

Lab # 01

Task #1: Write a program that initialize five different strings using string literals, new keyword also use intern method and show string immutability.

Code:

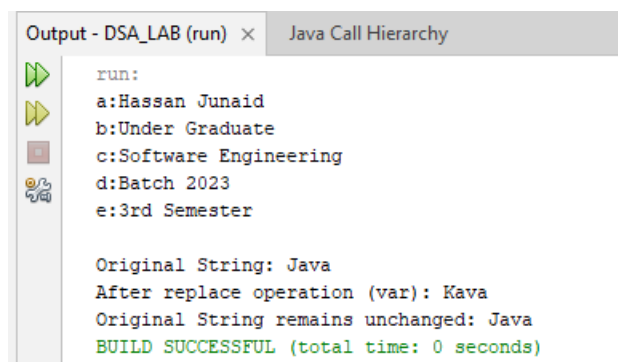
```
public class DSA_LAB1 {
    public static void main(String[] args) {
        /**Task #1**
        //Using Literals
        String a="Hassan Junaid";
        String b= "Under Graduate";
        //Using New Keyword
        String c=new String("Software Engineering");
        String d=new String("Batch 2023");
        //Using Intern
        String e =new String("3rd Semester").intern();

        System.out.println("a:"+a);
        System.out.println("b:"+b);
        System.out.println("c:"+c);
        System.out.println("d:"+d);
        System.out.println("e:"+e);

        // Demonstrating immutability
        String var = "Java";
        System.out.println("\nOriginal String: " + var);

        // Trying to modify the string
        String modified = var.replace('J', 'K');
        System.out.println("After replace operation (var): " + modified);
        System.out.println("Original String remains unchanged: " + var);
    }
}
```

Output:



```
Output - DSA_LAB (run) x Java Call Hierarchy
run:
a:Hassan Junaid
b:Under Graduate
c:Software Engineering
d:Batch 2023
e:3rd Semester

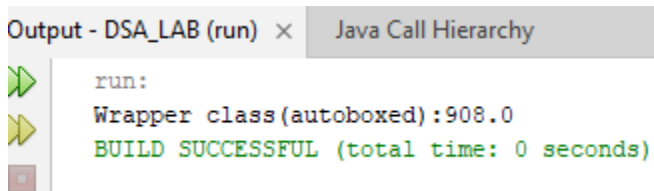
Original String: Java
After replace operation (var): Kava
Original String remains unchanged: Java
BUILD SUCCESSFUL (total time: 0 seconds)
```

Task # 02: Write a program to convert primitive data type Double into its respective wrapper object.

Code:

```
public class DSA_LAB1 {  
    public static void main(String[] args) {  
        //Task 2  
        double var=908;  
        //Conversion  
        Double var1=var;  
        System.out.println("Wrapper class(autoboxed):"+var1);  
    }  
}
```

Output:



```
Output - DSA_LAB (run) x Java Call Hierarchy  
run:  
Wrapper class(autoboxed):908.0  
BUILD SUCCESSFUL (total time: 0 seconds)
```

Task # 03 Write a program that initialize five different strings and perform the following operations.

- Concatenate all five strings.**
- Convert fourth string to uppercase.**
- Find the substring from the concatenated string from 8 to onward**

Code:

```
public class DSA_LAB1 {  
    public static void main(String[] args) {  
        /*Task3*  
        //Initialize String  
        String s1="Atif";  
        String s2="Hassan";  
        String s3="Jameel";  
        String s4="Yamin";  
        String s5="Basil";  
  
        //Concatenate  
        String con1=s1.concat(" "+s2);  
        String con2=s2.concat(" "+s3);  
        String con3=(s3+" "+s4);  
        String con4=(s4+" "+s5);  
        String con5=s5.concat(" Haris");  
    }  
}
```

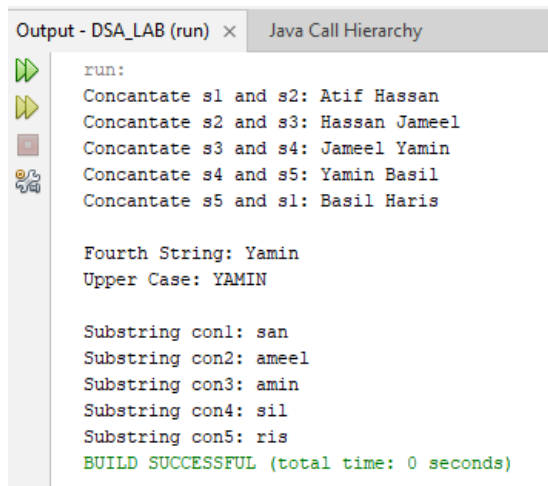
```

System.out.println("Concatate s1 and s2: "+con1);
System.out.println("Concatate s2 and s3: "+con2);
System.out.println("Concatate s3 and s4: "+con3);
System.out.println("Concatate s4 and s5: "+con4);
System.out.println("Concatate s5 and s1: "+con5);

//Fourth String Conversion
String upper =s4.toUpperCase();
System.out.println("\nFourth String: "+s4+"\nUpper Case: "+upper);

//SubString from index 8
System.out.println("\nSubstring con1: "+con1.substring(8));
System.out.println("Substring con2: "+con2.substring(8));
System.out.println("Substring con3: "+con3.substring(8));
System.out.println("Substring con4: "+con4.substring(8));
System.out.println("Substring con5: "+con5.substring(8));
}
}

```

Output:


```

Output - DSA_LAB (run) × Java Call Hierarchy
run:
Concatate s1 and s2: Atif Hassan
Concatate s2 and s3: Hassan Jameel
Concatate s3 and s4: Jameel Yamin
Concatate s4 and s5: Yamin Basil
Concatate s5 and s1: Basil Haris

Fourth String: Yamin
Upper Case: YAMIN

Substring con1: san
Substring con2: ameel
Substring con3: amin
Substring con4: sil
Substring con5: ris
BUILD SUCCESSFUL (total time: 0 seconds)

```

Task # 04 You are given two strings word1 and word2. Merge the strings by adding letters in alternating order, starting with word1. If a string is longer than the other, append the additional letters onto the end of the merged string. Return the merged string.

Code:

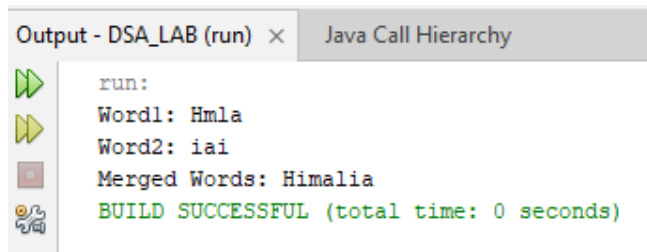
```

public class DSA_LAB1 {
    public static void main(String[] args) {
        //Task 4
        String word1="Hmla";
        String word2="iai";
        System.out.println("Word1: "+word1+"\nWord2: "+word2+"\nMerged Words: "+merged(word1,word2));
    }
}

```

```
public static String merged(String a,String b){
    String m="";
    int maxLength=Math.max(a.length(), b.length());
    for(int i=0;i<maxLength;i++){
        if(i<a.length()){
            m+=a.charAt(i);
        }

        if(i<b.length()){
            m+=b.charAt(i);
        }
    }
    return m;
}
```

Output:

Task # 05: Write a Java program to find the minimum and maximum values of Integer, Float, and Double using the respective wrapper class constants.

Code:

```
public class DSA_LAB1 {
    public static void main(String[] args) {
        //Task 5
        //Integer
        System.out.println("Max Integer:"+Integer.MAX_VALUE);
        System.out.println("Min Integer:"+Integer.MIN_VALUE);
        //Float
        System.out.println("\nMax Float:"+Float.MAX_VALUE);
        System.out.println("Min Float:"+Float.MIN_VALUE);
        //Double
        System.out.println("\nMax Double:"+Double.MAX_VALUE);
        System.out.println("Min Double:"+Double.MIN_VALUE);    }
}
```

Output:

Output - DSA_LAB (run) × Java Call Hierarchy

run:
Max Integer:2147483647
Min Integer:-2147483648

Max Float:3.4028235E38
Min Float:1.4E-45

Max Double:1.7976931348623157E308
Min Double:4.9E-324

BUILD SUCCESSFUL (total time: 0 seconds)