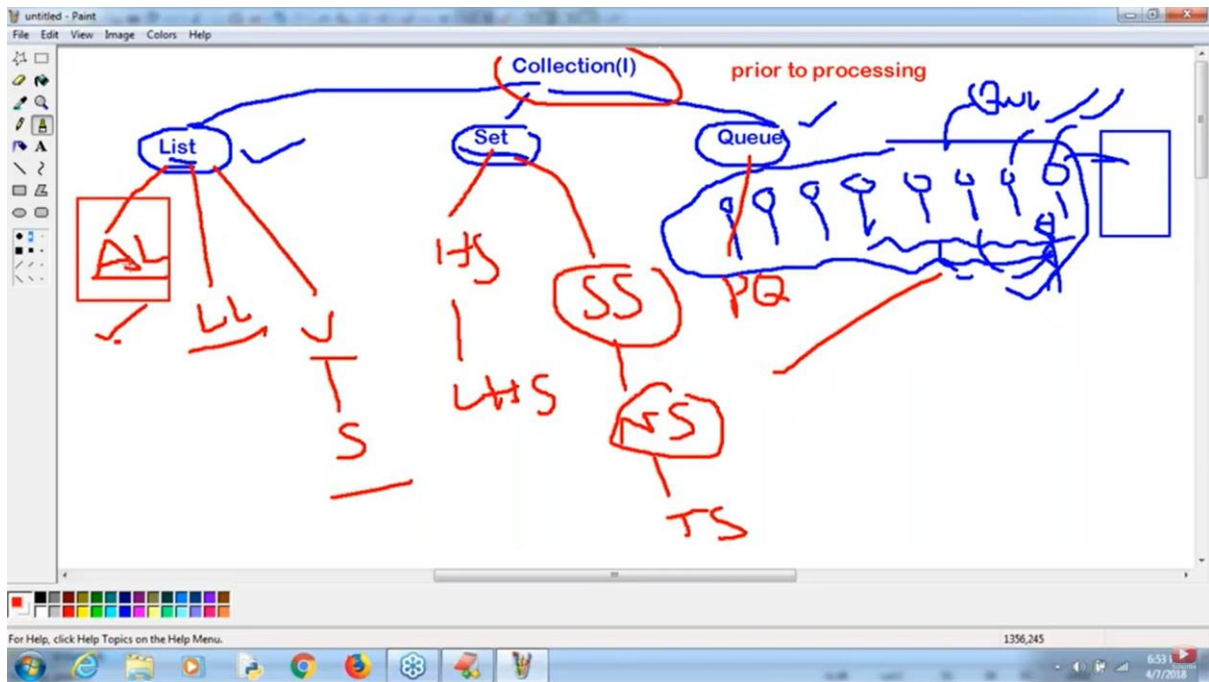
In 51 col 7 57 00 PC ANSI

List – insertion order is maintained, duplicates are allowed

Set -> Order Is not maintained, duplicates are not allowed

Queue -> FIFO, LIFO





RetainAll -> Keep only objects from Collection C and remove the rest

```

45 -----
46
47 Collection(I)
48 -----
49 add(Object)
50 addAll(Collection c)
51 remove(Object)
52 removeAll(Collection c)
53 retainAll(Collection c)
54
55
56 1. removeAll(c);
57
58
59

```

Handwritten red notes and markings are present on the code, including a circled "1" next to line 56 and a large red scribble over lines 57 and 58.

On the right side of the code editor, there is a "Questions" panel with a table of questions and answers:

Question	Asker	R...
remove will delete	Mahaboob basha	...
keep only this	Deepankaj Yadav	...
remove all and keep all	Himanshu Gupta	...
it will remove all & second one	Shubham Gupta	...
will retain all if	Deepankaj Yadav	...
and delete all	Deepankaj Yadav	...
retain will return object	Mahaboob basha	...

```
OCJA 1.8 Java SE 8 Programmer - I (1Z0-808) by Durga Sir On 07-04-2018
1 2 3 4 5 6 7 8
45 -----
46
47 Collection(I)
48 -----
49 add(Object)
50 addAll(Collection c)
51 remove(Object)
52 removeAll(Collection c)
53 retainAll(Collection c)
54 clear()
55 contains(Object o)
56 containsAll(Collection c)
57 size()
58 c.toArray()
59 Iterator itr=c.iterator();
60
61
62
63
For Help, press F1
In 59 col 13 67 3D PC ANSI
```

ListInterface Methods

```
60
61 List:
62 -----
63
64 add(int index,Object o)
65 addAll(int index,Collection c)
66 get(int index)
67 remove(int index)
68 set(int index,Object new)
69 indexOf(Object o)
70 lastIndexOf(object o)I
71 listIterator();
72
73
74
75
76
77
78
For Help, press F1
In 72 col 1 81 00 PC ANSI
```

```
75 ArrayList:
76 -----
77 Resizable Array or Growable Array
78 Duplicate objects
79 Insertion order
80 null insertion
81 Heterogeneous
82
83
84
85
86
87
88
89
90
```

Capacity- Initial Capacity is 10 goes on

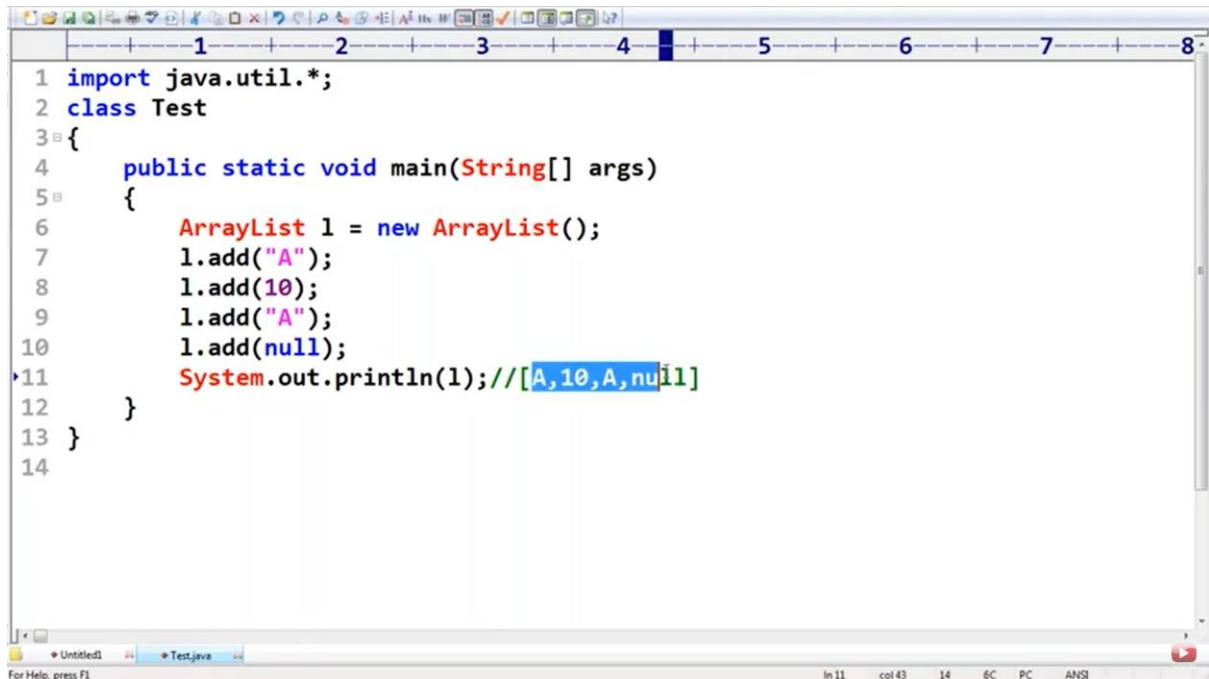
```
OCJA 1.8 Java SE 8 Programmer - I (1Z0 - 808) by Durga Sir On 07-04-2018
81 Heterogeneous
82
83 Constructors:
84 -----
85 AL l = new AL();
86
87  $(cc * 3/2) + 1 = 16$ 
88
89
90 10,16,25....|
91
92
93 10000
94
95 2. AL l = new AL(int capacity);
96    AL l = new AL(10000);
97
98 3. AL l = new AL(Collection c);
99
```


Order preserved

Heterogeneous

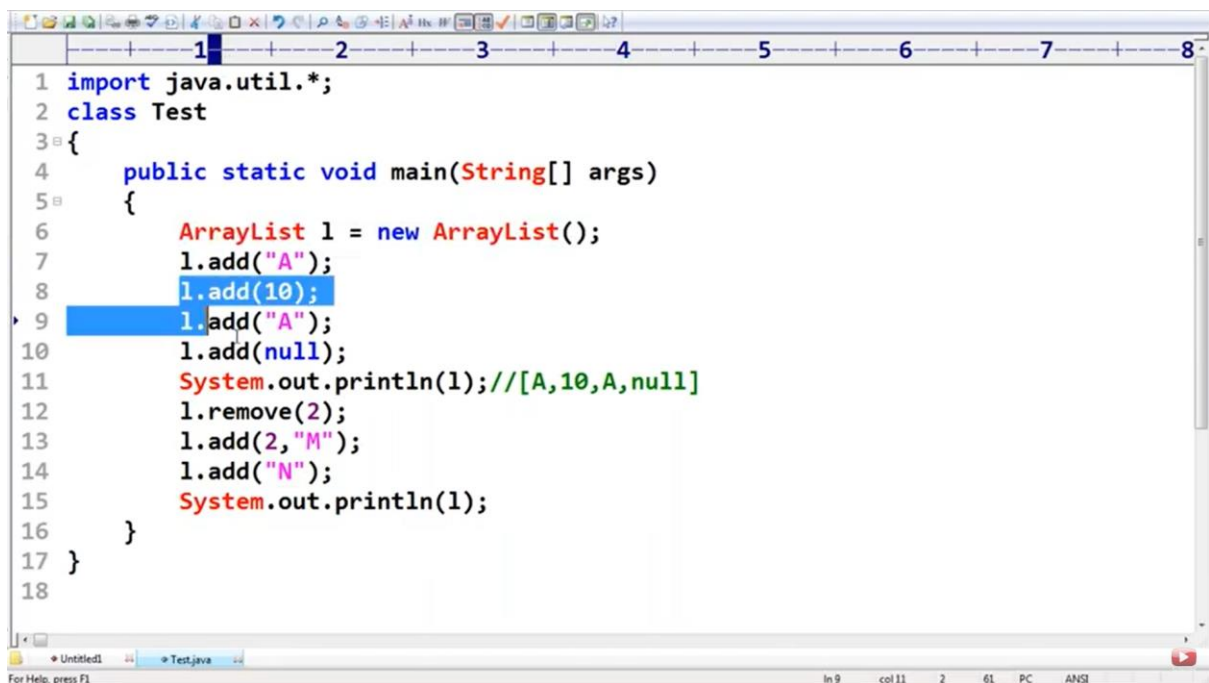
Duplicate Objects

Null Object



```
1 import java.util.*;
2 class Test
3 {
4     public static void main(String[] args)
5     {
6         ArrayList l = new ArrayList();
7         l.add("A");
8         l.add(10);
9         l.add("A");
10        l.add(null);
11        System.out.println(l); //[A, 10, A, null]
12    }
13 }
14
```

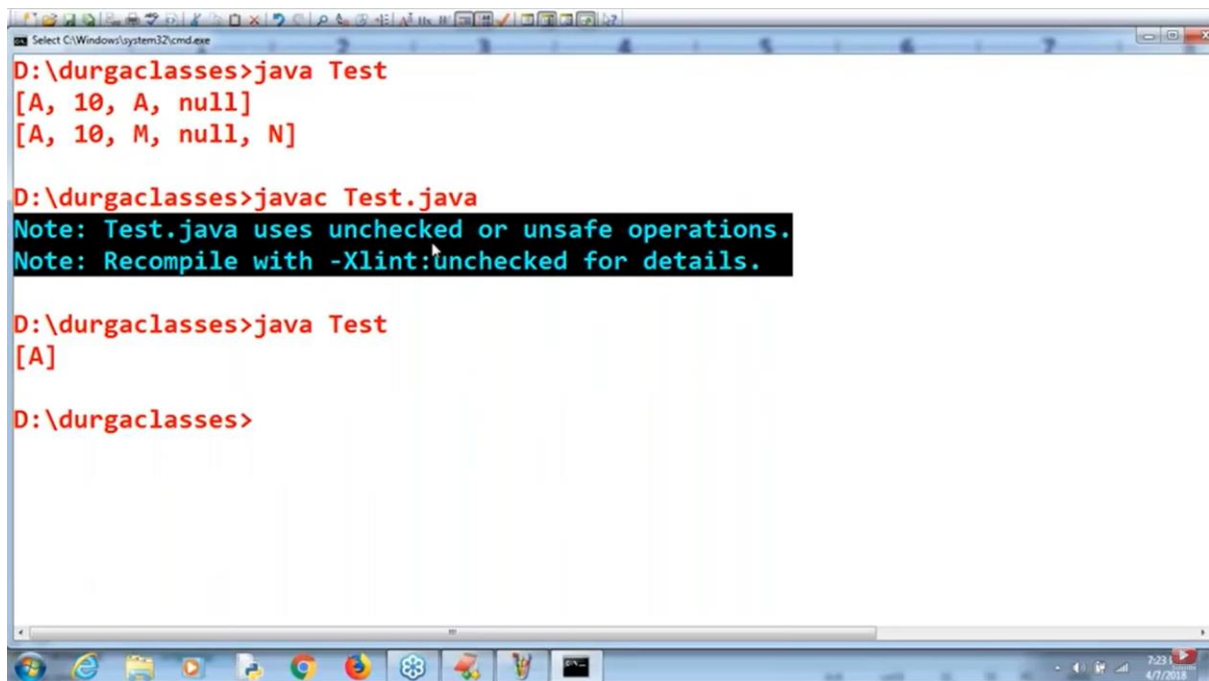
The screenshot shows a Java IDE with a code editor. The code defines a class 'Test' with a 'main' method. Inside the 'main' method, an 'ArrayList' named 'l' is created. Four elements are added to the list: 'A', 10, 'A', and null. The list is then printed to the console, showing '[A, 10, A, null]'. The IDE interface includes a toolbar at the top, a line number margin on the left, and a status bar at the bottom.



```
1 import java.util.*;
2 class Test
3 {
4     public static void main(String[] args)
5     {
6         ArrayList l = new ArrayList();
7         l.add("A");
8         l.add(10);
9         l.add("A");
10        l.add(null);
11        System.out.println(l); //[A, 10, A, null]
12        l.remove(2);
13        l.add(2, "M");
14        l.add("N");
15        System.out.println(l);
16    }
17 }
18
```

The screenshot shows a Java IDE with a code editor. The code defines a class 'Test' with a 'main' method. Inside the 'main' method, an 'ArrayList' named 'l' is created. Four elements are added to the list: 'A', 10, 'A', and null. The list is then printed to the console, showing '[A, 10, A, null]'. After this, the element at index 2 is removed, and 'M' is added at index 2. Finally, 'N' is added to the end of the list. The list is printed again, showing '[A, 10, M, N]'. The IDE interface includes a toolbar at the top, a line number margin on the left, and a status bar at the bottom.

1.5 onwards generics ,its expecting to specify the generics



A screenshot of a Windows command prompt window. The title bar reads "Select C:\Windows\system32\cmd.exe". The command prompt shows the following sequence of commands and outputs:

```
D:\durgaclasses>java Test
[A, 10, A, null]
[A, 10, M, null, N]

D:\durgaclasses>javac Test.java
Note: Test.java uses unchecked or unsafe operations.
Note: Recompile with -Xlint:Unchecked for details.

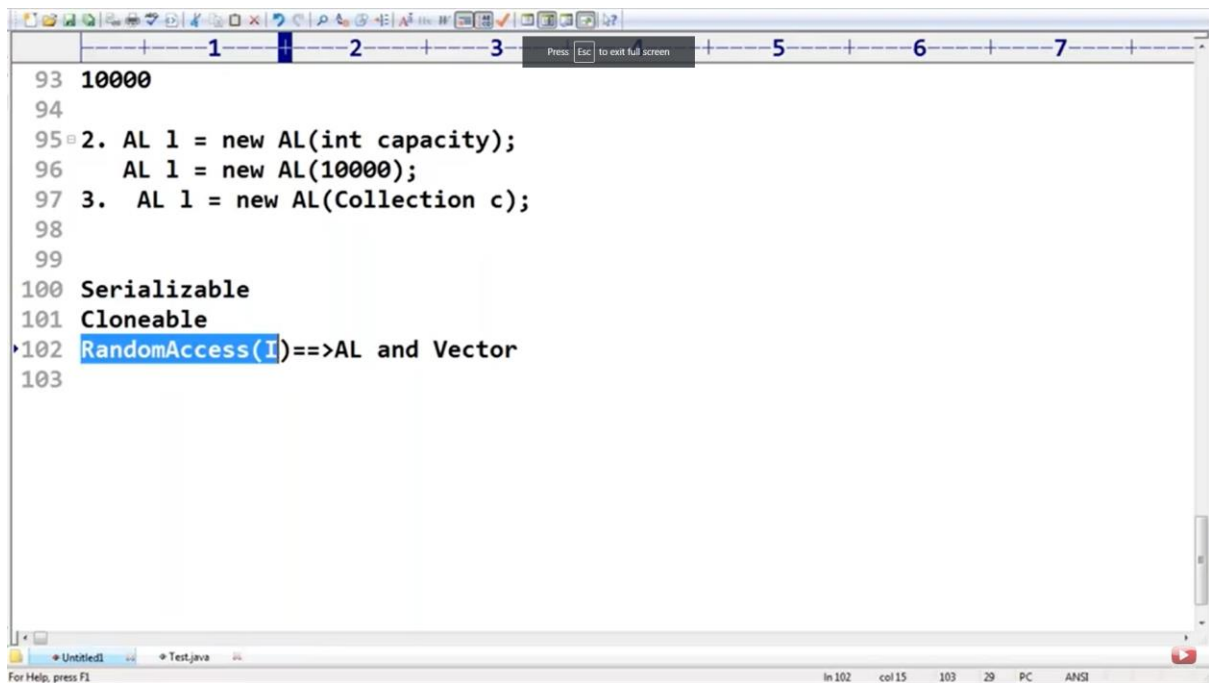
D:\durgaclasses>java Test
[A]

D:\durgaclasses>
```

The Windows taskbar at the bottom shows various application icons and the system clock indicating 7:23 PM on 6/7/2018.

If you want to transfer over a network group of objects the objects should be serializable

Collections are serializable



A screenshot of a Java IDE window. The title bar reads "Untitled1 - Test.java". The code editor shows the following code:

```
93 10000
94
95 2. AL l = new AL(int capacity);
96     AL l = new AL(10000);
97 3. AL l = new AL(Collection c);
98
99
100 Serializable
101 Cloneable
102 RandomAccess(I)==>AL and Vector
103
```

The IDE interface includes a toolbar at the top, a status bar at the bottom showing "In 102 col 15 103 29 PC ANSI", and a small window titled "For Help, press F1" at the bottom left.

Remove will remove the first match and returns true, return false for Jon

➔ Bran Rick Bran

```
OCJA 1.8 Java SE 8 Programmer - I (120 - 808 ) by Durga Sir On 07-04-2018
1 import java.util.*;
2 class Test
3 {
4     public static void main(String[] args)
5     {
6         List<String> l = new ArrayList<>();
7         l.add("Robb");
8         l.add("Bran");
9         l.add("Rick");
10        l.add("Bran");
11        if(l.remove("Bran"))
12        {
13            l.remove("Jon");
14        }
15        System.out.println(l);
16    }
17 }
```

```
16        System.out.println(l);
17    }
18 }
19
20 What is the result?
21
22 A. [Robb, Rick, Bran]
23 B. [Robb, Rick]
24 C. [Robb, Bran, Rick, Bran]
25 D. An exception is thrown at runtime
26
```

OutOfMemoryError -> Error cant be handled, RunTime Error and abnormal termination

```
1 2 3 4 5 6 7 8
4 public static void main(String[] args)
5 {
6     ArrayList l = new ArrayList();
7     try
8     {
9         while(true)
10        {
11            l.add("MyString");
12        }
13    }
14    catch (RuntimeException e)
15    {
16        System.out.println("RuntimeException caught");
17    }
18    catch (Exception e)
19    {
20        System.out.println("Exception caught");
21    }
22    System.out.println("Ready to use");
23 }
24 }
```

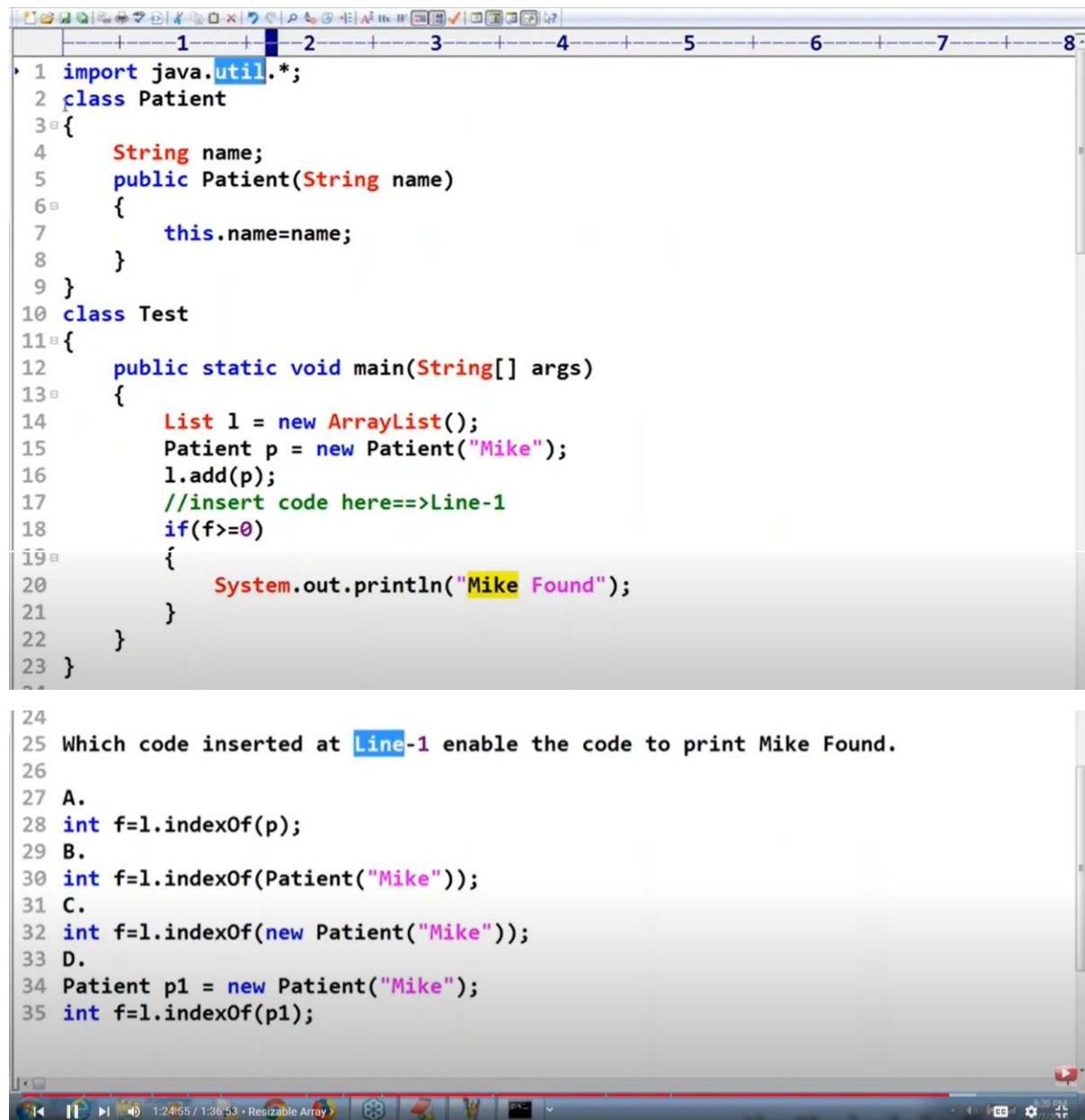
```
OCJA 1.8 Java SE 8 Programmer - I (1Z0 - 808) by Durga Sir On 07-04-2018
Note: Test.java uses unchecked or unsafe operations.
Note: Recompile with -Xlint:unchecked for details.

D:\durgaclasses>java Test
Exception in thread "main" java.lang.OutOfMemoryError: Java heap space
    at java.util.Arrays.copyOf(Unknown Source)
    at java.util.Arrays.copyOf(Unknown Source)
    at java.util.ArrayList.grow(Unknown Source)
    at java.util.ArrayList.ensureExplicitCapacity(Unknown Source)
    at java.util.ArrayList.ensureCapacityInternal(Unknown Source)
    at java.util.ArrayList.add(Unknown Source)
    at Test.main(Test.java:11)
```

A

Line15-> if its

Int f = l.indexOf(p) -> this is going to check if (p.equals on every element in list). If equals method is overridden in the Patient Class then that will be used. Else equals in object will be called and it would make a ref comparison. Here the ref would be the same and the index is 0. The condition <= satisfies



```
1 import java.util.*;
2 class Patient
3 {
4     String name;
5     public Patient(String name)
6     {
7         this.name=name;
8     }
9 }
10 class Test
11 {
12     public static void main(String[] args)
13     {
14         List l = new ArrayList();
15         Patient p = new Patient("Mike");
16         l.add(p);
17         //insert code here==>Line-1
18         if(f>=0)
19         {
20             System.out.println("Mike Found");
21         }
22     }
23 }

24
25 Which code inserted at Line-1 enable the code to print Mike Found.
26
27 A.
28 int f=l.indexOf(p);
29 B.
30 int f=l.indexOf(Patient("Mike"));
31 C.
32 int f=l.indexOf(new Patient("Mike"));
33 D.
34 Patient p1 = new Patient("Mike");
35 int f=l.indexOf(p1);
```

Option C .. new Patient("Mike") will create an new object the ref would not match the p ref already available in List and would return false , meaning no match found and will not print Mike Found

Same is the case of D

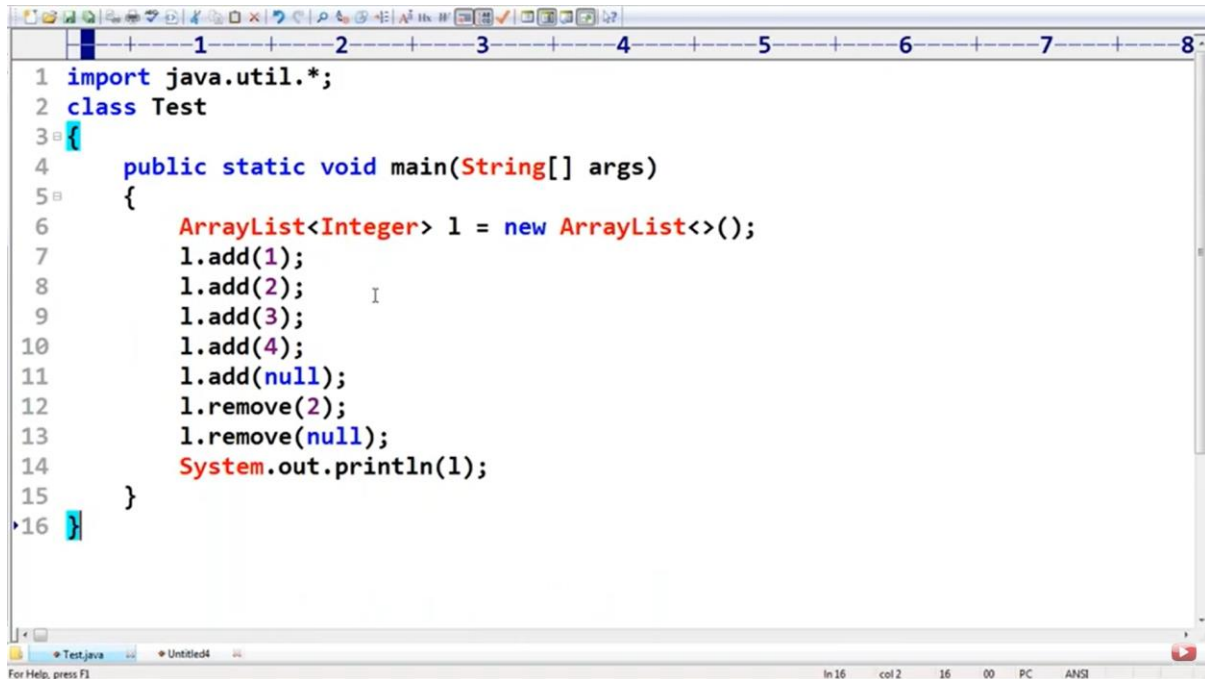
```
C:\Windows\system32\cmd.exe
Mike Found

D:\durgaclasses>javac Test.java
Test.java:17: error: cannot find symbol
    int f=l.indexOf(Patient("Mike"));
                    ^
    symbol:   method Patient(String)
    location: class Test
Note: Test.java uses unchecked or unsafe operations.
Note: Recompile with -Xlint:unchecked for details.
1 error

D:\durgaclasses>
```

Remove(2) -> will remove index 2 → 3, null will be removed

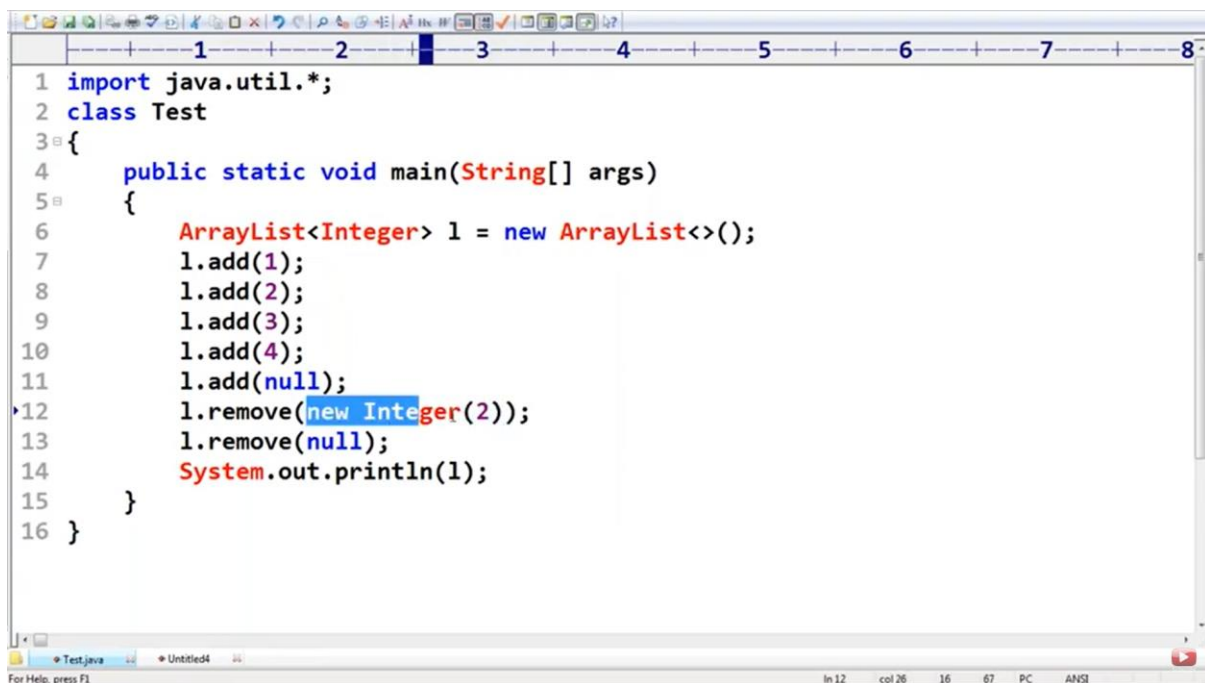
1 2 4



```
1 import java.util.*;
2 class Test
3 {
4     public static void main(String[] args)
5     {
6         ArrayList<Integer> l = new ArrayList<>();
7         l.add(1);
8         l.add(2);
9         l.add(3);
10        l.add(4);
11        l.add(null);
12        l.remove(2);
13        l.remove(null);
14        System.out.println(l);
15    }
16 }
```

Passing Object for removal

1 3 4



```
1 import java.util.*;
2 class Test
3 {
4     public static void main(String[] args)
5     {
6         ArrayList<Integer> l = new ArrayList<>();
7         l.add(1);
8         l.add(2);
9         l.add(3);
10        l.add(4);
11        l.add(null);
12        l.remove(new Integer(2));
13        l.remove(null);
14        System.out.println(l);
15    }
16 }
```

D throws CE, cant add parent object to Child Ref

```
OCJA 1.8 Java SE 8 Programmer - I (170 - 808 ) by Durga Sir On:07-04-2018
136
137 Q. Given the following class declarations
138
139 public abstract class Animal
140 public interface Hunter
141 public class Cat extends Animal implements Hunter
142 public class Tiger extends Cat
143
144 Which one fails to compile?
145
146 A.
147 ArrayList<Animal> l = new ArrayList<>();
148 l.add(new Tiger());
149
150 B.
151 ArrayList<Hunter> l = new ArrayList<>();
152 l.add(new Cat());
153
154 C.
155 ArrayList<Hunter> l = new ArrayList<>();
156 l.add(new Tiger());
157
158 D.
159 ArrayList<Tiger> l = new ArrayList<>();
160 l.add(new Cat());
161
162 E.
163 ArrayList<Animal> l = new ArrayList<>();
164 l.add(new Cat());
165
166
```