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

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:

- With the following scenarios, automate the interaction. For this you should use whether version of the listed frameworks you like: Python and selenium.

    a) 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”

    b) 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.

ANSWER

```
from selenium import webdriver
from selenium.webdriver.common.keys import Keys
import time
from selenium.webdriver.common.by   import By
from selenium.webdriver.support.ui import WebDriverWait

driver=webdriver.Chrome(executable_path="C:\driver\chromedriver.exe")
driver.maximize_window()
driver.get("https://www.google.com/")
t=1
search=driver.find_element(By.XPATH,"/html/body/div[1]/div[3]/form/div[1]/div[1]/
div[1]/div/div[2]/input")
search.send_keys("test automation")
```

```
search.send_keys(Keys.ENTER)
#tambien se puede hacer clickeando el boton de buscar con el comando siguiente
#click=driver.find_element(By.XPATH,"/html/body/div[1]/div[3]/form/div[1]/div[1]/
div[4]/center/input[1]").click()
time.sleep(t)
m=0
for n in range(1,5):
    m=m+1
    if n==2: #esto lo hacemos debido a que el div[2] no existe entonces necesita-
mos saltarlo para el ciclo for
        m=m-1
    else:

search_n=driver.find_element(By.XPATH,f"/html/body/div[7]/div/div[11]/div/div[2]/
div[2]/div/div/div[{n}]").click()
        time.sleep(t)
        get_url_n = driver.current_url
        get_tittle_n=driver.title
        time.sleep(t)
        driver.back()
        time.sleep(t)
        print(f"\nLa url {m} es: {get_url_n}\nEl titulo {m} es: {get_tittle_n}")

time.sleep(t)
driver.close()
```

ATTACHED FILES.PY

Part 2 (SQL Basic Scripting) ***ATTACHED FILES SQL***:

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 post-filter.

   FILES ATTACHED FOR EXAMPLES

2. 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 DATABASE examen; -- creamos la base de datos
use examen; -- usamos la base de datos
CREATE TABLE `student` ( -- creamos la tabla
        `Code` int NOT NULL AUTO_INCREMENT, -- creamos cada variable con su respectivo
      tipo con llave primaria code y autoincrementa
      `Name` varchar(255) DEFAULT NULL,
      `Age` int DEFAULT NULL,
      `Class` varchar(255) DEFAULT NULL,
      `Favorite_subject` varchar(255) DEFAULT NULL,
      `GPA` float DEFAULT NULL,
      PRIMARY KEY (`Code`)
);
```

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

ANSWER

```
Insert intostudent (Name , Age, Favorite_subject, GPA,class) values ('Santiago Ortega',17,'Math',4.5,'11A');
insert into student (Name, Age, Favorite_subject, GPA,class) values ('Emmalynne Butchers', 17, 'Geography', 2.8,'11B');
insert into student (Name, Age, Favorite_subject, GPA,class) values ('Natty Dibner', 13, 'Art', 2.4,'8A');
insert into student (Name, Age, Favorite_subject, GPA,class) values ('Ginny Whelpton', 15, 'Technology', 3.0,'10A');
insert into student (Name, Age, Favorite_subject, GPA,class) values ('Cordell Phipp', 12, 'Swimming', 3.2,'8B');
insert into student (Name, Age, Favorite_subject, GPA,class) values ('Darleen Minithorpe', 10, 'Swimming', 3.2,'6A');
insert into student (Name, Age, Favorite_subject, GPA,class) values ('Clayton Pideon', 17, 'Music', 4.8,'11B');
insert into student (Name, Age, Favorite_subject, GPA,class) values ('Minnnie Brilleman', 15, 'Music', 4.3, '10A');
insert into student (Name, Age, Favorite_subject, GPA,class) values ('Glen Lamburne', 12, 'Technology', 4.4,'7A');
insert into student (Name, Age, Favorite_subject, GPA,class) values ('Rachele Mattecot', 16, 'Science', 3.2,'11A');
insert into student (Name, Age, Favorite_subject, GPA,class) values ('Gratia Hemstead', 10, 'Science', 4.6,'6A');
insert into student (Name, Age, Favorite_subject, GPA,class) values ('Les Esmond', 16, 'Science', 4.2,'10A');
insert into student (Name, Age, Favorite_subject, GPA,class) values ('Dorri Ivanusyev', 15, 'Music', 4.6,'9A');
insert into student (Name, Age, Favorite_subject, GPA,class) values ('Chryste Fraschetti', 13, 'History', 4.6,'8B');
insert into student (Name, Age, Favorite_subject, GPA,class) values ('Carin Tellett', 12, 'Technology', 3.2,'8A');
insert into student (Name, Age, Favorite_subject, GPA,class) values ('Carlin Roskruge', 13, 'History', 2.8,'8B');
insert into student (Name, Age, Favorite_subject, GPA,class) values ('Marianne Bartalucci', 14, 'Science', 3.8,'9A');
insert into student (Name, Age, Favorite_subject, GPA,class) values ('Niles Kemm', 12, 'Art', 4.6,'7B');
insert into student (Name, Age, Favorite_subject, GPA,class) values ('Roxanna Freund', 14, 'Technology', 4.6,'8B');
insert into student (Name, Age, Favorite_subject, GPA,class) values ('Karalee Tarrant', 17, 'Swimming', 4.3,'11B');
insert into student (Name, Age, Favorite_subject, GPA,class) values ('Dyna Lowle', 13, 'Swimming', 4,'8A');
insert into student (Name, Age, Favorite_subject, GPA,class) values ('Frederik Riggert', 10, 'Math', 4.6,'6A');
insert into student (Name, Age, Favorite_subject, GPA,class) values ('King Copperwaite', 13, 'Technology', 3.6,'8A');
insert into student (Name, Age, Favorite_subject, GPA,class) values ('Bart Bruhke', 11, 'Music', 3.0,'9B');
insert into student (Name, Age, Favorite_subject, GPA,class) values ('Ira Cartmel', 16, 'Geography', 2.0,'11A');
insert into student (Name, Age, Favorite_subject, GPA,class) values ('Adiana Hawyes', 15, 'Geography', 2.0,'10A');
insert into student (Name, Age, Favorite_subject, GPA,class) values ('Keslie Normant', 11, 'Swimming', 3.0,'7B');
```

insert into student (Name, Age, Favorite_subject, GPA,class) values ('Ricky Rudwell', 15, 'English', 3.2,'9B');
insert into student (Name, Age, Favorite_subject, GPA,class) values ('Marni Aleksahkin', 11, 'English', 4.8,'7A');
insert into student (Name, Age, Favorite_subject, GPA,class) values ('Melli Bacop', 17, 'Art', 4.6,'11B');
insert into student (Name, Age, Favorite_subject, GPA,class) values ('Austine Meritt', 12, 'Swimming', 4.2,'7A');
insert into student (Name, Age, Favorite_subject, GPA,class) values ('Kimberly Bugdall', 13, 'Physical education', 4.9,'8B');
insert into student (Name, Age, Favorite_subject, GPA,class) values ('Ced Brownsell', 13, 'Math', 3.2,'8B');
insert into student (Name, Age, Favorite_subject, GPA,class) values ('Sarene Dunphy', 15, 'Art', 4.4,'10A');
insert into student (Name, Age, Favorite_subject, GPA,class) values ('Amalita Saunter', 12, 'Geography', 4.9,'8A');
insert into student (Name, Age, Favorite_subject, GPA,class) values ('Normie Kibard', 17, 'Technology', 4.0,'11A');
insert into student (Name, Age, Favorite_subject, GPA,class) values ('Casandra Sharpin', 16, 'History', 4.5,'11A');
insert into student (Name, Age, Favorite_subject, GPA,class) values ('Antonie Robbings', 11, 'Math', 4.4,'7A');
insert into student (Name, Age, Favorite_subject, GPA,class) values ('Nevins Erangey', 10, 'Biology', 3.0,'6A');
insert into student (Name, Age, Favorite_subject, GPA,class) values ('Maurene Munro', 17, 'Art', 3.0,'11B');
insert into student (Name, Age, Favorite_subject, GPA,class) values ('Clerkclaude Almeida', 16, 'Art', 3.2,'10A');

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

   ANSWER

   select name, GPA from student where name like 'a%';

5. 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.

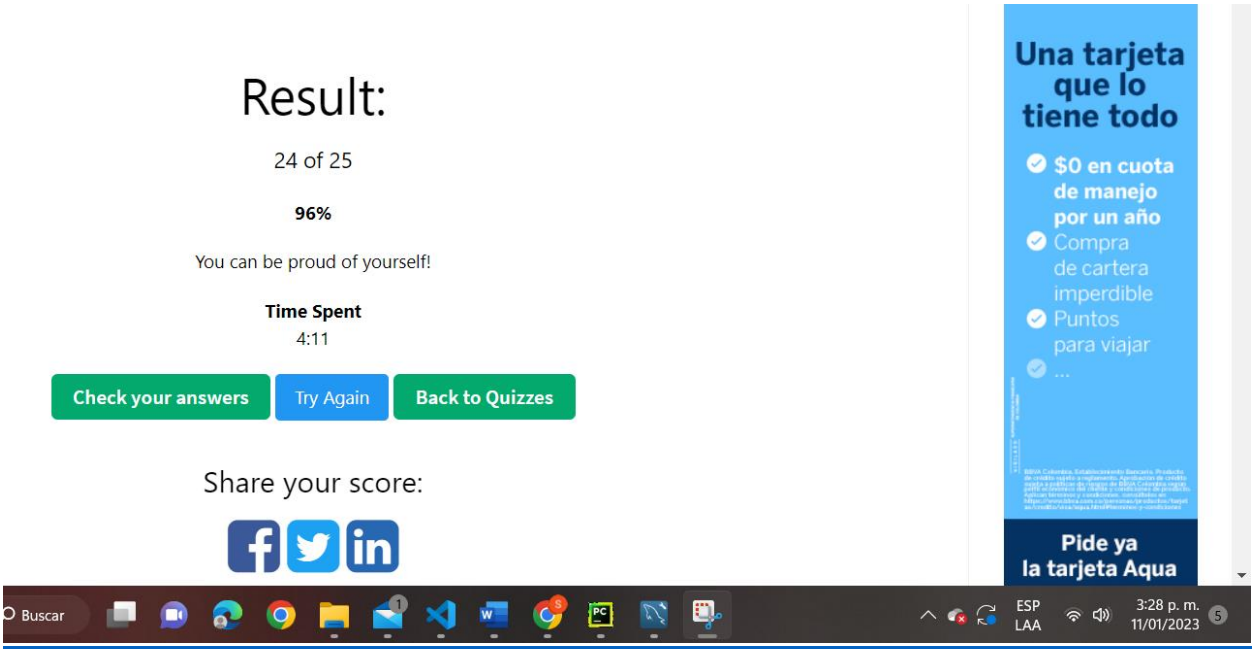
   ANSWER
   select name, age, GPA from student where GPA >=3.5 order by age asc;
   select name, age, GPA from student where GPA >=3.5 order by name asc;

   also can use GPA between 3.5 and 5

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

   ANSWER
   *select * from student;*

7. 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



Part 3 (Software Testing Knowledge):

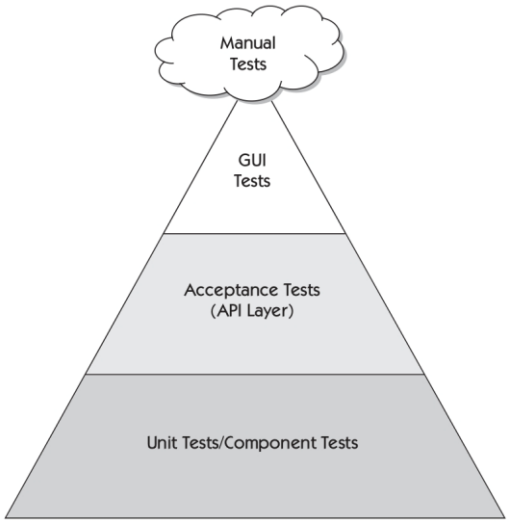
1. What is the difference between a unit test, an acceptance test, an integration test and an end-to-end test?

   ANSWER

   They are all test methodologies, together they can guarantee a perfect functioning of the software but each one works at different times and places.

   First we have the unit test, it is a piece of code in charge of checking that the main code works well, it is also the first test we need, then we need the second test, and it is an integration test, it is used when the software has many systems and we need a perfect synchronization that guarantees the integrity of the data and the union of all the systems.
   The acceptance test is the third test that we need, there are several tests in charge of verifying all the points for which the software was created.
   And the last one is an end-to-end or e2e test, it verifies that all the software works well and simulates the use of a real user guaranteeing an expected operation.

2. Could you explain Cohn's automation pyramid?



ANSWER

Cohn's pyramid tells us what the testing process is like and how long each one lasts, discriminating it into levels, the lowest being the longest and as we go up the process is reduced over time, also each level has specific tests, which some can be extrapolated to other levels and may be more or less effective

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

   ANSWER

   In the white box the content and the lines of code are important to check what the answer will be, while in the black box the lines of code or the content don't matter, only the inputs and outputs matter, and it will be checked against those things.

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

   ANSWER

   The purpose is to design, execute and gain knowledge of the product simultaneously which saves time without a script or something pre-designed.
   This test is perfect when you don't have a lot of time for test build or your team wants quick feedback

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

ANSWER

Equivalent class partitioning

In equivalence division tests, the input values of the program or system are divided into groups that will have a similar behavior, so that they can be processed in the same way, saving time and work.

Boundary value analysis

This test case design technique complements the equivalence division technique or other black box tests.

The maximum and minimum values of a division are its limit values. Tests can be designed to cover both valid and invalid

State transition

The object of these tests is to start from an initial state and go through the different states through events that trigger state changes. A state table shows the relationship between states and inputs, and can eventually reveal possible invalid transitions

Pairwise testing

Is a black box text and is designed to execute all possible discrete combinations of each pair of input parameters, is very helpful for designing test for application involving multiple parameters

Error guessing

it is a complete empirical methodology because it works with the knowledge of the operator and wants and tries to guess what error will be open, guessing problem areas of the application software

6. What is the purpose of the following types of tests?
    a. Functional test: is to compare actual result with expected result. also verifies that all design objectives and requirements are met.

    b. Security test: It is in charge of discovering vulnerabilities, risks, and failures, it also helps to stop cyber attacks caused by outsiders, thus making the data safe.

    c. Usability test: it is the testing of the product by other people, such as users, to verify that the entire product works correctly and fulfills its purpose

    d. API test: Its function is to check the functionality, security, and performance of the application interface, generating reliability.

e. Unit Test: It is the first level of testing , it is a piece of code in charge of verifying that the main code works correctly.

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