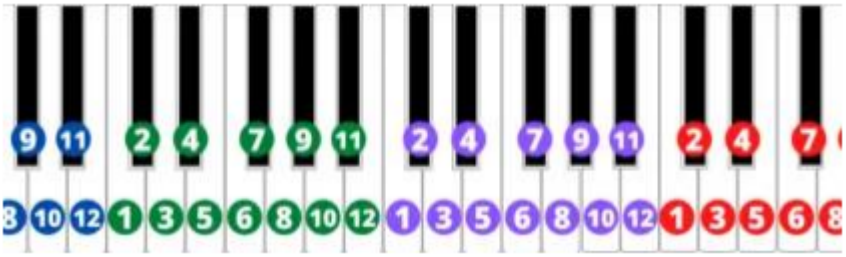
Task requirements:

- Your project should be built with Gradle, with the opportunity to create an executable .jar.
- Your program should take three parameters which are passed in the command line:
    1) “inputFile” - path to the input file, relative to the executable file directory. This will be an incoming JSON file with a collection of notes
    2) “semitone” - a number of semitones to transpose to (can be negative)
    3) “outputFile” - path to the output file, relative to the executable file directory. This will be an outgoing JSON file with a collection of result notes.

  Example: java -jar task.jar in/a.json 5 out/b.json
- As a result of execution, your `.jar` file should create a file containing the output data with the transposed collection of notes.
- If at least one of the input or resulting notes falls out of the keyboard range, your script should return an error message and not create any file with the results.
- After solving the task, send the archive file with the project. The archive must be named with your first and last name

Description of the task:
The piano keyboard is divided into octaves, each octave has 12 notes.



The distance between two random notes is called an “interval”. The interval between two neighboring notes is called “semitone”. The interval of 12 semitones (1 octave) doubles the sound frequency. Transposition refers to the process or operation of moving a musical piece (a collection of notes) up or down in pitch by a constant interval. For example, if you transpose 2 tones (4 semitones) down the note 5, it becomes note 1, if you transpose the note 2 by the same interval, it will become note 10 of the previous octave etc.

Let’s define a note as an array of two elements: [$octaveNumber, $noteNumber] (e.g. [1, 7]). We skip the duration of a particular note for simplicity.

Let’s define a musical piece as a collection of notes (e.g. [[2, 1], [1, 10], [1, 5]]).

The piano keyboard has 7 full octaves (-2, -1, 0, 1, 2, 3, 4) and 2 partial ones (-3 and 5). The first note is [- 3, 10], the last one is [5, 1].

Sample input:

[[2,1],[2,6],[2,1],[2,8],[2,1],[2,9],[2,1],[2,6],[2,1],[2,8],[2,1],[2,9],[2,1],[2,11],[2,1],[2,8],[2,1],[2,9],
[2,1],[2,11],[2,1],[3,1],[2,1],[2,9],[2,1],[2,11],[2,1],[3,1],[2,1],[3,2],[2,1],[2,11],[2,1],[3,1],[2,1],[2,9
],[2,1],[2,11],[2,1],[2,8],[2,1],[2,9],[2,1],[2,6],[2,1],[2,8],[2,1],[2,5],[2,1],[2,6],[2,1],[2,1],[2,1],[2,2]
,[2,1],[1,11],[2,1],[2,1],[2,1],[1,9],[2,1],[1,11],[2,1],[1,8],[2,1],[1,9],[2,1],[1,6],[2,1],[1,11],[2,1],[1,
8],[2,1],[1,9],[2,1],[1,6],[2,1],[1, 8],[2,1],[1,5],[2,1],[1,6]]

Sample output for transposing to -3 semitones:

[[1,10],[2,3],[1,10],[2,5],[1,10],[2,6],[1,10],[2,3],[1,10],[2,5],[1,10],[2,6],[1,10],[2,8],[1,10],[2,5],[
1,10],[2,6],[1,10],[2,8],[1,10],[2,10],[1,10],[2,6],[1,10],[2,8],[1,10],[2,10],[1,10],[2,11],[1,10],[2,8
],[1,10],[2,10],[1,10],[2,6],[1,10],[2,8],[1,10],[2,5],[1,10],[2,6],[1,10],[2,3],[1,10],[2,5],[1,10],[2,2]
,[1,10],[2,3],[1,10],[1,10],[1,10],[1,11],[1,10],[1,8],[1,10],[1,10],[1,10],[1,6],[1,10],[1,8],[1,10],[1,
5],[1,10],[1,6],[1,10],[1,3],[1,10],[1,8],[1,10],[1,5],[1,10],[1,6],[1,10],[1,3],[1,10],[1,5],[1,10],[1,2]
,[1,10],[1,3]]