

Technology
Science
Information
Networks
Computing



Lecturer: Ting Wang (王挺)

利物浦大学计算机博士

清华大学计算机博士后

电子信息技术高级工程师

上海外国语大学网络与新媒体副教授

浙江清华长三角研究院海纳认知与智能研究中心主任

New Media Product Design and Development

Lecture 5. Testing

Dr. Ting WANG



School of Journalism and Communication
Shanghai International Studies University

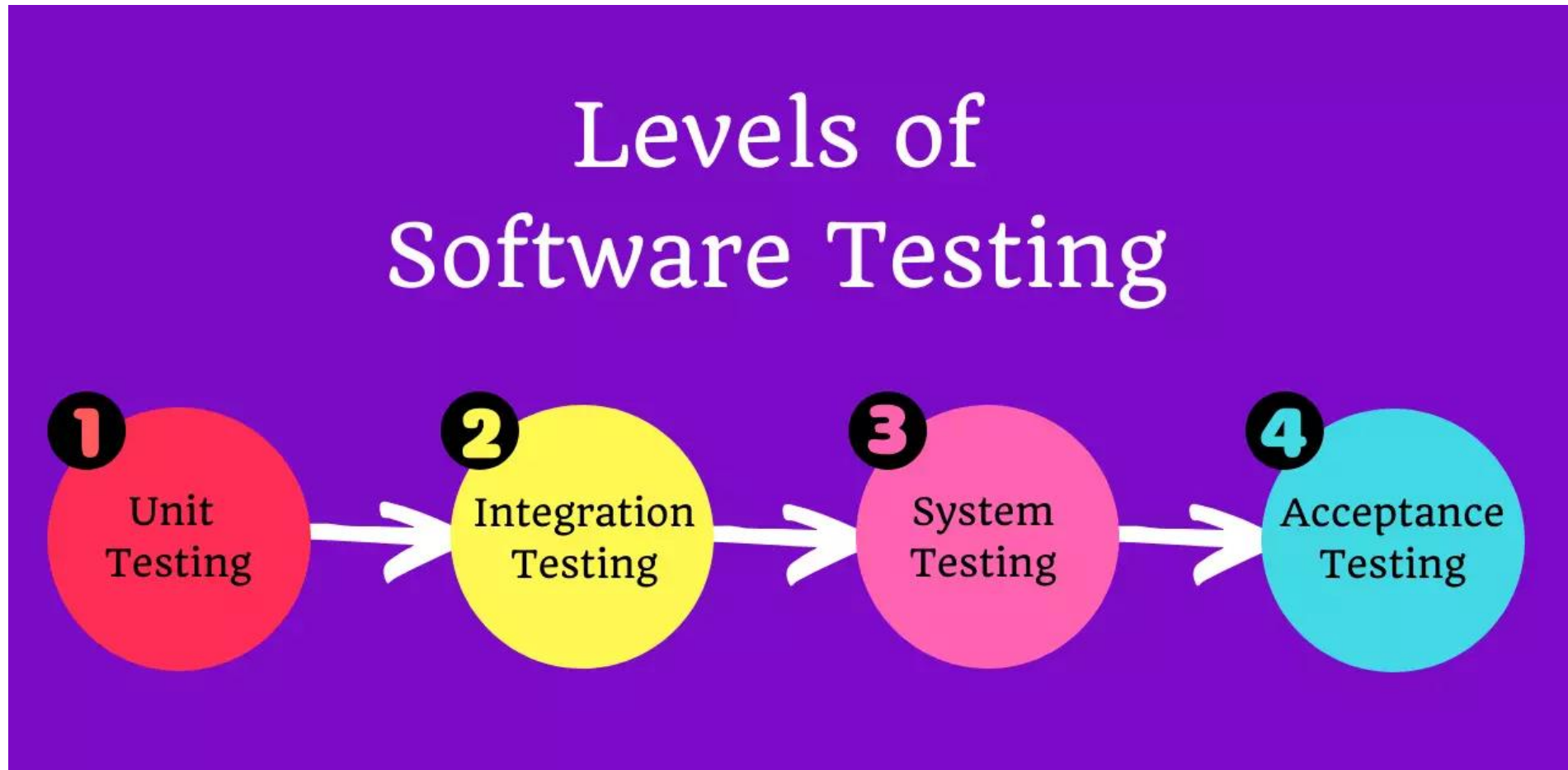


Haina Cognition and Intelligence Research Center
Yangtze Delta Region Institute of Tsinghua University, Zhejiang

Part 02

Testing levels and methods
for new media products

Software testing levels



Unit test

Unit Test (also called Module Test or Component Test)

It is done during the development of an application to check whether the individual unit or module of the application is working properly. It is done by the developers in the developer's environment.

Goals of unit test:

- To isolate every section of code.
- To make sure individual parts are correct.
- To find bugs early in development cycle.
- To save testing cost.
- To allow developers to refactor or upgrade code at the later date.

Unit test method:

White box test

Key points of unit test:

- Module Interface
- Parameters and variables
- Key operation flow
- Error processing flow
- Baseline

Tasks of unit test

Unit Test Plan:

- Prepare
- Review
- Rework
- Baseline

Unit Test Cases/Scripts:

- Prepare
- Review
- Rework
- Baseline

Unit Test:

- Perform

Best Unit Testing Tools



JUnit

EMMA

TestNG



PHPUnit

Unit.net



<https://www.softwaretestingmaterial.com/unit-testing-tools/>

Integration test

Integration test aims to test the connectivity or data transfer between the couple of unit tested modules.

Objectives of system integration test:

- To reduce risk
- To verify whether the functional and non-functional behaviors of the interfaces are as designed and specified
- To build confidence in the quality of the interfaces
- To find defects (which may be in the interfaces themselves or within the components or systems)
- To prevent defects from escaping to higher test levels

How To Write Integration Test Cases?

focus mainly on the communication between the modules

Integration Testing Tools:

- Citrus Integration Testing
- VectorCAST/C++
- FitNesse
- Validata

Integration test approaches 1

Big Bang Approach

Combining all the modules once and verifying the functionality after completion of individual module testing.

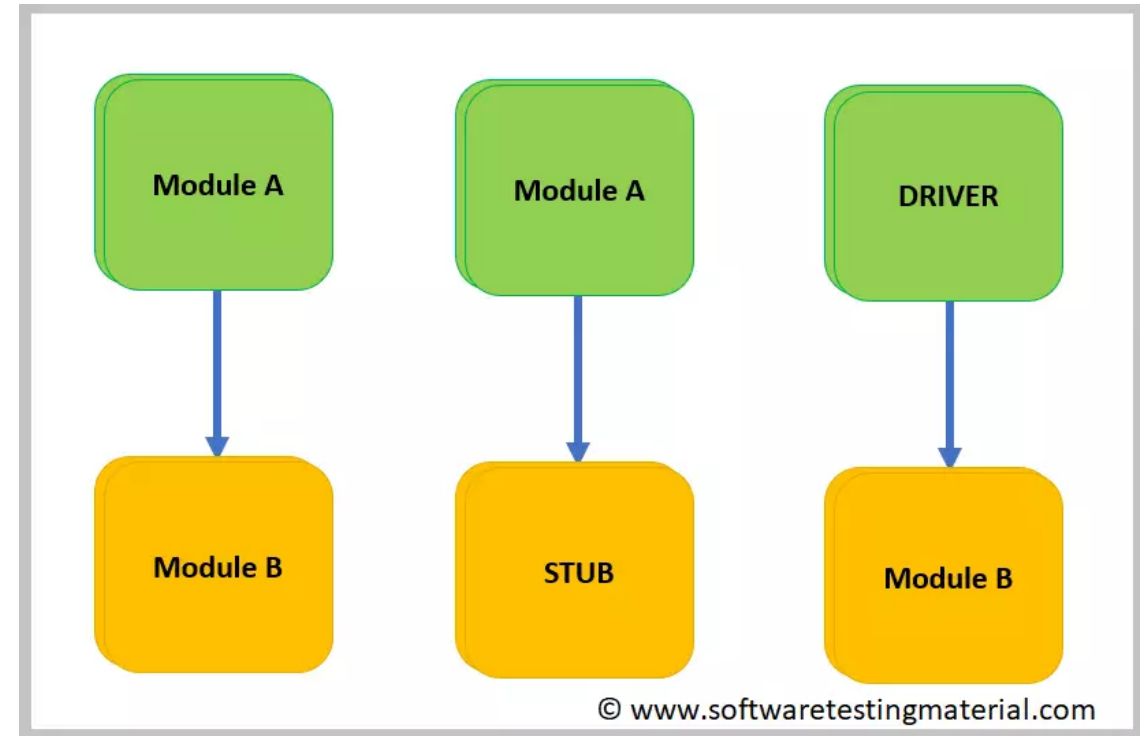
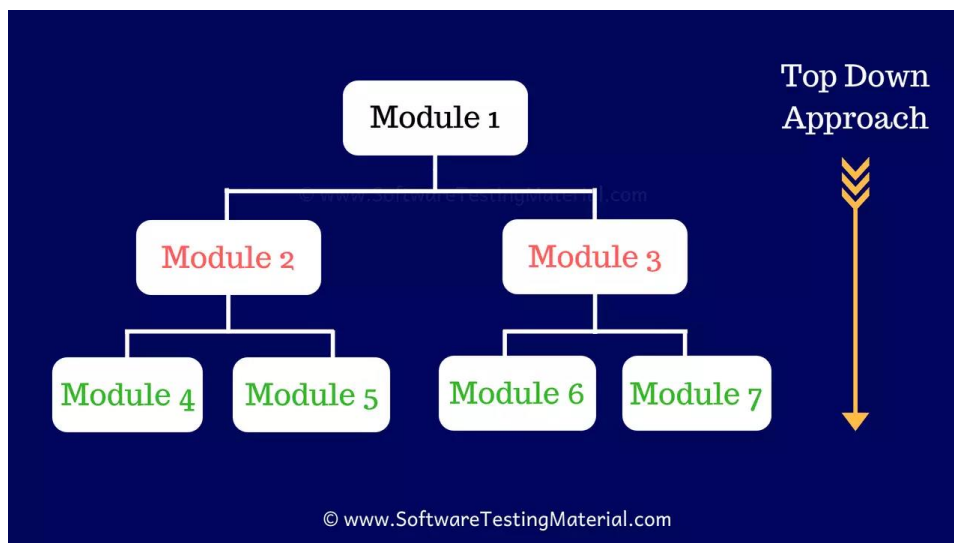
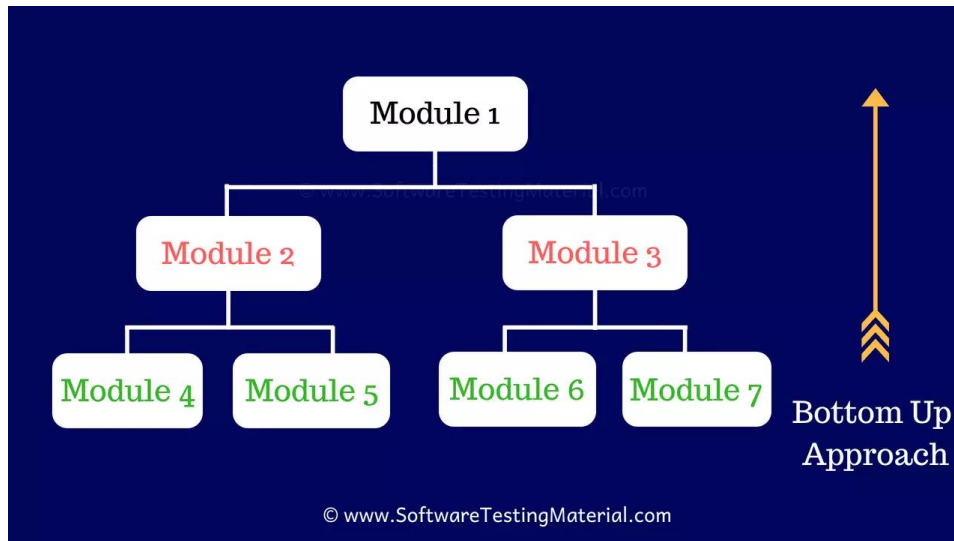
Defects can be found at the later stage. It would be difficult to find out whether the defect arises in interface or in module.

Integration Testing

Top Down Approach | Bottom Up Approach
Big Bang Approach | Hybrid Approach

Integration test approaches 2

Top Down and Bottom Up Approaches



STUB: Dummy called module

DRIVER: Dummy calling module

Hybrid Integration Test

combination of both Top-down and Bottom-up integration test.

System test

a level of testing that validates the complete and fully integrated software product

It is mainly a **Black-box** type testing

It mainly focuses on the following:

- External interfaces
- Multiprogram and complex functionalities
- Security
- Recovery
- Performance
- Operator and user' s smooth interaction with the system
- Installability
- Documentation
- Usability
- Load/Stress



Steps of system test

1. The very first step is to create a Test Plan.
2. Create System Test Cases and test scripts.
3. Prepare the test data required for this testing.
4. Execute the system test cases and script.
5. Report the bugs. Re-testing the bugs once fixed.
6. Regression testing to verify the impact of the change in the code.
7. Repetition of the testing cycle until the system is ready to be deployed.
8. Sign off from the testing team.

<https://www.softwaretestinghelp.com/system-testing/>



Acceptance test

a black-box testing to test whether the software system has met the requirement specifications

various forms of acceptance test:

- User acceptance Testing
- Business acceptance Testing
- Alpha Testing
- Beta Testing



<https://www.softwaretestinghelp.com/what-is-acceptance-testing/>

https://www.tutorialspoint.com/software_testing_dictionary/acceptance_testing.htm

Cross Browser Test

Checklist

1. Verify the HTML validation – w3.org validator
2. Verify the CSS validation – w3.org js validator
3. Verify the page validations with or without JavaScript enabled
4. Verify the Ajax and JQuery functionality
5. Verify the SSL work correctly in all browsers
6. Verify the alignment of the elements in a web page
7. Verify the spacing between the elements in a web page
8. Verify the font color, font size of the elements in a web page
9. Verify the page layout in different resolutions
10. Verify the spacing between the elements in a web page
11. Verify the styles/effects given are reflecting properly
12. Verify file uploading and file downloading functionality
13. Verify the images are loading after uploading
14. Verify the image alignment and alt tags
15. Verify the text alignment
16. Verify the links in a web page are navigating properly or not
17. Verify the buttons in a web page
18. Verify the popups
19. Verify the videos are working
20. Verify whether the mobile devices are able to scroll up and down the pages properly
21. Verify whether the audio, video and image files are able to upload from devices or desktop
22. Verify the zoom in and out the web pages
23. Verify the Date formats
24. Verify the Tool Tips and mouse hover
25. Verify the Drop-down fields
26. Verify the appearance of horizontal and vertical scrollbar
27. Verify the consistency of animation and flash work
28. Verify the alignment of checkboxes, radio buttons, and forms
29. Verify the Grids/Tables in the page
30. Verify the sessions and cookies

Mobile App Test

Test on Real Devices, Emulators and, Simulators

Challenges in Mobile App Test

- 1: Different Operating Systems and their versions
- 2: Device Variations
- 3: Various Networks
- 4: Frequent OS Releases

Mobile App Testing Strategies

1. Scaling Automation Testing
2. AI and ML in Testing
3. Testing in Cloud

Best Mobile App Testing Tools

(<https://www.softwaretestingmaterial.com/mobile-app-testing-tools/>)

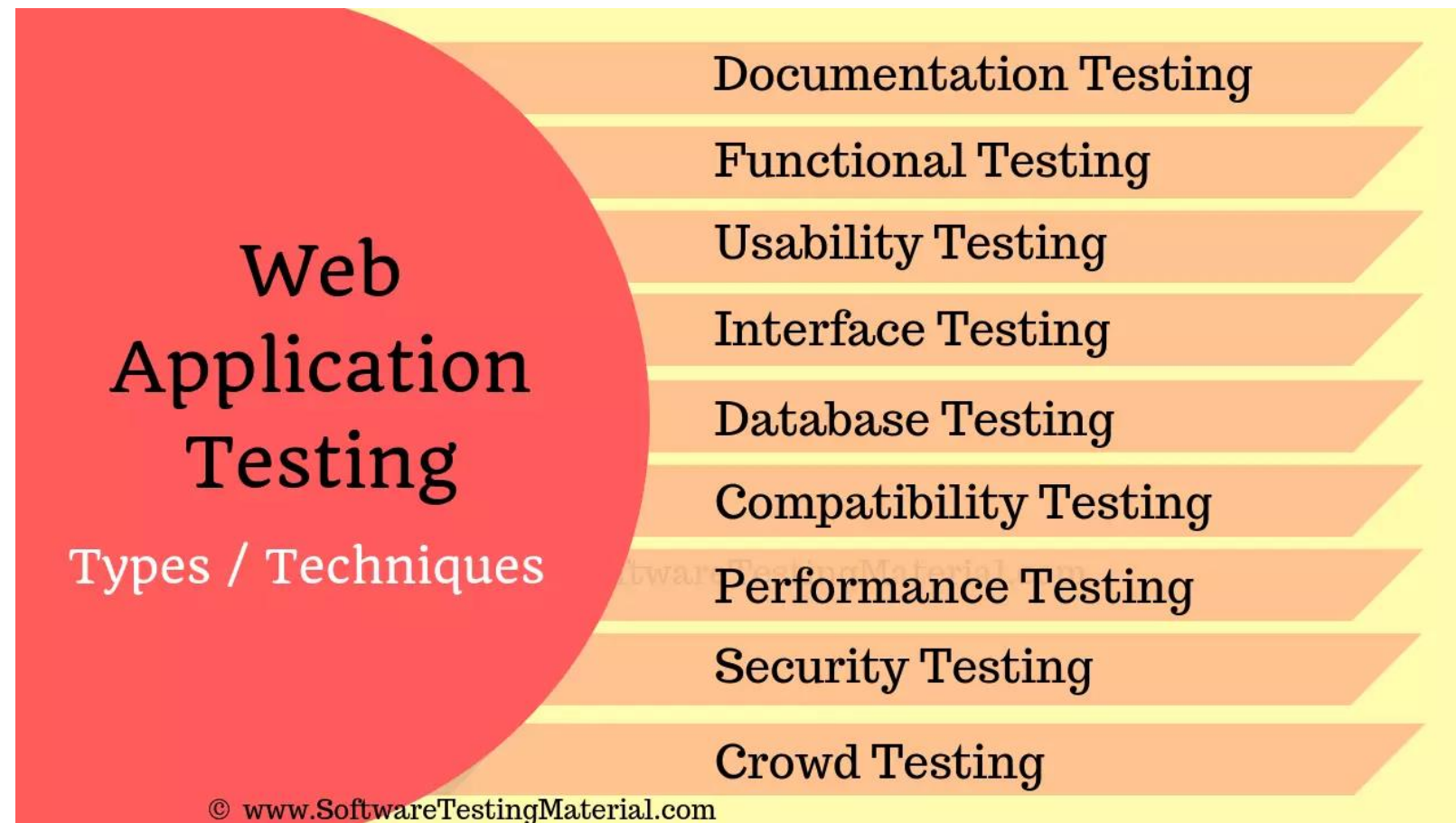
<https://www.softwaretestingmaterial.com/mobile-app-testing-guide/>



Web Application Test

Best Web Application Testing Tools

<https://www.softwaretestingmaterial.com/web-application-testing-tools/>



<https://www.softwaretestingmaterial.com/web-application-testing-tutorial/>

New Media Product Design and Development

Lecture 5-2. The End

THANK YOU

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Haina Cognition and Intelligence Research Center
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