**Gateway to the world of music**

Music is an essential part of our lives in many forms, whether through singing, playing an instrument, or simply enjoying it in various settings or when we're in a particular mood. Having been passionate about this vast and beautiful field, I decided to create an application that introduces users to the world of music. It provides an opportunity to learn basic concepts and then apply them on a virtual piano, and there are also some songs that can be played and saved high scores.

**Project Flow**

Start (Form 1);

Authenticator (Form 7);

If (Teacher)  
 ManageClass (Form 8);

Else

{

Summary (Form 2);

If (Music Theory)

Theory (Form 5);

Else if (Try it out)

Piano (Form 3);

Else if (Test it)

{

Testing (Form 4);

Play (Form 6);

}

}

**Code Decisions**

* AppDbContext
  + created the connection between the project and a database
* Student
  + Has a method that returns the smallest index available, in order to close gaps after deletion
* Teacher
* Has a method that returns the smallest index, i.e. the number of objects + 1
* Note
* Each note has an alteration (accidental) and an altitude
* The dictionary is used when converting the read songs from the file
* An absolute\_value method is necessary because a key can be written and saved in more than one way, even though it is always the same key. This problem appears only to the black keys, and this function would return for example 145, if it is the black key between 150 and 140
* The draw\_it method draws the note on the staff in the given location, with everything that it needs
* Song
* Here is saved the list of all songs
* Staff
* Has methods for drawing the lines of the staff, the key signature, and also the current staff filled with notes

**Improvements**

* I could have used more the name of the notes instead of the value (do or C, not 150)
* A user should be able to modify its data. A student should see the high score and the leaderboard. A student could have a certain teacher, so that there would be more classes. A student should also have a list of the songs that he played.
* Registration with an email address so that spam can be avoid, and it should be harder to create a teacher account. For the student account, there should be a code from the teacher such that he is in the right class.

**Bibliography**

* https://csharp.agrimetsoft.com/exercises/Toggle\_Button\_Styling
* https://www.youtube.com/watch?v=V2QwIQxs0Mg
* https://www.youtube.com/watch?v=8pDBfDsqvQw
* https://www.musictheory.net/
* https://dev.to/hbolajraf/c-using-entity-framework-with-postgresql-database-41dg
* <https://www.youtube.com/watch?v=z7G6HV7WWz0>
* https://stackoverflow.com/