**PART A (Output)**

The size of the list is 0

The list is empty true

The size of the list is 4

The list is empty false

This object B is a string

This object C is a string

This object A is a string

This object 25 is an integer

**PART B (Output)**

The size of the list is 0

The list is empty true

The size of the list is 4

The list is empty false

This object B is a string

This object C is a string

This object A is a string

This object 25 is an integer

The size of the list is 7

The list is empty false

This object B is a string

This object C is a string

This object B is a string

This object C is a string

This object A is a string

This object 25 is an integer

This object A is a string

The size of the list is 7

The list is empty false

This object B is a string

This object B is a string

This object C is a string

This object A is a string

This object 25 is an integer

This object A is a string

This object D is a string

**PART C (Output)**

The size of the list is 0

The list is empty true

The size of the list is 4

The list is empty false

This object B is a string

This object C is a string

This object A is a string

This object 25 is an integer

The size of the list is 7

The list is empty false

This object B is a string

This object C is a string

This object B is a string

This object C is a string

This object A is a string

This object 25 is an integer

This object A is a string

The size of the list is 7

The list is empty false

This object B is a string

This object B is a string

This object C is a string

This object A is a string

This object 25 is an integer

This object A is a string

This object D is a string

The size of the list is 9

The list is empty false

This object B is a string

This object B is a string

This object C is a string

This object A is a string

This object 25 is an integer

This object A is a string

This object D is a string

This object 3.75 is a double

This object a is a character

Full list is:

B B C A 25 A D 3.75 a

**PART D (Output)**

The size of the list is 0

The list is empty true

The size of the list is 5

The list is empty false

This object B is a string

This object C is a string

This object A is a string

This object Chair is a product

This object 25 is an integer

The size of the list is 8

The list is empty false

This object B is a string

This object C is a string

This object B is a string

This object C is a string

This object A is a string

This object Chair is a product

This object 25 is an integer

This object A is a string

The size of the list is 8

The list is empty false

This object B is a string

This object B is a string

This object C is a string

This object A is a string

This object Chair is a product

This object 25 is an integer

This object A is a string

This object D is a string

The size of the list is 10

The list is empty false

This object B is a string

This object B is a string

This object C is a string

This object A is a string

This object Chair is a product

This object 25 is an integer

This object A is a string

This object D is a string

This object 3.75 is a double

This object a is a character

**CODE**

**public class CheckArrayList {**

**public static void main(String[] arg){**

ArrayList list = new ArrayList();

display(list);

list.add("A");

list.add(0,"B");

list.add(1, "C");

list.add(new Product("Chair", 249.99));

list.add(new Integer(25));

display(list);

list.add("A");

list.add(0,"B");

list.add(1, "C");

display(list);

list.remove(1);

list.add("D");

list.get(2);

display(list);

double x = Double.valueOf(3.75);

list.add(x);

char p = new Character('a');

list.add(p);

display(list);

**}**

**static void display(ArrayList list){**

System.out.println("The size of the list is " + list.size());

System.out.println("The list is empty " + list.isEmpty());

System.out.println();

for (int i = 0; i < list.size(); i++){

Object o = list.get(i);

if (o instanceof String)

System.out.println("This object " + (String)o + " is a string " );

else if (o instanceof Integer)

System.out.println("This object " + (Integer)o + " is an integer " );

else if (o instanceof Double)

System.out.println("This object " + (Double)o + " is a double " );

else if (o instanceof Character)

System.out.println("This object " + (Character)o + " is a character " );

else if (o instanceof Product)

System.out.println("This object " + ((Product) o).getName() + " is a product " );

}

**}**

**}**

**class Product{**

String name;

double price;

**Product(String s, double p){**

name = s;

price = p;

}

**String getName(){**

return name;

}

}