



# Web Application Testing

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After the course, student can catch:

- What should be tested in web application testing ? How to test ?
- Common defects in testing web application
- Tips in web application testing
- Usage of Web Link Validator tool
- And more ...



❖ Duration: *2 hours*

1. Web application testing - What and How ?
2. Standards to discover Common defects in testing web application
3. Tips in web application testing
4. Introduction Web Link Validator tool

# 1. Web application testing

## What and How ?

1. Functionality testing
2. Usability testing
3. Interface testing
4. Compatibility testing
5. Performance testing
6. Security testing

# 1. Web application testing

## Functionality testing

- Check all the links:
  - Out going the links from the pages
  - All internal links
  - Links jumping on the same pages
  - Links used to send the email from web pages
  - Check if there are any orphan pages
  - Check for broken link



# 1. Web application testing

## Functionality testing

- Test forms in all pages:
  - Check all the validation on each field
  - Default values on fields
  - Valid and invalid inputted data
  - Check max length of fields on UI and corresponding fields in DB
  - Check ALT text
  - Try resizing the browser's window to see if strange wrapping occurs around the forms/pages

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# 1. Web application testing

## Functionality testing

- Validate your HTML/CSS
  - Validate HTML and CSS for syntax errors
- Database testing
  - Check for data integrity and errors while you edit, delete, modify the forms or do any DB related functionality.

# 1. Web application testing

## Usability testing

- Test for navigation:
  - Web site should be easy to use
  - Instructions should be provided clearly
  - Check if the provided instructions are correct means whether they satisfy purpose
  - Main menu should be provided on each page. It should be consistent
- Content checking
- Other user information for user help

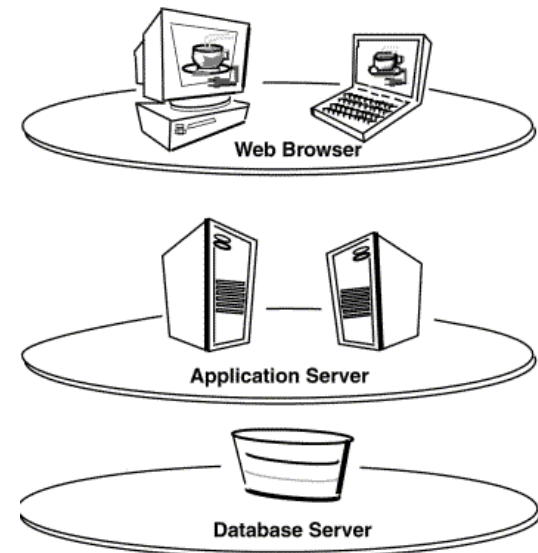




# 1. Web application testing

## Interface testing

- Check:
  - If database or web server returns any error message for any query by application server then application server should catch and display these error messages appropriately to users
  - What happens if user interrupts any transaction in-between?
  - What happens if connection to web server is reset in between?



# 1. Web application testing

## Compatibility testing

- Browser compatibility:

- Test web application on different browsers with different versions.



- Operating system compatibility:

- Test your web application on different operating systems with different OS flavors.



# 1. Web application testing

## Compatibility testing

- **Mobile browsing**

- Test your web pages on mobile browsers



- **Printing options**

- Make sure fonts, page alignment, page graphics getting printed properly

# 1. Web application testing

## Performance testing

- Load testing
  - Site should handle many simultaneous user requests
  - Large input data from users?
  - Simultaneous connection to DB
  - Heavy load on specific pages



- Stress testing

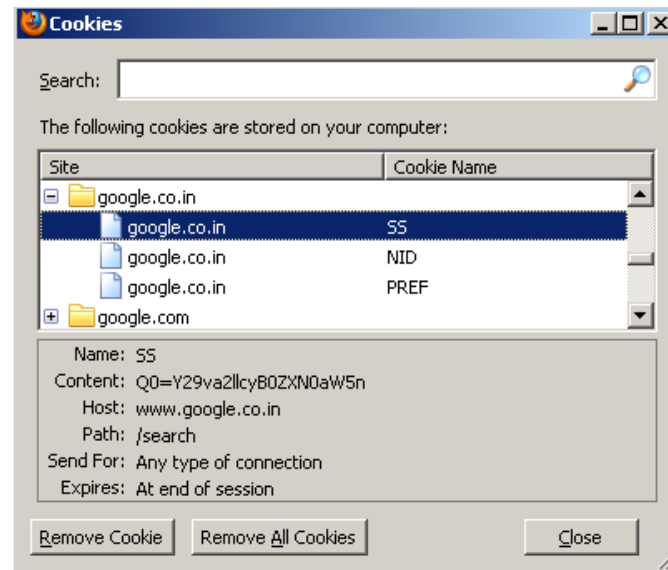
Web stress testing is performed to break the site by giving stress and checked how system reacts to stress and how system recovers from crashes



# 1. Web application testing


## Security testing

- Cookies testing:
  - Test if the cookies are encrypted before writing to user machine
  - Check for login sessions and user starts after session end
  - Check effect on application security by deleting the cookies



# 1. Web application testing

## Security testing

- Others Security Testing:
    - Test by pasting internal url directly into browser address bar without login. Internal pages should not open.
    - If you are logged in using username and password and browsing internal pages then try changing url options directly. Access should be denied for this user to view others starts
- 
- All transactions, error messages, security breach attempts should get logged in log files somewhere on web server

## 2. Standards to discover Common defects

- Alignment of fields, texts, number:
  - All texts should be left-justified
  - All numeric fields are right-justified
  - The fields are vertically left or right aligned.
- Data in combo box/ list box:
  - Data in combo box/ list box should be sorted ascending or descending
  - Each entry in the list can be accessed via appropriate key / hot key combinations
  - Using Alt+Down key combination to drop down combo box (*Alt+Down doesn't run in Netscape 6*)

## 2. Standards to discover Common defects

- Layouts in all pages:
  - All windows and dialog boxes should have a consistent look and feel.
  - Following items should be the same:
    - Font of text, Color and Background
    - Header and footer
    - Size of Logo
    - Date format, decimal format
    - Symbol for mandatory fields
    - The height of buttons and the distances between them
    - Data in combo box/ list box should be sorted ascending or descending
    - Each entry in the list can be accessed via appropriate key / hot key combinations



## 2. Standards to discover Common defects

- Can move between fields by using Tab key and Shift+Tab keys:
  - Users can use Tab key to move to next enterable fields and Shift + Tab keys to previous enterable fields.
  - All read-only fields are avoided in the TAB sequence
  - All disabled fields are avoided in the TAB sequence



## 2. Standards to discover Common defects

- Cursor location:
  - The cursor is located in the first enterable field when the screen is opened.
  - After an error message occurs, the focus should return to the error field.
- Error by input HTML tags, char ' :
  - Should prevent errors when user inputs HTML tags or char ' in text fields. HTML tags can destroy the layout



## 2. Standards to discover Common defects

- Start date is greater than End date:
  - The logic of date should be checked, user can't type Start date greater than End date, or From date is greater than To date...
- Input constraints:
  - Can't submit form with empty mandatory fields
  - Can't input blank space instead of values in mandatory fields and submit.
  - Can't input more characters in field than max allowed size.

## 2. Standards to discover Common defects

- Users can't return to Web application after logout:
  - Users can't back to previous page after logout by clicking "Back" button in Toolbars.
  - When users logout, they cannot back to web application, and must input username and password again to login
- Multiple users:
  - The application should support many concurrent users as required.



## 2. Standards to discover Common defects

- Different browsers:
  - The layout in all required browsers should be consistent  
Ex: in Netscape, the alignment, the distances, positions of images ... should be correct as in IE
- Images with links have blue borders:
  - Should hide the color of border of the image.
- Show HTML error page:
  - Should display application's error handle page when an error occurs.

404



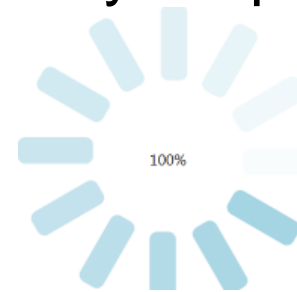
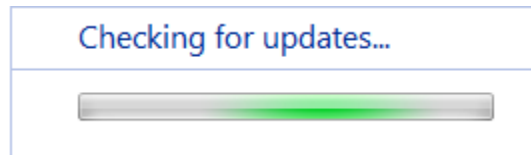
Sorry! The page you're looking for cannot be found.

Enter your keyword here



## 2. Standards to discover Common defects

- Using mouse and keyboard:
  - In general, everything can be done using both the mouse and the keyboard.
  - For functions which take much time to run, status of mouse should be changed to "busy" or progress bar should be shown



- All links should be checked:
  - Links should be checked to make sure correct destination.

## 2. Standards to discover Common defects

- Should check invalid data when submit:
  - In addition to valid data, you should check invalid cases to make sure system under test handles these cases
- Default and Cancel button:
  - There should be a button or menu in the page to allow users cancel and return to previous page
  - Each dialog/ window must have default focus button.



## 2. Standards to discover Common defects

- Big work-load:
  - The application should support big work-load as required. If not, the system is hung when the number of records is big
- Response time to open a page:
  - Response time to open a page is more than required. Default value of response time for Web application is 3-5 seconds



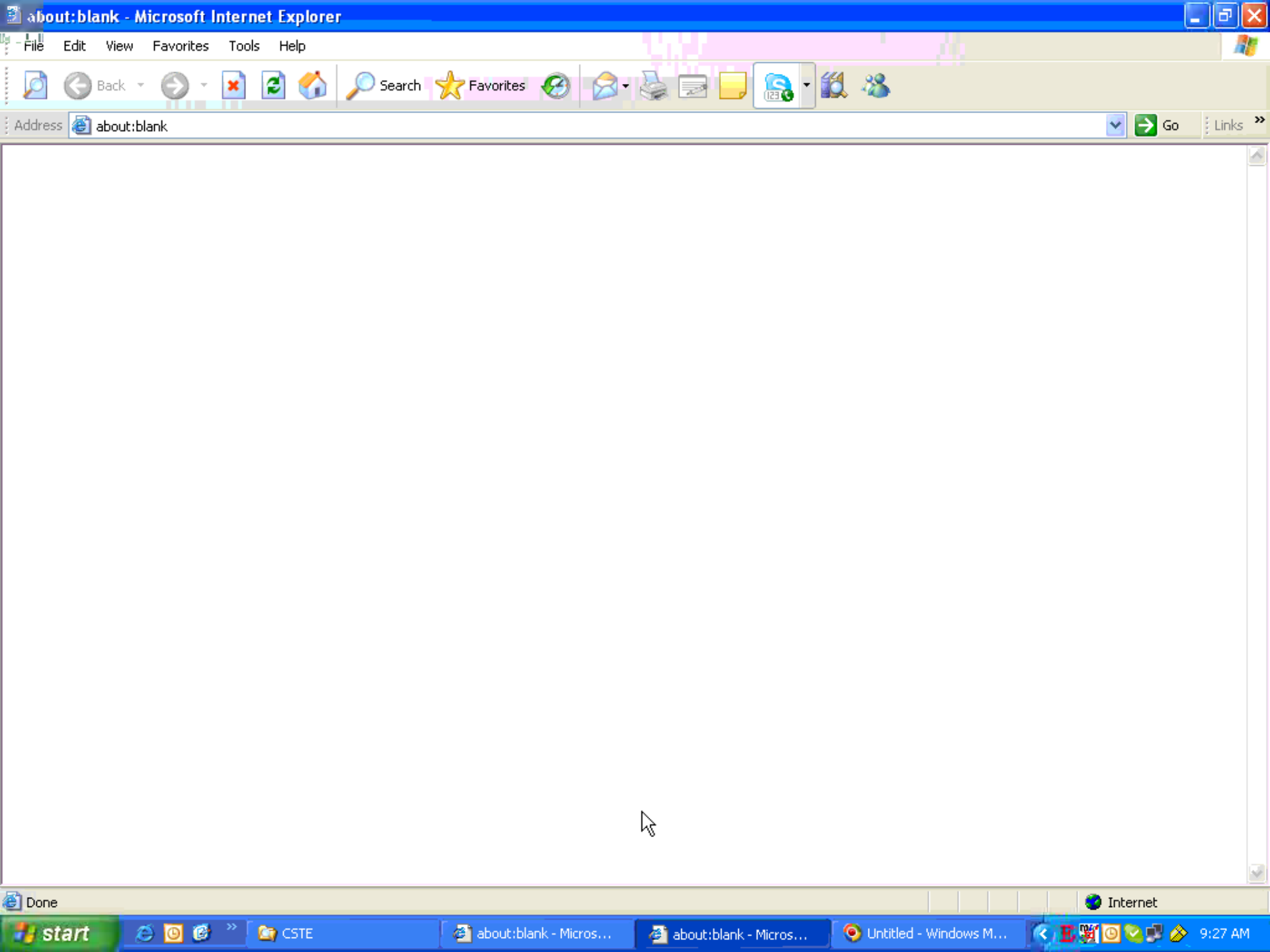
# 3. Web application testing Tips

- Web site login security:
  - Use pair bellow:  
Username: ' or 1=1--  
Password: any
- Refresh:
  - In a window, try to click on any control you see while system is being refreshed
  - Try to click a button many times consecutively
  - After an action is finished, press F5
  - ***Demo: Demo-refresh.wmv***



### 3. Web application testing Tips

- Concurrent access:
  - Two users access to a page and save data at the same time
  - Expect: System allows only a user save data and prompt for other that data has been modified.
  - ***Demo: Demo-concurrency access.wmv***



### 3. Web application testing Tips

- Issue with dropdown list/combo box:
  - Pay attention to blank value in dropdown list
- Page break:
  - Create many rows to check page break anywhere that can be added rows
  - Switch between pages
- Text area:
  - To make sure that format of text in edit mode and read mode is the same
  - Check max length (line break = 1 character)

## 3. Web application testing

### Tips

- Know Third-Party Apps:

There are many third-party applications that can be embedded on our app and with end users, these are part of our app:

- Live chat
- Search plug-ins
- Embedded videos or audio players
- Blogs, forums and message boards
- ...

## 4. Web Link Validator tool

- What is Web Link Validator tool?
  - The software performs a thorough analysis of Web site pages and includes the following checks:
    - finds broken links (including those using JavaScript and Flash)
    - orphaned files
    - HTML coding and spelling errors
    - slow-loading
    - outdated and small-sized pages
    - switch between pages



## 4. Web Link Validator tool

- Features of Web Link Validator:
  - Ability to check over 100,000 links to files, HTTP, HTTPS and FTP resources
  - Support for JavaScript and Macromedia Flash (.SWF files) hyperlinks
  - Alternative Internet Explorer-based verification engine
  - Finding spelling errors with the built-in spell checker
  - Ability to create page rules to confirm the presence or absence of specific display text, scripting, forms, etc.



## 4. Web Link Validator tool

- Download this tool:  
<http://www.relsoftware.com/wlv/downloads/>
- Example: report is delivered by Web Link Validator tool
- ***Demo: Web Link Validator - Report.htm***

## 4. Web Link Validator tool

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- Reference:  
<http://www.softwaretestinghelp.com/web-application-testing/>
- Recommended readings
  - Sams.Software.Testing.2nd.Edition.Jul.2005



Q&A

An abstract graphic featuring a horizontal orange line at the top. Below it, a large, soft, wavy shape in shades of blue, yellow, and orange spans across the upper half of the slide. The text "Thank you!" is centered below this graphic.

***Thank you!***