# 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

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# 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:

1. 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
2. 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).
3. 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).
4. A method that prints the value in description for each YouTube channel in the TVManager (name it printChannel).
5. A method that plays a random video from the YouTube channel.
6. A main method that demonstrates the methods above.

**Deliverables**

Your submission must include the following:

1. Comments in your code
2. A description document with separate sections on Introduction, Your Approaches for solving this problem, How to run your application and any supplementary data.
3. 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** |