SEMINAR 3

1. OBJECTIVES

- Use function and class templates – DynamicVector, Iterator (STL-style).
- Get familiar with functions and types in the Standard Template Library.

2. PROBLEM STATEMENT

You love music! (Hey…who doesn't?) Studies show that "wide networks in the brain, including areas responsible for motor actions, emotions, and creativity, are activated during music listening"[1].

But even more than music, you love programming (maybe while listening to music). You therefore need an application that allows you to manage your songs and create playlists. The application will have a *database* (stored as a text file) of songs. For each **song**, you know the artist, the title, the duration (minutes and seconds) and you have a youtube link. The application will have a console-based user interface, allowing you to do the following:

- Add songs to your song database;
- See all the songs in your database;
- Create a playlist and play the songs in it:
    - o Add songs from your database to the playlist (by artist and title);
    - o Add all the songs from your database, by a certain artist, to the playlist;
    - o Play the songs in the playlist, one by one. Playing implies that the current song will be played by your browser, using the youtube link.

Design the solution to this problem using the object oriented programming paradigm. Write the application in C++ and use layered architecture.

3. TASK FOR TODAY'S SEMINAR

Start from the provided implementation from the course web page and:

1. Finish the implementation of the class template DynamicVector, as well as Iterator, such that all tests pass and the application functions correctly.
2. Replace the DynamicVector with the STL vector and make all necessary changes. Replace the required function implementations to use STL algorithms.

---

[1] https://www.sciencedaily.com/releases/2011/12/111205081731.htm