1. How would you suggest building **a test framework to test the rule-based algorithm**? (which tools to use, what kind and how many test cases would to create, etc.)
2. I would choose to use **Pytest**. The reasons are:

* The code is written in python. This means the company has sources of knowledge + possibility of reusing some assets + infrastructure already supports running python code.
* Pytest is concise, feature-rich, has a great ecosystem of plugins, is widely used and supported.

1. There are **54 (**4 \* 4 \* 3**)** valid inputs for testing all possible combinations according to the table data. Test case 1-4 represent this category.

In addition, I will write some tests for error handling, minimum **8**. For example, test cases 5-6 represent error handling.

1. What will be your **plan to test the validity of the data presented in the PDF report** which is sent to the doctor? Is there a way to automate this plan / part of this plan via code? If so, write a pseudocode for at least one automated testing process

**End-2-end flow:**

Input some valid data to the algorithm

Run the algorithm

Save the returned data:

* + Recommended
  + Not recommended

Input the same data as in the previous step

Run the function to create PDF file

Load and parse the produced PDF file

Compare the algorithm output (Recommended/Not recommended) to PDF parsed data

If the data is the same:

Pass

Else:

Produce an error with details

1. Write **a bug report** (think of potential bugs, either in the algorithm, the decision support system itself [i.e., the system in which the patient entered their answers], or the PDF report which was sent to the doctor)

Summary:

PDF file contains incorrect data

Severity:

Critical

Module:

PDF file

Description:

The user enters the following values for the questions:

Sleep-During = 1

Sleep-Waking = 1

Med-History = 0

The PDF file recommends 2 medications for the patient (Doxepin, Zaleplon).

Environment:

QA

Expected result:

According to the rules, the list of recommended medications for this patient must be empty.

Notes:

The screenshots and log files are attached

1. Let’s say you **found a bug – how would you handle this situation**, what are the **end-to-end steps** to have it fixed.
2. After the bug is found, it`s details are reported in the bug tracker system (like Jira/QC) as “New”
3. The developer reviews the bug, the status is changed to “Open”.
4. The bug is fixed and returns to QA, the status is “Fixed”
5. QA checks the fix. If it`s fixed correctly, the bug is closed and it`s status is changed to “Closed” with QA`s notes if needed.
6. If the bug is not fixed correctly, QA returns it to the developer with his notes, the status is changed to “Reopen”.

It will repeat until the bug is fixed correctly and the status will be changed to “Closed”.

1. After the bug fix is validated, must test other components of the system (regression) to be sure that the bug fix didn`t damage anything else.
2. After the deployment to production, we validate bug fix again to be sure that in the new environment it works as expected.
3. In some cases, the test for this bug is added to regression suite (automated/manual).