The Ten Most Important Test Automation Questions and Answers

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Five Choices and Five Trends
Why, When, Which, What, How and Where of Automation

Six Choices

1. **To automate or not to automate at all?**
   The do or don't choice
2. To automate now or automate later?
   The time choice
3. To automate through this or that?
   The tool choice
4. **To automate this or that?**
   The test case choice
5. Vertical Automation or Horizontal Automation?
   The flow choice
6. Test data hard coded or Test data kept reusable?
   The object oriented choice

1. Why to

2. When to

3. Which tool

4. What to

5 - 8 How to

9-10. Where is it leading to

Four Trends

1. Keyword or functional decomposition?
   The combined trend
2. Building extensibility or not into the application?
   The user trend
3. Whether to automate and execute early?
   The agile trend
4. Whether to offer scripts to clients?
   The selling trend

Q #1
To Automate or not to automate?

The do or don't choice

- →Knowing the key drivers behind test automation is important
- →Different objectives would require different test automation strategies
- →Clear understanding of "Why to automate" helps in reducing the expectation gap between management and test automation team

Q #1 : To Automate or not to automate

Common objectives of test automation

→Saves Time

- 2 hour regression suite
- Time to market increases

→Increases accuracy

- Reduced person dependency

→Reduces Cost

- Better ROI

→Improves coverage

- Localization

→Reusability

Q #2
To Automate now or automate later?

The time choice

→Key to successful test automation is knowing when to automate.

→Often overlooked and sometimes undervalued.

→Even the best of automation approaches could fail to give ROI if the timing of automation is wrong.

→This question is critical since test automation is

- Pointless if it is at the fag end of a product lifecycle
- Painful if the product is unstable
- Possible even if the product is not ready (future trend)

Q #2 : To automate now or later?

Factors to be considered before starting automation

→Quality of manual testing process

- Detailed test conditions and pre conditions
- Accurate test data and expected results

→Stability of module/application

- Core functionality and navigation flow is approved and accepted by end client
- No bug fix should impact major functionality
- No planned major enhancements in the functionality for minimum next 3 regression rounds

Q #3
To Automate through this or that?

The tool choice

- →Functionality
- →Usability
- →Maintainability
- →Flexibility
- →Affordability
- →Compatibility

Q #3 : To automate through this or that
Factors to be considered for choosing a tool

→Compatibility

- Is the tool compatible with the application? Does it identify all the objects in your application?
  - Identify different classes of object in the application. (Standard controls & customized)
  - Identify different possible events for each object (mouse over, mouse down, type, drag, etc)
  - Record and Playback for above

→Functionality

- Rate the application against the features list required for automation team (Evaluation Criterion)

Q #3 : To automate through this or that
Factors to be considered for choosing a tool

→Usability

- How easy it is to learn and adapt?
- Availability of trainings.

→Maintainability (Support)

→How good is support by the company.

→Online user community?

→Flexibility

- Licensing policy of the company (This points is here thanks to the rigid licensing policies of some companies

→Affordability

- € O $ £ : After all.

Q #4 *To automate this or that*

The test case choice

- →After knowing when to automate, its critical to know what to automate and what not to automate.
- →Remember: Its not feasible to automate all the test cases.
- →Decide a test selection criterion for automation to improve automation effectiveness.

Q #4 : To Automate this or that
Test case selection criterion

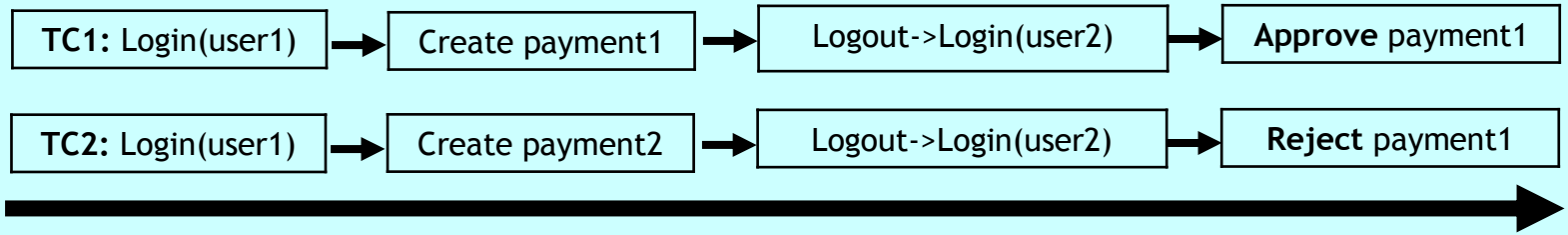
- →Is the test case repeatable?
- →Does this test case require manual intervention?
- →Has the test case passed manual verification?
- →Are all the preconditions for the test case taken care-of?
- →Are the execution steps very clear?
- →Do we have test data for this test case?
- →Is the expected result clear enough to decide the test case status (PASS & FAIL)?
- →Will the test case survive the functional changes around it?
- →Is the test case straightforward for automation?
- →Can I trust this script to really test this part of the feature?

Q #5
Vertical or Horizontal Automation?

The flow choice

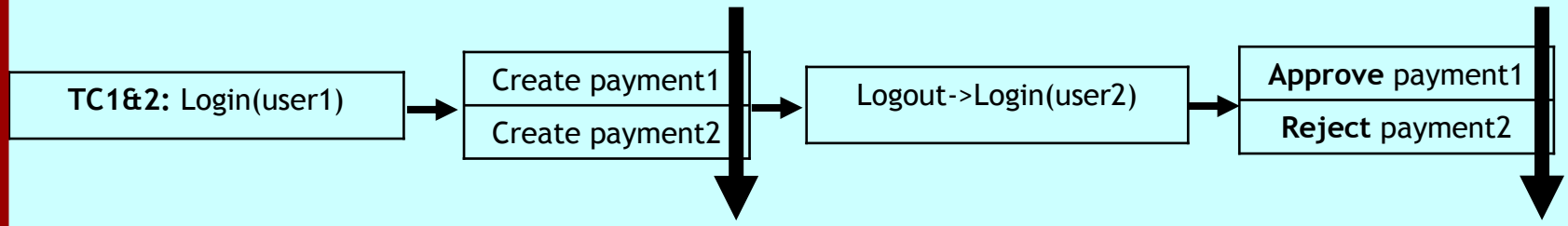
Horizontal Automation

Automating End to End Flow where each test cases is independent of each other such as



Vertical Automation

Vertical automation is executing test cases feature wise to save execution time. e.g.



Q #5 : Vertical or Horizontal Test Automation
Advantages of each

→ Advantages of Horizontal Automation

- Flexibility in running any test case any where as each test case is independent of other.
- Easy to organize and automate. Less administration is required
- Test Execution progress can be ascertained at any point since every completed test case gets immediately logged

→ Advantages of Vertical Automation

- Faster test execution as navigation is minimized, (such as login -logout)
- Effective when same functional flow is tested with different data sets

Q #6

Test data hard coded or test data kept reusable

The data design choice

→A good automation architect ensures that scripts are reusable.

→A great automation architect ensures that scripts and test data, both, are reusable.

Q #6 : Test data hard coded or reusable

Reusing test data

→Generally , there is more emphasis on reusing test script than reusing test data.

→Generally one test set is used per test case.

- For e.g. approve payment test case and reject payment test case may use same user (i.e. user1) but the test data sheet is stored within the test case and gets repeated again and again for each test case.

→On the other hand to keep the test data reusable:

- Store data screen wise and not test case wise
- Assign reference id to each test data.
- Pass reference id to each test case for accessing the test data.

Q #7
Keyword driven or functional decomposition

Functional decomposition

In the functional decomposition approach, business processes are created first and while creating the test scenarios and test scripts, each business process is called in a sequence. This approach is modular but for every test scenario, a test script is required. In this approach scripts are maintainable to the extent that implementation of the business process is not changed.

Keyword driven

In the Keyword driven approach, each business process is mapped into actions and further each operation is mapped as a keyword. It is easy for non technical users to create test scenarios without knowing much of the testing tool. Scripts are not modular and major advantages of functional decomposition are lost.

Q #7
Keyword driven or functional decomposition

Functional decomposition

Library

```
Login()
{
Enter username
Enter password
Click ok
}
```

Test Script for approval

```
login ()
create_payment ()
logout ()
login ()
approve_payment()
```

Keyword driven

Keyword calling

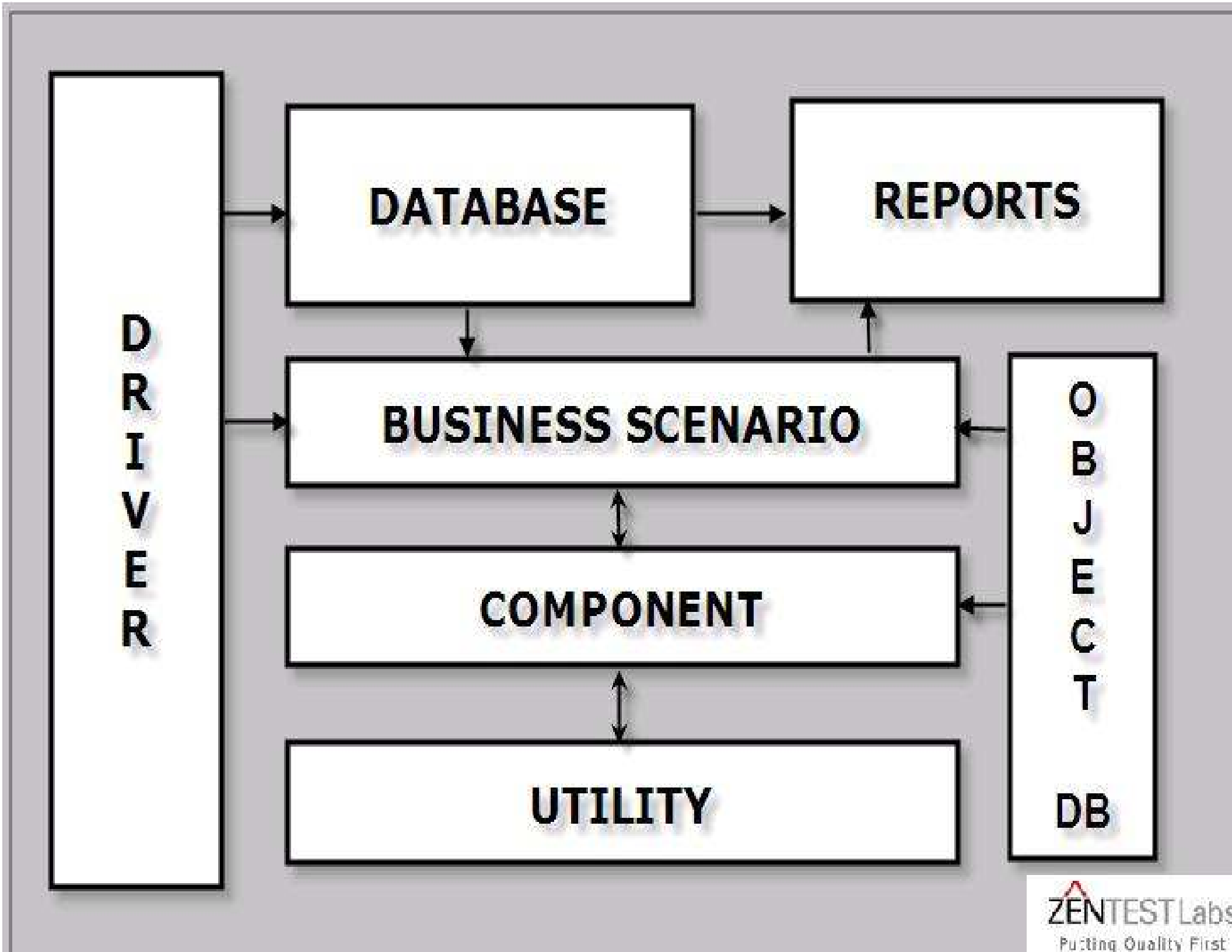
```
EnterText- username, mukesh
EnterText- password, hello
Click OK

ClickLink create payment
EnterText account_name, 1209892
EnterText amount 122$
EnterText date 04-Aug-2007
. . . so on
```

Q #7
Keyword driven or functional decomposition

The combined trend

→Moving beyond FD and KD, the trend shall be to combine both

- Keywords as a set of business processes, which are packaged as user defined functions. These keywords/user defined functions can be called in a sequence in excel or a database to test the business rules.
- This gives users the modularity of functional decomposition and the usability of keyword driven
- ZenTEST Labs' ZenFRAME is one such framework that combines both



Q #8
Building extensibility or not

The user trend

→To further make automation frameworks more effective, an attempt should be to made to separate technical and business usage.

- Business users should be able to add test scenarios using the framework without worrying about the technical scripting part.

→A framework should be able to minimum easily handle functional changes in the application such as:

- Addition of new fields/objects
- Removal of new fields/objects
- Changes in business validations, etc

Q #8 : Building extensibility or not

The basic theme to build an extensible framework

→"Keep everything, that changes or has chances of changing, separate from the script."

- Object properties change. So keep that separate. This is a default feature in most of the tools.
- Test data changes. So keep test data separate from the script
- Sequence/ flow of application changes. So separate that into an excel sheet or a database

(Most automation engineers follow the first 2 points as more or less they are default feature in the automation tools, now lets take advantage of the third approach)

Q #9 : Whether to automate and execute automation scripts in the early stages of development

→Agile Test Automation Principles by James Bach

- Consider thinking of test automation as …Any use of tools to support testing (James Bach)
- Test automation means tool support for all aspects of a test project, not just test execution.
- Test automation progresses when supported by dedicated programmers (toolsmiths).
- Toolsmiths are directed by testers.
- Test toolsmiths gather and apply a wide variety of tools to support testing.
- Test toolsmiths advocate for testability features and produce tools that exploit those features.
- Test automation is organized to fulfill short term goals.
- Long term test automation tasks are avoided in the absence of specific approval based on a compelling business case.

Q #9 : Whether to automate and execute automation scripts in the early stages of development

The early trend

→Ideally automation should start once the application is stable but with good technical QA engineers one can start much before the application is even ready for manual testing. This can be achieved by

- Using abstract automation approach for building the automation flow and important components.
- Manually scripting application objects and user actions.

→There is high dependence on good requirements and screen layout.

→Traditional automation is mainly used by QA engineers for regression testing, but latest trends show that the automation suite can yield more returns when developers can use it for their unit testing.

Q #10

Whether to offer scripts to your end client

The selling trend

→Recent Trends indicate that soon test scripts will also be shipped along with the application.

→Every patch release will have the modified test scripts with it.

→Clients have started demanding automation scripts for doing their UAT and testing application during bug fixes.

→It has also become a new source of income for product companies, wherein additional cost can be billed for automation scripts which are anyways available with QA team.

→This also brings in additional budget for future automation effort and automation gets buy-in from senior management.

Summary: Six Choices and Four Trends

Six Choices

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Four Trends

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Objective of this presentation
An ode to test automation

I keep six honest serving men,

The first three are **Why**, **What** and **When**.

But, as questions, these three aren't as rich,

To complete the circle, you need **How**, **Where** and **Which**.

These six **questions** give you five **choices** and **trends** each

But focus on the automation **themes** that they teach,

Whether it is STAREAST or STARWEST,

Let your automation questions be laid to rest.

About ZenTEST Labs…

Purpose

- To enable client experience 'Zen' through our Testing and Quality services

Focus

- An independent testing company focusing on functionality testing and quality consulting.

Sample List of clients

- World's number 1 automation provider
- World's largest eLearning solutions provider
- Europe's largest bank
- World's number 2 computer manufacturer
- One of the world's leading cash management solutions provider
- One of the world's leading customer interaction software for payments
- Europe's leading Infrastructure Management software provider.
- One of Middle East's largest banking software providers

Highlights

- **Offshore Testing Centre**
  - Located at Pune, India
  - 55 People Company (As on Nov 2006)
- **Domain Expertise**
  - Finance and banking
  - eLearning and education
  - Document and Project Mgmt
- **Technology Expertise**
  - Certified Mercury Product consultants
  - Proprietary Test Automation Framework, viz. ZenFRAME
  - Specialized testing services

About ZenTEST Labs.

Testing Consulting

- Test Process Assessment
- Automation Consulting
- Testing Project Management

Testing Training

- Mercury WinRunner/ QTP
- Mercury Load Runner
- Mercury Quality Center
- Rational Testing Tools
- Test Project Management
- Test Estimation
- Advanced Test Automation
- How to write test cases
- The mind of a software tester

Testing Projects

Outsourced Testing

- Functionality Testing
- Unit Testing

Test Automation Projects

- Functional Automation
- Performance Testing

Test Maintenance Projects

- Maintain Regression Suites

Specialized Testing

- eLearning specific testing
- Security Testing
- Compliance Testing
- Localization Testing
- Usability Testing
- Agile Testing

Further Help

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Thank You
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