Types of Testing (Main Two Types)

1 Functional Testing

👉 Checks **WHAT the system does**

It checks features and functions.

Example:

- Login works or not
- Signup works or not
- Payment works or not

Types of Functional Testing:

Unit Testing

Testing one small part (like one function or method).
Usually done by developers.

Integration Testing

Testing how different modules work together.

Example:
Login + Dashboard connection works properly or not.

System Testing

Testing the **full system** from start to end.

Example:
User registers → logs in → buys product → pays → logout
Everything works together or not.

☑️ User Acceptance Testing (UAT)

Testing by real users or client.
They check if software is ready for release.

👉 This is the final approval stage (Go or No-Go decision).

2️⃣ Non-Functional Testing

👉 Checks **HOW the system performs**

It checks quality, performance, security.

Types:

- ✅ Performance / Load Testing → Can system handle many users?
- ✅ Stress Testing → What happens if too much load?
- ✅ Security Testing → Is system secure?
- ✅ Usability Testing → Is it easy to use?

🎯 Black Box vs White Box Testing

🔘 Black Box Testing

Tester doesn't see internal code.
Only checks input and output.

Example:
Enter email + password → Check login success or fail.

Done by Manual & Automation testers.

◯ White Box Testing

Tester sees internal code.

Example:

```
login(test@yopmail.com, pass123456)
```

Checking inside function logic.

Usually done by developers.

🏔 Testing Pyramid

Bottom → Unit Testing (more tests)
Middle → Integration Testing
Top → UI Testing (less tests)

👉 Means:
More unit tests, less UI tests.

Smoke Testing

Quick test after new build.

Goal:

👉 Check system is stable or not.

If basic features work → Continue testing
If not → Stop testing

📌 When to do?

- New build deployed
- Before regression
- Before UAT
- Before demo

🧠 Sanity Testing

Done after small bug fix or small change.

It checks only the changed part.

👉 More focused than smoke testing.

📌 When?

- After bug fix
- After minor code change
- After small feature added

🔁 Regression Testing

Done after any new feature or bug fix.

Goal:

👉 Make sure old features still work.

Example:
After adding “Remember Me” feature
Check login, logout, reset password still work.

It runs all previous test cases again.

🔍 Exploratory Testing (Ad-hoc Testing)

No fixed test case.

Tester explores system like real user.

Uses experience and logic to find bugs.

📌 When?

- New tester joins
- Need quick feedback
- Need to find edge cases

🏢 System Testing

Full system testing from start to end.

Also called End-to-End testing.

Simulates real-world scenario.

🤝 Acceptance Testing (UAT)

Done by client or end users.

They check:

- Does it meet business requirement?
- Is it ready to go live?

Final decision stage.

🧩 Integration Testing

Checks:
Modules work properly together or not.

Example:
Payment system connects with bank API or not.

🔄 Full Cycle Testing

Testing from beginning to end of SDLC.

Includes:

- Requirement review
- Unit testing
- Integration
- System
- UAT
- Regression
- Maintenance

👉 From idea to production — everything.

🧪 More Testing Techniques

☑ End-to-End Testing (E2E)

Test full workflow like real user.

☑ Alpha Testing

Internal testing by QA or developer.

Before releasing to outside users.

☑ Beta Testing

Real users test in real environment.

They give feedback.

☑ Compatibility Testing

Check software works in:

- Chrome
- Firefox
- Mobile
- Windows
- Android etc.

☑ Usability Testing

Check:
Is it easy to use?

🧮 Testing Techniques

◇ Boundary Value Analysis (BVA)

Test input limits.

Example:
Age limit 18–60
Test:
17 ❌
18 ✅
60 ✅
61 ❌

◇ Equivalence Partitioning (EP)

Divide input into groups.

Example:
Age 18–60 valid
Below 18 invalid
Above 60 invalid

Test only one value from each group.

Quick Summary

Functional Testing	Non-Functional Testing
What system does	How system performs
Login works?	Can handle 1000 users?
Signup works?	Is it secure?