

# # Test Design Techniques

## ## 1. Introduction

Test design techniques help testers derive high-quality test cases based on requirements, user behavior, and system specifications.

## ## 2. Categories of Test Design Techniques

- Black-box techniques
- White-box techniques
- Experience-based techniques

## ## 3. Black-Box Techniques

### ### Equivalence Partitioning (EP)

Divides input data into valid and invalid partitions.

### ### Boundary Value Analysis (BVA)

Focuses on values at boundaries.

### ### Decision Table Testing

Useful for complex business rules.

### ### State Transition Testing

Used where system behavior changes by state.

### ### Use Case Testing

Defines test scenarios based on real user interactions.

## ## 4. White-Box Techniques

### ### Statement Coverage

Ensures every statement is executed.

### ### Branch Coverage

Validates true and false conditions.

### Condition Coverage

Covers all logical conditions.

## **## 5. Experience-Based Techniques**

### Exploratory Testing

Learn, design, execute simultaneously.

### Error Guessing

Based on tester experience.

## **## 6. Choosing a Technique**

Depends on: risk, project type, documentation, resources.

## **## 7. Benefits**

Improves coverage, reduces duplication, increases efficiency.