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***QUALITY ASSURANCE TEST***



***Good luck!***

***1. Logic***

* 1. **You need to measure exactly 4 liters of water, but you only have a 3-liter bottle and a 5-liter bottle. How will you proceed?**

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| **Answer**   1. Fill up the 5-liter bottle till its full. 2. Then pour the contents from the 5 liters to the 3 liter till the 3 liter is full. 3. Once the 3-liter bottle is full, what is left in the 5-liter bottle is 2 liters. 4. Then empty out the 3 liters until it matches the height of the 5 liters. 5. Pour the remaining contents of the 3-liter bottle in the 5-liter bottle to get exactly 4 liters. |

* 1. **Who stole the cookies?**

One of the following 4 people stole the cookies. Each one of them made a statement and you know that **only one of the statements is true**. Find out who stole the cookies and explain your choice.

**Donna**: Ken stole the cookie from the cookie jar.  
**Ken**: Paul stole the cookie from the cookie jar.  
**Charlotte**: it’s not me  
**Paul**: Ken is lying when he says that I stole the cookie.

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| The Answer is **Charlotte** stole the cookies and Paul is speaking the truth.  Since everytime only one of them can speak the truth. The only possibility that doesn’t create conflicts is when Paul is speaking the truth.  There is conflict between Ken and Paul (so one of them is lying and one telling the truth)  Is Paul is telling the truth so:  Paul: Ken is indeed Lying  Ken: so, Paul didn’t still the cookies.  Donna is lying so Ken didn’t still the cookies  And Charlotte is lying meaning it’s her.  So, Charlotte is the one that stole the cookies. |

* 1. **In the middle of a garden, there is a tree. The tree doubles in size every month. After exactly 20 months, the tree will stop growing. After how many months will half of the tree have grown ?**

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| **Answer**  **For example:**  **1 2 4 8 16 32 64 …..**  **2^0 2^1 2^2 2^3 2^4……. 2^20 [After 20 months]**  **2^20=1,048,576**  **Half of the tree is 2^20 / 2 = 2^20-1=2^19=524,288**  **Answer 2^19 – half of the tree** |

* 1. **You have three boxes containing fruit. One contains only apples, one contains only oranges, and one contains a mixture of both. Each box is labeled: one says “apples,” one says “oranges,” and one says “apples and oranges.” However, it is known that none of the boxes are labeled correctly.**

You can pick up once, one single fruit from one single box. **How will you proceed to label the boxes correctly?**

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| **Answer**  **First, I go to the box of Apples and Oranges and pick up one time. Since none of the boxes labels correctly it means that whatever comes up this is the box, for example this is the Apples Box.**  **The 2 ones that left are Oranges and the Mixed Box.**  **Since the labels are not correct for all we need just to switch the labels between the rest 2 Boxes ,So Overall only one time to pick up.** |

***2. QA***

**2.1 What is “regression” testing? Why is it important?**

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| **Answer**  Regression Testing is defined as a type of software testing to confirm that a recent program or code change has not adversely affected existing features.  Regression Testing is nothing but a full or partial selection of already executed test cases which are re-executed to ensure existing functionalities work fine.  This testing is done to make sure that new code changes should not have side effects on the existing functionalities. It ensures that the old code still works once the new code changes are done.  When we need to perform Regression Testing?   * Change in requirements and code is modified according to the requirement * New feature is added to the software * Defect fixing * Performance issue fix |

**2.2 What is a STD (Software Test Description)? Describe its content and explain why it is essential in QA.**

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| Answer  Software test documentation is the vital element that raises any experimental activities to the level of a [software test](https://en.wikipedia.org/wiki/Software_test). International organizations like IEEE and ISO have published standards for software test documentation.  The Software Test Description (STD) describes the test preparations, test cases, and test procedures to be used to perform qualification testing of a Computer Software Configuration Item (CSCI) or a software system or subsystem.  STD will include the Approval elements, settings and preparation instructions for the testing, Scope of testing, the Test description, Expected Test Results, Test Procedures and Requirement Traceability. |

**2.3 Quality Assurance test.**

You are supposed to test a brand-new locking system. The system uses finger prints to unlock and lock.

The system can contain up to 72 different finger prints.

The system prompts you to change the finger print after one of the next 2 events:

1. 45 days of use (a day which a certain finger print was used to lock/unlock the system).
2. 2 years in the system memory.

There is also an 8 digits code to overpass the system: this code enables to change the timing issues mentioned above the following way:

1. For the first issue (days of use), you can shortened / extend the time limit in 5 days jump, meaning 45 +/- 5.
2. For the second issue, you can only add 1 month at a time up to a limit of 3.5 years.

Using the 8 digits code you can also:

1. Add / delete a certain finger print or delete all of the finger prints.
2. Change the 8 digits code.

Write 15 test cases you estimate “must have” for this system to be released in production.

Load testing – make sure that we can push the System up to 72 finger prints.

Boundaries tests: check we cannot save 73 (72+1) finger prints in the sys DB.

Functionality:

* Add new Finger print to sys DB
* Delete existing Finger print to sys DB
* Lock/Unlock using your own finger print (existing on DB)
* Try to Lock/Unlock using not existing finger print
* Try to Lock/Unlock using another person finger print
* Delete All existing Finger prints in DB
* Switch Finger print to another one – initiated by user
* Prompt Verification 1: configure timer in DB to expire 45 days in the sys DB and make sure on Login sys will require you to switch for new finger print.
* Prompt Verification 2: configure timer in DB to expire 2 years in the sys DB and make sure on Login sys will require you to switch for new finger print.
* Modification of finger print after 2 triggers were evoke.
* Check cannot Lock/Unlock using old finger print anymore.
* 8-digit code Functionality verification: try to give less/more than 8-digit codes. Try to give letters/marks (not numbers).
* Modify existing 8-digit code.
* Verify first trigger by giving 8-digit code modify and verify time period after 45+ days / 45- days / keep 45 / try more than 45+5 / try less than 45
* Verify second trigger by giving 8-digit code modify and verify time period after 2 years by adding 1 month / try more than 1 month, repeat many intervals by keep adding 1 month over and over till max time validity 3.5 years.

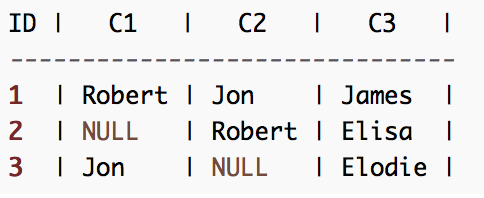
UI Testing: check design, prompts, languages, banners as expected

Use different browsers, devices (mobiles, Tables), different OSs, different Network connections

Performance Testing: let the sys handle X amount of user in the same time. Check avg capacity and Max capacity and check sys behavior remain as expected.

***3. Tech***

**3.1 Considering the SQL Database table below, write an SQL query to print the rows which have “Jon” in one of the columns C1, C2, or C3, but without using *OR*.**

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| **Answer**  select \*  From Tech\_Table  Where “Jon" in (C1,C2,C3)  Note: if fields are in different datatype than Char/Varchar, “casting” will be needed. |

**3.2 The Github Test**