PPL Ass1-String-Operations v2.0

Ass1 : STRING OPERATIONS

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Java Program:

```
import java.util.Scanner;
public class Main{
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        System.out.print("Enter a string: ");
        // Originally entered string  => String class => (Immutable)
        String str1_orig = sc.nextLine();

        // Editable copy of original string => StringBuffer class => (Mutable)
        StringBuffer str1_edit = new StringBuffer(str1_orig);

        int ch, edits = 0, startIndex, endIndex;
        do{
            System.out.println("=============== STRING OPERATIONS ===============");
            System.out.println("[0] EXIT");
            System.out.println("[1] Display string");
            System.out.println("[2] Find length of string");
            System.out.println("[3] Compare two strings");
            System.out.println("[4] Find character at particular position");
            System.out.println("[5] Find substring for the string");
            System.out.println("[6] Check whether string is palindrome or not");
```

```
        // operations to edit the string:
        System.out.println("[7] Convert Lowercase to Uppercase");
        System.out.println("[8] Convert Uppercase to Lowercase");
        System.out.println("[9] Reverse the string");
        System.out.println("[10] Append new string");
        System.out.println("[11] Replace characters");
        System.out.println("[12] Delete characters");
        System.out.print("Enter your choice: ");
        ch = sc.nextInt();
        sc.nextLine(); // read '\n'
        System.out.println("================================================");

        switch(ch){
           case 0: System.out.println("Original string: "+str1_orig);
                   System.out.println("Final string: "+str1_edit);
                   System.out.println("Number of edits made : "+edits);
                   System.out.println("============== PROGRAM ENDED SUCCESSFULLY
==============");
                   break;
           /*-------------------------------------------------------------------------------*/
           case 1: // [1] Display string
                       System.out.println("Original string: "+str1_orig);
                   if(edits > 0){
                       System.out.println("Edited string: "+str1_edit);
                     }
                   break;
           /*-------------------------------------------------------------------------------*/
           case 2: // [2] Find length of string
```

```
                    // using .length() method of String class for original string
                    System.out.println("Length of original string '"+str1_orig+"' is
"+str1_orig.length());
                if(edits > 0){
                    // using .length() method of StringBuffer class for edited string
                    System.out.println("Length of edited string '"+str1_edit+"' is
"+str1_edit.length());
                }
                break;
            /*-------------------------------------------------------------------------*/
            case 3: // [3] Compare two strings (lexicographically)
                // using .compareToIgnoreCase and .compareTo methods of String class
                System.out.print("Enter another string: ");
                String str2 = sc.nextLine();
                // Comparing with original string
                  if(str1_orig.compareToIgnoreCase(str2)==0){
                      System.out.println("Original string '"+str1_orig+"' and '"+str2+"' are
equal (Ignoring Case)");
                  }else{
                      System.out.println("Original string '"+str1_orig+"' and '"+str2+"' are
different (Ignoring Case)");
                  }

                  if(str1_orig.compareTo(str2)==0){
                      System.out.println("Original string '"+str1_orig+"' and '"+str2+"' are
equal (Considering Case)\n");
                  }else{
                      System.out.println("Original string '"+str1_orig+"' and '"+str2+"' are
different (Considering Case)\n");
                  }
```

```
                if(edits > 0){
                    // Comparing with edited version of original string
                    // Creating new String class object as copy of edited string (StringBuffer class) to use String class compare methods
                    String str3 = new String(str1_edit);

                    if(str3.compareToIgnoreCase(str2)==0){
                        System.out.println("Edited string '"+str3+"' and '"+str2+"' are equal (Ignoring Case)");
                    }else{
                        System.out.println("Edited string '"+str3+"' and '"+str2+"' are different (Ignoring Case)");
                    }

                    if(str3.compareTo(str2)==0){
                        System.out.println("Edited string '"+str3+"' and '"+str2+"' are equal (Considering Case)");
                    }else{
                        System.out.println("Edited string '"+str3+"' and '"+str2+"' are different (Considering Case)");
                    }
                }
                break;
            /*-------------------------------------------------------------------------*/
            case 4: // [4] Find character at particular position
                System.out.print("Enter position to find character at: ");
                int pos = sc.nextInt();
```

```
                    // For original string
                    if(pos<0 || pos>str1_orig.length()){
                        System.out.println("Invalid position for original string");
                        break;
                    }
                    System.out.println("In the original string: "+str1_orig);
                    // using .charAt(pos) method of String class
                    System.out.println("Character at index "+pos+" is
"+str1_orig.charAt(pos)+"\n");


                if(edits > 0){
                    // For edited string
                    if(pos<0 || pos>str1_edit.length()){
                        System.out.println("Invalid position for edited string");
                        break;
                    }
                    System.out.println("In the edited string: "+str1_edit);
                    // using .charAt(pos) method of StringBuffer class
                    System.out.println("Character at index "+pos+" is "+str1_edit.charAt(pos));
                }
                break;
            /*-------------------------------------------------------------------------------*/
            case 5: // [5] Find substring for the string
                System.out.print("Enter start index of substring: ");
                startIndex = sc.nextInt(); //inclusive
                System.out.print("Enter end index of substring: ");
                endIndex = sc.nextInt(); //exclusive
```

```
                    // For original string
                    if(startIndex<0 || startIndex>=str1_orig.length() || endIndex<startIndex){
                        System.out.println("Invalid start/end index for original string");
                        break;
                    }
                    // using .substring(startIndex, endIndex) method of String class
                    System.out.println("Substring of original string:
"+str1_orig.substring(startIndex, endIndex));


                if(edits > 0){
                    // For edited string
                    if(startIndex<0 || startIndex>=str1_orig.length() || endIndex<startIndex){
                        System.out.println("Invalid start/end index for edited string");
                        break;
                    }
                    // using .substring(startIndex, endIndex) method of StringBuffer class
                    System.out.println("Substring of edited string:
"+str1_edit.substring(startIndex, endIndex));
                }
                break;
            /*---------------------------------------------------------------------------*/
            case 6: // [6] Check whether string is palindrome or not
                // For original string
                StringBuffer str1_rev = new StringBuffer(str1_orig);
                // using .reverse() method of StringBuffer class
                str1_rev.reverse();
                if(str1_orig.compareToIgnoreCase(str1_rev.toString())==0){
                    System.out.println("Original string '"+str1_orig+"' is Palindrome");
```

```
        }else{
            System.out.println("Original string '"+str1_orig+"' is NOT Palindrome");
        }

        if(edits>0){
            // For edited string
            StringBuffer str1_edit_rev = new StringBuffer(str1_edit);
            // using .reverse() method of StringBuffer class
            str1_edit_rev.reverse();
            if(str1_edit.toString().compareToIgnoreCase(str1_edit_rev.toString())==0){
                System.out.println("String '"+str1_edit+"' is Palindrome");
            }else{
                System.out.println("String '"+str1_edit+"' is NOT Palindrome");
            }
        }
        break;
/*---------------------------------------------------------------------------*/
case 7: // [7] Convert Lowercase to Uppercase
        // using .toUpperCase() method of String class
        System.out.print("String '"+str1_edit+"' ");
        str1_edit = new StringBuffer(str1_edit.toString().toUpperCase());
        edits++;
        System.out.println("lower case to Upper : "+str1_edit);
        break;
/*---------------------------------------------------------------------------*/
case 8: // [8] Convert Uppercase to Lowercase
        // using .toLowerCase() method of String class
```

```
        System.out.print("String '"+str1_edit+"' ");
        str1_edit = new StringBuffer(str1_edit.toString().toLowerCase());
        edits++;
        System.out.println("upper case to Lower : "+str1_edit);
        break;
/*---------------------------------------------------------------------------*/
case 9: // [9] Reverse string
        // using .reverse() method of StringBuilder class
        System.out.print("Reverse of '"+str1_edit);
        str1_edit.reverse();
        edits++;
        System.out.println("' is '"+str1_edit+"'");
        break;
/*---------------------------------------------------------------------------*/
case 10: // [10] Append new string
           System.out.print("Enter string to append: ");
           StringBuffer str4 = new StringBuffer(sc.nextLine());
        // using .append(str) method of StringBuffer class
           str1_edit.append(str4);
           edits++;
           System.out.println("New String: "+str1_edit);
           break;
/*---------------------------------------------------------------------------*/
case 11: // [11] Replace characters
         System.out.print("Enter start index : ");
         startIndex = sc.nextInt(); //inclusive
         System.out.print("Enter end index : ");
```

```
                endIndex = sc.nextInt(); //exclusive
                sc.nextLine(); // read '\n'

                System.out.print("Enter characters to replace with : ");
                String new_chars = sc.nextLine();

               if(startIndex<0 || startIndex>=str1_edit.length() || endIndex<startIndex){
                  System.out.println("Invalid start/end index ");
                  break;
               }
               // using .replace(startIndex, endIndex, new_chars) method of StringBuffer
class
               str1_edit.replace(startIndex, endIndex, new_chars);
               edits++;
               System.out.println("New String: "+str1_edit);
               break;
            /*-------------------------------------------------------------------------*/
            case 12: // [12] Delete characters
                System.out.print("Enter start index : ");
                startIndex = sc.nextInt(); //inclusive
                System.out.print("Enter end index : ");
                endIndex = sc.nextInt(); //exclusive
                if(startIndex<0 || startIndex>=str1_edit.length() || endIndex<startIndex){
                  System.out.println("Invalid start/end index ");
                  break;
               }
                // using .delete(startIndex, endIndex) method of String Buffer class
                str1_edit.delete(startIndex, endIndex);
```

```
                edits++;
                System.out.println("New String: "+str1_edit);
                break;
            /*-------------------------------------------------------------------------*/
            default: System.out.println("Invalid choice"); break;
          }
       }while(ch!=0);
   }
}
```

Program Output:

```
Enter a string: Blue Sky
=============== STRING OPERATIONS ===============
[0] EXIT
[1] Display string
[2] Find length of string
[3] Compare two strings
[4] Find character at particular position
[5] Find substring for the string
[6] Check whether string is palindrome or not
[7] Convert Lowercase to Uppercase
[8] Convert Uppercase to Lowercase
[9] Reverse the string
[10] Append new string
[11] Replace characters
[12] Delete characters
```

Enter your choice: 1

==========

Original string: Blue Sky

========== STRING OPERATIONS ==========

[0] EXIT

[1] Display string

[2] Find length of string

[3] Compare two strings

[4] Find character at particular position

[5] Find substring for the string

[6] Check whether string is palindrome or not

[7] Convert Lowercase to Uppercase

[8] Convert Uppercase to Lowercase

[9] Reverse the string

[10] Append new string

[11] Replace characters

[12] Delete characters

Enter your choice: 2

==========

Length of original string 'Blue Sky' is 8

========== STRING OPERATIONS ==========

[0] EXIT

[1] Display string

[2] Find length of string

[3] Compare two strings

[4] Find character at particular position

[5] Find substring for the string

[6] Check whether string is palindrome or not

[7] Convert Lowercase to Uppercase

[8] Convert Uppercase to Lowercase

[9] Reverse the string

[10] Append new string

[11] Replace characters

[12] Delete characters

Enter your choice: 3

==========

Enter another string: blue sky

Original string 'Blue Sky' and 'blue sky' are equal (Ignoring Case)

Original string 'Blue Sky' and 'blue sky' are different (Considering Case)

========== STRING OPERATIONS ==========

[0] EXIT

[1] Display string

[2] Find length of string

[3] Compare two strings

[4] Find character at particular position

[5] Find substring for the string

[6] Check whether string is palindrome or not

[7] Convert Lowercase to Uppercase

[8] Convert Uppercase to Lowercase

[9] Reverse the string

[10] Append new string

[11] Replace characters

[12] Delete characters

Enter your choice: 4

==========

Enter position to find character at: 0

In the original string: Blue Sky

Character at index 0 is B

========== STRING OPERATIONS ==========

[0] EXIT

[1] Display string

[2] Find length of string

[3] Compare two strings

[4] Find character at particular position

[5] Find substring for the string

[6] Check whether string is palindrome or not

[7] Convert Lowercase to Uppercase

[8] Convert Uppercase to Lowercase

[9] Reverse the string

[10] Append new string

[11] Replace characters

[12] Delete characters

Enter your choice: 5

==========

Enter start index of substring: 0

Enter end index of substring: 4

Substring of original string: Blue

========== STRING OPERATIONS ==========

[0] EXIT

[1] Display string

[2] Find length of string

[3] Compare two strings

[4] Find character at particular position

[5] Find substring for the string

[6] Check whether string is palindrome or not

[7] Convert Lowercase to Uppercase

[8] Convert Uppercase to Lowercase

[9] Reverse the string

[10] Append new string

[11] Replace characters

[12] Delete characters

Enter your choice: 6

==========

Original string 'Blue Sky' is NOT Palindrome

========== STRING OPERATIONS ==========

[0] EXIT

[1] Display string

[2] Find length of string

[3] Compare two strings

[4] Find character at particular position

[5] Find substring for the string

[6] Check whether string is palindrome or not

[7] Convert Lowercase to Uppercase

[8] Convert Uppercase to Lowercase

[9] Reverse the string

[10] Append new string

[11] Replace characters

[12] Delete characters

Enter your choice: 7

==========

String 'Blue Sky' lower case to Upper : BLUE SKY

========== STRING OPERATIONS ==========

[0] EXIT

[1] Display string

[2] Find length of string

[3] Compare two strings

[4] Find character at particular position

[5] Find substring for the string

[6] Check whether string is palindrome or not

[7] Convert Lowercase to Uppercase

[8] Convert Uppercase to Lowercase

[9] Reverse the string

[10] Append new string

[11] Replace characters

[12] Delete characters

Enter your choice: 8

==========

String 'BLUE SKY' upper case to Lower : blue sky

========== STRING OPERATIONS ==========

[0] EXIT

[1] Display string

[2] Find length of string

[3] Compare two strings

[4] Find character at particular position

[5] Find substring for the string

[6] Check whether string is palindrome or not

[7] Convert Lowercase to Uppercase

[8] Convert Uppercase to Lowercase

[9] Reverse the string

[10] Append new string

[11] Replace characters

[12] Delete characters

Enter your choice: 9

==========

Reverse of 'blue sky' is 'yks eulb'

========== STRING OPERATIONS ==========

[0] EXIT

[1] Display string

[2] Find length of string

[3] Compare two strings

[4] Find character at particular position

[5] Find substring for the string

[6] Check whether string is palindrome or not

[7] Convert Lowercase to Uppercase

[8] Convert Uppercase to Lowercase

[9] Reverse the string

[10] Append new string

[11] Replace characters

[12] Delete characters

Enter your choice: 12

==========

Enter start index : 0

Enter end index : 6

New String: lb

========== STRING OPERATIONS ==========

[0] EXIT

[1] Display string

[2] Find length of string

[3] Compare two strings

[4] Find character at particular position

[5] Find substring for the string

[6] Check whether string is palindrome or not

[7] Convert Lowercase to Uppercase

[8] Convert Uppercase to Lowercase

[9] Reverse the string

[10] Append new string

[11] Replace characters

[12] Delete characters

Enter your choice: 11

==========

Enter start index : 1

Enter end index : 2

Enter characters to replace with : evel

New String: level

========== STRING OPERATIONS ==========

[0] EXIT

[1] Display string

[2] Find length of string

[3] Compare two strings

[4] Find character at particular position

[5] Find substring for the string

[6] Check whether string is palindrome or not

[7] Convert Lowercase to Uppercase

[8] Convert Uppercase to Lowercase

[9] Reverse the string

[10] Append new string

[11] Replace characters

[12] Delete characters

Enter your choice: 6

==========

Original string 'Blue Sky' is NOT Palindrome

String 'level' is Palindrome

========== STRING OPERATIONS ==========

[0] EXIT

[1] Display string

[2] Find length of string

[3] Compare two strings

[4] Find character at particular position

[5] Find substring for the string

[6] Check whether string is palindrome or not

[7] Convert Lowercase to Uppercase

[8] Convert Uppercase to Lowercase

[9] Reverse the string

[10] Append new string

[11] Replace characters

[12] Delete characters

Enter your choice: 10

==========

Enter string to append: up

New String: level up

========== STRING OPERATIONS ==========

[0] EXIT

[1] Display string

[2] Find length of string

[3] Compare two strings

[4] Find character at particular position

[5] Find substring for the string

[6] Check whether string is palindrome or not

[7] Convert Lowercase to Uppercase

[8] Convert Uppercase to Lowercase

[9] Reverse the string

[10] Append new string

[11] Replace characters

[12] Delete characters

Enter your choice: 3

==========

Enter another string: level up

Original string 'Blue Sky' and 'level up' are different (Ignoring Case)

Original string 'Blue Sky' and 'level up' are different (Considering Case)

Edited string 'level up' and 'level up' are equal (Ignoring Case)

Edited string 'level up' and 'level up' are equal (Considering Case)

========== STRING OPERATIONS ==========

[0] EXIT

[1] Display string

[2] Find length of string

[3] Compare two strings

[4] Find character at particular position

[5] Find substring for the string

[6] Check whether string is palindrome or not

[7] Convert Lowercase to Uppercase

[8] Convert Uppercase to Lowercase

[9] Reverse the string

[10] Append new string

[11] Replace characters

[12] Delete characters

Enter your choice: 7

==========

String 'level up' lower case to Upper : LEVEL UP

========== STRING OPERATIONS ==========

[0] EXIT

[1] Display string

[2] Find length of string

[3] Compare two strings

[4] Find character at particular position

[5] Find substring for the string

[6] Check whether string is palindrome or not

[7] Convert Lowercase to Uppercase

[8] Convert Uppercase to Lowercase

[9] Reverse the string

[10] Append new string

[11] Replace characters

[12] Delete characters

Enter your choice: 1

==========

Original string: Blue Sky

Edited string: LEVEL UP

========== STRING OPERATIONS ==========

[0] EXIT

[1] Display string

[2] Find length of string

[3] Compare two strings

[4] Find character at particular position

[5] Find substring for the string

[6] Check whether string is palindrome or not

[7] Convert Lowercase to Uppercase

[8] Convert Uppercase to Lowercase

[9] Reverse the string

[10] Append new string

[11] Replace characters

[12] Delete characters

Enter your choice: 4

==========

Enter position to find character at: 6

In the original string: Blue Sky

Character at index 6 is k

In the edited string: LEVEL UP

Character at index 6 is U

========== STRING OPERATIONS ==========

[0] EXIT

[1] Display string

[2] Find length of string

[3] Compare two strings

[4] Find character at particular position

[5] Find substring for the string

[6] Check whether string is palindrome or not

[7] Convert Lowercase to Uppercase

[8] Convert Uppercase to Lowercase

[9] Reverse the string

[10] Append new string

[11] Replace characters

[12] Delete characters

Enter your choice: 5

==========

Enter start index of substring: 6

Enter end index of substring: 8

Substring of original string: ky

Substring of edited string: UP

========== STRING OPERATIONS ==========

[0] EXIT

[1] Display string

[2] Find length of string

[3] Compare two strings

[4] Find character at particular position

[5] Find substring for the string

[6] Check whether string is palindrome or not

[7] Convert Lowercase to Uppercase

[8] Convert Uppercase to Lowercase

[9] Reverse the string

[10] Append new string

[11] Replace characters

[12] Delete characters

Enter your choice: 45

==========

Invalid choice

========== STRING OPERATIONS ==========

[0] EXIT

[1] Display string

[2] Find length of string

[3] Compare two strings

[4] Find character at particular position

[5] Find substring for the string

[6] Check whether string is palindrome or not

[7] Convert Lowercase to Uppercase

[8] Convert Uppercase to Lowercase

[9] Reverse the string

[10] Append new string

[11] Replace characters

[12] Delete characters

Enter your choice: 2

==========

Length of original string 'Blue Sky' is 8

Length of edited string 'LEVEL UP' is 8

========== STRING OPERATIONS ==========

[0] EXIT

[1] Display string

[2] Find length of string

[3] Compare two strings

[4] Find character at particular position

[5] Find substring for the string

[6] Check whether string is palindrome or not

[7] Convert Lowercase to Uppercase

[8] Convert Uppercase to Lowercase

[9] Reverse the string

[10] Append new string

[11] Replace characters

[12] Delete characters

Enter your choice: 0

==========

Original string: Blue Sky

Final string: LEVEL UP

Number of edits made : 7

========== PROGRAM ENDED SUCCESSFULLY ==========