

Experience-based testing techniques leverage the knowledge, intuition, and past experiences of testers, developers, and other stakeholders to identify potential defects in software. These techniques are particularly useful when formal specifications are **limited** or absent, or when **time constraints** necessitate a more agile approach.

Here are some key experience-based testing techniques:

- **Error Guessing:**

This technique relies on the tester's intuition and experience to predict where defects might occur in the software. Testers use their knowledge of common programming errors, past system failures, and typical user behavior to anticipate potential problem areas.

- **Exploratory Testing:**

In exploratory testing, the tester simultaneously learns about the software, designs test cases, and executes them. This unscripted approach allows for flexibility and adaptability, as the tester can follow their instincts and explore areas of the application that seem most promising for uncovering defects.

- **Checklist-based Testing:**

This technique involves using pre-defined checklists, often derived from past projects or industry best practices, to guide the testing process. The checklists serve as a reminder of common test scenarios, potential vulnerabilities, and areas to focus on during testing.

- **Attack Testing:**

Attack testing, also known as negative testing or security testing, involves deliberately attempting to break the system by providing invalid inputs, exploiting vulnerabilities, or attempting unauthorized actions. This technique relies heavily on the tester's understanding of security principles and common attack vectors.

Characteristics of Experience-Based Testing:

- **Reliance on Human Expertise:**

These techniques are driven by the individual skills, knowledge, and experience of the testers.

- **Flexibility and Adaptability:**

They are less structured than formal testing methods, allowing for on-the-fly adjustments and exploration.

- **Effectiveness in Specific Contexts:**

Particularly valuable in situations with incomplete documentation, tight deadlines, or for low-risk systems.

- **Potential for Varying Coverage:**

The effectiveness and coverage achieved can vary significantly depending on the tester's experience and skill level.

Scenarios When Experience Based Testing to Avoid

Experience-based testing offers a dynamic approach. However, there are scenarios where it's best used in teams with structured techniques rather than as a standalone method.

Consider the following situations where caution is advised:

Contractual Requirements: In cases where contractual agreements demand clear presentations of test coverage and specific test matrices, experience-based techniques might need to align. These methods cannot inherently quantify test coverage, making them less suitable for scenarios where stringent documentation is a must.

Regulatory Compliance: Experience-based testing could take a lot of work when dealing with industries or projects requiring strict adherence to regulatory standards. Regulations often demand verifiable and documented testing processes, making structured techniques a more reliable choice.

Critical Systems: For systems where failure could have severe consequences, relying solely on experience-based techniques might not provide the level of assurance required. Structured methods offer a systematic approach that can be thoroughly validated and assessed.

Complex Scenarios: Experience-based testing might only capture some potential issues in complex and varied scenarios. Structured techniques allow for a more organized exploration of possible test scenarios.

New Technologies: Experience-based testing might need a solid foundation when dealing with novel technologies with limited established patterns and experiences. Structured approaches help ensure a more comprehensive exploration of these uncharted territories. While experience-based testing is valuable, it's important to recognize its limitations and opt for structured techniques when the situation demands rigorous quantification, regulatory adherence, criticality, complexity, or novelty. Balancing both approaches can lead to a well-rounded testing strategy.

Advantages of Experience-Based Testing:

- **Adaptability to Sparse Documentation:** Experience-based testing shines when dealing with systems that lack detailed documentation. Its flexibility makes it a viable alternative in such scenarios.
- **Efficiency under Time Constraints:** When time is of the essence and testing activities face tight schedules, This also proves its effectiveness by ensuring thorough testing within these limitations.

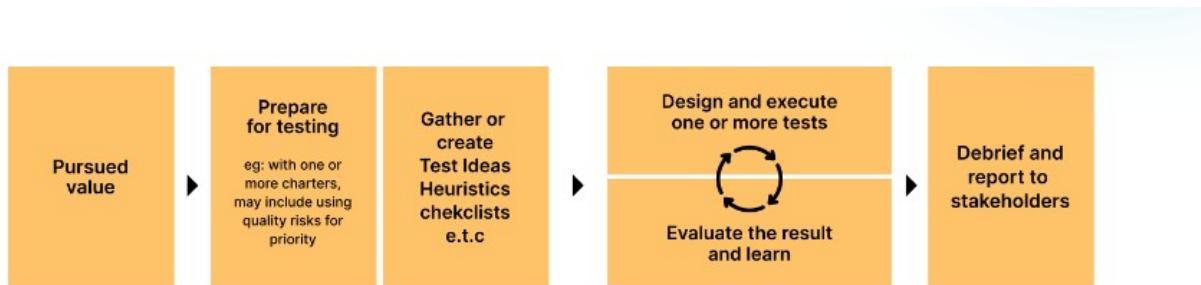
- **Harnessing Domain Expertise:** The true power of experience-based testing lies in tapping into the collective wisdom of domain and technology experts associated with the software. This expertise can be drawn from various sources, including business analysts, customers, and clients, enriching the testing process.
- **Early Developer Feedback:** By offering timely feedback to developers, this testing catalyzes swift issue resolution, contributing to smoother development cycles.
- **Enhanced Familiarity with Software:** Experience-based testing empowers testing teams to become intimately familiar with the product's intricacies as the software evolves.
- **Ideal for Addressing Operational Failures:** Experience-based testing excels when analyzing and rectifying operational failures, showcasing its effectiveness in addressing critical issues.
- **Diverse Testing Techniques at Your Disposal:** Embracing experience-based testing opens the door to many testing techniques, allowing for tailored approaches based on project nuances.
- **Efficient Exploratory Testing Initiation:** Experience-based testing reduces the need for extensive predefined test plans, enabling testing to kick off swiftly in the early stages of development.
- **Filling the Gaps in Automated Testing:** Experience-based testing steps in where automated testing falls short, probing aspects of the software that resist effective automation.

Disadvantages of Experience-Based Testing:

- **Not Ideal for Detail-Centric Systems:** In systems that demand meticulous test documentation, experience-based testing might not be the best fit due to its reliance on testers' intuition.
- **Repeatability Challenges:** Consistently replicating test outcomes can be challenging due to the inherent variability of experience-based testing.
- **Complex Coverage Assessment:** Precisely measuring test coverage becomes more intricate with experience-based testing, posing a challenge to ensure comprehensive testing.
- **Automation Compatibility:** Experience-based tests are less conducive to subsequent automation efforts, limiting their integration into automated testing pipelines.

- **Quality Tied to Tester Expertise:** The quality of testing outcomes is directly linked to individual testers' expertise, which can vary widely, introducing an element of unpredictability.

Flow:



Step 1: Test Session Preparation

Just like any successful endeavor, experience-based testing kicks off with some groundwork. Test sessions, the heart of this approach, require a touch of preparation. While this preparation might only sometimes be formally documented, it sets the stage for what's to come.

Step 2: Immersive Test Sessions

Picture a test session as a collaborative workshop where skilled individuals come together. During these sessions, the participants don their tester hats and start a captivating cycle of activities. It's an iterative process where creativity and experience intertwine.

Step 3: Iterative Test Design

As the test session unfolds, the involved minds roll their sleeves and dive into designing tests. This is where the magic happens—testers leverage their experience and insights to formulate test cases that peel back the layers of the system. Each test case is crafted meticulously to unearth potential flaws or challenges.

Step 4: Executing and Evaluating Tests

With test cases ready, it's time to put them to the test—quite literally! The testers execute these scenarios, observing the system's responses. This step isn't just about running tests;

it's a dynamic process of probing, poking, and analyzing. As the system reacts, the testers keenly evaluate the outcomes.

Step 5: Learning and Adapting

Every test session brings valuable lessons. In executing tests and assessing outcomes, testers truly learn about the system's behavior. Armed with this newfound knowledge, they adapt their approach, refining their test cases and strategies.

Step 6: Continuous Design and Iteration

The learning isn't confined to textbooks; it's embedded in the core of experience-based testing. The insights gained from test executions fuel the fire of innovation. With these insights, testers return to the drawing board, conjuring up fresh test scenarios that tackle the evolving intricacies of the system.

Step 7: Debriefing and Reporting

As the test session reaches its crescendo. This is the moment when the testers share their observations and findings. It's a vital part of the process, ensuring everyone is on the same page and enabling seamless communication with stakeholders within and beyond the team.

So, the next time you hear about experience-based testing, visualize this dynamic flow, a testament to the power of teamwork and experience in perfect harmony.