Technical Assignment: Implementing a Machine Learning Service

Description of the Problem:

The company's objective is to create a genre classification service utilizing machine learning algorithms. The Data Science team has already developed machine learning components capable of matching audio files. Your responsibility is to implement a service that seamlessly integrates this machine-learning component.

The service should be available to users through endpoints and should accept requests regarding the audio file to be classified and respond with classification results. You are not expected to implement the machine learning component of this service but consider it as a black box that takes audio files as input and returns randomly a music genre (for example Rock, RnB, Pop, Jazz) and a confidence score. Bear in mind that the service should be designed having as a prerequisite the fact that the machine learning component is expected to respond within a timeframe of 500 ms to 2 seconds and utilize some GB of memory. This is to be considered in the design and not as a code implementation.

The service is expected to :

- Be reachable through endpoints that will receive requests and provide responses.
- Monitor the request state.
- Be able to handle a relatively high number of requests.
- The service should be easily deployable.
- Provide well documented and tested code.

An abstract implementation of certain components is acceptable. 😎

Deliverables:

Provide the python code for the service in a Git repository or a zip file. Include clear instructions on how to set up and run the service. Moreover, outline the architecture of your solution, detailing the components and their interactions. Feel free to propose any frameworks, and tools intended for the service. Justify your choices by explaining how they align with the specific requirements of the project.

Submission:
Ensure that the vasiliki.chira@gmail.com, kostas.eftaxias@orfium.com and dim.karadima@gmail.com are added to the repository for collaboration.

Have fun with your implementation!