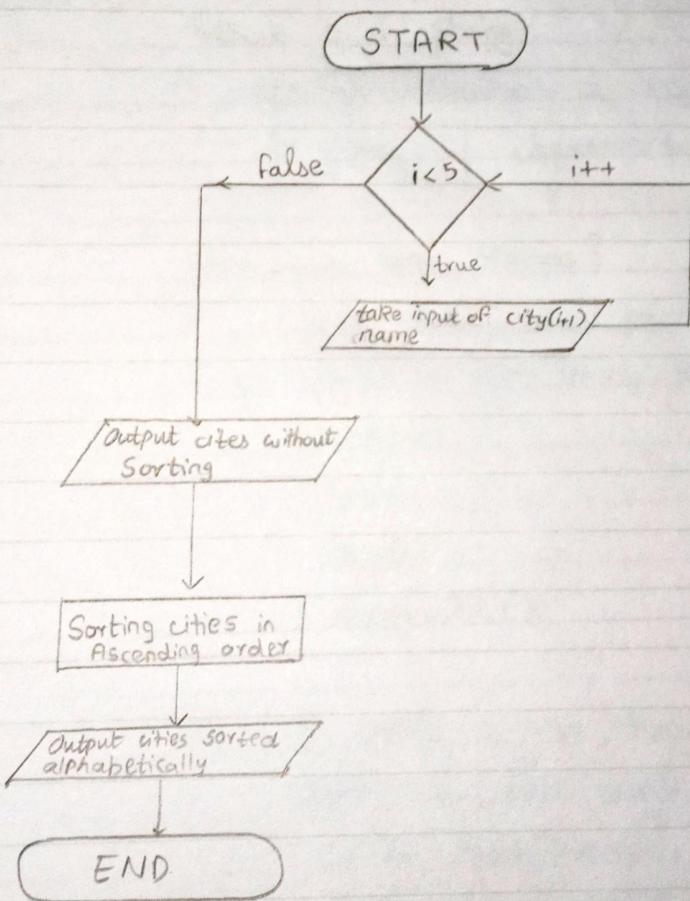


Practical No. 04

Aim: Create, debug and run programs based on String and StringBuffer.

Flow chart:



Code 1

Practical No. 04

Aim: Create, debug and run programs based on String and StringBuffer.

Theory:

What is a String?

- • Strings represent a sequence of characters.
- An array of characters works same as Java string.

Why use Java Strings?

- Java String class provides a lot of methods to perform operations on string such as: compare(),
- | | |
|---------------|---------------|
| • compare() | • equals() |
| • concat() | • split() |
| • length() | • replace() |
| • compareTo() | • substring() |

How to create a new String object?

- There are two ways to create string object:

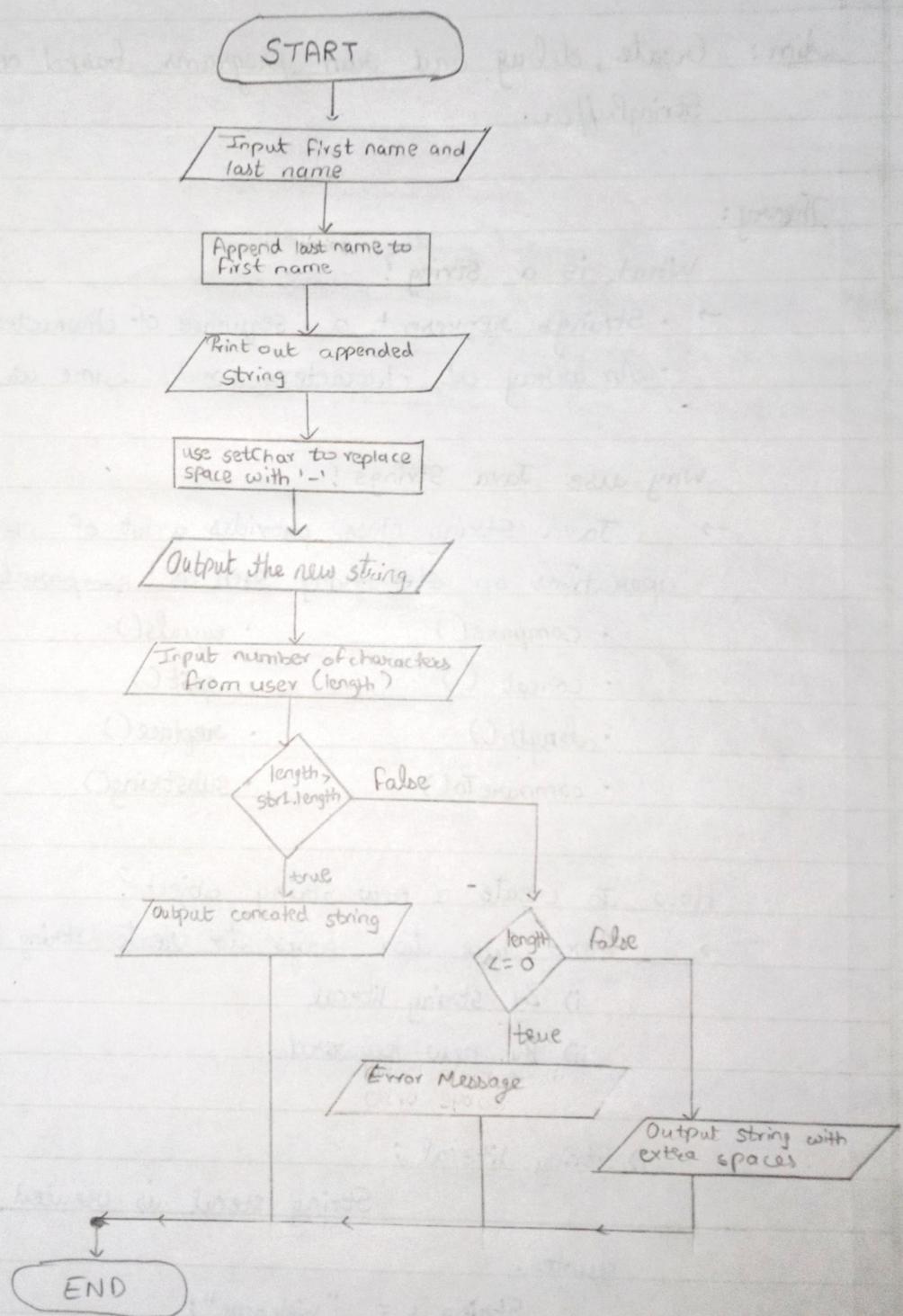
 - i) By string literal
 - ii) By new keyword.

i) String literal :

String literal is created by using double quotes.

String s = "Welcome";

String str = "Pratyay";



Code 2

ii) By new keyword:

```
String s = new String("Pratyay");
```

In this case, the Java Virtual Machine will create a new ~~string~~ string object in normal heap memory, and the literal "Welcome" "Pratyay" will be placed in the string constant pool. The variable s will refer to the object in a heap.

StringBuffer class:

- StringBuffer is a peer class of String.
- While String creates of fixed-length, StringBuffer creates string of flexible length that can be modified in terms of both length and content.

Constructor	Description
StringBuffer()	It creates an Empty String buffer with initial capacity of 16
StringBuffer(string)	It creates a String buffer with the specified string.
StringBuffer(int)	It creates an empty String buffer with the specified capacity as length

Conclusion:

Hence, I created, debugged and executed programs based on String and StringBuffer. I also learnt about the concepts of Strings and StringBuffer.

Code:

```
// String

import java.util.Scanner;

class Practical4A {

    public static void main(String[] args){
        String city[] = new String[5];
        Scanner sc = new Scanner(System.in);

        System.out.println("Enter names of five cities : ");
        for(int i = 0;i<5;i++){
            String temp = sc.nextLine();
            city[i] = temp;
        }

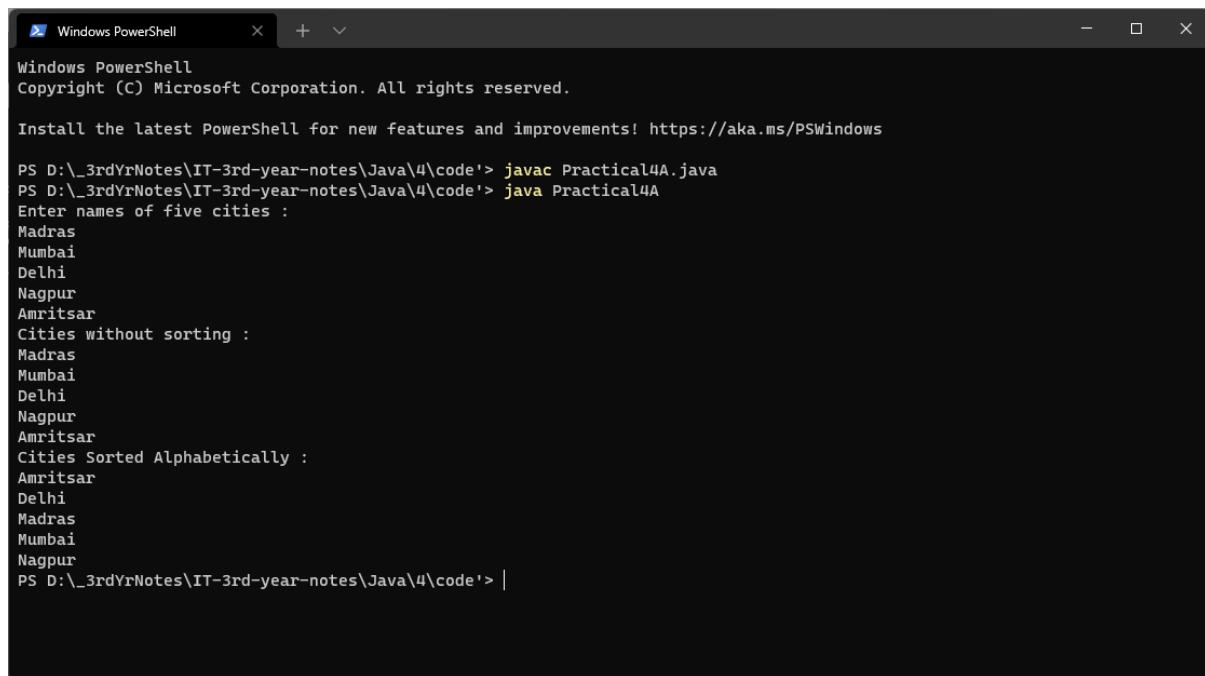
        System.out.println("Cities without sorting : ");
        for(String a : city){
            System.out.println(a);
        }

        for(int i = 0; i< city.length;i++){
            for(int j = i+1; j< city.length; j++){
                if(city[i].compareToIgnoreCase(city[j]) > 0){
                    String temp = city[i];
                    city[i] = city[j];
                    city[j] = temp;
                }
            }
        }

        System.out.println("Cities Sorted Alphabetically : ");
        for(String a : city){
            System.out.println(a);
        }

    }
}
```

Output:



A screenshot of a Windows PowerShell window titled "Windows PowerShell". The window shows the following text output:

```
Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.

Install the latest PowerShell for new features and improvements! https://aka.ms/PSWindows

PS D:\_3rdYrNotes\IT-3rd-year-notes\Java\4\code'> javac Practical4A.java
PS D:\_3rdYrNotes\IT-3rd-year-notes\Java\4\code'> java Practical4A
Enter names of five cities :
Madras
Mumbai
Delhi
Nagpur
Amritsar
Cities without sorting :
Madras
Mumbai
Delhi
Nagpur
Amritsar
Cities Sorted Alphabetically :
Amritsar
Delhi
Madras
Mumbai
Nagpur
PS D:\_3rdYrNotes\IT-3rd-year-notes\Java\4\code'> |
```

Code:

```
//String Buffer

import java.util.Scanner;

class Practical4B{

    public static void main(String[] args){
        Scanner sc = new Scanner(System.in);
        String temp;
        int length;

        System.out.print("Enter your first name : ");
        // StringBuffer str1 = new StringBuffer("James");
        temp = sc.next();
        StringBuffer str1 = new StringBuffer(temp);
        length = str1.length();
        System.out.print("Enter your Surname : ");
        // StringBuffer str2 = new StringBuffer("Gosling");
        temp = sc.next();
        StringBuffer str2 = new StringBuffer(temp);

        // Append function and insert function of String buffer class
        System.out.println("The Name entered is : " +
str1.append(str2).insert(length, ' '));

        //setCharAt() function of String buffer class
        str1.setCharAt(length, '-');
        System.out.println("Using setCharAt() function : " + str1);

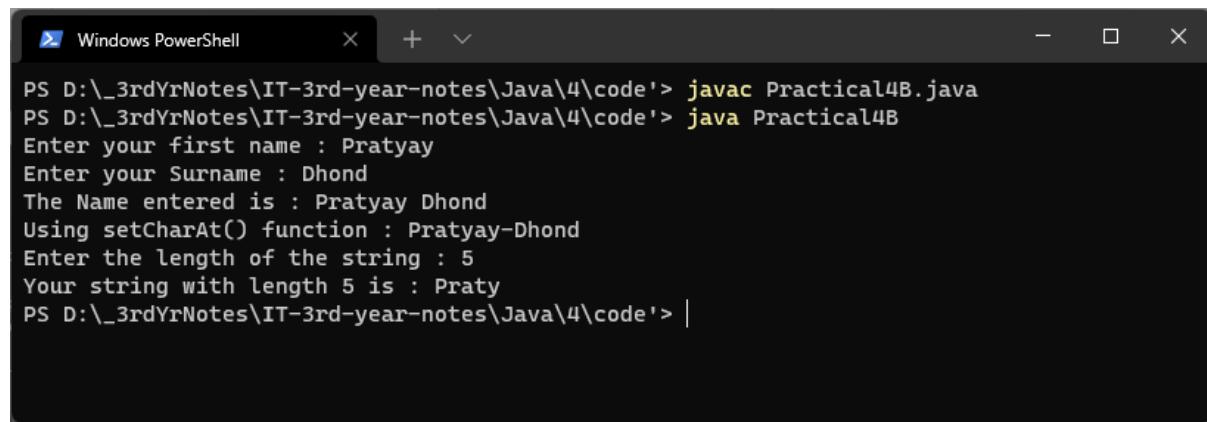
        System.out.print("Enter the length of the string : ");
        length = sc.nextInt();

        if(length > str1.length()){
            System.out.println("The string has less characters than the
inputted length");
//            System.out.println("The extra characters will be replaced with
'0's. ");
            str1.setLength(length);
            System.out.println("Your String with length " + length + " is : " +
+ str1);
        }else if(length <= 0){
            System.out.println("Length of string cannot be zero or less than
zero.");
        }else{
            str1.setLength(length);
        }
    }
}
```

```
        System.out.println("Your string with length " + length + " is : "
+ str1);
    }

}
```

Output:



A screenshot of a Windows PowerShell window titled "Windows PowerShell". The window shows the execution of a Java program named "Practical4B". The output of the program is displayed, including user input for first name and surname, the concatenated name, and the length of the string.

```
PS D:\_3rdYrNotes\IT-3rd-year-notes\Java\4\code'> javac Practical4B.java
PS D:\_3rdYrNotes\IT-3rd-year-notes\Java\4\code'> java Practical4B
Enter your first name : Pratyay
Enter your Surname : Dhond
The Name entered is : Pratyay Dhond
Using setCharAt() function : Pratyay-Dhond
Enter the length of the string : 5
Your string with length 5 is : Praty
PS D:\_3rdYrNotes\IT-3rd-year-notes\Java\4\code'> |
```

Important method of StringBuffer class :

- `setCharAt(n, 'x')`
- `append(s2)`
- `insert(n, s2)`
- `setLength(n)`

How to create a StringBuffer object ?

`StringBuffer sb = new StringBuffer();`

↑ ↑ ↑
Name of Object Calling
class name default constructor

Initializing StringBuffer object :

`StringBuffer str = new StringBuffer("Lightning");`

here, the object str will be initialized to "Lightning".

Conclusion:

Hence, I created, and debugged and executed programs based on String and StringBuffer. I also learnt about the concepts of Strings and String Buffer.