Backend Test

I. Code Analysis

What test cases (`unittests`) would you write to test the following functionality (list the cases that need to be checked in words, for example: "api response code - 200 OK")?

Functional:

There is an API by user_id that processes a POST request and starts a deferred task; The API is used by a large number of external third-party clients (integrated into third-party services of other companies); access to the API is limited by token.

I. Answer to code analysis

1.Unittests are used to test blocks of code.

After doing a request, it is necessary to test the code that is being called after the request separately.
We can test the function that checks token using unittests

1 case
We give wrong token
2 case
We give right token
3 case
We test whether we get the response from the right user or not

API test
We can try hard code test requests and test following cases.
1.api response code - 200 ok
1.api response code - 400 ok
1.api response code - 401 ok
1.api response code - 403 ok
1.api response code - 404 ok
….

II. Databases

Let's assume that a new project comes to you – a web service with a classic 3-tier architecture on Django. And there is a problem – during peak load, the DBMS server performance becomes insufficient. The configuration of the server hardware is close to the top one. Load profile: 80% - read, 20% - write. What steps, in what order and why would you take to cope with the excessive load?

Please describe the solutions in a detailed form, explaining them and specifying the conditions of applicability if the initial data is not enough.

II. Answer to Databases

We can do debug in order to understand what issues we have connected with the
Request.
If the databases work we can create new databases with the same details.
This we will have 2 databases and we will get the details from the databases faster

III. Code Analysis

There is a code: an api that makes two internal http calls, one pulls a counter (not a critical call), the second notifies a third-party service about the fact of an api call, based on this call, a response is generated to the end user.

Sample api code:

```
import requests
def view(request):
requests.get('https://some-internal-counter ')>
service_response =
requests.post('https://some-outer-service.com/notify?id
={request.GET.get("id")}')
return Response(status_code=service_response.status_code)
```

What potential risks does this view have? What can be improved?

III. Answer to Code analysis

Main Risk

If we do two requests in the code, there are big risks because they are not independent of each other and we can have a problem during one query. The problem is that the number of queries and the number of meters can be different. To avoid this risk, I think we should give an if condition that will check their work.

Changes:

I would attribute variables to urls to make them more optimal. requests.post is missing in f-formatter and Response Import not done.

Result

Please send the result to Github. You can ask questions with comments here or using the contacts listed below.

Thanks.

Contacts

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