Assignment – 14ᵗʰ (Strings in Java)

1. What is Mutable String in Java, Explain with an example.

Ans: - In Java, a mutable string refers to a string object whose contents can be modified after it is created. The standard `String` class in Java is immutable, which means that once a `String` object is created, its contents cannot be changed.

However, Java provides another class called `StringBuilder` that allows creating mutable strings. A `StringBuilder` object can be modified without creating a new object every time we want to change its content, which makes it more efficient in situations where we need to make a lot of modifications to a string.

Here is an example of using StringBuilder to create a mutable string in Java:

```java
public class Main {
    public static void main(String[] args) {

        StringBuilder sb = new StringBuilder("Hello");

        sb.append(" world");
        System.out.println(sb.toString());
    }
}
```

OUTPUT

```
Hello world

...Program finished with exit code 0
Press ENTER to exit console.
```

2. WAP to reverse a String.
   Input: "PWSKILLS"
   Output: "SLLIKS"

Ans: - Here is a simple program to reverse the string:

```java
class Reverse{
    public String reverseString(String str) {

        char[] chars = str.toCharArray();
        int left = 0, right = str.length() - 1;

        // swap the first and second characters
        char temp = chars[0];
        chars[0] = chars[1];
        chars[1] = temp;

        // reverse the rest of the string
        while(left < right) {
            temp = chars[left];
```

```java
                chars[left] = chars[right];
                chars[right] = temp;
                left++;
                right--;
            }
            return new String(chars);
        }
}

public class Main {
    public static void main(String[] args) {

        Reverse obj = new Reverse();

        String str = "PWSKILLS";
        String reverseString = obj.reverseString(str);

        System.out.println(reverseString);
    }
}
```

<div style="text-align:center;">

OUTPUT

</div>

```
SLLIKSPW


...Program finished with exit code 0
Press ENTER to exit console.
```

3. WAP to reverse a sentence while preserving the position.

Input: "Think Twice"
Output: "kniht eciwt"

Ans: - Here is a simple program to reverse a sentence while preserving the position:

```java
public class Main
{
    public static void main(String[] args) {

        String str1 = "Think Twice";
        String str2 = "";

        String arr[]=str1.split(" ");

        for(String elem : arr){
            for(int i=elem.length()-1; i>=0; i--){

                str2 = str2 + elem.charAt(i);
            }
            str2 = str2+" ";
            str2 = str2.toLowerCase();
        }

        System.out.println(str2);
    }
}
```

```
kniht eciwt



...Program finished with exit code 0
Press ENTER to exit console.
```

4. WAP to sort a string Alphabetically.

Ans: - Here is a simple program to sort a string Alphabetically:

```java
public class Main {
    public static void main(String[] args) {

        String str = "PWSKILLS";
        char[] chars = str.toCharArray();
        int n = chars.length;

        for(int i=0; i<n-1; i++) {
            for(int j=i+1; j<n; j++) {
                if(chars[j] < chars[i]) {
                    char temp = chars[i];
                    chars[i] = chars[j];
                    chars[j] = temp;
                }
            }
        }

        String sorted = new String(chars);
        System.out.println(sorted);
    }
}
```

```
IKLLPSSW



...Program finished with exit code 0
Press ENTER to exit console.
```