Programming Project 2019/20 Project Report
Title: PrPr-Winter2020-FinalProject-17913
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I used the programming techniques as follows.

Technique	Description
1. Data IO (web)	In the Download.java class I've used: HttpsURLConnection for downloading files through https protocol ; InputStreamReader to read from the website; URL class to represent the url of the website.
2. Data IO (local files)	I used FileReader and BufferReader to read local files. I used FileWriter to write in the file the results. I used ByteBuffer to encode the cleaned files, in order to have the right characters in the files. They were used in the classes: SongsReader.java, Download.java, RemoveTag.java, and in the classes of the counter package.
3. Multithreading	I used multithreading for executing the features of the project in the Runner.java class. I also used java.lang.Object.getClass in the Tester.java class, in order to have the runtime class of the object for the test.
4. JUnit testing	I used JUnitTesting to check whether the number of emotion and ignore words is correct or not. Also, I used it to check whether some classes exist. It was used in the class Tester.java
5. Logging using java.util.logging	I used logging to describe the processes that are currently active in the Facade.java class
6. Exception throwing	I used Exception handling in file input for checking that the files has the word counter different from 0. It was used in the MYException.java class and this exception was thrown in the method "writeCount" of the WordCounter.java class.
7. Generics and Collections	I used generics and collections to retrieve information and to store frequencies. For example, they were used in the "counter" package, in the SongsReader.java class
8. Design patterns (use at least three design patterns)	I used the Factory, the decorator, facade and ObjectPool patterns. The factory pattern was used by extending the class SongsReader by the class FileName; it was used for reading the csv File with the song and give the name to the other files such as the downloaded and cleaned

	ones and so on. I used the decoration Pattern in the Facade class for executing the processes concurrently. The ObjectPool pattern was used in the FileName class for checking the validity of the names of authors and song. Façade was used in the Runner class by creating an object of the Facade class where all the process from the various classes are called.
9. Regular Expressions	I used Regular Expressions for file cleaning in the "RemoveTag" class; I used Regular Expressions also for counting words (since I had to remove certain characters I used them).
10. Advanced Inheritance	I used advanced inheritance in the class Facade by extending the Runnable interface; also, in the FileName.java class by extending the class SongsReaeder.java
11. Javadoc documentation	I used Javadoc documentation to describe all the implementations of the class created. It was used in all the classes.