

Take-home challenge

Here is a simple task that should not take more than 1-2 hours. This is not a timed task, take your time. Just as a benchmark.

Business context: You are building a service that enables customers to execute arbitrary python code on a cloud server. The user sends a python script and the execution result of the `main()` function gets returned.

Goal: build an API service that takes any python script as input and returns the result of the script execution as output.

Details: When sending a POST request to the `/execute` endpoint with a multiline JSON as request body `{"script": "def main(): ..."}` , the service should execute the python script and return the result of the function `main()`. Print statements in the `stdout` should not be included in the return, only the `return` statement of the `main()` function should be captured. Therefore, you should expect a function `main()` that returns a JSON. If the file does not contain a function `main()` or does not return a JSON, an error must be thrown.

The service is a simple docker image exposing port 8080. The API is deployed on [Google Cloud Run](#) as an API.

The API response after script execution should look as follows:

```
{
  "result": ..., # return of the main() function
  "stdout": ... # the stdout of the script execution
}
```

Criteria:

1. The docker image should not be too heavy
2. only a docker run command is necessary to run the service locally
3. The ReadMe documentation should contain an example *cURL request* with the cloud run URL embedded to make it easy to try out.
4. There should be basic input validation
5. The execution of the python script should be safe, meaning that it is robust to any malicious user-defined scripts that might be executed.
6. Basic libraries like `os`, `pandas` and `numpy` should be accessible by the script
7. You should use `Flask` and `nsjail`.

Hints: you can have some inspiration at:

1. <https://nsjail.dev/>
2. <https://github.com/google/nsjail>
3. <https://github.com/windmill-labs/windmill/blob/main/backend/windmill-worker/nsjail/download.py.config.proto>

When submitting the take home challenge, please indicate

1. Github repository URL (public or shared with RubenB1)

2. The Google Cloud Run service URL
3. As a benchmark, an approximation of how long it did take you to complete the challenge (this makes no difference in our appreciation).

Good luck!