Software Development Project

Multilingual: Text to Speech
Presentation 4

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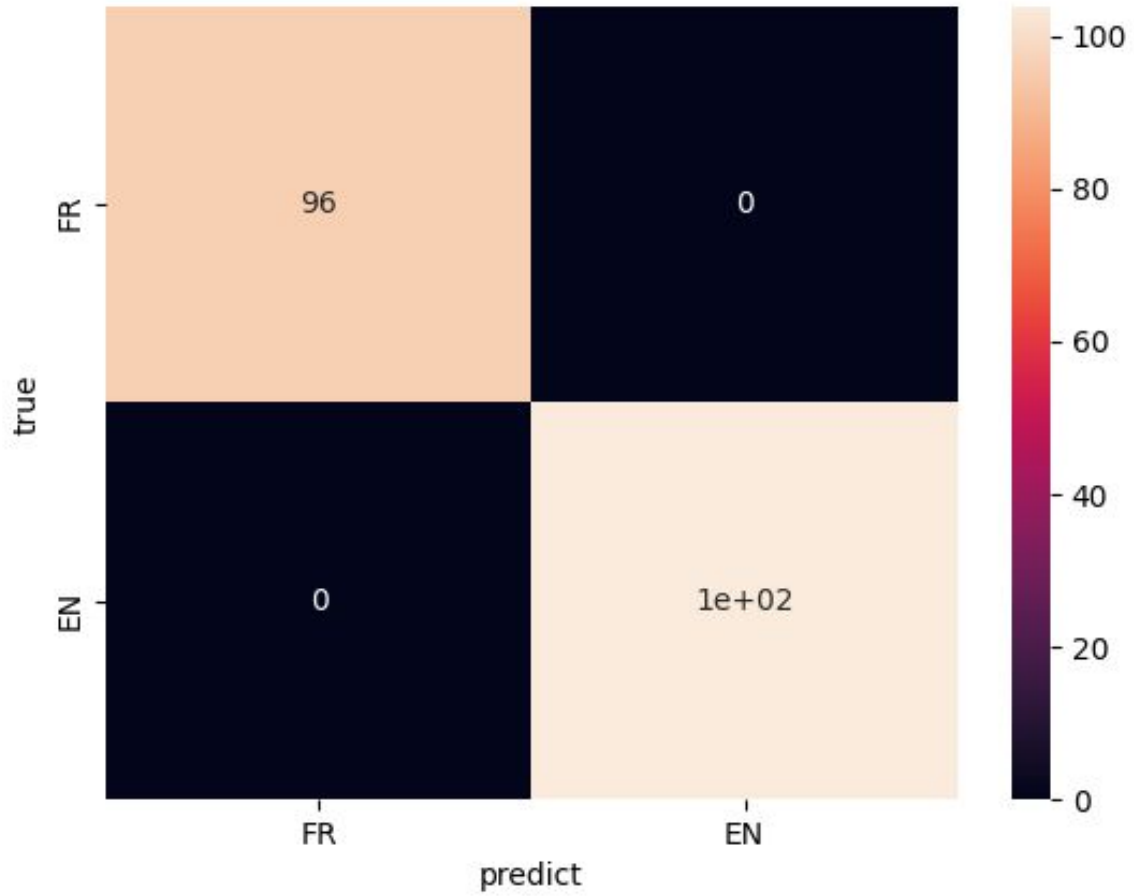
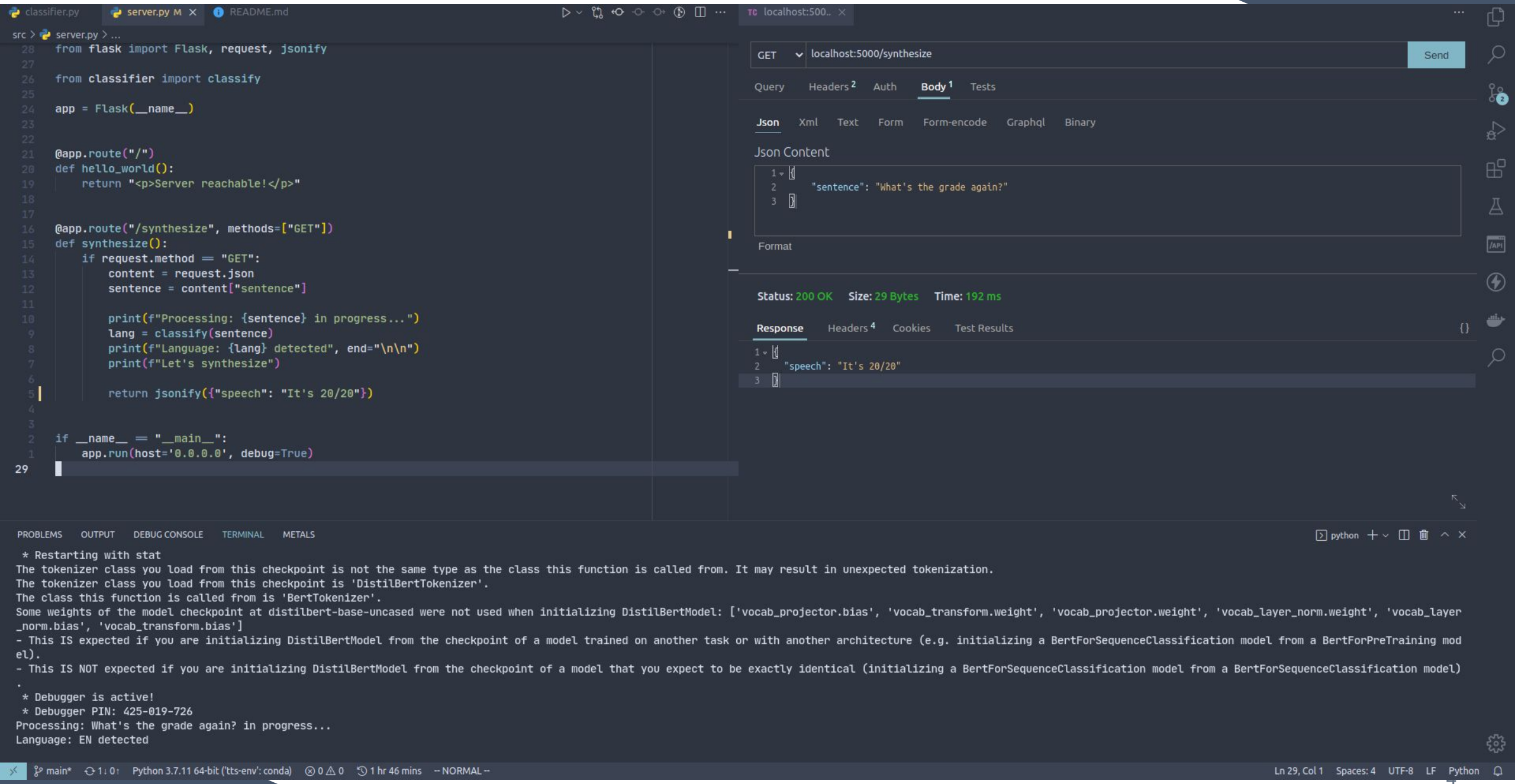
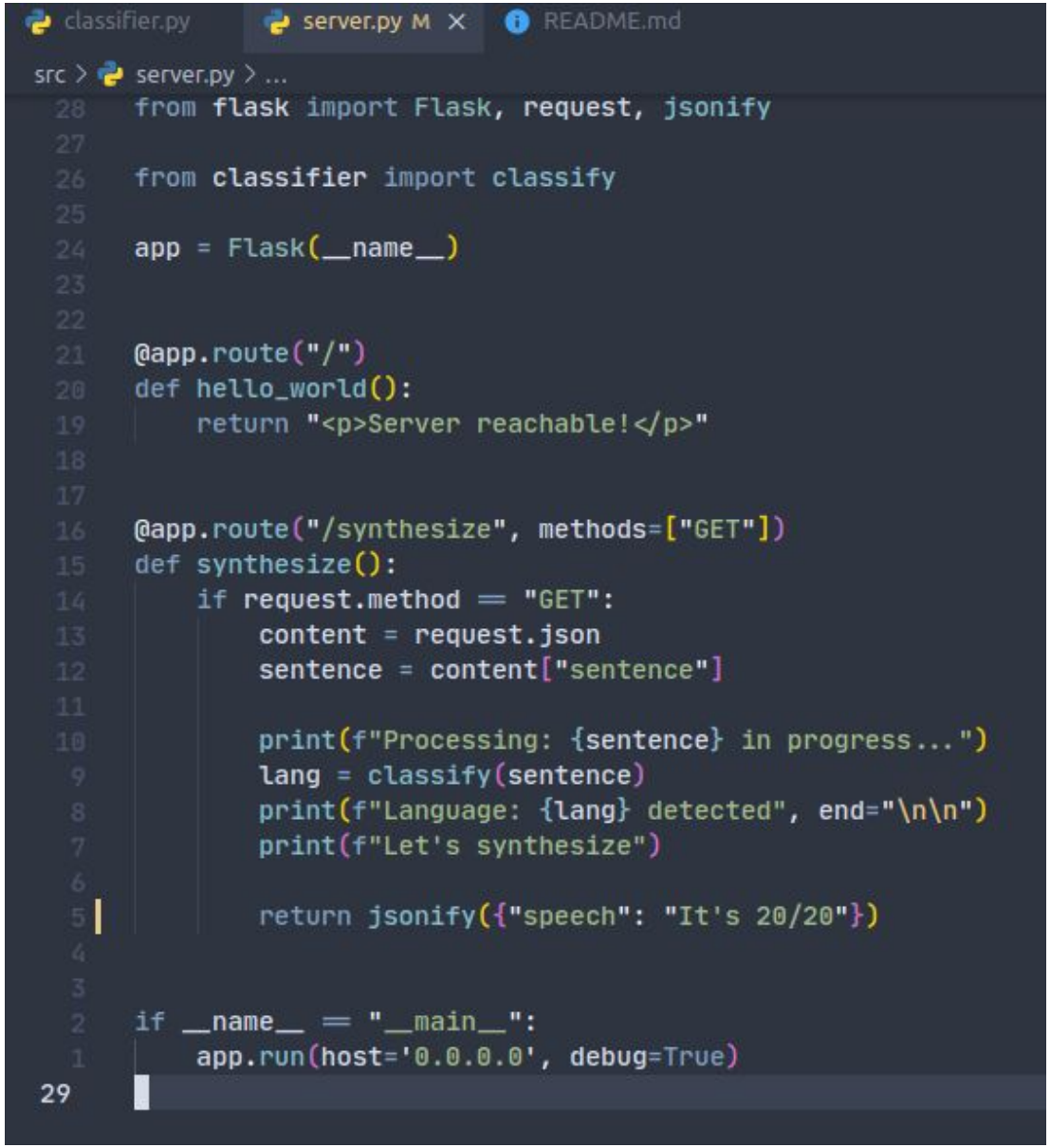
Completed

1. Language classifier + prediction
2. Server + modules connection
3. Web app - server connection
4. English TTS

Test with unseen data




classifier.py
server.py M
README.md
src > server.py > ...
from flask import Flask, request, jsonify
from classifier import classify
app = Flask(__name__)
@app.route("/")
def hello_world():
return " Server reachable! "
@app.route("/synthesize", methods=["GET"])
def synthesize():
if request.method == "GET":
content = request.json
sentence = content["sentence"]
print(f"Processing: {sentence} in progress...")
lang = classify(sentence)
print(f"Language: {lang} detected", end="\n\n")
print(f"Let's synthesize")
return jsonify({"speech": "It's 20/20"})
if __name__ == "__main__":
app.run(host='0.0.0.0', debug=True)
localhost:500..
GET
localhost:5000/synthesize
Send
Query
Headers 2
Auth
Body 1
Tests
Json
Xml
Text
Form
Form-encode
Graphql
Binary
Json Content
{
"sentence": "What's the grade again?"
}
Format
Status: 200 OK
Size: 29 Bytes
Time: 192 ms
Response
Headers 4
Cookies
Test Results
{
"speech": "It's 20/20"
}
PROBLEMS
OUTPUT
DEBUG CONSOLE
TERMINAL
METALS
python
* Restarting with stat
The tokenizer class you load from this checkpoint is not the same type as the class this function is called from. It may result in unexpected tokenization.
The tokenizer class you load from this checkpoint is 'DistilBertTokenizer'.
The class this function is called from is 'BertTokenizer'.
Some weights of the model checkpoint at distilbert-base-uncased were not used when initializing DistilBertModel: ['vocab_projector.bias', 'vocab_transform.weight', 'vocab_projector.weight', 'vocab_layer_norm.weight', 'vocab_layer_norm.bias', 'vocab_transform.bias']
- This IS expected if you are initializing DistilBertModel from the checkpoint of a model trained on another task or with another architecture (e.g. initializing a BertForSequenceClassification model from a BertForPreTraining model).
- This IS NOT expected if you are initializing DistilBertModel from the checkpoint of a model that you expect to be exactly identical (initializing a BertForSequenceClassification model from a BertForSequenceClassification model).
* Debugger is active!
* Debugger PIN: 425-019-726
Processing: What's the grade again? in progress...
Language: EN detected
main*
Python 3.7.11 64-bit ('tts-env': conda)
1 hr 46 mins
-- NORMAL --
Ln 29, Col 1
Spaces: 4
UTF-8
LF
Python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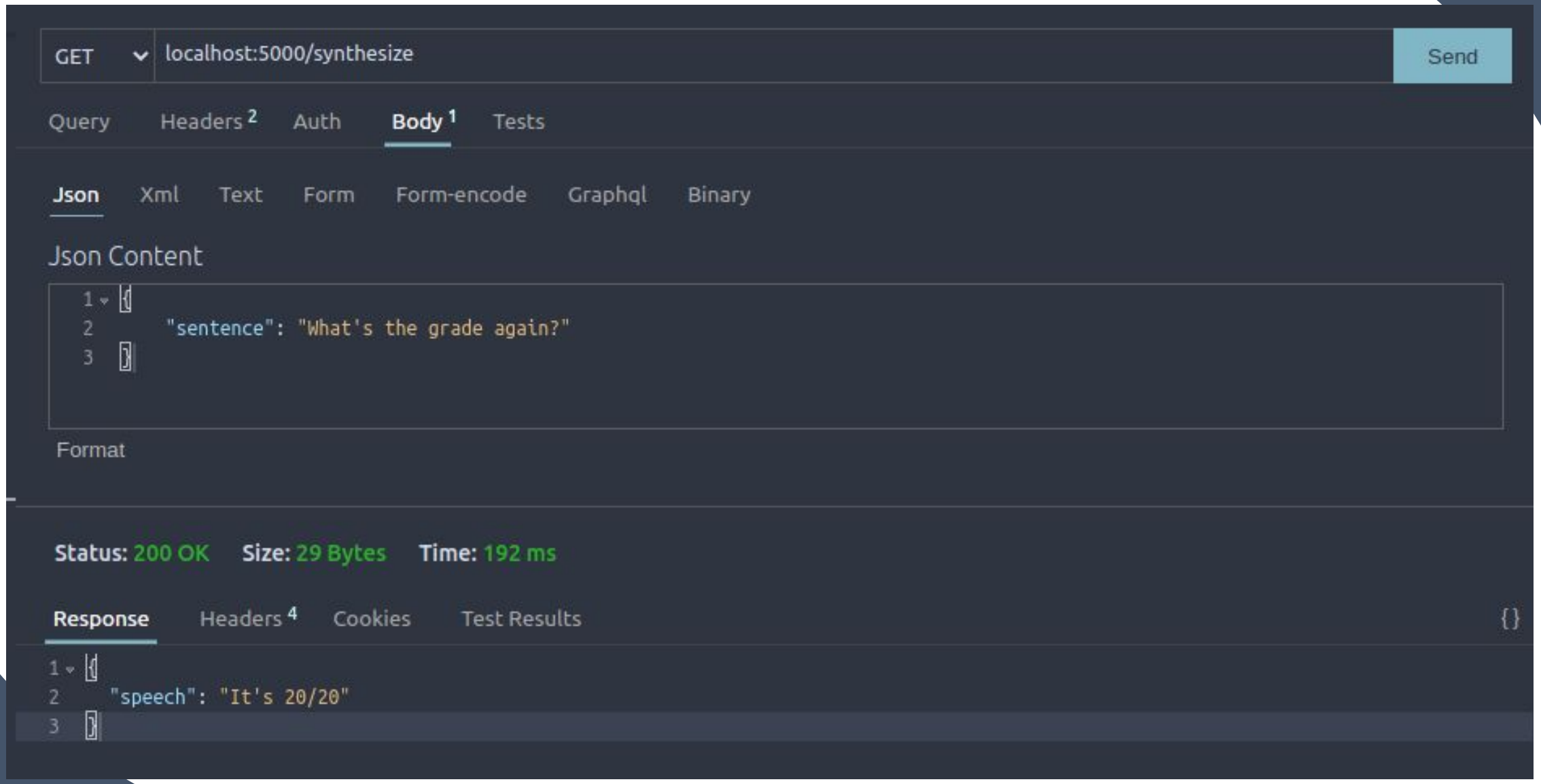
app.run(host='0.0.0.0', debug=True)


GET
localhost:5000/synthesize
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Query
Headers 2
Auth
Body 1
Tests
Json
Xml
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Form
Form-encode
Graphql
Binary
Json Content
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{}
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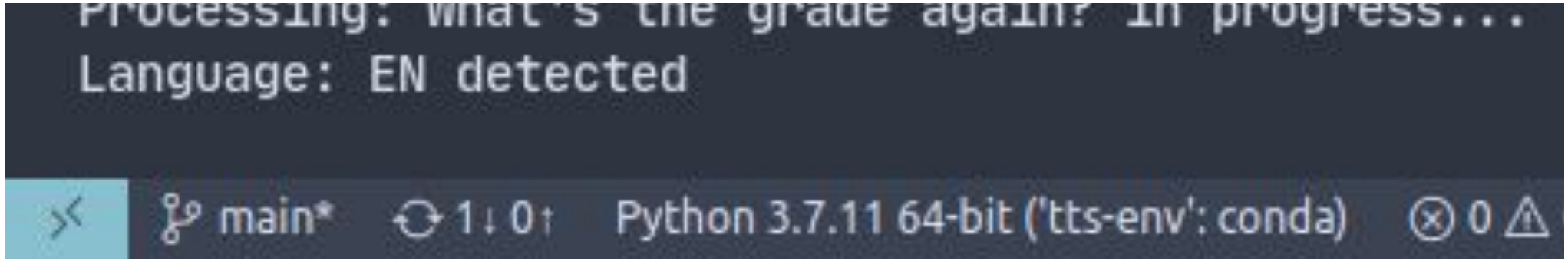

Processing: What's the grade again? In progress...
Language: EN detected
main*
1↓ 0↑
Python 3.7.11 64-bit ('tts-env': conda)
0

Available server-side functionality

- language classification (done)
- English speech synthesis (in progress)
  - works but not plugged in
- French speech preprocessing (in progress)
  - works but still waiting for next step
- French speech synthesis (next step)

Providing the app as a service

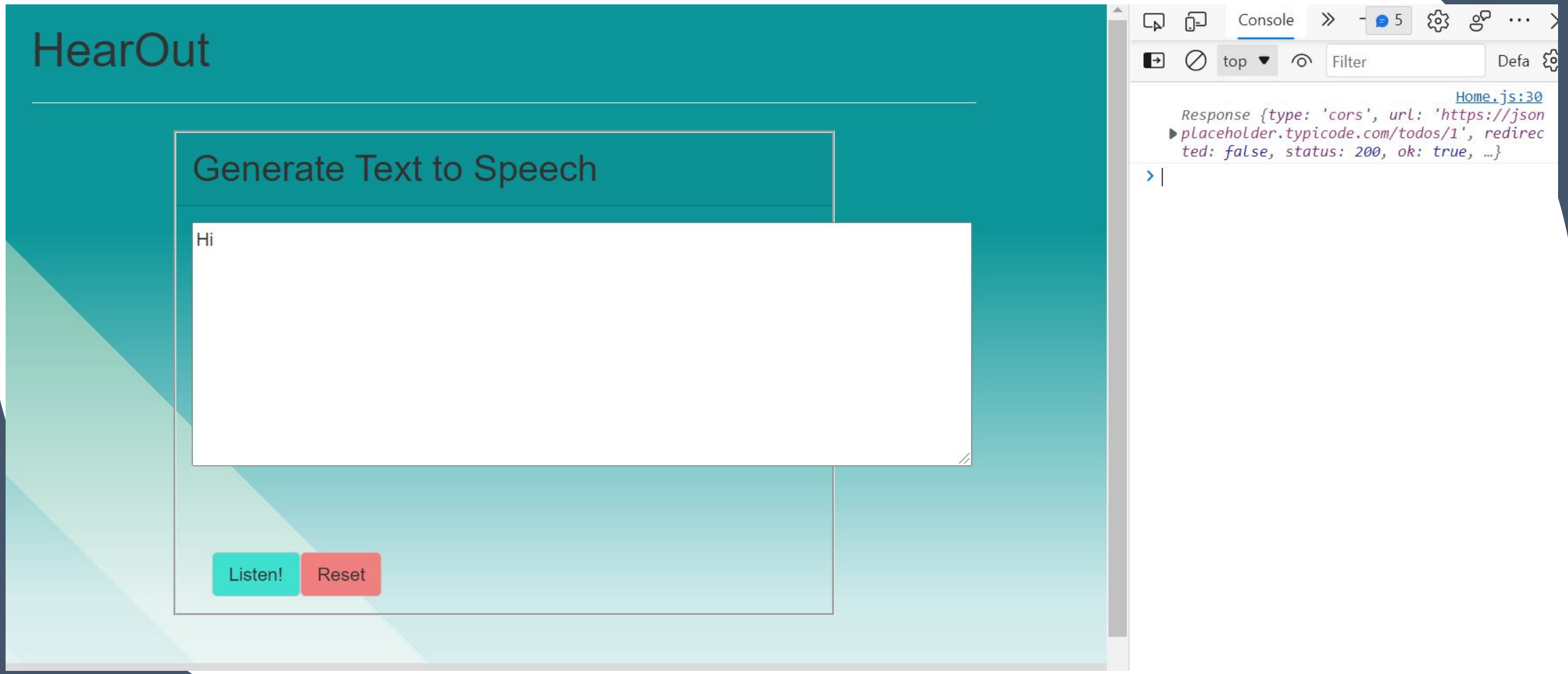
- frontend app container
- server container
  - when deployed - should come with the pretrained models
    - can be heavy
  - should be accessible by the other container
    - react app is actually running on the client side in the browser

Next steps on the server-side

Incoming sentence request

- if French
  - request to external API to obtain base phonemes
  - convert based on conversion dictionaries
  - pass these to French TTS model
- if English
  - pass to the English TTS model

In both cases send back a response
in a format supported by the frontend


HearOut
Generate Text to Speech
Hi
Listen!
Reset
Console
5
top
Filter
Defa
Home.js:30
Response {type: 'cors', url: 'https://jsonplaceholder.typicode.com/todos/1', redirected: false, status: 200, ok: true, …}

Demo

+ works in English

+ still need to be connected with other modules

Timeline

4th Nov 2021
PreProcessing , Classifier
11th Nov 2021
Model Training
10th Dec 2021
Module Combining
14th Jan, 2022
Deploying modules on WebApp
14th Feb 2022
Document writing and Defense

Thank you