COMP 3711
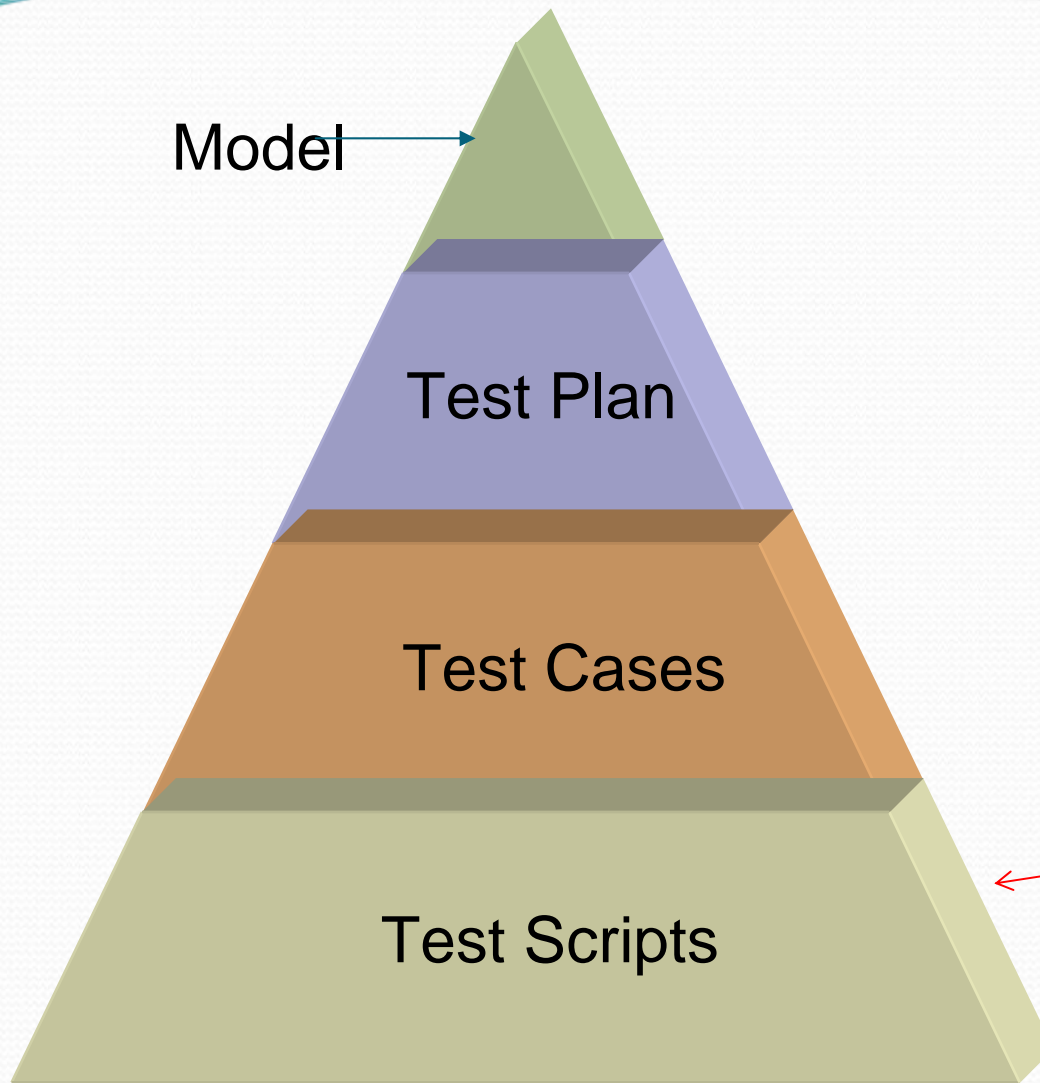
(OOA and OOD)

Software Testing 4a Scripting

Software Test Automation, Mark Fewster, Dorothy Graham, Addison-Wesley

Model

Test Plan

Test Cases

Test Scripts

What is a test script?

Test Scripts

- This is the real thing
- A detailed *step-by-step series of instructions* for operating the program/application being tested
- *Automated* or *manual* scripts
- Often include expected results (we will include)
- Test scripts have traditionally been sets of instructions for the testers
- Very important that testers follow scripts so that tests are *repeatable*
- For one or more test cases

Getting Started on Test Scripts

- Once part of the test plan and a few test cases have been put together, it's time to do some actual testing

- Just like getting started early on coding

- Maintenance of scripts is a major issue as the application changes

Observations on Use of Scripts

- Actually a programming exercise
- Not a suitable job for a trained monkey
- Huge volumes of data generated
- High degree of skill required to:
  - Generate appropriate test data
  - Manage the volume of data
  - Analyze the meaning of the data
  - Plan further actions

Also, Test Suite

- Collection of test cases used to validate the behavior of a product.

- Scope of a Test Suite varies from organization to organization.

- May have several Test Suites for a particular product ...

- High level concept, grouping together hundreds or thousands of tests related by what they are intended to test

Manual Scripting

1. Type in the script, compare actual to results
2. Tedious and boring
3. Different every time
   1. Hard to repeat
4. Time limitations

Example: Test Case for Scribble

- Test Case: Editing a List
  - We can add an item, delete an item , move an item and change the order of the list
- Script (?)
  - Add two new items to the sorted list
  - Move an item (makes list unsorted)
  - Add an item
  - Delete an item
  - Try deleting non-existing item

Ad Hoc Testing: Unscripted

- Think what to do
- Think up specific inputs
- Enter the inputs
- Check that the software worked correctly by watching responses on the screen.

Vague manual scripts

- See example from Scribble above
- Can be a bit more specific
- Add some vague descriptions of the results
  - Start Scribble   File menu displayed
  - Open a file list   File contents displayed
  - Add items to the list   Items added in order
  - Move an item   Item moved, list unordered
  - …

Detailed manual scripts

- Contain exactly what will be input into the software being tested
- Easier to automate from this level
- Easier to repeat
- But very boring
- Hard to do regression as may want to change a variable value

Detailed manual scripts

1. Move mouse to the scribble icon
2. Double Click
3. Move mouse to file menu
4. Click
5. Move mouse to Open option
6. ...
18. Move Mouse to Add Item
19. Click
20. ....
64. Move Mouse to Exit

Detailed manual scripts

- **Verification point**
  - a point at which we want to verify the output; requires expected output

Detailed manual scripts

- Don't have expected results for each action!
- Verification points with expected results – example:

1. …

2. Type "house" in the Item test box to add it to the list
   Verification point:
   House added and list remained ordered?

   List has: apple, bear, house, zebra (mostly when automated)

3. …

Scenario: Classics Java application Example

Place an order Scenario: Detailed Script

1. Start the Classics Java application.
2. VP: Did the ClassicsCD window open?
3. Expand the Bach folder.
4. Under Bach, click Violin Concertos.
5. Click the Place Order button.
6. VP: Did the Member Logon dialog box open?
7. Log In As Existing Customer.
8. VP: Make sure Existing Customer is selected.
9. VP: Make sure Trent Culpito appears in the Full Name list.
10. Click OK.

Scenario: Classics Java application Example

11. In the Region box, make sure North America is displayed.
12. VP: Was the order placed correctly?
13. In the Card Number field of the Place an Order dialog box, type 555 1212 555 1212.
14. In the Expiration Date field, type 10/06.
15. Click the Place Order button.
16. VP: Was the Message Box displayed that indicates your order has been received?
17. Click OK to close the message box.

Scripts as Programs

- No less difficult than programming software applications
  - Will be bugs in test scripts
  - Need to test the test
- Trick is to minimize the complexity and minimize the programming
- Avoid building *all* scripts down to the keystroke level
  - *Keystroke level* script not generally needed for manual testing