Dt : 28/9/2022

faq:

wt is the diff b/w

(i)length

(ii)length()

(i)length:

=>"length" keyword is used to find the size of Array or length of Array.

(ii)length():

=>length() method is used to find the length of String.

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faq:

define Sorting process?

=>The process of "arranging elements in order" is known as Sorting process.

=>This Sorting process is categorized into two types:

(a)Ascending order - Lower element to Higher element

(d)Descending order - Higher element to lower element

Note:

=>we use sort() method from "java.lang.Arrays" class to perform Sorting process automatically.

syntax:

Arrays.sort(arr_var);

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Ex : wap to perform Sorting process on Integer WrapperClass objects?

DemoArray9.java

```
package maccess;
import java.util.*;
public class DemoArray9 {
     @SuppressWarnings("removal")
     public static void main(String[] args) {
         Scanner s = new Scanner(System.in);
         System.out.println("Enter the number of Integer
Objects:");
         int n = s.nextInt();
         Integer a[] = new Integer[n];
         System.out.println("Enter "+n+" Integer Objects");
         for(int i=0;i<=n-1;i++)
         {
           a[i] = new Integer(s.nextInt());
                                //Adding Integer object to Array
         }//end of loop
         System.out.println("=====Display before Sorting====");
         for(int i=0;i<a.length;i++)
         {
           System.out.print(a[i].toString()+" ");
         }//end of loop
         System.out.println("\n=====Display After
Sorting(Ascending order)====");
         Arrays.sort(a);//Sorting process
         for(int i=0;i<a.length;i++)
         {
           System.out.print(a[i].toString()+" ");
         }//end of loop
         System.out.println("\n=====Display After
Sorting(Descending order)====");
         for(int i=a.length-1;i>=0;i--)
         {
           System.out.print(a[i].toString()+" ");
         }//end of loop
         s.close();
     }
}
```

o/p:

Enter the number of Integer Objects:

5

Enter 5 Integer Objects

11

34

22

21

9

=====Display before Sorting====

11 34 22 21 9

=====Display After Sorting(Ascending order)====

9 11 21 22 34

=====Display After Sorting(Descending order)====

34 22 21 11 9

==========

Ex : wap to perform Sorting process on String objects?

DemoArray10.java

```
package maccess;
import java.util.*;
public class DemoArray10 {
    public static void main(String[] args) {
        Scanner s = new Scanner(System.in);
        System.out.println("Enter the number of String
Objects:");
        int n = Integer.parseInt(s.nextLine());
        String a[] = new String[n];
        System.out.println("Enter "+n+" String Objects");
        for(int i=0;i<=n-1;i++)
        {
          a[i] = new String(s.nextLine());
                              //Adding String object to Array
```

```
        }//end of loop
        System.out.println("=====Display before Sorting====");
        for(int i=0;i<=n-1;i++)
        {
          System.out.println(a[i].toString());
        }//end of loop
        System.out.println("=====Display After Sorting(Ascending
order)====");
        Arrays.sort(a);//Sorting process
        for(int i=0;i<=n-1;i++)
        {
          System.out.println(a[i].toString());
        }//end of loop
        System.out.println("=====Display After
Sorting(Descending order)====");
        for(int i=a.length-1;i>=0;i--)
        {
          System.out.println(a[i].toString());
        }//end of loop
        s.close();
    }
}
```

o/p:

Enter the number of String Objects:

5

Enter 5 String Objects

java

ant

cat

bat

thread

=====Display before Sorting====

java

ant

cat

bat

thread

=====Display After Sorting(Ascending order)====

ant

bat

cat

java

thread

=====Display After Sorting(Descending order)====

thread

java

cat

bat

ant

==========

Note : Sorting process on User defined class objects in Interface Chapter.

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Summary:

=>Array holding User defined class objects

=>Array holding String objects

=>Array holding WrapperClass objects

=>Array holding Array objects(Jagged Array)

=>Array holding Dis-similer Objects(Object Array)

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Assignment:

wap to read and display multiple student details with result using Arrays?

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Dis-Advantage of Arrays:

=>Array size once defined cannot be modified at runtime or execution time, because of this reason Arrays are not preferable to hold dynamic data in realtime.

Note:

=>Dis-Advantage of Arrays can be overcomed using Collection<T>.

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****imp***

Relations in Java:(InterCommunications in Java)

=>The process of establishing communications b/w components are known as Relations in Java.

=>Relations in Java are categorized into three types:

1.References

2.Inheritance

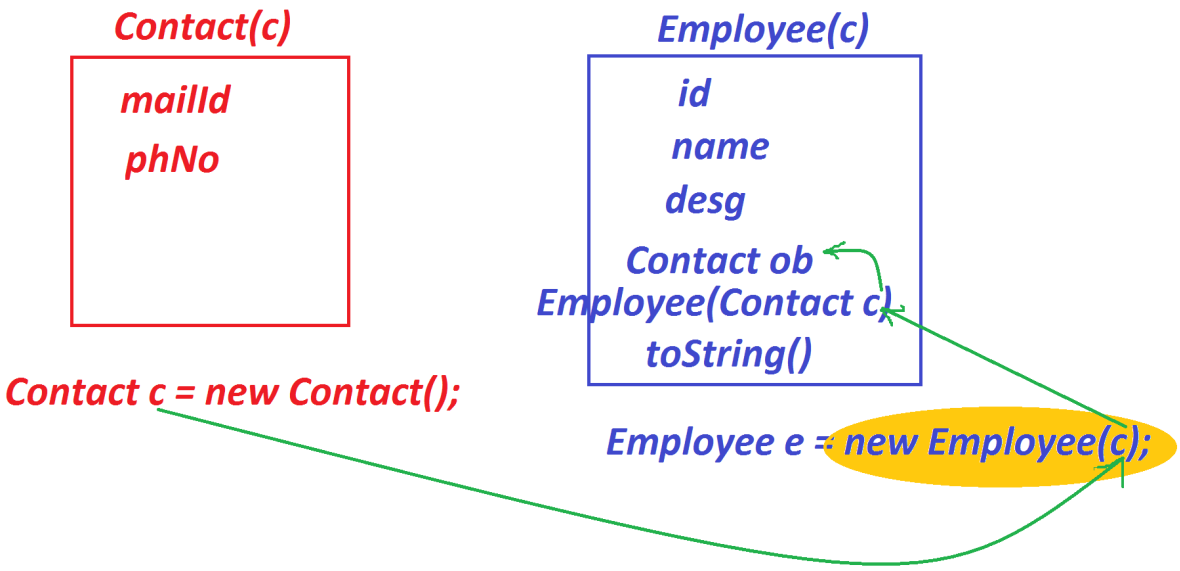
3.InnerClasses

1.References:

=>The process in which one object holding the reference of another object is known as References concept.

=>In references concept the members of one object can use the members of another object.

diagram:



Ex:

Contact.java

```
package test;
public class Contact {
    public String mailId;
    public long phNo;
}
```

Employee.java

```
package test;
public class Employee {
    public String id,name,desg;
    public Contact ob;//Reference variable of Contact
    public Employee(Contact c) {
     ob = c;
    }
    public String toString() {
     return id+"\t"+name+"\t"+desg+"\t"+ob.mailId+"\t"+ob.phNo;
```

```
        }
}
```

DemoRef1.java(MainClass)

```
package maccess;
import test.*;
import java.util.*;
public class DemoRef1 {
        public static void main(String[] args) {
    Scanner s = new Scanner(System.in);
    Contact c = new Contact();
    Employee e = new Employee(c);
      //loading data to objects using Employee object
    System.out.println("Enter the empId:");
    e.id = s.nextLine();
    System.out.println("Enter the empName:");
    e.name = s.nextLine();
    System.out.println("Enter the empDesg:");
    e.desg = s.nextLine();
    System.out.println("Enter the empMailId:");
    e.ob.mailId = s.nextLine();
    System.out.println("Enter the phNo:");
    e.ob.phNo = s.nextLong();
     //display using method of Employee
    System.out.println(e.toString());
```

```
    s.close();
        }
}
```

o/p:

Enter the empId:

A111

Enter the empName:

Raj

Enter the empDesg:

SE

Enter the empMailId:

raj@gmail.com

Enter the phNo:

9898981234

A111 Raj SE raj@gmail.com 9898981234

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Assignment:

Update above program by reading and display multiple employee details using array.

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