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BANGLADESH UNIVERSITY OF BUSINESS AND TECHNOLOGY

Lab Assignment-2

Course Code: CSE 332

Course Title: Advanced programming

Submitted to:	Submitted by:
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This one is with Synchronization
MainClass

Sample Input:

```
package LabAssignment2;
/**
*
* @author Syeda Nowshin Ibnat
*/
public class MainClass {

public static void main(String[] args) {
Conversion obj1 = new Conversion();
Comparable_Class obj2 = new Comparable_Class();
Strings obj3 = new Strings();

Thread thread1 = new Thread(obj1);
Thread thread2 = new Thread(obj2);
Thread thread3 = new Thread(obj3);
try {
thread1.start();
thread1.join();
thread2.start();
thread2.join();
thread3.start();
} catch (InterruptedException e) {
```

```
e.printStackTrace();
}}}
```

Conversion

```
/*
* To change this license header, choose License Headers in Project Properties.
* To change this template file, choose Tools | Templates
* and open the template in the editor.
*/
package LabAssignment2;
import java.text.*;
import java.util.*;
/**
*
* @author Syeda Nowshin Ibnat
*/

class Conversion implements Runnable {
public synchronized void run() {



//Convert Binary to Decimal
String binaryString = "1010";
int decimal = Integer.parseInt(binaryString, 2);
System.out.println(decimal);
```

```
// Convert Decimal to Binary
int a = 10;
int b = 21;
int c = 31;

System.out.println(Integer.toBinaryString(10));
System.out.println(Integer.toBinaryString(21));
System.out.println(Integer.toBinaryString(31));

//Convert Decimal to Hexadecimal
int p = 10;
int q = 15;
int r = 289;

System.out.println(Integer.toHexString(10));
System.out.println(Integer.toHexString(15));
System.out.println(Integer.toHexString(289));



//Convert Hexadecimal to Decimal
String hex="a";
int d=Integer.parseInt(hex,16);  //d=decimal
System.out.println(decimal); }}
```

Strings

```
package LabAssignment2;

/**
*
* @author Syeda Nowshin Ibnat
*/
public class Strings implements Runnable {
public void run() {
//Create CharAt()
String s = "BUBT";
System.out.println(s.charAt(0));
System.out.println(s.charAt(3));
char ch = s.charAt(4);
System.out.println(ch);

//Create Concat()
String s1="CSE";
s1=s1.concat(" Department");
System.out.println(s1);
String str="Mirpur,"+" Dhaka";
System.out.println(str);

//Create Replace()
String s2 = "Java is a class-based, object-oriented programming language that is
designed to have as few implementation dependencies as possible. It is a general-
```

```
purpose programming language intended to let application developers write once, run anywhere (WORA).";

String replaceString = s2.replace("Java","Nava");  //replaces all occurrences of Java to Nava

System.out.println(replaceString);

//Create StringBuffer()

StringBuffer sb = new StringBuffer("Coding...");

//Append

sb.append("Java");

System.out.println(sb);

//Insert

sb.insert(1,"Java");

System.out.println(sb);

//Replace

sb.replace(1,3,"Java");

System.out.println(sb);

/*Delete*/

sb.delete(1,3);

System.out.println(sb);

//Reverse

sb.reverse();

System.out.println(sb);


System.out.println(sb.capacity());


//Create StringBuilder()
```

```
StringBuilder sb1 = new StringBuilder("Hello ");
// Append
sb1.append("Java");
System.out.println(sb1);
// Insert
sb1.insert(1, "Java");
System.out.println(sb1);
// Replace
sb1.replace(1, 3, "Java");
System.out.println(sb1);
// Delete
sb1.delete(1, 3);
System.out.println(sb1);
// Reverse
sb1.reverse();
System.out.println(sb1);
System.out.println(sb1.capacity());
//Create StringCompare()
String s4="Mirpur";
String s5="Mirpur";
String s6="MIRPUR";
System.out.println(s4.equals(s5));//true
System.out.println(s4.equals(s6));//false
System.out.println(s4.equalsIgnoreCase(s6));//true
System.out.println(s4==s5);
```

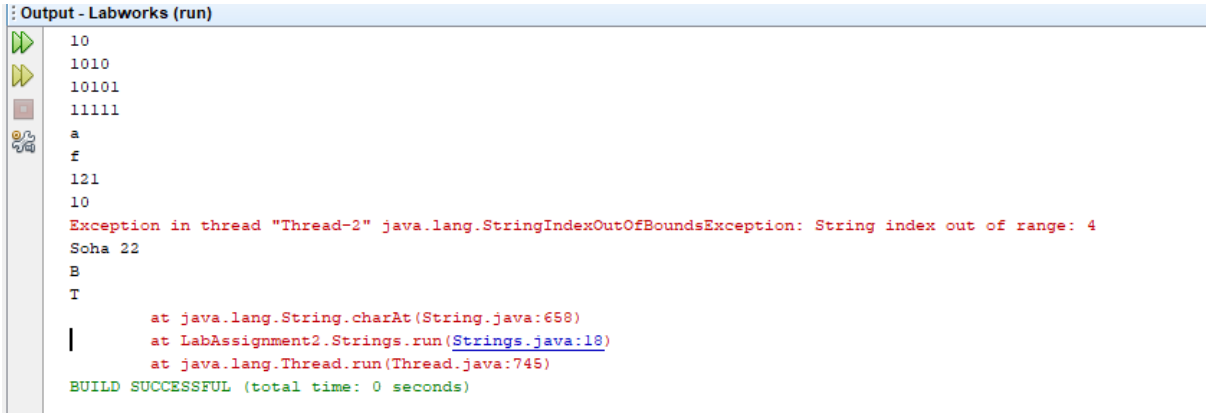
```
System.out.println(s4.compareTo(s5));//0
System.out.println(s4.compareTo(s6));//1(because s1>s3)
System.out.println(s6.compareTo(s4));//-1(because s3 < s1 )

/*UpperCase_LowerCase()*/
String st="Mirpur";
String str1="Machin";
System.out.println(st.toUpperCase());  //MIRPUR
System.out.println(st.toLowerCase());//mirpur
System.out.println(st);
System.out.println(str1);
System.out.println(str1.trim());

//substring()
String str2="MirpurDhaka";
System.out.println(str2.substring(6));//Dhaka
System.out.println(str2.substring(0,6));//Mirpur
} }
```

Comparable_Class

```
package LabAssignment2;
/**
*
* @author Syeda Nowshin Ibnat
*/
```

```
class Comparable_Class implements Comparable<Comparable_Class>, Runnable{
public String name = "Soha", age = "22";
@Override
public int compareTo(Comparable_Class o) {
return toString().compareTo(o.toString()); }
@Override
public synchronized void run() {
System.out.println(name + " " + age);
} }
```

Output:



This one is without Synchronization

MainClass

```
package LabAssignment2_WithoutSynchronization;
/**
*
* @author Syeda Nowshin Ibnat
*/
public class Main_Class {
public static void main(String[] args) {
Conversion obj1 = new Conversion();
Comparable_Class obj2 = new Comparable_Class();
Strings obj3 = new Strings();



obj1.start();
obj2.start();
obj3.start();

Thread thread = new Thread(obj3);
thread.start();

Count cnt = new Count();
try {
while(cnt.isAlive()) {
System.out.println("Main thread will be alive till the child thread is live");
Thread.sleep(6530);
```

```
} }
catch(InterruptedException e) {
System.out.println("Main thread interrupted"); }
System.out.println("Main thread is not running" );
} }
```

Conversion

```
package LabAssignment2_WithoutSynchronization;
/**
*
* @author Syeda Nowshin Ibnat
*/
import java.text.*;
import java.util.*;
public class Conversion extends Thread {

@Override
public void run() {

//Convert Binary to Decimal
String binaryString = "1010";
int decimal = Integer.parseInt(binaryString, 2);
System.out.println(decimal);

// Convert Decimal to Binary
```

```
int a = 10;
int b = 21;
int c = 31;

System.out.println(Integer.toBinaryString(10));
System.out.println(Integer.toBinaryString(21));
System.out.println(Integer.toBinaryString(31));

//Convert Decimal to Hexadecimal
int p = 10;
int q = 15;
int r = 289;

System.out.println(Integer.toHexString(10));
System.out.println(Integer.toHexString(15));
System.out.println(Integer.toHexString(289));

//Convert Hexadecimal to Decimal
String hex = "a";
int d = Integer.parseInt(hex, 16);  //d=decimal
System.out.println(decimal); } }
```

Strings

```
package LabAssignment2_WithoutSynchronization;

/**
*
* @author Syeda Nowshin Ibnat
*/
public class Strings extends Thread {

public void run() {

//Create CharAt()
String s = "Mirpur";
System.out.println(s.charAt(0));
System.out.println(s.charAt(3));
char ch = s.charAt(4);
System.out.println(ch);

// Create Concat()
String s1 = "Mirpur";
s1 = s1.concat(" Dhaka");
System.out.println(s1);
String str = "Mirpur" + "Dhaka";
System.out.println(str);
```

```
// Create Replace()

String s2 = "Java is a class-based, object-oriented programming language that is designed to have as few implementation dependencies as possible. It is a general-purpose programming language intended to let application developers write once, run anywhere (WORA).";

String replaceString = s2.replace("Java", "Nava"); //Replaces all occurrences of Java to Nava

System.out.println(replaceString);

// Create StringBuffer()

StringBuffer sb = new StringBuffer("Coding...");

// Append

sb.append("Java");

System.out.println(sb);

// Insert

sb.insert(1, "Java");

System.out.println(sb);

// Replace

sb.replace(1, 3, "Java");

System.out.println(sb);

// Delete

sb.delete(1, 3);

System.out.println(sb);


// Reverse

sb.reverse();

System.out.println(sb);

System.out.println(sb.capacity());
```

```
// Create StringBuilder()
StringBuilder sb1 = new StringBuilder("Hello ");
// Append
sb1.append("Java");
System.out.println(sb1);
// Insert
sb1.insert(1, "Java");
System.out.println(sb1);
// Replace
sb1.replace(1, 3, "Java");
System.out.println(sb1);
// Delete
sb1.delete(1, 3);
System.out.println(sb1);

// Reverse
sb1.reverse();
System.out.println(sb1);
System.out.println(sb1.capacity());
// Create StringCompare()
String s4 = "Mirpur";
String s5 = "Mirpur";
String s6 = "MIRPUR";
System.out.println(s4.equals(s5));
System.out.println(s4.equals(s6));
```

```
System.out.println(s4.equalsIgnoreCase(s6));
System.out.println(s4 == s5);
System.out.println(s4.compareTo(s5));   //0
System.out.println(s4.compareTo(s6));   //1(because s1>s3)
System.out.println(s6.compareTo(s4));   //-1(because s3 < s1 )
// UpperCase_LowerCase()
String st = "Mirpur";
String str1 = " Mirpur ";
System.out.println(st.toUpperCase());
System.out.println(st.toLowerCase());
System.out.println(st);
System.out.println(str1);
System.out.println(str1.trim());
// substring()
String str2 = "MirpurDhaka";
System.out.println(str2.substring(6));
System.out.println(str2.substring(0, 6));
}}
```

Comparable_Class

```
package LabAssignment2_WithoutSynchronization;
/**
*
* @author Syeda Nowshin Ibnat
*/
public class Comparable_Class implements
Comparable<Comparable_Class>,Runnable {
```

```
public String name="soha", age="22";
@Override
public int compareTo(Comparable_Class o) {
return toString().compareTo(o.toString()); }
@Override
public void run() {
System.out.println(name+" "+age); } }
```

Output: