

Question:

1. Write a java program to illustrate following String API methods.

charAt() , compareTo(), equals(), equalsIgnoreCase(), indexOf(), length() , substring(), toCharArray() , toLowerCase(), toString(), toUpperCase() , trim() , valueOf()

Code:

```
import java.util.Scanner;
public class javaapis {
    public static void main(String[] args) {

        Scanner sc = new Scanner(System.in);
        String userInput = sc.next();
        String s = new String(userInput);
        System.out.println("Character at 3 :"+ s.charAt(3));
        System.out.println("comparing with mango:"+ s.compareTo("Mango"));
        System.out.println("checking equals with apple =:"+
s.equals("Apple"));
        System.out.println("checking equals with this is a cat :"+
s.equalsIgnoreCase("this is a cat"));
        System.out.println("Finding index of a :"+s.indexOf('a'));
        System.out.println("length of s :"+s.length());
        System.out.println("Substring of the string starting from 2nd index
:"+s.substring(2));
        char[] arr = s.toCharArray();
        System.out.println("first letter of character array :"+arr[0]);
        String temp = s.toLowerCase();
        System.out.println("converting to Lower case :"+temp);
        temp = s.toUpperCase();
        System.out.println("converting to Upper case :"+temp);
        // Returns the string representation of int s.
        temp = String.valueOf(s);

        System.out.println("string representation of s :"+temp);

        int number = 10;
        String str = String.valueOf(number);
        System.out.println("string representation of number :"+str);

    }
}
```

```
charAt() , compareTo() , equals() , equalsIgnoreCase() , indexOf() , length()
, substring() , toCharArray() , toLowerCase() , c , toUpperCase() , trim() ,
valueOf() ;
*/
```

Output:

```
● linuxmint@jc610:~/SAYON.JAVA$ cd "/home/linuxmint/SAYON.JAVA/" && javac javaapis.java && java javaapis
Ritabrata
Character at 3 :a
comparing with mango:5
checking equals with apple =:false
checking equals with this is a cat :false
Finding index of a :3
length of s :9
Substring of the string starting from 2nd index :tabrata
first letter of character array :R
converting to Lower case :ritabrata
converting to Upper case :RITABRATA
string representation of s :Ritabrata
string representation of number :10
```

Question:

Write a java program to illustrate following StringBuffer API methods.

append(), capacity(), charAt(), delete(), deleteCharAt(), ensureCapacity(), getChars(), indexOf(), insert(), length(), setCharAt(), setLength(), substring(), toString() methods),

Code:

```
import java.util.Scanner;
public class Main {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        String userInput = sc.next();
        StringBuffer s = new StringBuffer(userInput);
        //using charAt()
        System.out.println("Character at 3 : " + s.charAt(3));
        //using length()
        System.out.println("length of s : " + s.length());

        //using append() function
        System.out.println("enter a string to append to the previous string
:");
        String userInp = sc.next();
        StringBuffer s2 = new StringBuffer(userInp);
        s.append(s2);
        System.out.println("string after appending the input string:" + s);

        //using the substring() function
        System.out.println("Substring of s starting from 2nd index:" +
s.substring(2));

        //using delete() function of string buffer
        System.out.println("Enter the start index from where you want the
character to be deleted:");
        System.out.println("Enter the end index till where you want the
character to be deleted:");
        int start = sc.nextInt();
        int end = sc.nextInt();
        s.delete(start, end);
        System.out.println("After deleting that character we have:" + s);
    }
}
```

```

// using deleteCharAt()
System.out.println("enter the index from where character must be
deleted:");
int idx = sc.nextInt();
s.deleteCharAt(idx);
System.out.println("String after deleting the character:"+s);

//using capacity() in stringBuffer
System.out.println("capacity of this buffer:"+s.capacity());

//using ensureCapacity() to set the minimum desired capacity
s.ensureCapacity(30);
System.out.println("after updating the capacity:"+s.capacity());

//using indexOf()
System.out.println("enter the character to get index where it is
present ");
String c = sc.next();
System.out.println("chacter "+c+" is at index is "+s.indexOf(c));

//using insert(destination,character)
System.out.println("enter the charter to be inserted");
String instchar = sc.next();
System.out.println("enter the postion where it has to be inserted");
int pos = sc.nextInt();
s.insert(pos,instchar);
System.out.println("After insrting we have "+s);

//using setCharAt()
System.out.println("enter the charter to be to be changed with");
char changechar = sc.next().charAt(0);
System.out.println("enter the postion where it has to be changed");
int posn = sc.nextInt();
s.setCharAt(posn,changechar);
System.out.println("After changing we have "+s);

```

```

//using getChars(srcidxstart,srcidxend,destination,dststart)
System.out.println("enter start of source to getChar");
int getStart = sc.nextInt();
System.out.println("enter end of source to getChar");
int getEnd = sc.nextInt();
System.out.println("enter start of destination to insert");
int destStart = sc.nextInt();
int size = getEnd - getStart + 1;
char[] getter = new char[size];
s.getChars(getStart,getEnd,getter,destStart);
    System.out.print("retreived character :");
for(int i = 0 ; i < size; i++) {
    System.out.print( getter[i]);
}
System.out.println();

//using setLength() '
System.out.println("old length is :"+s.length()+" enter the new
length ");
int l = sc.nextInt();
s.setLength(l);
System.out.println("new length : "+s.length());

//using toString
System.out.print("String representation of object s :
"+s.toString());

    sc.close();
}
}

```

Output:

```
linuxmint@jc610:~/SAYON.JAVAS$ cd "/home/linuxmint/ritabrata-java/" && javac Main.java && java Main
Ritabrata
Character at 3 :a
length of s :9
enter a string to append to the previous string :
Dey
string after appending the input string :RitabrataDey
Substring of s starting from 2nd index:tabrataDey
Enter the start index from where you want the character to be deleted:
Enter the end index till where you want the character to be deleted:
0 5
After deleting that character we have :rataDey
enter the index from where character must be deleted:
4
String after deleting the character :rataey
capacity of this buffer :25
after updating the capacity :52
enter the character to get index where it is present
y
character y is at index is 5
enter the character to be inserted
D
enter the position where it has to be inserted
5
After insrtng we have rataeDy
enter the character to be to be changed with
P
enter the position where it has to be changed
0
After changing we have PataeDy
enter start of source to getChar
1
enter end of source to getChar
3
enter start of destination to insert
0
retrieved character :at
old length is :7 enter the new length
9
new length : 9
linuxmint@jc610:~/ritabrata-javas$
```

Question: Write a java program for explaining the concept of mutable and immutable string.

String class is immutable

Code:

```
public class mutabilitycheck {
    public static void main(String[] args) {
        // Creating two string objects with the same content
        String word1 = new String("Ritabrata");

        // Printing the original contents of the strings
        System.out.println("Content of String1 = " + word1);

        // Reassigning the variable word1 with a new string
        word1.concat("Dey");

        // Now, word1 points to a new string ("Dey"), while word2 still
        // points to the original string ("Ritabrata")
        System.out.println("Content of after changing String1 = " + word1);
    }
}
```

Output:

```
linuxmint@jc610:~/SAYON.JAVA$ cd "/home/linuxmint/ri
Content of String1 = Ritabrata
Content of after changing String1 = Ritabrata
linuxmint@jc610:~/ritabrata-java$
```

String Buffer class is mutable

Code:

```
public class stringbuffercheck {
    public static void main(String[] args) {
        StringBuffer word1 = new StringBuffer("Ritabrata");
        System.out.println("Content of String1 = " + word1);
        word1.append("-Sankalpa");
        System.out.println("Content after changing String1 = " + word1);
    }
}
```

Output:

```
linuxmint@jc610:~/SAYON.JAVA$ cd "/home/linuxmint/ritabrata-java/"
Content of String1 = Ritabrata
Content after changing String1 = Ritabrata-Sankalpa
linuxmint@jc610:~/ritabrata-java$
```