**Department of Computing**

**SE312: Software Construction**

**Class: BESE – 5 AB**

**Lab 1: TV Manager**

**Date: February 15th , 2017**

**Time: Wednesday (10:00 – 13:00), Wednesday (14:00 – 17:00)**

**Instructor: Fahad Ahmed Satti**

**Lab 1: TV Manager**

**Introduction**

In this lab, students will be implementing a TV Manager application in Java or C++. A TV Manager stores a list of connected YouTube channels with appropriate place for each channel. Any user can use this application to create a list of randomly generated/selected YouTube channels. The user can also add a new channel at any point in the list, without replacing any other channel. The user should also be allowed to delete or replace a channel in the list. The user should be able to view the list of all channels in his list and be able to play videos from any channel as well.

**Objectives**

After performing this lab students will be able to understand:

* Using Video Players
* Object handling
* Implementing Linked Lists

**Tools/Software Requirement**

* Programming Language: Java or C++
* Any IDE

**Description**

For creating lists with an unknown size a linked list can be user. A linked list is composed of a several nodes connected with each other via self-references in a linear way. This is similar to how channels exist in a TV Manager application. In linked list, there is a list of elements that are stored in memory. The task is to design a class which implements the concept of TV Manger utilizing the concepts of linked list and perform certain operations on this list. The code of a sample Channel(node) class is as follows:

public class Channel

{

private String value;

private Node nextChannel;

public Channel()

{

value = null;

nextChannel = null;

} //end constructor

public Channel(String value, Node newChannel)

{

this.value = value;

this.nextChannel = newChannel;

} //end constructor

} //end class

You have to create the TV Manager Class, which can perform all the listed lab tasks. You may update the definition of these classes, as you please.

**Lab Task**

Using the class Channel develop a class (name it TVManger) that has the following methods:

* A method that allows the user to add a new YouTube channel to a linked list (in addChannel method you can take full path to the channel as input) without replacing any other channels
* A method that allows the user to replace an existing channel with a new channel to the linked list (name it replaceChannel – in the method ask the user for a new path and the existing path; that has to be changed).
* A method that allows the user to remove an existing channel from the linked list (name it deleteChannel - in the method ask the user for some unique identifier to remove only the intended channel).
* A method that prints the value in description for each YouTube channel in the TVManager (name it printChannel).
* A method that plays a random video from the YouTube channel.
* A main method that demonstrates the methods above.

**Deliverables**

Your submission must include the following:

* Comments in your code
* A description document with separate sections on Introduction, Your Approaches for solving this problem, How to run your application and any supplementary data.
* Original Source Code

Convert your submission files to a zip folder and name it as given below and upload the zip folder on LMS.

Name – Registration No. – Section

**Grade Criteria**

This lab is graded. Min marks: 0. Max marks: 10.

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| --- | --- | --- |
| **Activity** | **Minimum** | **Maximum** |
| Documentation with clearly defined understanding of the lab task and approach | 0 | 1 |
| Code clarity with clean, formatted and commented code. | 0 | 2 |
| Lab Tasks | 0 | 5 |
| Viva | 0 | 2 |
| **Total** | **0** | **10** |