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AUDIO PLAYER WITH A LIBRARY OF DELPHI

Максимович О.В., Мельник К.В., Мельник В.М., Гадай О.С. Аудіоплеєр з фонотекою засобами мови Delphi. У статті представлена розробка аудіоплеєра для персональних комп'ютерів, що дозволяє: відтворювати аудіо файли в зручному для користувача вигляді; каталогізувати всі аудіо файли і забезпечити доступ до них в одному місці, потоково відтворювати аудіо записи з соціальної мережі VK.
Ключові слова: Аудіоплеєра, аудіо файли, мова Delphi.

Климюк М., Мельник К.В., Мельник В.М., Гадай О.С. Аудиоплеер с фонотекой средствами языка Delphi. В статье представлена разработка аудиоплеера для персональных компьютеров, что позволяет: воспроизводить аудио файлы в удобном для пользователя виде; каталогизировать все аудио файлы и обеспечить доступ к ним в одном месте, потоково воспроизводить аудио записи из социальной сети VK.
Ключевые слова:. аудиоплеера, аудио файлы, язык Delphi.

Maksymovych O.V., Melnyk K.V., Melnyk V.M., Gaday O.S. Audio player with a library of Delphi. The article presents the development of the audio player for PC that allows you to play audio files in user-friendly form; all audio files have to be gathered in catalog and access one place, to play audio thread from VK social network.
Keywords:. Audio player, audio files, Delphi

The scientific problem description. Regarding to availability of portable devices presence or absence for audio recordings reproducing, the main one to play audio recordings is the computer. Listen to audio recordings is an integral lively part of the most people. An important aspect for them contains the number of users increasing to the global Internet, so there is also a real need in the software that interacts with a global network. The number of this type software is large enough, and the time, when the user had to be able to play single audio recordings on the hard drive, is really gone off. To realize that, the users today have to get some minimum list of options, good and simple interface for using etc. A large list of audio players raises before users the problem how to choose the best option.

Particularly, the famous audio player Winamp offers the fast scaling of the program window size, the track (song) automatic recognition, the tags filling, album artwork finding, the library import from iTunes, the plugins extensions support, that add various functionality: the reading of lossless formats, the work with the disk appearances, etc. One of the disadvantages in user program using takes the tangled interface [1].

For example, an audio player named AIMP, is a modified Winamp player alternative, has an advanced built-in equalizer (18 sound versus frequencies opposite to 10 one in Winamp) with the set of different audio effects, the possibility of simultaneous work with several playlists (now playing one and second is editing), the built-in tag editor and the ability to download skins.

AIMP natively supports lossless appearances in availability of the markup file CUE. It has the possibility to use some different ways of outputting the signal for better sound like DirectSound, ASIO and WASAPI. AIMP also holds the listening to radio stations from Internet. The drawback is the small navigation controls in this player, the media library opens in a separate window, and the tags are not loading automatically.

One of the multifunctional audio player is aTunes, which has its own multiplatform ability, customizable interface, automatic album covers download, but the engine in Java is quite resource-volume and the list of the radio stations has to be added manually. Audio player foobar2000 gives to user himself the ability to customize the interface. It owns a small program size, easy interface, great set of plugins that extend the player functionality. As the shortcoming can be included uncomfortable graphical interface in the basic Assembly and no automated plug-in settings. A media player named Songbird is built with the Mozilla engine Firefox is cross-platformer and it can be used as a full-fledged browser on a separate tab (password Manager, protector from pop-up Windows). The music information import about composition is performing from iTunes and automatically watches the tracks changes in the specified folder and sync the music library.

The aim of the article. In this work we present the audio player development for PC that allows you to play audio files in user-friendly form; to catalog all the audio files and provide access to all of them in one place; to play threadlike audio from VK social network.

Result and discussions. The audio player which is called Art Player consists of two parts: the audio player and music library. All two parts located in the same window, with the ability to switch over between them. A program algorithm is depicted in the block diagram shown in fig.1.
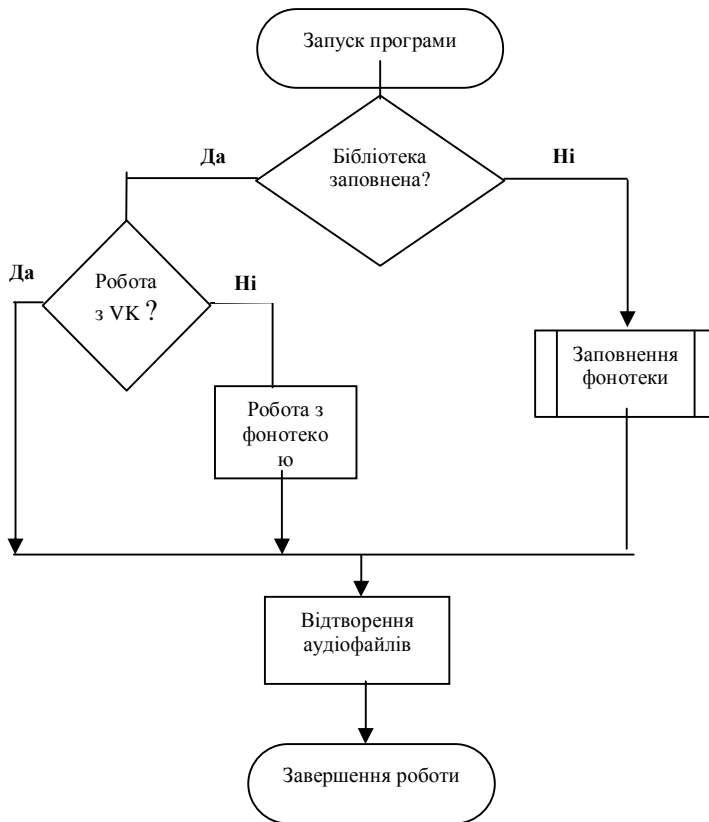
To display the window to the last user it need to carry out some actions such as: to initialize the device to play audio with plugins to work with different formats; create all the necessary lists for using during the program work; to create the class examples to provide the tags computing of the audio data; completeness checking for the database. All the functions and procedures described below are built on the Delphi language.

Having tested for the database content and to reveal its empty, the program gives the choice for the user to start filling the database while connected to the Internet: VK or to finish the work.

To fill in the database it should have data that retrieved by the file search on user's hard drive, and meet our parameters (*.mp3 format, *.aac, *.m4a file size larger than 1 MB). Search of the audio files is carried out using the JvSearchFiles1, and when each file that meets our requirements is fond, the procedure is called:

Fig.1 The Algorithm of the program. Block diagram

TMainView. JvSearchFiles1FindFile(Sender: TObject; const AName: string);

After all the files are fond, the database is filling in agreement with three categories: song, albums, and artists that are filling three tables. While filling the database, it is used another two procedures: the procedure for obtaining tags from audio files GetTagFromTrack(source: string; cover:boolean) and the procedure to obtain the image GetArtistImage(const Artistname: string).

The first procedure is responsible for receiving and processing the audio file tags and it is calling 2 parameters: source – the file from which the data is retrieved, and cover – the switcher to work with the cover or not.

The album artwork processing is to bring all covers to a single extension, size, format, for the working ease with them on next, files playback and the library operating. The covers are stored on disk in subfolder "Data/Cache" of the program folder. The saving of the all covers in one place increases the time of filing the database, but can significantly speed up the program on the next.

It is also three categories created for the sample: songs, albums, artists. The file selecting is performing using SQL queries with timely sorting data to growth the first letter of the keyword. The data is placed in a visible list, named DBList, with which the user works, and also in few invisible lists, which are responsible for the covers and files.

The color scheme adaptation is based on the album composition cover of the song that is playing. For such adaptation are responsible next procedures: BlurArtwork, GetPixelCorol, Applycolors.

For playing files statistics, albums and artists, the ChangePlaycount procedure is created and the same for all categories. The part of the code for tracking playback of the compositions is shown below:

```
ADOQuery1.close;
ADOQuery1.SQL.Clear;
```

```
ADOQuery1.SQL.Add('SELECT Playcount FROM Tracks WHERE Tracks=' +
   quotedstr(title1) + ' AND Albums=' + quotedstr(album1) + '');
ADOQuery1.Active := true;
plcnt := ADOQuery1.Fields[0].asInteger;
plcnt := plcnt + 1;
ADOQuery1.SQL.Clear;
ADOQuery1.SQL.Add('UPDATE Tracks SET Playcount=' + IntToStr(plcnt) +
   ' WHERE Tracks=' + quotedstr(title1) + 'AND Albums=' +
   quotedstr(album1) + '');
ADOQuery1.ExecSQL;
```
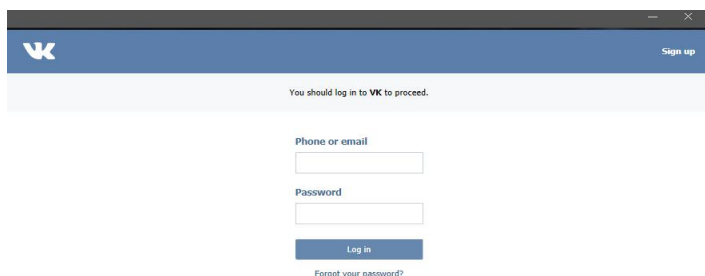

Fig. 2 The login Window VK

The procedure PlayerArtPlayFile is responsible for audio playback. The procedure receives the argument that is excepting the path to the file that has to be played. The program includes a free play option that allows you to diversify the play of the selected composition.

Internet services, which the developed product interacts with, there are more than one year. Therefore, they have already developed server-side methods via convenient API. To be able to use the methods VK API it need to create create an application on the server, putting in the title, the list of the user data to which it will be accessed.

After creating the app its ID will be accepted, that has to be specified during an authorization procedure. The authorization also should be done through the browser, in this case through an instance of the system browser, embedded in the program. After the successful authorization is done in the ribbon, navigate line gets the token key, which grants access to the user data. Similarly to VK on the website Last.fm, there is also necessary to create your account and the app through which it will communicate with the API. After registration the api_key will be accessible, which will be used for interaction with the API.

Program testing

After the first time starting the program you are prompted to fill in the library, or to leave the program. The rate of the filling for the library depends on the disk size loaded with other programs at before time from the number of files that hold into the program filter in agreement with its size and extension.

After clicking on the corresponding icon the VK login window has the appearance shown in fig.2. The working case of this window together with VK is shown on fig.3.
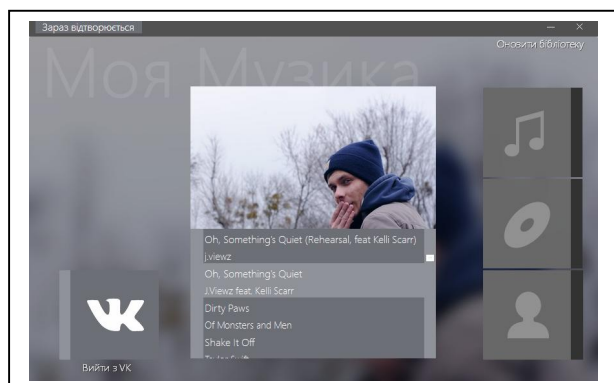

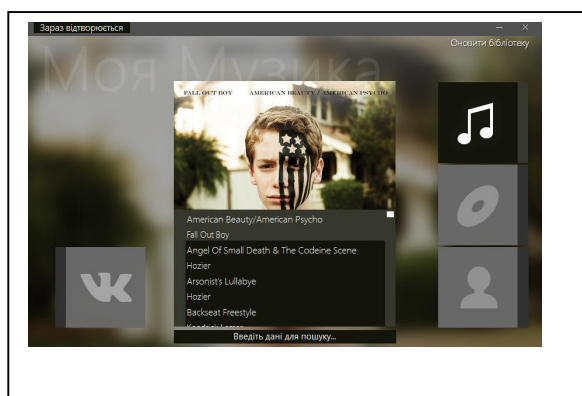Fig. 3. The playlist when you work with VK

Fig.4. Song

The first icon displays a list of all songs, the second icon displays a list of all the albums in the music library, and the third list displays all the performers available in the music library (Fig.4).

Conclusions. The audio player constructed by Delphi means with Internet services support, which has such available features as audio playback MP3 format, AAC, simple and handy interface with customizing of the color scheme for application depended from the album composition cover and the song that's playing and the metadata supporting (tags) for files. It also holds the streaming audio play from VK social network with the ability to view compositions texts and the support of the music files ordering using the music library.

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