QA Testing Engineer Profile Test (Behave, Selenium, SQL, Python, testing knowledge, Jmeter, Postman)

This test was built in 3 parts, a functional one with requirement analysis, automation, SQL Databases basics and some questions about software testing.

Part 1: Attached files

* With the following scenarios, automate the interaction. For this you should use whether version of the listed frameworks you like: Python and selenium.
  1. Scenario 1: User can search with “Google Search”
     + Given I’m on the homepage
     + When I type “test automation” into the search field And I click the Google Search button
     + Then I go to the search results page, and the first 3 results contain the word “automation”
  2. Scenario 2: User can go to the first search result
     + Given I Search by keyword
     + When I click on the first result link
     + Then I go to the page, and the page title contains the word “automation”

Guidelines:

You are testing https://www.google.com.

Always make use good principles and practices when designing your Solution.

Implement your automation solution, if possible, following the Page Object Model pattern and BDD paradigm.

* With the following scenarios, automate the request. For this you should use the last version of Jmeter and Postman
  1. Scenario 3: User can login
     + Use the following link and builds the corresponding requests to login

<https://the-internet.herokuapp.com/login>

* 1. Scenario 4: User can upload file
     + Use the following link and uploads any file to the webapp

<https://the-internet.herokuapp.com/upload>

Part 2 (SQL Basic Scripting):Attached files

1. Explain the difference, in databases, between ‘Having’ and ‘where’ when it comes to a query. Develop one example for each one of this two cases and point out the difference.

**Answer:**

Where is for filter data from tables, and can operate with Boolean dates and logic operators like AND, OR and NOT, also can work with functions like update, insert, delete and select. Otherwise having is for filter groups and operations by groups Where filter column by column, having filter a group in the same time, we can use both clause in same query, because WHERE clause is a pre-filter, and HAVING clause is a postfilter.

Attached files.

1. Write a query for create a data table ‘Student’ with the following attributes in it: ‘Name, ‘Code, ‘Class’, ‘Age’, ‘Favorite Subject, ‘GPA’ (5.0 scale).

**Answer:**

CREATE TABLE student( -- creamos la tabla

Code varcharacter(10), -- creamos variables

Name varchar(50),

Age int,

class varchar(50) ,

Favorite\_subject varchar(50),

GPA float ,

PRIMARY KEY (Code)

);

1. Insert at least 40 records in the last table with close to real data.

**Answer:**

INSERT INTO Student (Name, Age, Code, Favorite\_subject, GPA, class)

VALUES ('John Doe', 20, 'AB123', 'Math', 4.2, '11A')…

1. Write a query to get the average of the GPA from all the students which name starts with ‘A’.

**Answer:**

select AVG(GPA) AS Average\_GPA from student where name like 'A%';

1. Write a query to get the list of students that are in the same class, have a GPA higher than 3.5/5.0 and order them by Age and Name.

**Answer:**

select name, class,age, GPA from student where GPA >=3.5 and class='10C' order by age, name;

1. Write a query to get the list of all the students with ‘Name, ‘Code, ‘Class’, ‘Age’, ‘Favorite Subject, ‘GPA’.

**Answer:**

select \* from student;

1. Take the following 25 question quiz about SQL, please include a screenshot about the results and time it took to take the test.

<http://www.w3schools.com/quiztest/quiztest.asp?qtest=SQL>

**Escala de tiempo

Descripción generada automáticamente**

Part 3 (Software Testing Knowledge):

1. What is the difference between a unit test, an acceptance test, an integration test and an end-to-end test?

**Answer:**

All of these test are for check the code but are use in different time of develop or use for a specific things:

Unit Test: It is a test that is performed to check a specific segment of code and verify the correctness as a function in isolation and in this way the main function of the code can be verified to be correct.

Acceptance test: It is a test that is performed to verify the code and whether it can perform the main function for which it was created, usually the stakeholders of the code meet to clarify what things the code or software needs to do or must satisfy.

This test is aimed at the end user and made to certify that the function for which it was created will be done correctly.

Integration test: This test verifies that all modules or parts of the code work well together and perform the main task for which they were created by evaluating the interaction of all modules and that they do not generate errors.

End to end test: is created to evaluate from the beginning to the end of the system verifying the correct functioning of all the modules or parts of the main code and that they work well together, certifying that the system is strong, trustable and that the software will satisfy the requirements agreed upon by the interested parties.

1. Could you explain Cohn's automation pyramid?



**Answer:**

This pyramid was created by agile methodology experts and talks about what is the most extensive testing when someone develop a software or code, and it says on the second floor are the most important test, is the unit test and the component test, they have to be robust and very extended because this way you can show if the modules or parts of the software works as they should work .

Next to unit testing, the second most extensive test is acceptance testing, which verifies that all parts or modules of the system or code work well together and can interact with each other.

The GUI test oversees verifying the graphical interface and its purpose is to detect graphics errors and typing errors.

and at the top is the manual test and it is the last test of the system or software before it goes out to run its function with the end users.

1. Could you explain the difference between a black box testing and a white box testing?

**Answer:**

The black box test is a test when the tester gives some inputs and receive outputs without know how the process or the principal code is, otherwise, the white box the tester can know how the test works knowing principal code lines.

1. What is the purpose of an exploratory test and when is it useful to run them?

**Answer:**

They are less structured tests to explore and discover possible problems in the application or software, these tests do not follow a detailed plan and the tester explores the application freely where experience and intuition are very important.

These tests can help identify problems before the final requirements are established, they also help detect failures that with other tests may have gone unnoticed, and they are also very useful when time is limited or quick changes need to be made.

1. Mention at least 5 test design techniques and explain them briefly.

**Answer:**

Equivalence Partitioning(PE):

Equivalence partitioning is a black-box testing technique that divides input data into parts or groups that are likely to behave similarly. The test cases are designed to cover typical values of each section.

Limit value analysis (LVA):

Boundary value analysis is another black box technique that focuses on testing the boundaries of executive sections. Test cases are designed to evaluate values at the upper and lower limits and just inside the limits.

Decision tables:

Decision tables are used to test systems with complex business logic or rules. This involves creating a table that captures all possible combinations of conditions and their corresponding actions or results. This method helps ensure that all combinations are tested at least once.

State transition tests:

State transition testing is used to test systems with different states. It focuses on transitions between different states of the system. Test cases are designed to confirm the behavior of the system as it transitions from one state to another.

Pairwise tests (combined tests):

Pairwise testing is used to reduce the number of test cases while ensuring sufficient coverage. This involves testing all possible combinations of input parameters but testing each pair of parameters together at least once. This method aims to detect most defects with much less testing compared to extensive testing.

1. What is the purpose of the following types of tests?

**Answer:**

* 1. Functional test: used to verify each function of software works as expected, mainly are pieces of code developed for test main code.
  2. Performance test: us used for testing the performance of the system under different loads and conditions, this test is made for be secure of system will work well in crowded hours.
  3. Security test: used for verifying the software are shielded and protected by vulnerabilities and threats in this wat keeps the data secure.
  4. Usability test: is used for evaluating how easy is use the software by users improving que users experience.
  5. API test: used for verifying the APIS works well and find out the ends points and APIs works as expected.
  6. Unit Test: used for verifying the individual units of code mainly functions in this way securing the code works as expected.

References:

* <https://www.softwaretestinghelp.com/the-difference-between-unit-integration-and-functional-testing/>
* <https://stackoverflow.com/questions/7672511/unit-test-integration-test-regression-test-acceptance-test>
* <https://www.softwaretestinghelp.com/what-is-end-to-end-testing/>
* <https://www.testingexcellence.com/exploratory-testing-important-agile-projects/>
* <https://www.guru99.com/exploratory-testing.html>
* <http://softwaretestingfundamentals.com/differences-between-black-box-testing-and-white-box-testing/>
* <https://smartbear.com/solutions/api-testing/>
* <http://softwaretestingfundamentals.com/security-testing/>
* <https://www.guru99.com/what-is-security-testing.html>
* <https://www.experienceux.co.uk/faqs/what-is-usability-testing/>
* <https://en.wikipedia.org/wiki/API_testing>
* <https://en.wikipedia.org/wiki/Application_programming_interface>
* <https://searchsoftwarequality.techtarget.com/definition/performance-testing>
* <https://www.guru99.com/performance-testing.html>
* <https://www.tutorialselenium.com/2017/05/28/como-usar-selenium-ide/>
* <https://cleventy.com/tutorial-selenium-primeros-pasos/>
* <http://www.juntadeandalucia.es/servicios/madeja/contenido/recurso/381>
* <https://www.tutorialselenium.com/2017/09/24/como-usar-comandos-de-selenium-ide/>
* <https://testeandosoftware.com/selenium-comandos-selenese/>
* <https://www.seleniumhq.org/selenium-ide/docs/en/introduction/getting-started/>
* <http://www.cs.tau.ac.il/~amiramy/SoftwareSeminar/CTDmay2012.PDF>
* <https://www.guru99.com/decision-table-testing.html>
* <https://www.toolsqa.com/software-testing/decision-table-testing/>
* <https://www.tutorialspoint.com/software_testing_dictionary/data_flow_testing.htm>
* <https://www.javatpoint.com/data-flow-testing-in-white-box-testing>
* <https://www.thedigitalmentor.com/what-is-dataflow-testing/>
* <https://en.wikipedia.org/wiki/Boundary-value_analysis>
* <https://www.guru99.com/equivalence-partitioning-boundary-value-analysis.html>
* <https://www.testingexcellence.com/boundary-value-analysis/>
* <http://www.professionalqa.com/combinatorial-testing>
* <https://en.wikipedia.org/wiki/Classification_Tree_Method>
* <https://www.expleo-germany.com/en/products/testona/classification-tree-method/>
* <https://inf.mit.bme.hu/sites/default/files/materials/taxonomy/term/445/13/04_Testing.pdf>
* <https://www.bcs.org/upload/pdf/amettehass-131211b.pdf>
* <https://www.bcs.org/upload/pdf/amettehass-131211a.pdf>
* <https://www.tutorialspoint.com/software_testing_dictionary/pdf/test_case_design_technique.pdf>
* <https://testautomationresources.com/software-testing-basics/software-test-design-techniques/>
* <https://www.uio.no/studier/emner/matnat/ifi/INF3121/v18/forelesningsvideoer/chapte-4-part-2-slides.pdf>
* <http://tryqa.com/what-is-test-design-technique/>
* <http://tryqa.com/what-is-structure-based-technique-in-software-testing/>
* <http://tryqa.com/what-is-black-box-specification-based-also-known-as-behavioral-testing-techniques/>
* <http://tryqa.com/what-is-white-box-or-structure-based-or-structural-testing-techniques/>