Problem solving using java lab file
MCAC0812

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1. Print reverse string in java Program

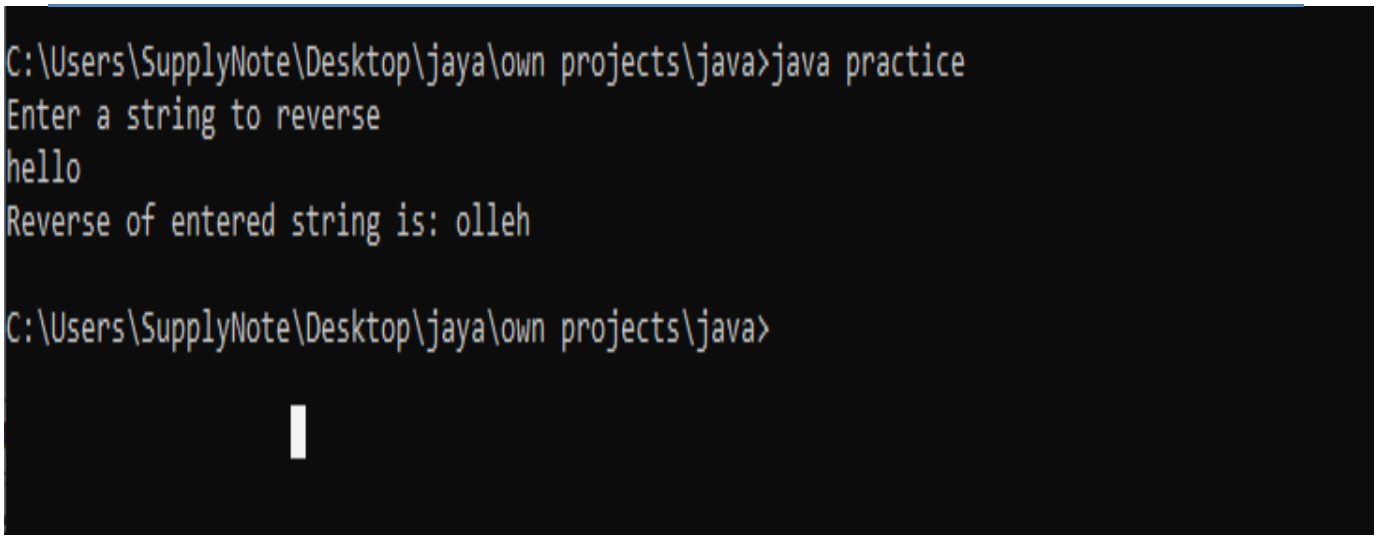
```java
import java.util.*;

class ReverseString
{
   public static void main(String args[])
   {
      String original, reverse = "";
      Scanner in = new Scanner(System.in);

      System.out.println("Enter a string to reverse");
      original = in.nextLine();
      int length = original.length();

      for ( int i = length - 1 ; i >= 0 ; i-- )
         reverse = reverse + original.charAt(i);

      System.out.println("Reverse of entered string is: "+reverse);
   }
}
//Using Internal java Methog
class InvertString
{
   public static void main(String args[])
   {
      StringBuffer a = new StringBuffer("Java programming is fun");
      System.out.println(a.reverse());
   }
}
```



2. Check Given No is palindrome or Not in java Program

```
import java.util.*;
class Palindrome
{
   public static void main(String args[])
   {
      String original, reverse = "";
      Scanner in = new Scanner(System.in);

      System.out.println("Enter a string to check if it is a palindrome");
      original = in.nextLine();
      int length = original.length();

      for ( int i = length - 1; i >= 0; i-- )
         reverse = reverse + original.charAt(i);
      if (original.equals(reverse))
         System.out.println("Entered string is a palindrome.");
      else
         System.out.println("Entered string is not a palindrome.");

   }
}
//Another Method
import java.util.*;
class Palindrome
{
  public static void main(String args[])
  {
    String inputString;
    Scanner in = new Scanner(System.in);
    System.out.println("Input a string");
    inputString = in.nextLine();
    int length  = inputString.length();
    int i, begin, end, middle;

    begin  = 0;
    end    = length - 1;
    middle = (begin + end)/2;

    for (i = begin; i <= middle; i++) {
      if (inputString.charAt(begin) == inputString.charAt(end)) {
        begin++;
        end--;
      }
      else {
        break;
      }

    if (i == middle + 1) {
      System.out.println("Palindrome");
    }
    else {
      System.out.println("Not a palindrome");
    }
  }
}
```

```
C:\Users\SupplyNote\Desktop\jaya\own projects\java>java practice
Enter a string to check if it is a palindrome
madam
Entered string is a palindrome.
```

3. How to add two matrix in java Program

```
import java.util.Scanner;
class AddTwoMatrix
{
   public static void main(String args[])
   {
      int m, n, c, d;
      Scanner in = new Scanner(System.in);
      System.out.println("Enter the number of rows and columns of matrix");
      m = in.nextInt();
      n  = in.nextInt();

      int first[][] = new int[m][n];
      int second[][] = new int[m][n];
      int sum[][] = new int[m][n];

      System.out.println("Enter the elements of first matrix");
      for (  c = 0 ; c < m ; c++ )
         for ( d = 0 ; d < n ; d++ )
            first[c][d] = in.nextInt();
      System.out.println("Enter the elements of second matrix");

      for ( c = 0 ; c < m ; c++ )
         for ( d = 0 ; d < n ; d++ )
            second[c][d] = in.nextInt();
      for ( c = 0 ; c < m ; c++ )
         for ( d = 0 ; d < n ; d++ )
             sum[c][d] = first[c][d] + second[c][d]; //replace '+' with '-'
to subtract matrices
      System.out.println("Sum of entered matrices:-");
      for ( c = 0 ; c < m ; c++ )
      {
         for ( d = 0 ; d < n ; d++ )
            System.out.print(sum[c][d]+"\t");

         System.out.println();

      }
   }
}
```

```
C:\Users\SupplyNote\Desktop\jaya\own projects\java>java practice
Enter the number of rows and columns of matrix
2 3
Enter the elements of first matrix
2
3
4
5
6
7
Enter the elements of second matrix
1
4
7
8
2
9
Sum of entered matrices:-
3       7       11
13      8       16
```

4.How to multiply two matrix in java Program

```
import java.util.Scanner;
class MatrixMultiplication
{
   public static void main(String args[])
   {
      int m, n, p, q, sum = 0, c, d, k;
      Scanner in = new Scanner(System.in);
      System.out.println("Enter the number of rows and columns of first
matrix");
      m = in.nextInt();
      n = in.nextInt();
      int first[][] = new int[m][n];

      System.out.println("Enter the elements of first matrix");

      for ( c = 0 ; c < m ; c++ )
         for ( d = 0 ; d < n ; d++ )
            first[c][d] = in.nextInt();
      System.out.println("Enter the number of rows and columns of second
matrix");
      p = in.nextInt();
      q = in.nextInt();
      if ( n != p )
         System.out.println("Matrices with entered orders can't be multiplied
with each other.");
      else
      {
         int second[][] = new int[p][q];
         int multiply[][] = new int[m][q];

         System.out.println("Enter the elements of second matrix");

         for ( c = 0 ; c < p ; c++ )
            for ( d = 0 ; d < q ; d++ )
               second[c][d] = in.nextInt();
         for ( c = 0 ; c < m ; c++ )
         {
```

```
                for ( d = 0 ; d < q ; d++ )
                {
                    for ( k = 0 ; k < p ; k++ )
                    {

                        sum = sum + first[c][k]*second[k][d];
                    }
                    multiply[c][d] = sum;
                    sum = 0;
                }
            }
            System.out.println("Product of entered matrices:-");
            for ( c = 0 ; c < m ; c++ )
            {
                for ( d = 0 ; d < q ; d++ )
                    System.out.print(multiply[c][d]+"\t");
                System.out.print("\n");
            }
        }
    }
}
```

```
C:\Users\SupplyNote\Desktop\jaya\own projects\java>java practice
Enter the number of rows and columns of first matrix
2 2
Enter the elements of first matrix
1
2
3
4
Enter the number of rows and columns of second matrix
2
3
Enter the elements of second matrix
1
4
5
6
8
1
Product of entered matrices:-
13      20      7
27      44      19
```

5. How to get transpose of matrix in java Program

```
import java.util.Scanner;

class TransposeAMatrix
{
   public static void main(String args[])
   {
      int m, n, c, d;
      Scanner in = new Scanner(System.in);
      System.out.println("Enter the number of rows and columns of matrix");
      m = in.nextInt();
      n = in.nextInt();
      int matrix[][] = new int[m][n];

      System.out.println("Enter the elements of matrix");

      for ( c = 0 ; c < m ; c++ )
         for ( d = 0 ; d < n ; d++ )
            matrix[c][d] = in.nextInt();

      int transpose[][] = new int[n][m];

      for ( c = 0 ; c < m ; c++ )
      {
         for ( d = 0 ; d < n ; d++ )
            transpose[d][c] = matrix[c][d];
      }

      System.out.println("Transpose of entered matrix:-");
      for ( c = 0 ; c < n ; c++ )
      {
         for ( d = 0 ; d < m ; d++ )
               System.out.print(transpose[c][d]+"\t");
         System.out.print("\n");
      }
   }
}
```

```
C:\Users\SupplyNote\Desktop\jaya\own projects\java>java practice
Enter the number of rows and columns of matrix
2
3
Enter the elements of matrix
3
7
9
7
4
3
Transpose of entered matrix:-
3       7
7       4
9       3
```

6.How to compare 2 string in java Program

```
public class LastIndexOfExample{
public static void main(String args[]){
String s1="hello";
String s2="hello";
String s3="meklo";
String s4="hemlo";
System.out.println(s1.compareTo(s2));
System.out.println(s1.compareTo(s3));
System.out.println(s1.compareTo(s4));
}}
```

```
C:\Users\SupplyNote\Desktop\jaya\own projects\java>javac practice.java

C:\Users\SupplyNote\Desktop\jaya\own projects\java>java practice
0
-5
-1
```

7.How to string width with specific char in java Program

```
class StringEndwith{
public static void main(String args[]){
String s1="java by TechnoLamror";
System.out.println(s1.endsWith("r"));  //true
System.out.println(s1.endsWith("Lamror")); //true
System.out.println(s1.endsWith("lamror"));//false
}
}
```

```
C:\Users\SupplyNote\Desktop\jaya\own projects\java>javac practice.java

C:\Users\SupplyNote\Desktop\jaya\own projects\java>java practice
true
true
false

C:\Users\SupplyNote\Desktop\jaya\own projects\java>
```

8. How to use indesOf() in java Program

```
public class IndexOfExample{
public static void main(String args[]){
String s1="this is index of example";
//passing substring
int index1=s1.indexOf("is");//returns the index of is substring
int index2=s1.indexOf("index");//returns the index of index substring
System.out.println(index1+" "+index2);//2 8
//passing substring with from index
int index3=s1.indexOf("is",4);//returns the index of is substring after 4th index
System.out.println(index3);//5 i.e. the index of another is
//passing char value
int index4=s1.indexOf('s');//returns the index of s char value
System.out.println(index4);//3
}}
```

```
C:\Users\SupplyNote\Desktop\jaya\own projects\java>java practice
2 8
5
3
```

9. How to replace string with another string in java Program

```
public class ReplaceAllExample2{
public static void main(String args[]){
String s1="My name is Rajendra. My name is lamror. My name is Technolamror.";
String replaceString=s1.replaceAll("is","was");//replaces all occurrences of "is" to
"was"
System.out.println(replaceString);
}}
```

```
C:\Users\SupplyNote\Desktop\jaya\own projects\java>java practice
My name was Rajendra. My name was lamror. My name was Technolamror.
```

10. How to split string in java Program

```
public class SplitExample{
public static void main(String args[]){
String s1="java string split method by Technolamror";
String[] words=s1.split("\\s");//splits the string based on whitespace
//using java foreach loop to print elements of string array
for(String w:words){
System.out.println(w);
}
}}
```

```
C:\Users\SupplyNote\Desktop\jaya\own projects\java>java practice
java
string
split
method
by
Technolamror
```

11. How to remove space in string both end in java Program

```
public class StringTrimExample{
public static void main(String args[]){
String s1="  hello string   ";
System.out.println(s1+"Technolamror");//without trim()
System.out.println(s1.trim()+"Technolamror");//with trim()
}}
```

```
C:\Users\SupplyNote\Desktop\jaya\own projects\java>java practice
 hello string   Technolamror
hello stringTechnolamror
```

12. How to convert all char in string lower case in java Program

```
public class StringLowerExample{
public static void main(String args[]){
String s1="TECHNOLAMROR by Rajendralamror HELLO stRIng";
String s1lower=s1.toLowerCase();
System.out.println(s1lower);
}}
```

```
C:\Users\SupplyNote\Desktop\jaya\own projects\java>java practice
technolamror by rajendralamror hello string
```

13. Find Length, Concatenate and Replace String in Java Program

```
class StringMethods
{
  public static void main(String args[])
  {
    int n;
    String s = "Java programming", t = "", u = "";
    System.out.println(s);
    n = s.length();// Find length of string
    System.out.println("Number of characters = " + n);
    // Replace characters in string
    t = s.replace("Java", "C++");
    System.out.println(s);
    System.out.println(t);
    u = s.concat(" is fun"); // Concatenating string with another string
    System.out.println(s);
    System.out.println(u);
  }
}
```

```
C:\Users\SupplyNote\Desktop\jaya\own projects\java>java practice
Java programming
Number of characters = 16
Java programming
C++ programming
Java programming
Java programming is fun
```

14. How Static block working in java Program

```
class StaticBlock {
  public static void main(String[] args) {
    System.out.println("Main method is executed.");
  }

  static {
    System.out.println("Static block is executed before main method.");
  }
}
//Static Block Application …. We need to open Program in speciif window
class StaticBlock {
  public static void main(String[] args) {
    System.out.println("You are using Windows_NT operating system.");
  }

  static {
    String os = System.getenv("OS");
    if (os.equals("Windows_NT") != true) { System.exit(1);
    }
  }
}
```

```
C:\Users\SupplyNote\Desktop\jaya\own projects\java>java practice
Static block is executed before main method.
Main method is executed.
```

15. Difference between Static and Instance method working in java Program

```
class Difference {
  public static void main(String[] args) {
    display();  //calling without object
    Difference t = new Difference();
    t.show();  //calling using object
  }
  static void display() {
    System.out.println("Programming is amazing.");
  }
  void show(){
    System.out.println("Java is awesome.");
  }
}
```

```
C:\Users\SupplyNote\Desktop\jaya\own projects\java>java practice
Programming is amazing.
Java is awesome.
```

16. How to create Multiple class in java Program

```java
class Computer {
  Computer() {
    System.out.println("Constructor of Computer class.");
  }
  void computer_method() {
    System.out.println("Power gone! Shut down your PC soon...");
  }
  public static void main(String[] args) {
    Computer my = new Computer();
    Laptop your = new Laptop();

    my.computer_method();
    your.laptop_method();
  }
}
class Laptop {
  Laptop() {
    System.out.println("Constructor of Laptop class.");
  }
  void laptop_method() {
    System.out.println("99% Battery available.");
  }
}
```

```
C:\Users\SupplyNote\Desktop\jaya\own projects\java>java practice
Constructor of Computer class.
Constructor of Laptop class.
Power gone! Shut down your PC soon...
99% Battery available.
```

17. How to create constructor in java Program

```
class Programming {
  //constructor method
  Programming() {
    System.out.println("Constructor method called.");
  }
  public static void main(String[] args) {
    Programming object = new Programming(); //creating object
  }
}
```

```
C:\Users\SupplyNote\Desktop\jaya\own projects\java>java practice
Constructor method called.
```

18. How to create constructor overloading in java Program

```
class Language {
String name;
Language() {
  System.out.println("Constructor method called.");
}
Language(String t) {
  name = t;
}
public static void main(String[] args) {
  Language cpp  = new Language();
  Language java = new Language("Java");

  cpp.setName("C++");

  java.getName();
  cpp.getName();
}
void setName(String t) {
  name = t;
}
void getName() {
  System.out.println("Language name: " + name);
}
}
```

```
C:\Users\SupplyNote\Desktop\jaya\own projects\java>java practice
Constructor method called.
Language name: Java
Language name: C++
```

19. Linear search Program in java

```
import java.util.Scanner;
class LinearSearch
{
  public static void main(String args[])
  {
    int c, n, search, array[];
    Scanner in = new Scanner(System.in);
    System.out.println("Enter number of elements");
    n = in.nextInt();
    array = new int[n];
    System.out.println("Enter " + n + " integers");
    for (c = 0; c < n; c++)
      array[c] = in.nextInt();

    System.out.println("Enter value to find");
    search = in.nextInt();
    for (c = 0; c < n; c++)
    {
      if (array[c] == search)      /* Searching element is present */
      {
          System.out.println(search + " is present at location " + (c + 1)
          +".");

         break;
       }
       if (c == n)  /* Searching element is absent */
                System.out.println(search + " is not present in array.");
       }
       }}
```

```
C:\Users\SupplyNote\Desktop\jaya\own projects\java>java practice
Enter number of elements
3
Enter 3 integers
1
2
3
Enter value to find
2
2 is present at location 2.
```

20. Binary search Program in java

```
import java.util.Scanner;

class BinarySearch
{
  public static void main(String args[])
  {
    int c, first, last, middle, n, search, array[];
    Scanner in = new Scanner(System.in);
    System.out.println("Enter number of elements");
    n = in.nextInt();
    array = new int[n];
    System.out.println("Enter " + n + " integers");

    for (c = 0; c < n; c++)
      array[c] = in.nextInt();
    System.out.println("Enter value to find");
    search = in.nextInt();

    first  = 0;
    last   = n - 1;
    middle = (first + last)/2;
    while( first <= last )
    {
      if ( array[middle] < search )
        first = middle + 1;
      else if ( array[middle] == search )
      {
".");   System.out.println(search + " found at location " + (middle + 1) +
        break;
      }
      else
         last = middle - 1;

      middle = (first + last)/2;
   }
   if ( first > last )
      System.out.println(search + " is not present in the list.\n");
  }
}
```

```
C:\Users\SupplyNote\Desktop\jaya\own projects\java>java practice
Enter number of elements
3
Enter 3 integers
1
2
3
Enter value to find
2
2 found at location 2.
```