PROJECT REPORT

ON

SOFTWARE TESTING TECHNIQUES

At

STQC IT Services, MIETY, Delhi

Submitted to:

AIM & ACT
DEPT. OF Computer Science & Engineering MIT, Moradabad

Submitted by:
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Under the Guidance of:
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Government of India
Ministry of Communications & Information Technology
Department of Information Technology
STQC Directorate
ELECTRONICS REGIONAL TEST LABORATORY (NORTH)
New Delhi

भारत सरकार
संचार एवं सूचना प्रौद्योगिकी मंत्रालय
सूचना प्रौद्योगिकी विभाग
एस. टी. क्यू. सी. निदेशालय
इलेक्ट्रॉनिकी क्षेत्रीय परीक्षण प्रयोगशाला (उत्तर)
नई दिल्ली

106(10)/STQC IT/Trg/2016/07/03 25/07/2016

To whom so ever it may concern

This is to certify that **Mr. Shobhit,** student of **B.Tech. 6th Semester of "Computer Science & Engineering"** from **Moradabad Institute of Technology, Moradabad** has undergone training on "**Software Testing Techniques"** from 8th June 2016 to 25th July 2016 at STQC IT, ERTL(N), Department of Electronics & Information Technology, Ministry of Communications and Information Technology, Government of India.

He was found to be sincere and had shown keen interest during the training.

Sanjeev Kumar

(Sanjeev Kumar)
Scientist "E"

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एसटीक्यूसी निदेशालय, इ. एवं सू० प्रौ० विभाग/STQC Dte.,DeitY
संचार एवं सूचना प्रौद्योगिकी मंत्रालय/Ministry of Comms. & IT
नई दिल्ली–110 020/New Delhi-110 020

Acknowledgement

I take this opportunity to express my sincere thanks to Mr. C. S. BISHT, Director, Mr.Sanjeev Kumar, Additional Director and Mr.Manoj Kumar Saxena Additional Director who has been a source of inspiration for me.

I would like to express my sincere thanks to other IT staff support members of STQC IT Services, MEITY, New Delhi.

Last but not the least; I owe huge debt of thanks to the ***STQC IT Services, MEITY, New Delhi*** *that gave me an opportunity to do my project work. These projects were a good exposure that will definitely help me in my professional carrier.*

Shobhit
CSE
1308210097

TABLE OF CONTENT

1.INTRODUCTION

1.1 ABOUT THE ORGANIZATION

1.1.1. Background

Standardization, Testing and Quality Certification (STQC) Directorate an attached office under the Department of Information Technology, Government of India. Established in 1977, for providing Standardization, Testing & Certification Support to Indian electro ABCs and allied industries at National/International level. STQC provides cost-effective International level Assurance Services in Quality and Security on a national level to Indian industry and users. STQC Services are also being extended to other overseas countries. This program has been in existence over three decades and was established based on the recommendations of Bhawa Committee's report on electronics industry. The program has received substantial technical and financial support from the Government of Germany under the Indo-German Technical Cooperation project spanning over 15 years (1980-1995).

Initially the STQC program was catering to the Testing and Calibration needs of the small and medium sized electronic industry. With the shift of focus on IT, the programme has undergone major changes in the past 4 years. From a mere Testing, Calibration and Quality Assurance Support to Electronics Hardware Sector, STQC has positioned itself as a prime Assurance Service Provider to both Hardware and Software industry and users. Recent focus of Department of Information Technology (DIT) in IT Security, Software Testing & Certification and assignment of National Assurance Framework have further raised the responsibility and expectations from the Directorate.

One of the center under STQC IT Services, Delhi center is well equipped with well qualified, trained & experienced man power to provide the software quality related services .The center has very good training and testing facilities. STQC has taken initiative to support this major initiative of DIT on the aspects of Standards, Quality and Security. STQC has evolved a Quality Assurance framework covering the aspects of Quality of IT Service Delivery. It has also evolved a quality model for testing and evaluation of Application Software based on the latest International Standards and have also validated this model.

1.1.2. STQC Mission

"*To be a key enabler in making Indian IT organizations and users achieve compliance to International Quality Standards and compete globally*".

1.1.3. STQC Testing Services

Independent Third party Test laboratories network covering

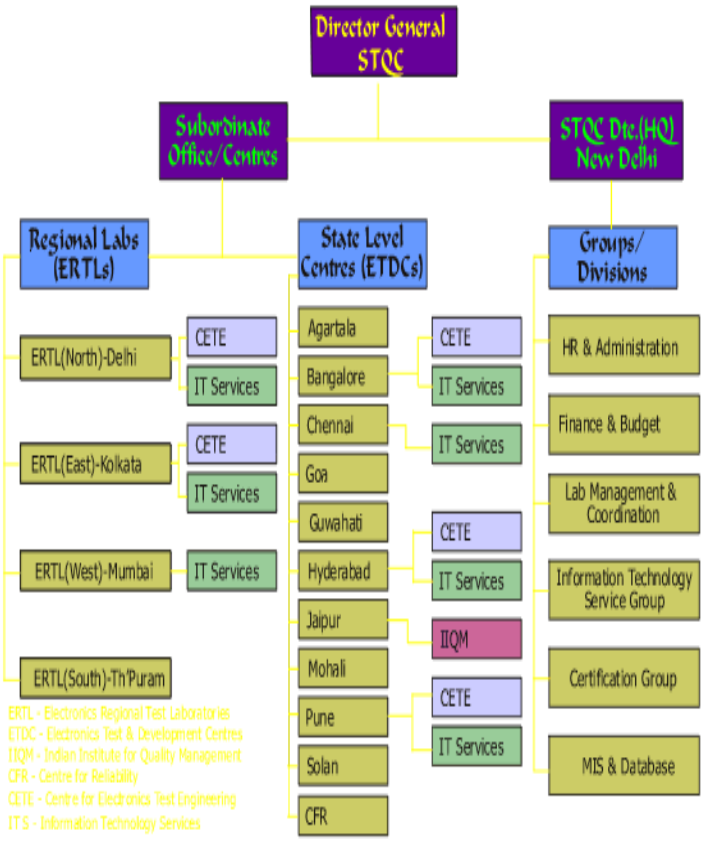
- Software system testing and issue of Test Reports
- Generation of Test Cases and automation of execution
- Development of regression test bed
- Verification & Validation planning in SDLC

1.1.4. STQC Standard Used

Various ISO/IEC IEEE Stds: Software Engineering

1.1.5. STQC Activities

1.1.6. The Organization Chart



1.1.7. Test Control Sub-Committee

A Test Control Sub-Committee is set up to co-ordinate, monitor and resolve priority conflict on the testing activities. The emphasis here is on the necessity of these coordination activities. Therefore for those small-sized projects not justifying existence of such sub-committee, its function is still required but is to be achieved through discussion meeting between project team and user representatives.

1.1.8 Independent Test Group

Where resource constraints permitted, an independent Test Group is set up to carry out the testing activities. The emphasis here is on the independent role of the Test Group, which does not necessarily mean dedicated resources.

2. GENERAL CONCEPTS OF TESTING

2.1 TESTING OBJECTIVES

Black Box Testing

The approach of testing where the program is considered as a "Black box". Also known as "Functional Testing". The program test cases are based on the system specification Test planning can begin early in the software 0process.

Methods of Black box Testing

- Equivalence class partitioning
- Boundary value analysis
- Comparison testing
- Orthogonal array testing
- Decision Table based testing
- Cause Effect Graph

Structural Testing

Structural testing sometime called White-box testing. Testing that takes into account internal mechanism of a system or component. The objective of structural testing is to exercise all program statements.

Methods of White Box Testing

- Statement coverage
- Branch coverage
- Path coverage
- Condition coverage
- Mutation testing Data flow-based testing

Integration testing

The objective is to prove that the various programs making up the system are compatible, fit together and the interfaces between the programs are correct.

- After different modules of a system have been coded and unit tested:
  - Modules are integrated in steps according to an integration plan
  - Partially integrated system is tested at each integration step.

  Develop the integration plan by examining the structure chart:
  - Big bang approach
  - Top-down approach
  - Bottom-up approach
  - Mixed approach

Acceptance Testing

User acceptance testing is the final test action taken before deploying the software. The goal of acceptance testing is to verify that the software is ready, and that end users to perform those functions and tasks for which the software was built can use it. There are other notions of acceptance testing, which are generally characterized by a hand-off from one group or one team to another.

Stress Testing

Stress testing imposes abnormal input to stress the capabilities of the software.

- Input data volume, input data rate, processing time, utilization of memory, etc. are tested beyond the designed capacity.

It evaluates system performance

- When stressed for short periods of time

If the requirements is to handle a specified number of users, or devices:

- Stress testing evaluates system performance when all users or devices are busy simultaneously.

Performance Testing

Load the system with activity that simulates legitimate user activity. Statistics collected to predict what performance and response time's users are likely to get. Procedure: conduct load test by creating virtual users. Use a load test tool and create typical scenarios to simulate load. Use think times to simulate authentic user behaviors.

Volume Testing

Volume testing addresses handling large amounts of data in the system. It checks

- Whether data structures (e.g. queues, stacks, arrays, etc.) are large enough to handle all possible situations
- Fields, records, and files are stressed to check if their size can accommodate all possible data volumes.

Configuration Testing

Configuration testing Analyse system behaviour:

- In various hardware and software configurations specified in the requirements
  - Sometimes systems are built in various configurations for different users

    For instance, a minimal system may serve a single user, other configurations for additional users.

Recovery Testing

Recovery testing aimed at verifying the system's ability to recover from varying degrees of failure.

It verifies both recovery process and components of recovery process

•These tests check response to:

- Presence of faults or to the loss of data, power, devices, or services

Security testing

Security testing tests whether the system meets its specified security objectives or not. Security testing is associated with risk. Security testing checks

- Obtain passwords
- Access idle terminals
- Imitate valid users
- Guess passwords
- Check permission of different user groups/users
- Check database security
- Create more users then allowed in user groups
- Delete user groups like 'Supervisor'/ADMIN
- Rename user groups like 'Supervisor'/ADMIN

2.2 TESTING START PROCESS

When Testing should start:

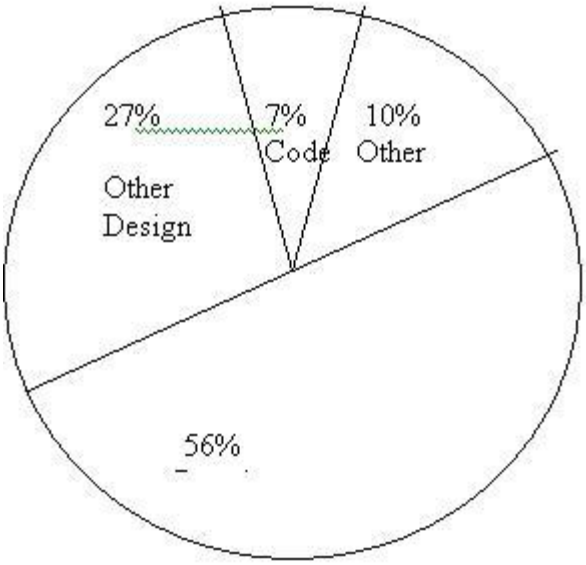
Testing early in the life cycle reduces the errors. Test deliverables are associated with every phase of development. The goal of Software Tester is to find bugs, find them as early as possible, and make them sure they are fixed.

The number one cause of Software bugs is the **Specification**. There are several reasons specifications are the largest bug producer.

In many instances a Spec simply isn't written. Other reasons may be that the spec isn't thorough enough, its constantly changing, or it's not communicated well to the entire team. Planning software is vitally important. If it's not done correctly bugs will be created.

The next largest source of bugs is the **Design**, That's where the programmers lay the plan for their Software. Compare it to an architect creating the blue print for

the building, Bugs occur here for the same reason they occur in the specification. It's rushed, changed, or not well communicated.



Coding errors may be more familiar to you if you are a programmer. Typically these can be traced to the Software complexity, poor documentation, schedule pressure or just plain dump mistakes. It's important to note that many bugs that appear on the surface to be programming errors can really be traced to specification. It's quite common to hear a programmer say, " oh, so that's what its supposed to do. If someone had told me that I wouldn't have written the code that way."

The other category is the catch-all for what is left. Some bugs can blamed for false positives, conditions that were thought to be bugs but really weren't. There may be duplicate bugs, multiple ones that resulted from the square root cause. Some bugs can be traced to Testing errors.

Costs: The costs re logarithmic- that is, they increase tenfold as time increases. A bug found and fixed during the early stages when the specification is being written might cost next to nothing, or 10 cents in our example. The same bug, if not found until the software is coded and tested, might cost $1 to $10. If a customer finds it, the cost would easily top $100.

2.3 TESTING STOP PROCESS

When to Stop Testing

This can be difficult to determine. Many modern software applications are so complex, and run in such as interdependent environment, that complete testing can never be done. "When to stop testing" is one of the most difficult questions to a test engineer. Common factors in deciding when to stop are:

- Deadlines (release deadlines,testing deadlines.)
- Test cases completed with certain percentages passed
- Test budget depleted
- Coverage of code/functionality/requirements reaches a specified point
- The rate at which Bugs can be found is too small
- Beta or Alpha Testing period ends
- The risk in the project is under acceptable limit.

Practically, we feel that the decision of stopping testing is based on the level of the risk acceptable to the management. As testing is a never ending process we can never assume that 100 % testing has been done, we can only minimize the risk of shipping the product to client with X testing done. The risk can be measured by Risk analysis but for small duration / low budget / low resources project, risk can be deduced by simply: -

- Measuring Test Coverage.
- Number of test cycles.

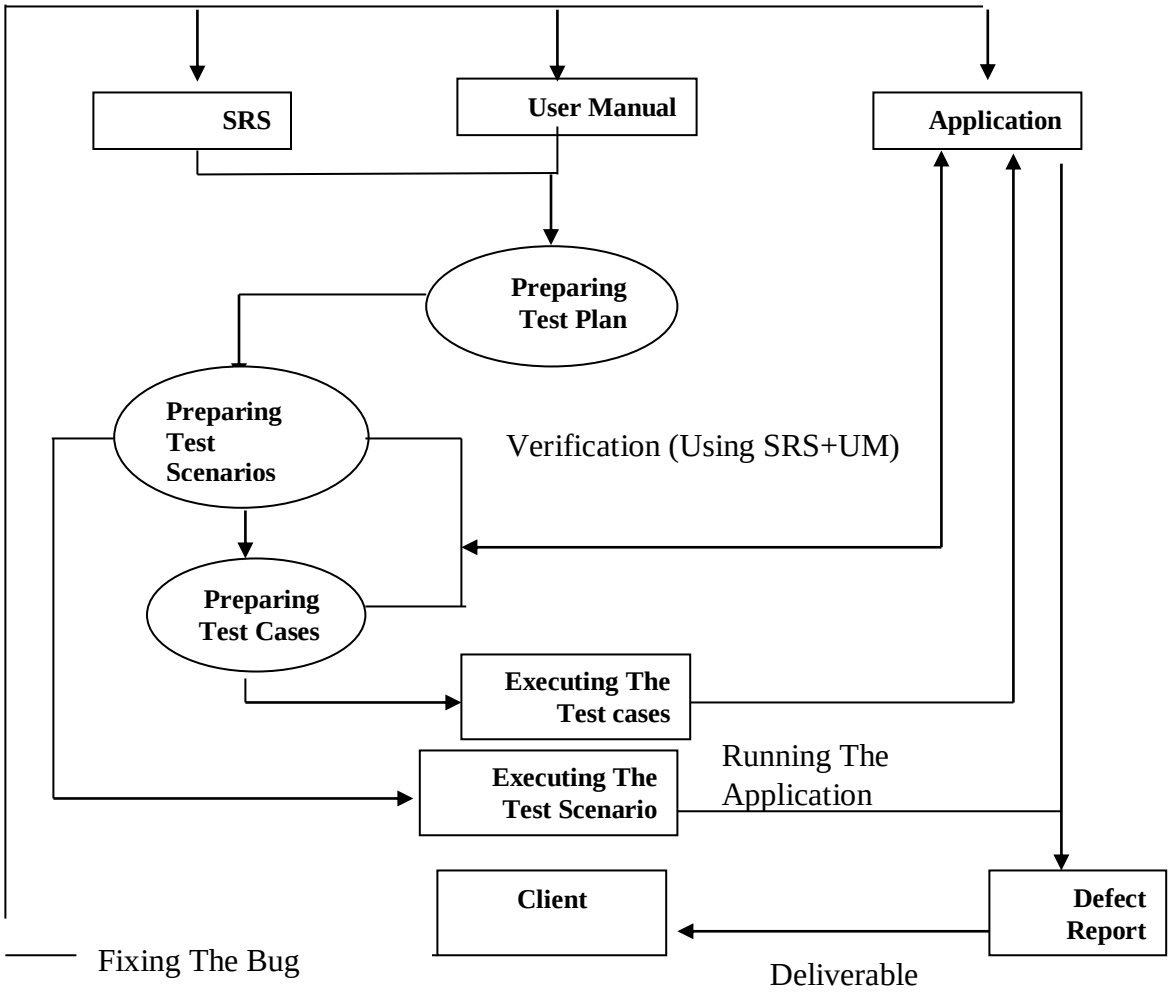
Number of high priority bugs.

2.4 REGRESSION TESTING

Regression testing is any type of *software testing* which seeks to uncover regression *bugs*. *Regression* bugs occur whenever software functionality that previously worked as desired, stops working or no longer works in the same way that was previously planned. Typically regression bugs occur as an unintended consequence of program changes.

Common methods of regression testing include re-running previously run tests and checking whether previously fixed faults have re-emerged.

Testing Life Cycle followed in STQC



3. WORK DONE AT STQC

ABOUT WEB APPICATION BEING TESTED

Test Scenario:

STQC IT Delhi Centre
Project Reference:
Module Reference: Government Website
Since the original name of the web application cannot be used due to policies followed by STQC.

Scenario # 1
Reference: GIGW

1 Association to Government is demonstrated by the use of Emblem/Logo, prominently
displayed on the homepage of the website
2 Ownership information is displayed on homepage and on all important entry pages
of the website.
3 Complete and self explanatory title of the homepage (appearing on the top bar of the
browser) is provided.
4 Website is registered under 'gov.in' or ' nic.in' domain.
5 Website provides a prominent link to the 'National Portal' from the Home page and
pages belonging to National Portal load in new browser window

6 Website has a Copyright Policy, prominently displayed on the homepage.
7 Due permission have been obtained for publishing any content protected by copyright.
8 Source of all documents, whether reproduced in part or full, is mentioned.
9 Website has a comprehensive Hyper Linking Policy
10 Clear indication are given when a link leads out to a non government website.
11 The mechanism is in place to check the accuracy of Hyperlinked Content.
12 Mechanism is in place to ensure that there are no 'broken links' (internal as well as
external) or 'Page not found' errors.
13 Website has comprehensive Terms and Conditions statements, linked from all
important pages.
14 Terms & Conditions disclaims responsibility of the content sourced/ linked from non
Government website and clearly indicates whether information available on the site
can be used for legal purposes or not.
15 Website has a Privacy Policy linked from all the relevant pages.
16 All electronic commerce transactions are handled through secure means.

About us
17 All information about the department, useful for the citizen and other stakeholders,
is present in ' About Us' section and mechanism is in place to keep the information
up to date
Schemes
18 The complete title of the Scheme is reflected.
19 The website provides a complete description of the scheme along with the procedure

for obtaining the associated benefits.
20 The validity of the scheme has been mentioned.

Sl. No. Guide Lines

Services

21 Self explanatory title of the services is published.
22 The website provides a complete description of the service along with the procedure to
apply for/avail the same.

Forms

23 The website provides the complete title of the form along with the purpose it is used for
24 Language of the Form (other than English) is mentioned clearly.

Acts

25 The complete title of the Act (as written in the official notification) is mentioned.

Documents

26 The complete title of the document is mentioned on the website.
27 The language of the Document (other than English) is mentioned clearly.
28 Validity of the Circular/ notification is mentioned.

Circulars and Recruitment

29 The official title of the Circular /Notification is mentioned.
30 Validity of the Circular/ notification is mentioned.

Tenders and Recruitment

31 Mechanism in place to ensure that all Tender / Recruitment Notices issues by the
Department are published on the website.
32 Website provides a complete description of the Tender / Recruitment notice along with
the procedure to apply for the same
33 Mechanism is in place to ensure that information on old / irrelevant Tender /
Recruitment notices is removed or moved into the archive section

News and Press Release

34 News / Press releases are displayedalong with the date and these are organizedas per
the archival policy of the website

Contact Us

35 Website has a 'Contact Us' page, linked from the home page and all relevant places in
the website.
36 The complete contact details of important functionaries in the Department are given in
the 'Contact Us' section

Presence on the National Portal

37 Mechanism is in place to ensure that all the Citizen Services, Forms, Documents and

Schemes are registered with the respective repositories of the National Portal.

38 Mechanism is in place to ensure that all outdatedannouncementsare removed from the
website or moved to archive
39 All Discussion Forum on the website are moderated.
40 For every related link, the complete URL of the Home Page/concerned webpage is
provided.

S.No GUIDELINE

41 Feedback is collected through online forms and mechanism is in place to ensure timely
response to feedback/queries received through the website.
42 The website has a readily available Help section
43
Complete information including title, size(playing time for audio/video), format, usage
instructions and plug-in to view the file is provided for downloadablematerial including
documents.
44 Mechanism is in place to ensure that all downloadable material is free from virus.
45 Minimum content as prescribed in the guidelines is present on the homepage.
46 Subsequent pages of the website have the minimum content as prescribed in the
guidelines.
47 Website is free from offensive / discriminatory language.

48 Content is compiled and packaged with citizen orientation.
49 The Department has a Content Contribution, Moderation and Approval Policy(CMAP)
for the Websites.
50 Home Page and every important entry page of website displays the last updated /
reviewed date.
51 Department has a Content Review Policy(CRP) for the website.
52 All Documents / Reports have a time stamp at least on the main page.
53 The Departments have a clearly laid out Content Archival Policy(CAP) for the website.
54 Clear and simple language has been used throughout the website.
55 The language is free from spelling and grammatical errors.
56 Whenever there is a change in the language of a web page it has been clearly indicated.
57 Consistency in nomenclature is maintained across the website.

58 All information, which is of direct importance to the citizen, is accessible from the
Homepage.
59 Information structure and relationship is preserved in all presentation styles.
60 The meaningful reading sequence is preserved in all presentation styles.
61 Documents / pages in multiple languages are updated simultaneously.
S.No GUIDELINE

62 Visual/textualidentity elements highlighting the Government's ownership of the website
are prominently placed on the page.
63 A consistent page layout has been maintained throughout the website
64 National identity symbols like Flag, National Emblem etc., are in a proper ratio and
colour.
65 Hindi/ regional language fonts have been tested on popular browsers for any
inconsistency (loss of layout)
66 Web Pages allow resizing of text without the use of assistive technology.
67 Text is readable both in electronic and print format and the page prints correctly on an
A4 size paper.
68 There is adequate contrast between text and background colour.
69 All information is conveyed with colour is also available without colour.
70 Alternate text is provided for non text elements(e.g. images).
71 Websites provide textual description of audio / video clips and multimedia presentation.
72 Caption have been provided for all important audio content.
73 Web pages do not contain any content that flashes for more than three times in a
second.
74 There is a mechanism to control scrolling, blinking content.
75 There is a mechanism to control (stop, pause….) audio that starts automatically.
76 All pages on the website have a link to the home page.
77 The positioning and terminology used for navigation items and navigation scheme is
consistent across the website.
78 There are no links to 'under construction' pages.
79 Each page is a stand alone entity in terms of ownership, navigation and context of
content.
80 Web pages allow the user to bypass repeated blocks of content.
81 Website has either a "search" box or a link to a "search" page from every page of the

website.
82 Website has an up to date Site Map that is linked to the Home Page as well as to all
important entry pages of the website.
83 If the site uses frames, each frame is properly titled.

S.No GUIDELINE

84 Website uses Cascading Style sheets to control layouts/styles
85 Website is readable even when sheets are switched off or not loaded.
86 Web pages are usable even when scripts, applets etc are turned off.
87 Documents are provided either in HTML or other accessible formats. Instruction /
Download details for viewing these formats are provided.
88 In content implemented using mark up languages, the elements have been use
according to specification.
89 Labels have been provided when content requires input from the users.
90 Time limit for time dependent web functions can be adjusted by the user (also refer
exceptions).
91 Instructions for operating/ understanding content do not rely solely on characteristics
like shape, size, location etc.
92 All input errors are flashed in text.
93 Functionality of content is operable through keyboard.
94 Focus is not trapped in any component while navigating through keyboard only.
95 Purpose of each link is clear to the user.
96 When any component receives focus it does not initiate change in context.
97 Changing the setting of a component does not change the context unless the user has
been informed of the same.
98 Metadata for pages like title, keywords, description and language is appropriately
included.
99 Data tables have been provided with necessary tags / mark up.
100 All components receives focus in an order that preserves the meaning / operation.
101 Role of all interface components can be programmatically determined.
102 The websites have been tested on multiple browsers.
103 Websites has cleared Security Audit by certificate agency and has a Security Policy.

S.No GUIDELINE

104 Websites are accessible to the intended audience in an efficient and secure manner on

24 x 7 basis. Yes
105 The hosting Service Provider possesses state-of-the art multi-tier security infrastructure
as well as devices such as firewall and intrusion prevention system. Yes
106 The hosting Service Provider has redundant server infrastructure for high availability.
107 The hosting service provided performs regular backup of the web site.
108 The Hosting Service Provided has a Disaster Recovery (DR) Centre in a geographically
distance location and a well crafted DR plan for the website.
109 Website Hosting Provider provides Helpdesk & Technical support on 24x7x 365 basis.
110 All possible secure measures have been taken to prevent defacement/ hacking of the
website and the Department has been contingency plan in place for situation like these.

111 Website ranks in the first five results on major search engines when searched with
relevant keywords.
112
It has been ensured that all stationery of the department as well as advertisements/
public messages issued by the concerned Department prominently display the **URL** of
the website.

113 Department has nominated a Web Information Manager as defined in the guidelines.
114 The websites has a website monitoring policy.
115 All policies and plans are approved by Head of Department.

TEST CASE 1:

DEFECTS FOUND IN THE WEBSITE

Complete and self-explanatory title of the homepage (appearing on the top bar of the browser) is provided	*Not In compliance*
Source of all documents, whether reproduced in part or full, is mentioned.	*Not In compliance*
Clear indications are given when a link leads out to a non-government website.	*Not In compliance*
Mechanism is in place to ensure that there are no ''broken links'' (internal as well as external) or ''Page not found'' errors.	*Not In compliance*
The website has a readily available Help section.	*Not In compliance*
There is adequate contrast between text and background color.	*Not In compliance*
All Documents/ Reports have a time stamp at least on the main page.	*Not In compliance*
The meaningful reading sequence is preserved in all presentation styles.	*Not In compliance*

The meaningful reading sequence is preserved in all presentation styles.	*Not In compliance*
Text is readable both in electronic and print format and the page prints correctly on an A4 size paper.	*Not In compliance*
Website is readable even when style sheets are switched off or not loaded.	*Not In compliance*
Metadata for page like title, keywords, description and language is appropriately included.	RPT Tool is used *Not In compliance*
- Role of all interface components can be programmatically determined.	*Not In compliance*
Data tables have been provided with necessary tags/markup.	*Not In compliance*

TEST CASE 2:

RATIONAL POLICY TESTER:

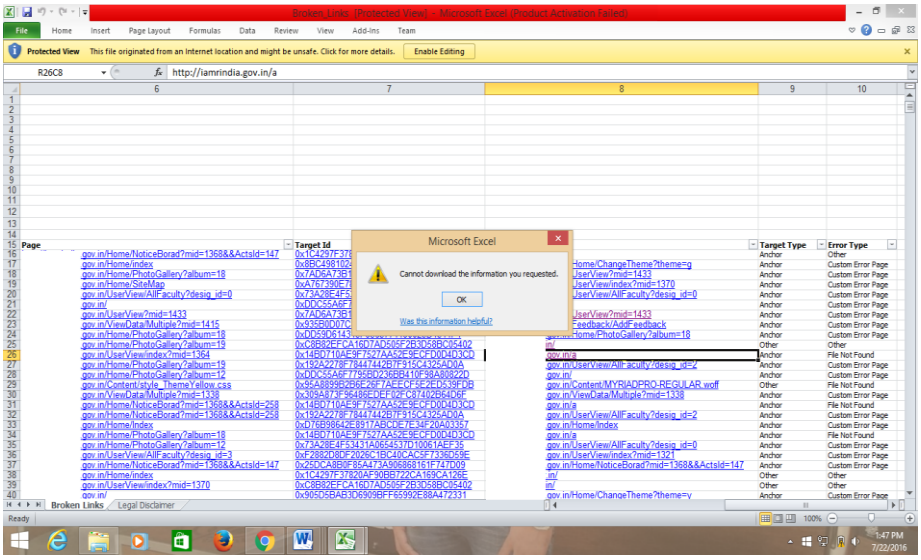
DESCRIPTION:

REPORTS:

1. BROKEN LINKS REPORTS:

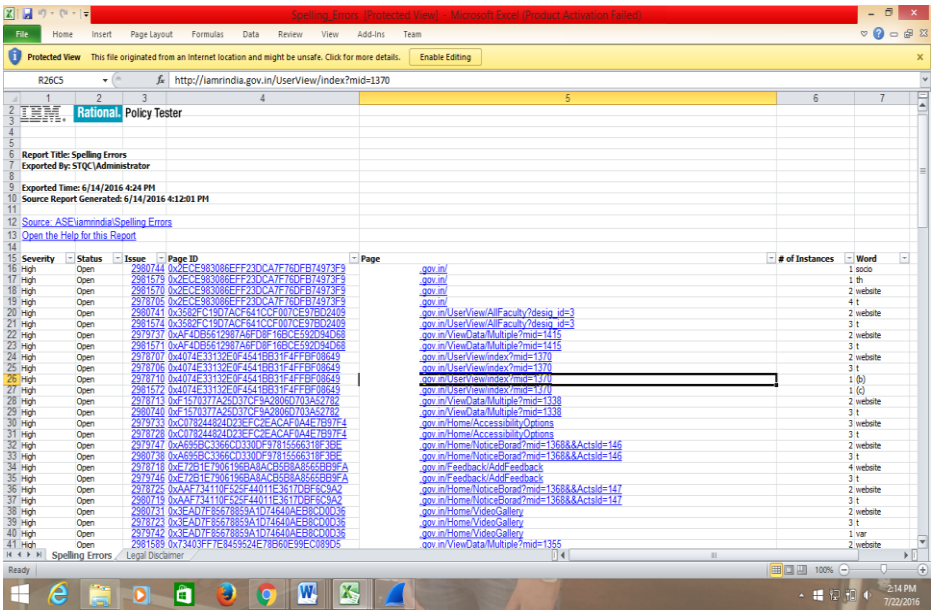
In this we check the broken links in the website.

Errors:



SPELLING ERROR REPORT:

This report provides incorrect spellings in the websites

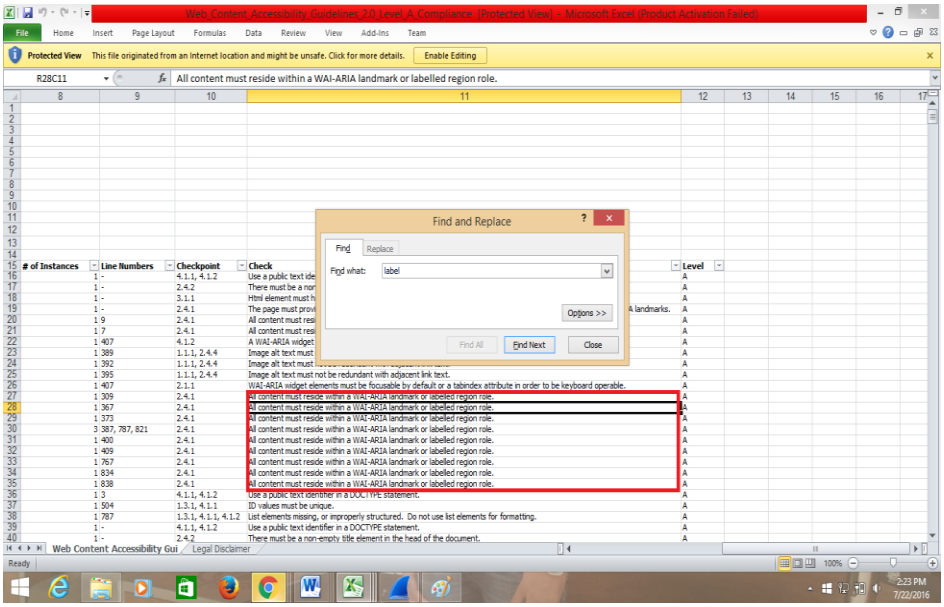


2. Web Accessibility Guidelines 2.0 Level A compliance

It checks:

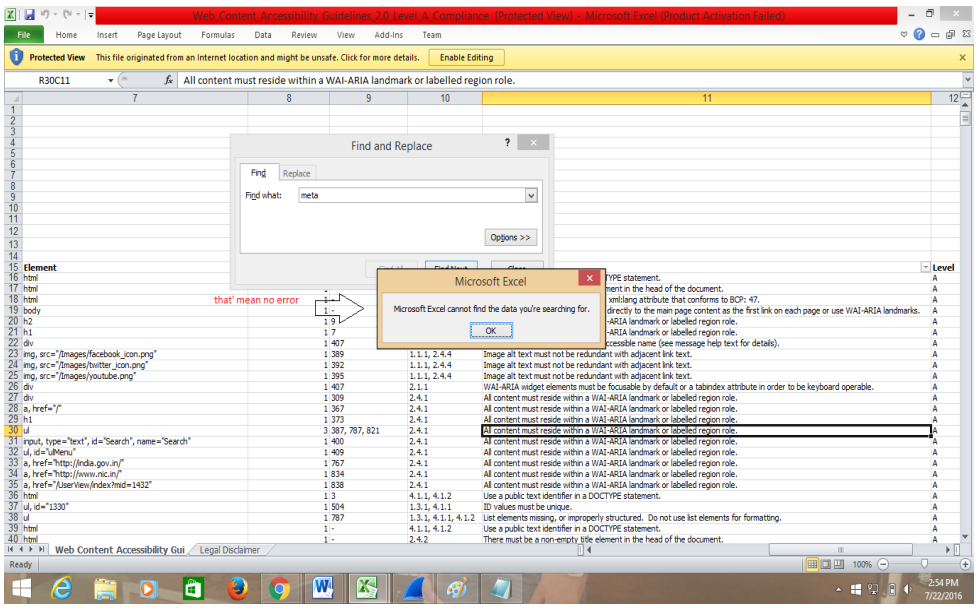
(i). Labels:

Screenshot:



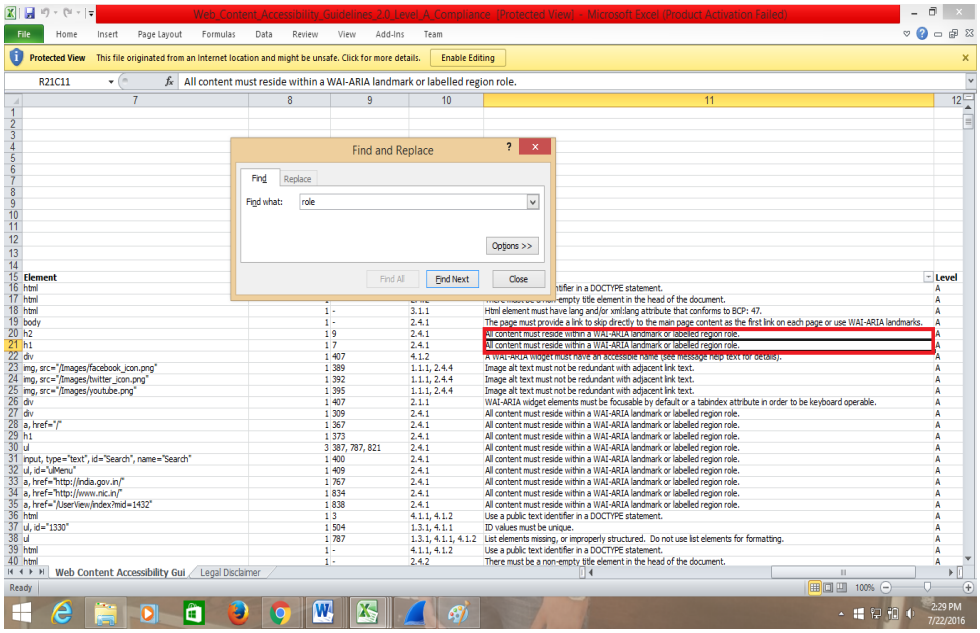
(ii). Meta data:

Screenshots:



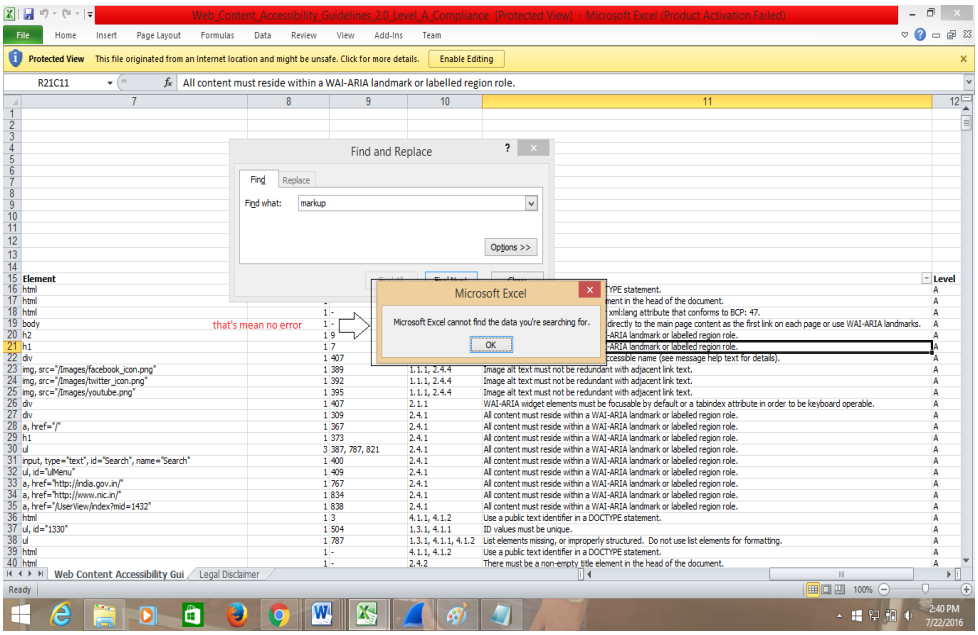
(iii). Role :

Screenshot:

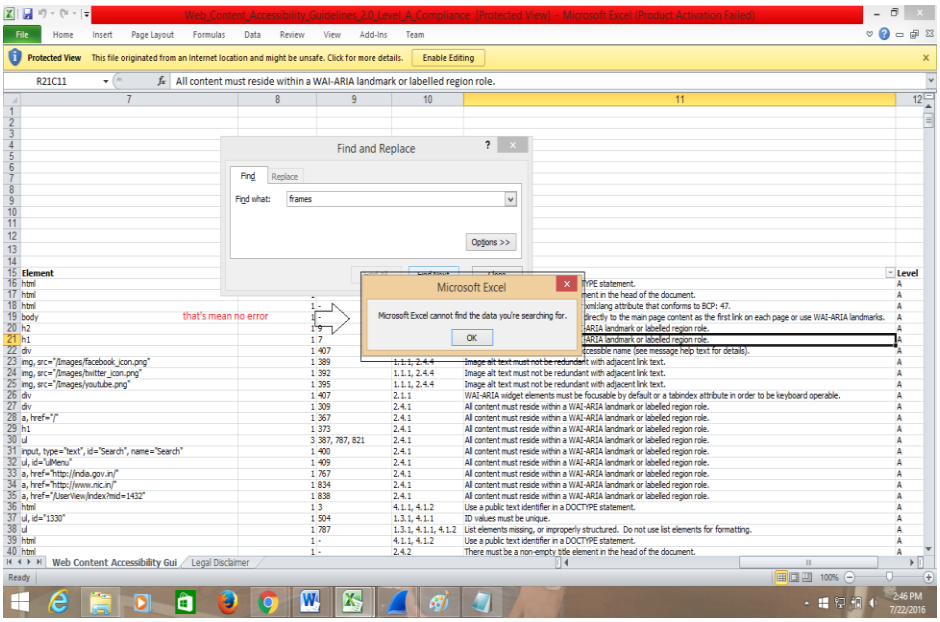


(iv).Markup :

Screenshot

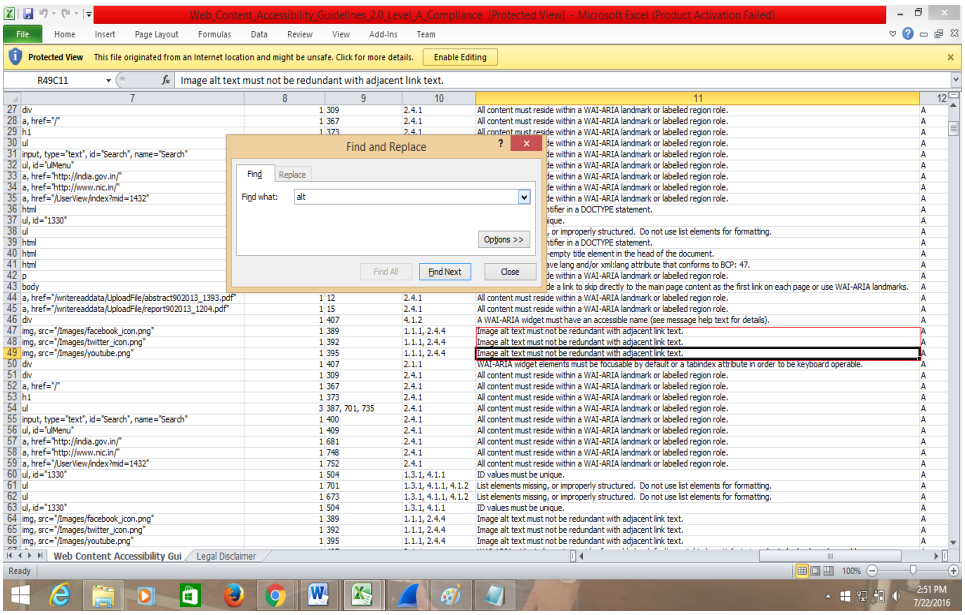


(v). Frames:



(vi). ALT :

In that we check error due to alternate text is not found for images, video etc.



ABOUT WEB APPLICATION BEING TESTED

Recruitment Portal

The main activity of this web application is to accept applications from the applicants based on their declaration of being eligible for the post applied for and depositing the prescribed fee unless exempted. One application is to be submitted for post(s) in a Post Group. If an applicant candidate intends to apply for post(s) in more than one Post Group, he/she has to make New Registration for each Post Group

Test Scenario:

STQC IT Delhi Centre
Project Reference:
Module Reference: **Recruitment Portal**
Pre-condition:
Scenario # 1 Login

1. On Login Screen of Web application

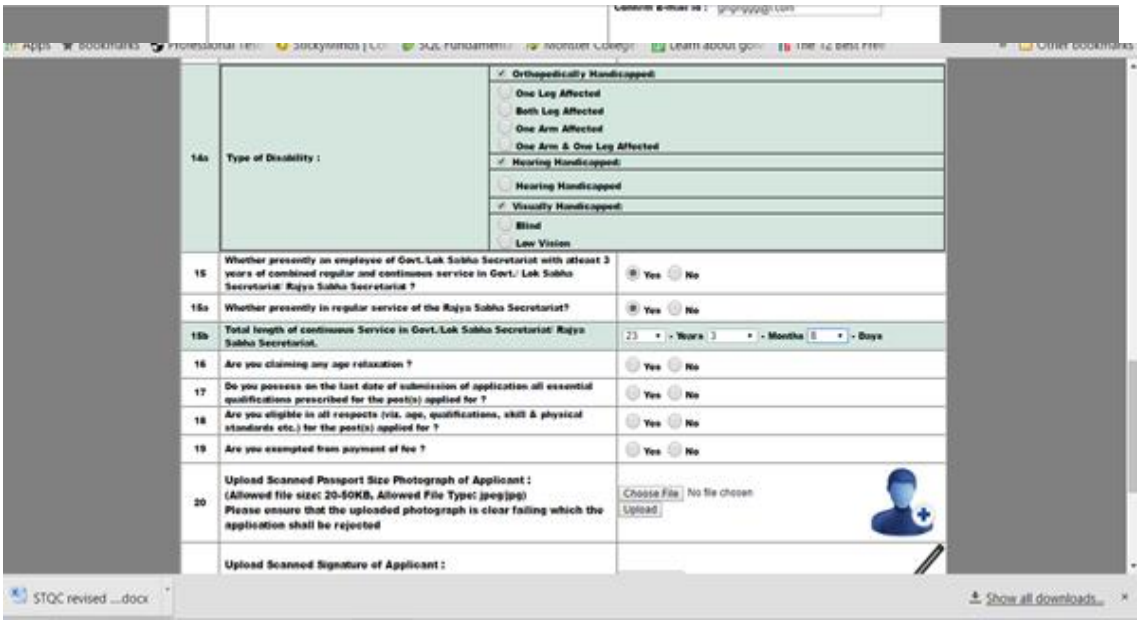
Step Id	Steps Description	Expected Result	Actual Result	Status	Remarks
1	SQL Injection	404 not Found	500 Internal server error	Fail	Must show 404 Not found
2	Script Adding	Should not add(>,<,/,')	Vulnerability found	Fail	Must show Zero Vulnerability
3	Captcha	Captcha Must be present	Captcha is present	Pass	
4	Password	Password must contain of 8 characters or more than	Password (8 length minimum)	Pass	
5	Login _Id	Must be in digits	.Login_ID=223323	Pass	

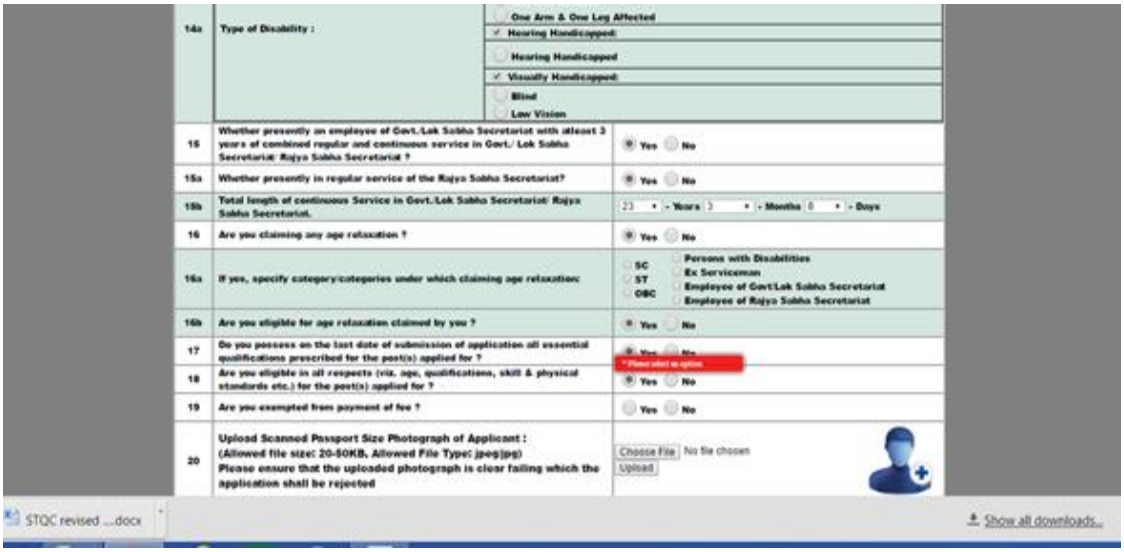
TEST CASE 2

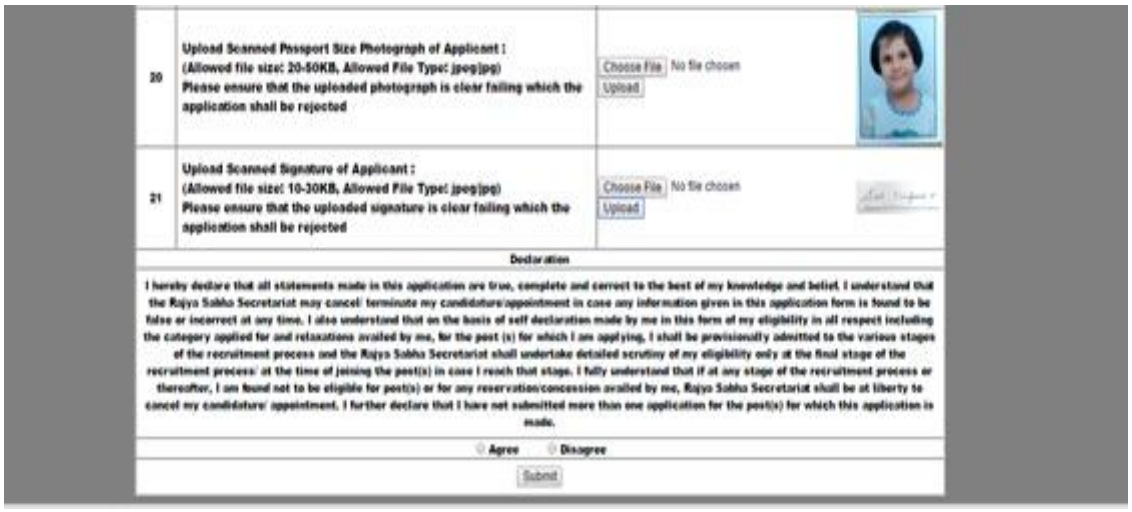
TC_ID	
1	Accepts the Experience more than the person's age:
2	There is no ''other'' option in disability section:
3	Accepts Service duration more than the age of the person:
4	Additional field is give which is not required: (NOTE:16b field is not required as field 16 does the same)
5	Please Select an option'' message comes even after selecting the option:
6	'No file chosen'' is shown even after uploading the photograph and signature:
7	one person can register with same details more than once:

8	Field 15 asks whether a person has atleast 3 year service experience But field 15b accepts the service experience of less than 3 year service experience (Note : It also accepts 0 days service experience)
9	TAKING SAME PREFERENCES
10	Not showing mobile no. error while filling the details
11	Address , email id , state, district are truncated

ERROR SCREEN







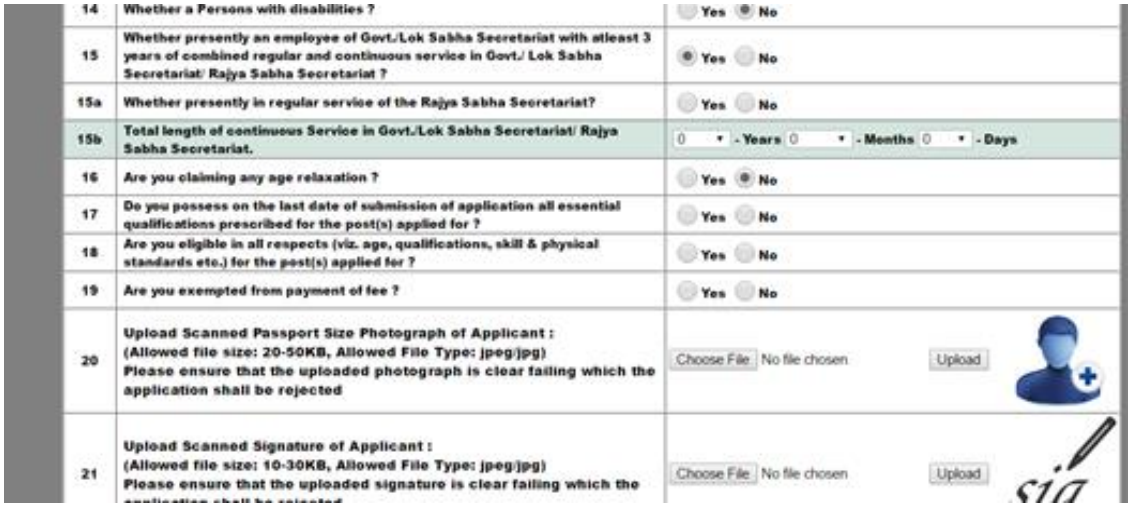
20	**Upload Scanned Passport Size Photograph of Applicant :** **(Allowed file size: 20-50KB, Allowed File Type: jpeg/jpg)** **Please ensure that the uploaded photograph is clear failing which the application shall be rejected**	Choose File No file chosen Upload
21	**Upload Scanned Signature of Applicant :** **(Allowed file size: 10-30KB, Allowed File Type: jpeg/jpg)** **Please ensure that the uploaded signature is clear failing which the application shall be rejected**	Choose File No file chosen Upload

Declaration

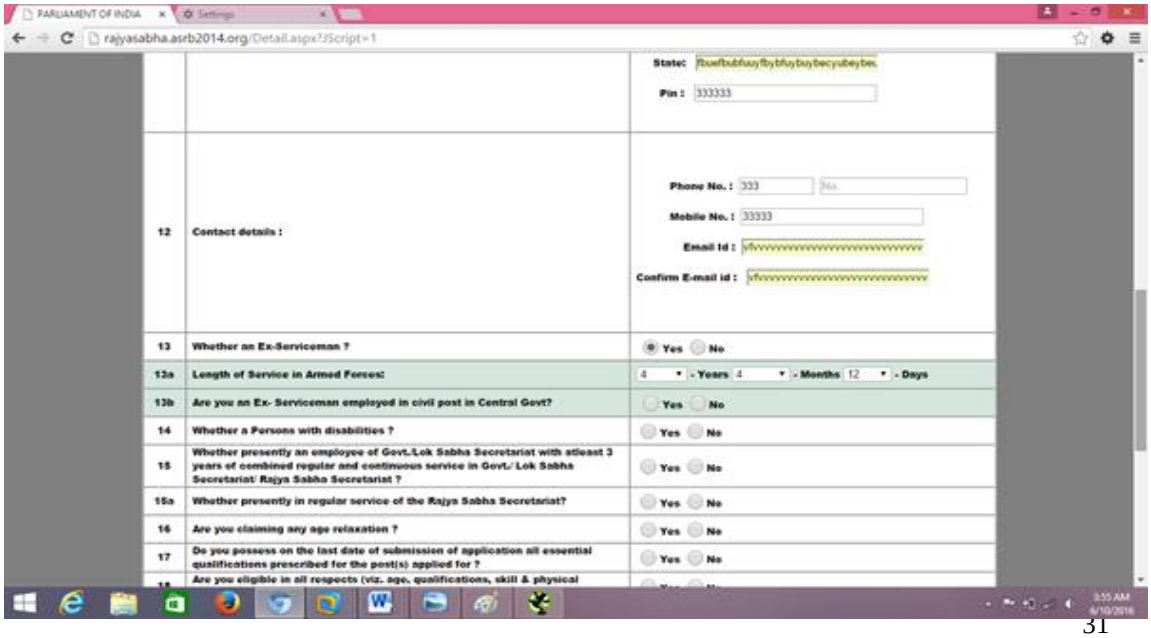
I hereby declare that all statements made in this application are true, complete and correct to the best of my knowledge and belief. I understand that the Rajya Sabha Secretariat may cancel/ terminate my candidature/appointment in case any information given in this application form is found to be false or incorrect at any time. I also understand that on the basis of self declaration made by me in this form of my eligibility in all respect including the category applied for and relaxations availed by me, for the post (s) for which I am applying, I shall be provisionally admitted to the various stages of the recruitment process and the Rajya Sabha Secretariat shall undertake detailed scrutiny of my eligibility only at the final stage of the recruitment process/ at the time of joining the post(s) in case I reach that stage. I fully understand that if at any stage of the recruitment process or thereafter, I am found not to be eligible for post(s) or for any reservation/concession availed by me, Rajya Sabha Secretariat shall be at liberty to cancel my candidature/ appointment. I further declare that I have not submitted more than one application for the post(s) for which this application is made.

Agree Disagree

Submit



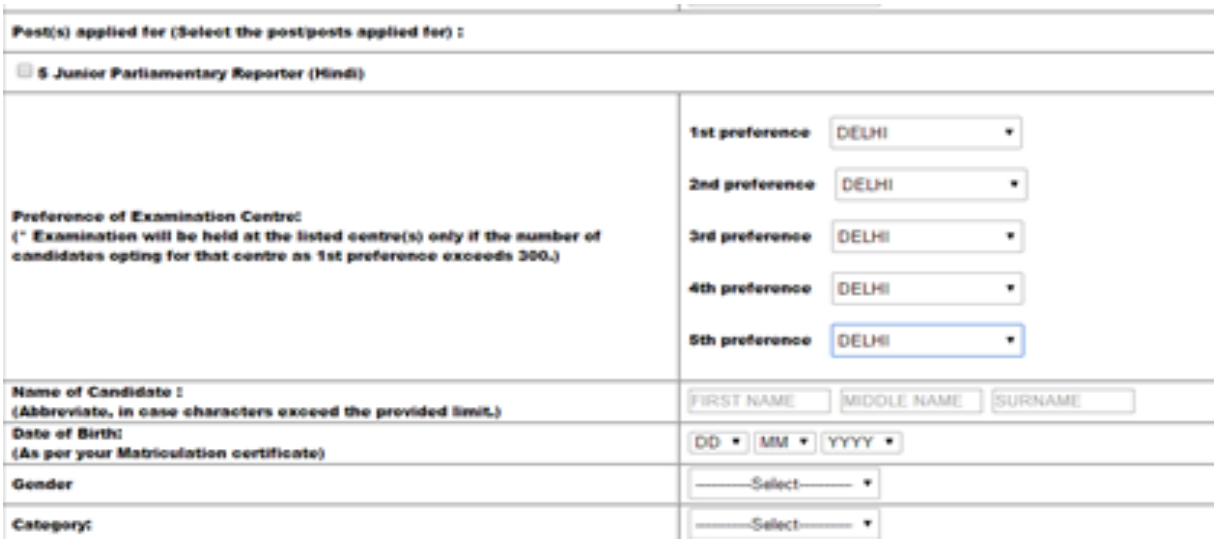
14	**Whether a Persons with disabilities ?**	Yes No
15	**Whether presently an employee of Govt./Lok Sabha Secretariat with atleast 3 years of combined regular and continuous service in Govt./ Lok Sabha Secretariat/ Rajya Sabha Secretariat ?**	Yes No
15a	**Whether presently in regular service of the Rajya Sabha Secretariat?**	Yes No
15b	**Total length of continuous Service in Govt./Lok Sabha Secretariat/ Rajya Sabha Secretariat.**	0 - Years 0 - Months 0 - Days
16	**Are you claiming any age relaxation ?**	Yes No
17	**Do you possess on the last date of submission of application all essential qualifications prescribed for the post(s) applied for ?**	Yes No
18	**Are you eligible in all respects (viz. age, qualifications, skill & physical standards etc.) for the post(s) applied for ?**	Yes No
19	**Are you exempted from payment of fee ?**	Yes No
20	**Upload Scanned Passport Size Photograph of Applicant :** **(Allowed file size: 20-50KB, Allowed File Type: jpeg/jpg)** **Please ensure that the uploaded photograph is clear failing which the application shall be rejected**	Choose File No file chosen Upload
21	**Upload Scanned Signature of Applicant :** **(Allowed file size: 10-30KB, Allowed File Type: jpeg/jpg)** **Please ensure that the uploaded signature is clear failing which the**	Choose File No file chosen Upload



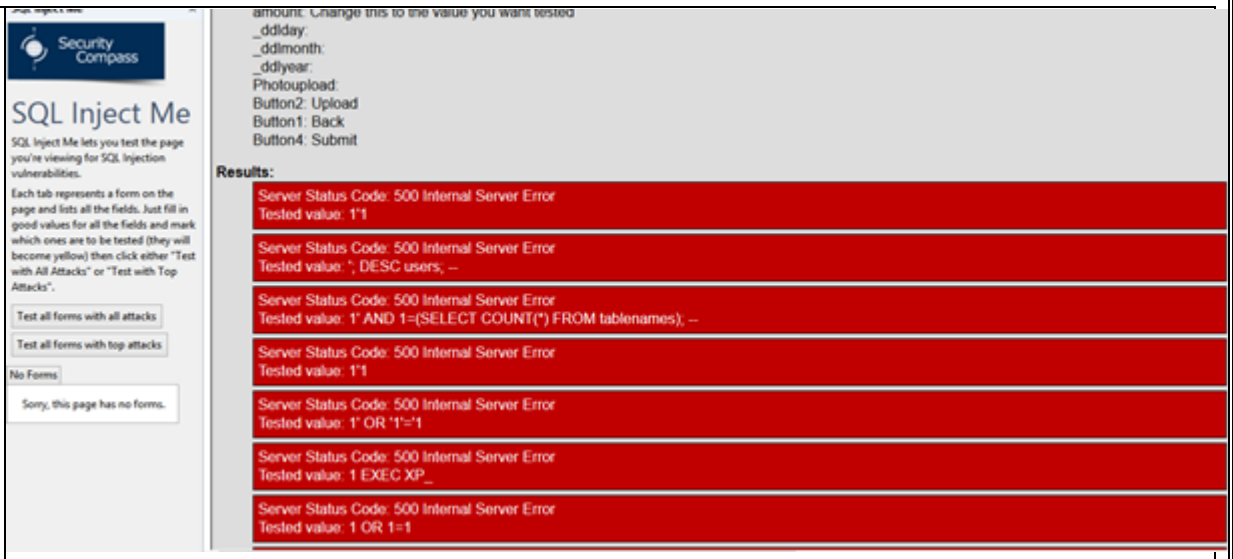
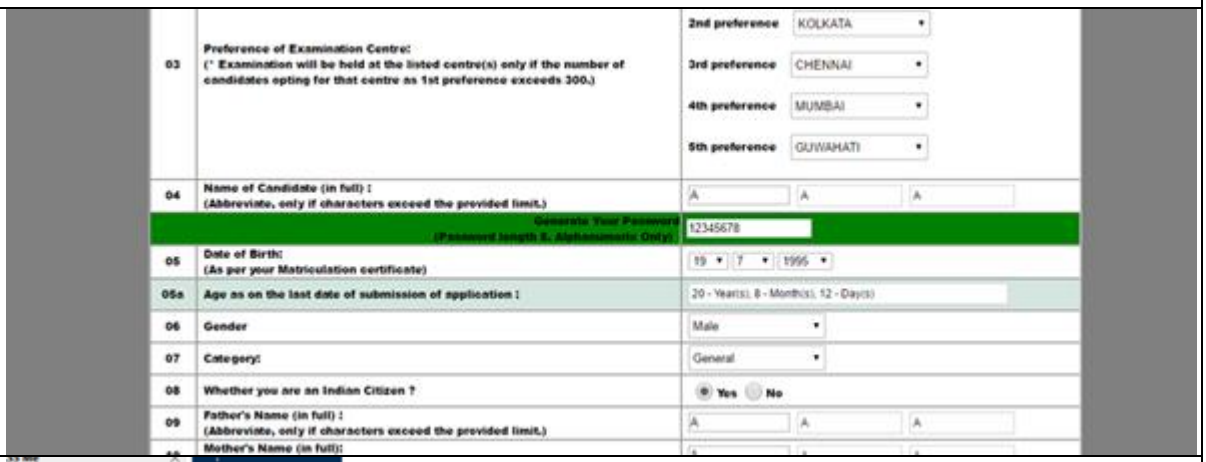
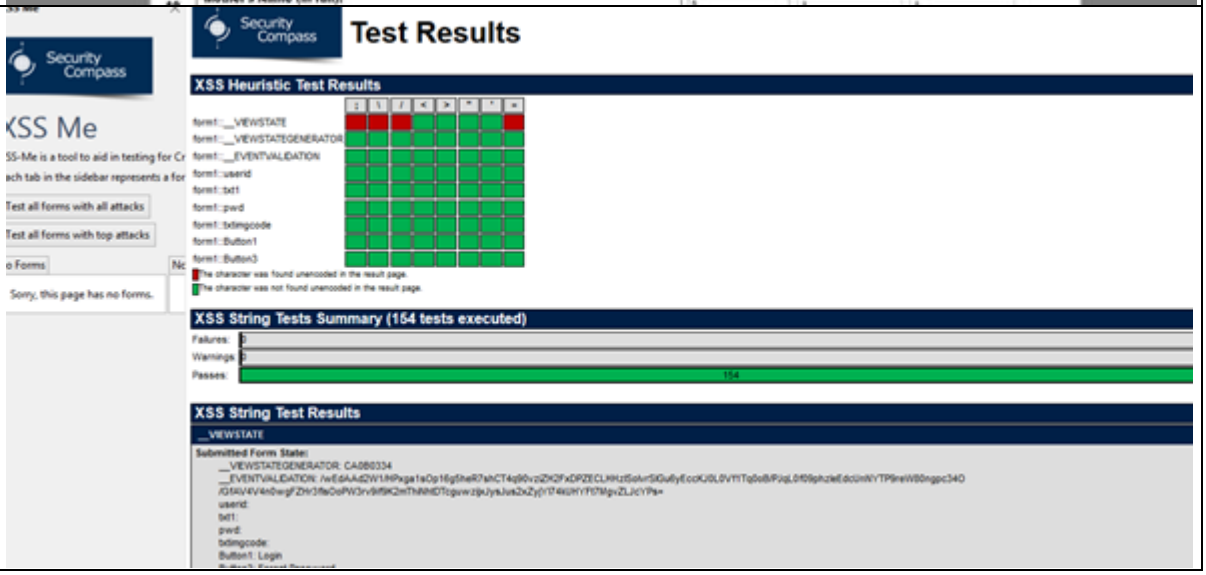
PARLIAMENT OF INDIA | Settings

rajyasabha.asrb2014.org/Detail.aspx?Script=1

		State: fbuefbubfuuyfbybfuybuybecyubeybec **Pin :** 333333
12	**Contact details :**	**Phone No. :** 333 No. **Mobile No. :** 33333 **Email Id :** vfvvvvvvvvvvvvvvvvvvvvvvvvvv **Confirm E-mail id :** vfvvvvvvvvvvvvvvvvvvvvvvvvvv
13	**Whether an Ex-Serviceman ?**	Yes No
13a	**Length of Service in Armed Forces:**	4 - Years 4 - Months 12 - Days
13b	**Are you an Ex- Serviceman employed in civil post in Central Govt?**	Yes No
14	**Whether a Persons with disabilities ?**	Yes No
15	**Whether presently an employee of Govt./Lok Sabha Secretariat with atleast 3 years of combined regular and continuous service in Govt./ Lok Sabha Secretariat/ Rajya Sabha Secretariat ?**	Yes No
15a	**Whether presently in regular service of the Rajya Sabha Secretariat?**	Yes No
16	**Are you claiming any age relaxation ?**	Yes No
17	**Do you possess on the last date of submission of application all essential qualifications prescribed for the post(s) applied for ?**	Yes No
18	**Are you eligible in all respects (viz. age, qualifications, skill & physical**	


Post(s) applied for (Select the post/posts applied for) :
5 Junior Parliamentary Reporter (Hindi)
Preference of Examination Centre:
(* Examination will be held at the listed centre(s) only if the number of candidates opting for that centre as 1st preference exceeds 300.)
1st preference
DELHI
2nd preference
DELHI
3rd preference
DELHI
4th preference
DELHI
5th preference
DELHI
Name of Candidate :
(Abbreviate, in case characters exceed the provided limit.)
FIRST NAME
MIDDLE NAME
SURNAME
Date of Birth:
(As per your Matriculation certificate)
DD
MM
YYYY
Gender
---------Select---------
Category:
---------Select---------

TEST CASE 3:

SQL INJECTION NOTE:500 INTERNAL SERVER ERROR FAIL	
Hidden field is not applied on password FAIL	
Cross-site scripting is ok PASS	

ABOUT WEB APPLICATION BEING TESTED

Test Scenario:

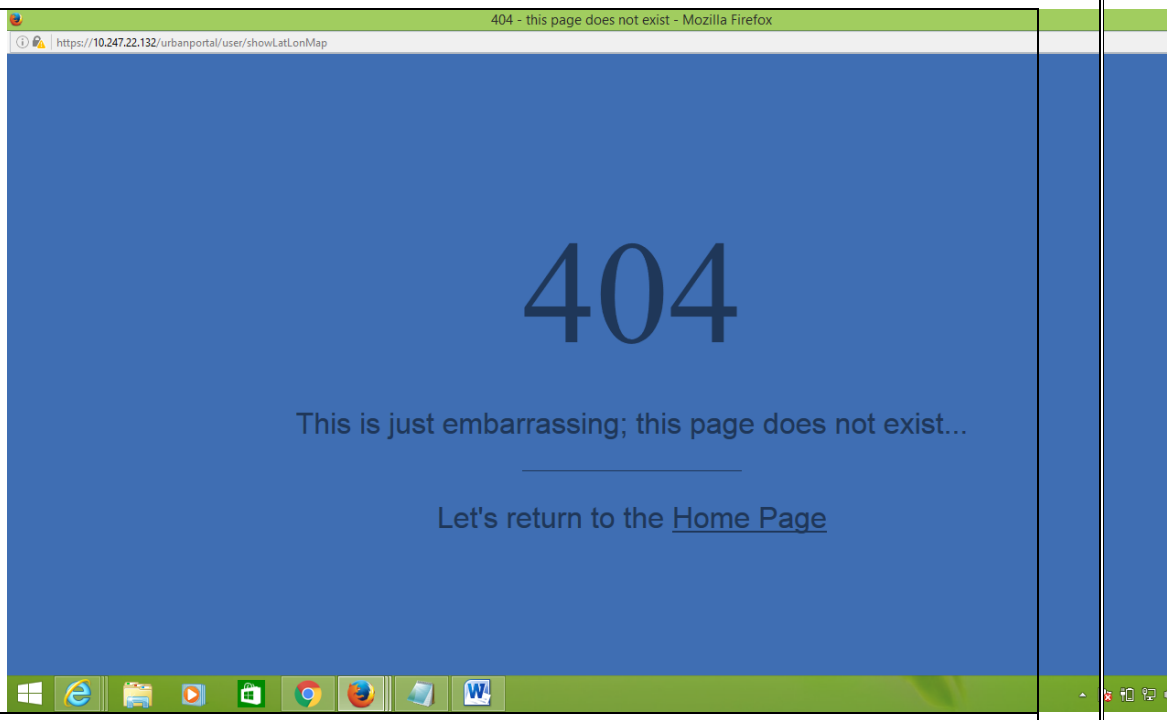
STQC IT Delhi Centre
Project Reference:
Module Reference: LAND ALLOCATION WEB APPLICATION
Since the original name of the web application cannot be used due to policies followed by STQC.

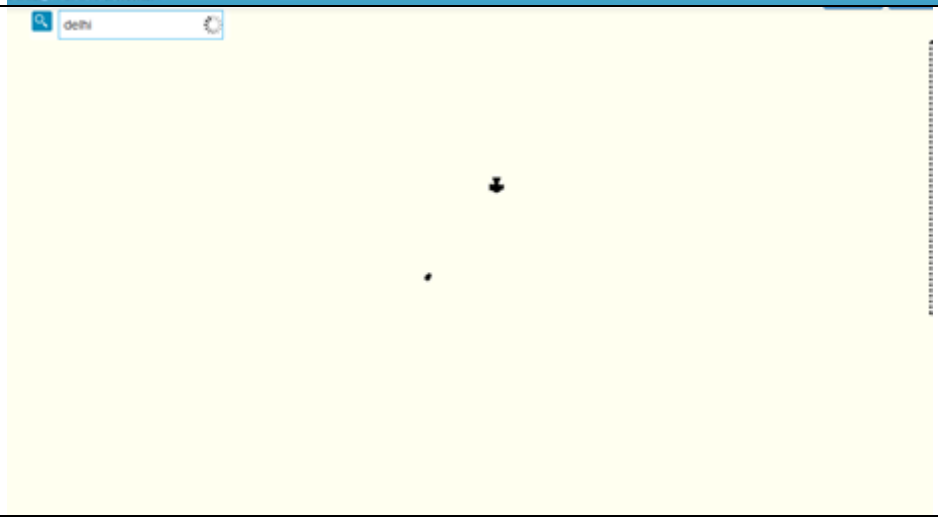
Scenario # 1

The main activity of this website is to allocate land. This website is integral to planning, Decision making and Electronic Delivery of Services, Geo-enabling e-Governance to facilitate location based information for all.

TEST CASE 1:

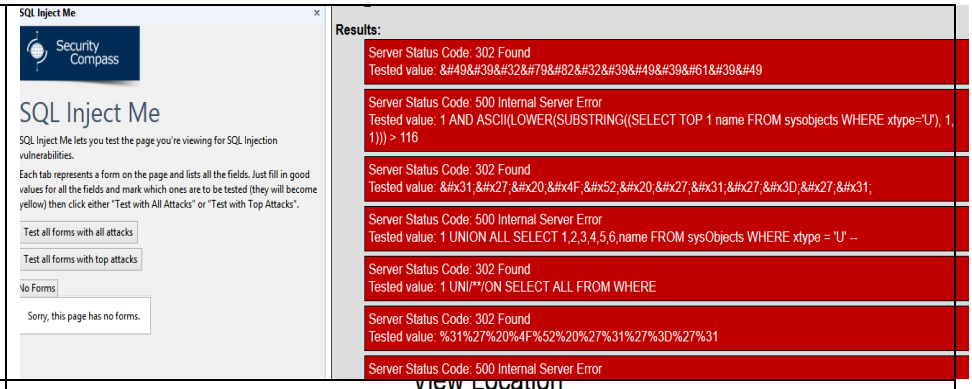
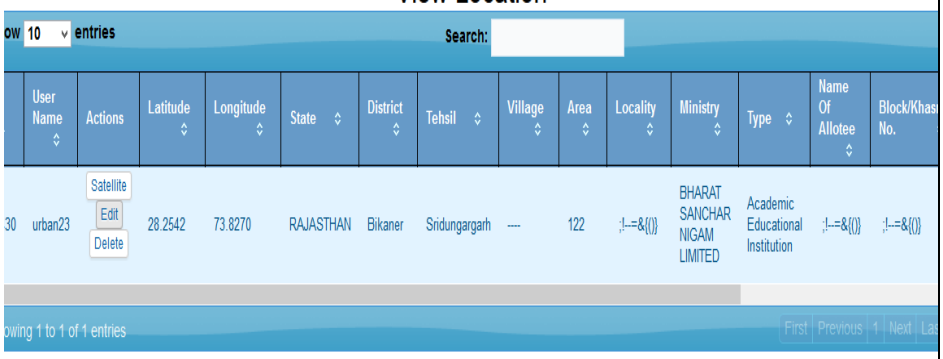
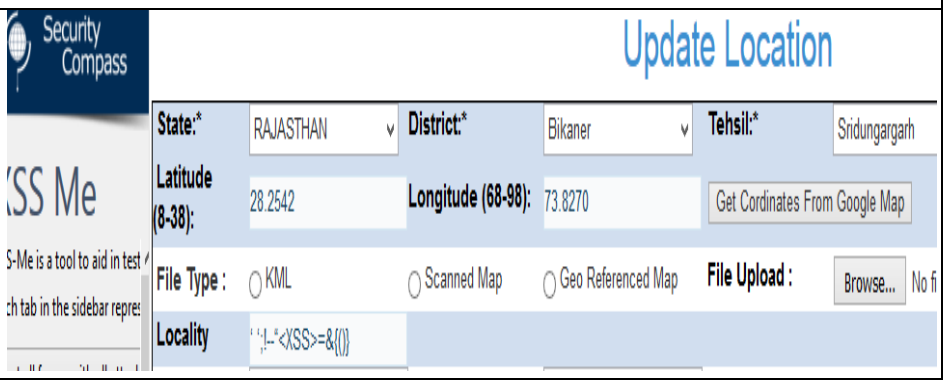
FUNCTIONAL TESTING

1.Not taking coordinates from Google Map(Service is not provided)	
2.(a)Village part showing numeric value whereas selected village is different	

3.Taking exact same input for urban23 and urban30	
4.Search box is not working	
5.Home Page – Search Box is not working	

6.Click to info is showing error HTTP status 400	
8.(a)Allotment added of different state whereas LATITUDE AND LONGITUDE added of different state – data is acceptable(No authentication)	

TEST CASE 2:

1.For some queries it is showing 302 found whereas for renaming one it showing 500 internal error	
2.Script can be added When we edit the records 2(a)	
2(b)	

TEST CASE 3:

TEST CASE 3

Application Security Assessment Checklist Website: Land Allocation Web Application

Authentication

Sl. No.	Parameter	Description/ Verification	Observation	Status
1	SSL enforcement	SSL connection for the login. SSL for all "logged-in" pages or few pages	Connection is not private Certificate mismatch error Refers to screenshot 1	Major
2	Authentication mechanisms	Simple authentication Digest based authentication Form based authentication	Simple password based authentication mechanism	
3	Communication of credentials to back-end servers (DB/LDAP)	Credential in the clear or encrypted in transit	Refer to point 1	
4	Storing credentials in a cookie	Check the stored user credentials in the cookie and use this as the sole means of controlling access to user's "logged-in" pages. Check the logout button for destroying user's session.	Credentials not stored in cookie	
5	Default user name	Check for administrator/ test/network/ admin etc	Admin used as a user name	
6	Password Complexity	Check password complexity requirements against company's IT Security standards.	Not in compliance	
		Composition (use of digit, upper or lower case)	Not In compliance(use only lower case)	
		Length (min 8 char)	Not Incompliance(password is of 7 characters)	

		Entry (Protect password from the observation)	In compliance	
		Life Time-periodic password change (max. 1 year)	Not in compliance (no such feature present in this website)	
		Remember old password	Not in compliance (no such feature present in this website)	
7	Account Lockout	No of attempts/ retries (maximum of 5 and alert to administrator on account locked	Not incompliance Account could not lock in any attempt	
8	Generic Login Failure Message	Provide a generic login failure message instead 'user ID is incorrect' or 'user password is incorrect'	In compliance	
9	Secure Storage Of Credentials	Passwords and the answers to "forgot password" questions stored in clear-text/hashed/ salted hash format.	Audit	
10	Forgot Password Logic – Information Disclosure	Forgot Password feature give you feedback that indicates whether or not an entered user id is valid.	Not in compliance (no such feature present in this website)	Major
	Forgot Password Logic – Strength of Security Questions	Forgot Password feature allow the user to choose from only a pre-defined list of strong questions or allowing a user to choose their own security question (weak)	Not in compliance (no such feature present in this website)	
	Forgot Password Logic – Bypassing Security Question	Check to bypass the security question and jump straight to the "Reset password" page, or manipulate the site into changing/resetting another user's password.	Not in compliance (no such feature present in this website)	
	Forgot Password Logic – Establishing New Password	1. Reset the user's password to a temporary value and email it to the email	Not in compliance (no such feature present in this website)	

		address on file, and force user to change password to a permanent value at next login. 2. Allow the user to immediately choose a new password in-session.		
11	Re-authenticating User When Changing Password	User to re-enter their old password when making a password change	Not in compliance (no such feature present in this website)	
12	Disabling Browser Autocomplete Feature	Autocomplete set to false for password, username, and all other sensitive inputs.	Not In compliance	
13	Logging of Authentication Events	Logins, logouts, password changes, password resets, account locks, account unlocks logged by the application and transactions	To be check	
14	Forced browsing / broken authentication	Check URL of resources that need authentication(Crawl and identify the URL after login and logout and try all captured URL for getting the resource	In compliance	

Session Handling

Sl. No.	**Parameter**	**Description/ Verification**	**Observation**	**Status**
1	Randomness of Session Token	Check the randomness of session token	In compliance	
2	Method of Passing Session Token	Check the site passes the session token from page to page in a cookie or hidden field (good), or in the URL (not secure)	Incompliance Tokens are saved in cookies	
3	Use of Secure Cookies	Check the site mark its session cookie(s) with the “secure” attribute so it can only be passed via	In compliance	

		SSL.		
4	Use of HttpOnly Cookies	Check the site mark its session cookie(s) with the “HttpOnly” attribute so the cookie cannot be accessed via client-side Javascript code.	In compliance	
5	Use of Non-Persistent Cookies For Tracking Session	Check the site use session cookies (with no “Expiration” attribute) for storing its session token. And use persistent cookies (with an “Expiration” attribute set to a future date).	Not incompliance Expiry is not given Refer to screenshot 5	
6	Session Timeout	Check the session timeout	Not in compliance As per the owasp zap tool session timeout is not given refer to screen shot 4	
7	Generating New Session After Login	Check that the application generates a new session and assigns a new session id to the user immediately after a successful login.	In compliance Every time new session token id is generated	
8	Logout Functionality	Check that the application provides a Logout link for the user. And on clicking the Logout Link, it results in the session expiry from server side.	In compliance	
9	Contents of Cookies	Check cookies set by the application contain any sensitive info, such as the User ID, Roles, system info, etc.	No sensitive info. Is stored in cookies	

Input Validation

Sl. No.	Parameter	Description/ Verification	Observation	Status
1	Cross site scripting	1. Apply the input <script>alert("XSS") </script> to the text box (feedback, message box etc) where the user supplied data can be accepted and checked for message box “XSS” by accessing another user. 2. Apply the input <script>alert("XSS") </script> to the field like search, URL etc and check for message box “XSS” 3. ‘ ‘;!--“<XSS>=&{()} 4. ‘;alert(1)//\’;alert(2)//”;alert(3)//\”;alert(4)//--><</SCRIPT>”>’<SCRIPT>alert(5)</SCRIPT>;+&{<script>alert(6)</script>} 5. Use the above with different encoding scheme base64, URL, HTML and Unicode	Not in compliance(script will be add)screenshot 2 Note :script will add when we update the record	Major
2	SQL Injection	Enter –single(‘) quote in username and blank in password field (Query sent onto the DB as username="" and password=' ') and check for sql error message or 500 error code	Not in compliance Refer to screenshot 3	
		Enter -‘ “)#||+>and check for sql error message or 500 error		

		code		
		Enter valid user name followed by single quote and a semi colon and the SQL comment (';--) (username='abc';--' and password=' ')		
		‘ or 1=1-- ‘ or 1=1# or 1=1-- or 1=1# “ or 1=1-- “ or 1=1# abc’ or ‘x’=’ abc” or ‘x’=’x ‘) or (“x”=” “) or (“x”=”x ‘ and 1=1--		
		Username: ' or ' '=' and password: ' or ' '='		
		Username: ' or 1=1-- and password:		
		Username: ' or 'a'= 'a'-- and password:		
		Username: ' or uname like '% and password: ' or pword like '%		
		Fields where numeric input is expected Username:0 or 1=1 and password: ' or pword like '%		
		Apply SQL query where user has administrator right username: ';exec master..xp_cmdshell 'net user newusernmae newuserpassword /ADD'- password:	Incompliance	
3	Command injection	Anything;rm-rf/ (in unix system) Unix >|;%	In compliance	

		/bin/cat/etc/passwd>|;% |;%date>|;% Windows |;%type\boot.ini>|;%		
4	Buffer overflow	1000 characters are applied to all types of fields through proxy tool and check for no response or timeout or 500 internal error. If this happens check by sending the valid data to check the no network problem.	In compliance	

Access Control

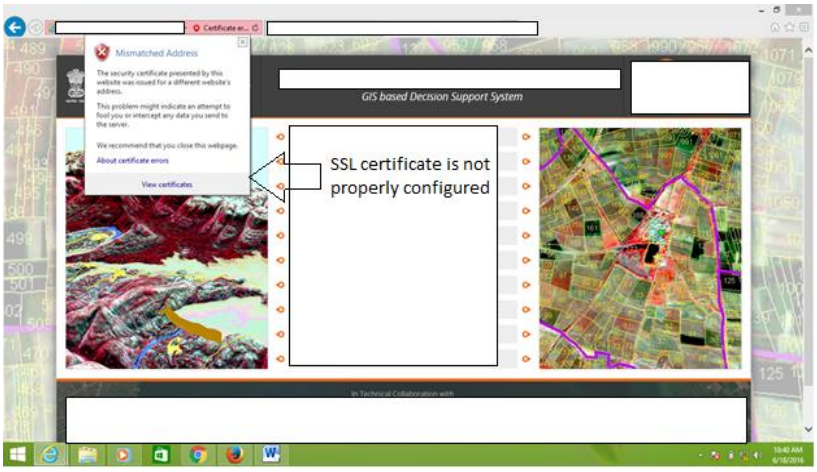
Sl. No.	Parameter	Description/ Verification	Observation	Status
1	Parameter Analysis	The application shall enforce its access control model by ensuring that any parameters available to an attacker would not afford additional service.	In compliance	
2	Privilege Escalation	Application shall not allow user to escalate role / privilege	Not in compliance User can access admin privileges by accessing through simple user id Refer to screenshot 6	

Other Checks/ Misconfiguration

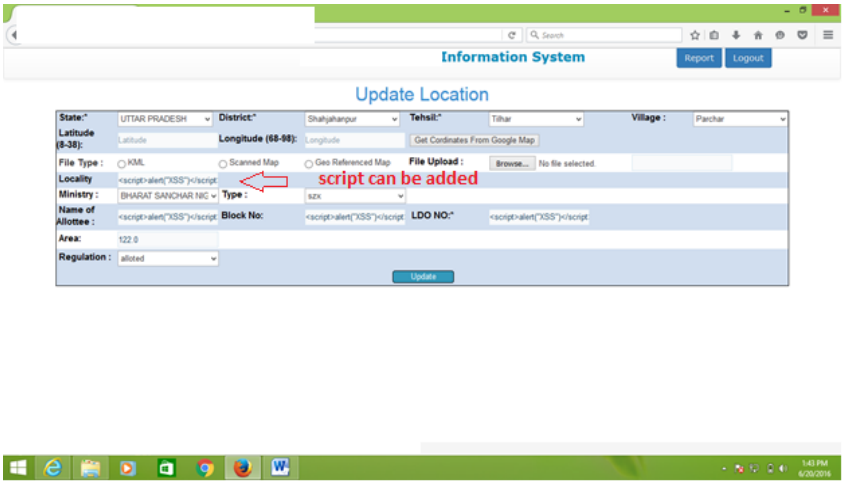
Sl. No.	Parameter	Description/ Verification	Observation	Status
1	Error Handling	Check the application log unhandled exceptions and show user a generic tech diff message rather than displaying the detailed	Not in compliance Note : when the session expires it provides the 404 error message rather then session expire message	

		error.		
2	Directory Browsing	Is Directory Browsing enabled on any of the web folders?	In compliance	
3	Information Leakage In Code Comments	Any sensitive information included in HTML, Javascript, or other comments	In compliance	
4	Denial of Service Attack	Check for the CAPCHA for the form/ submit etc to avoid the automatic attack.	Not in compliance(No such authentication is available) Screen shot 3:	
5	Configuration & unused file	File get left on the web directory and can be source of information	In compliance	

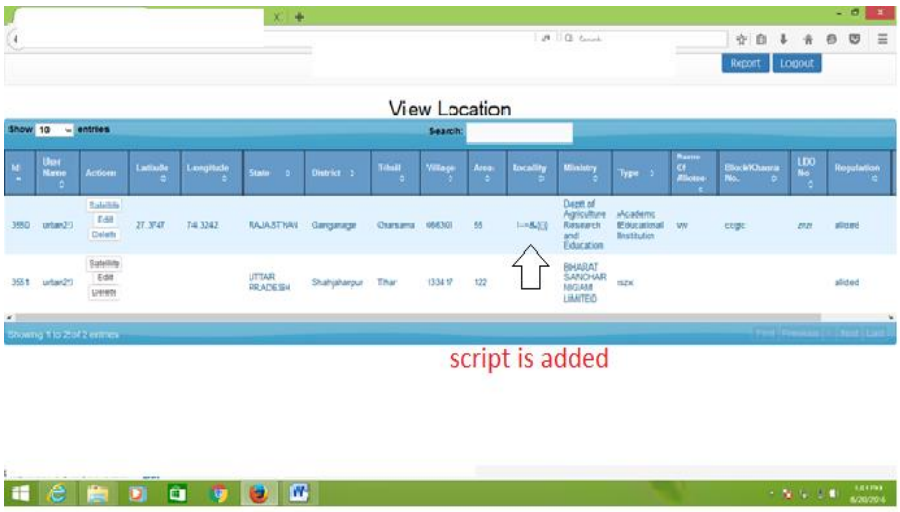
Screenshot no. 1:



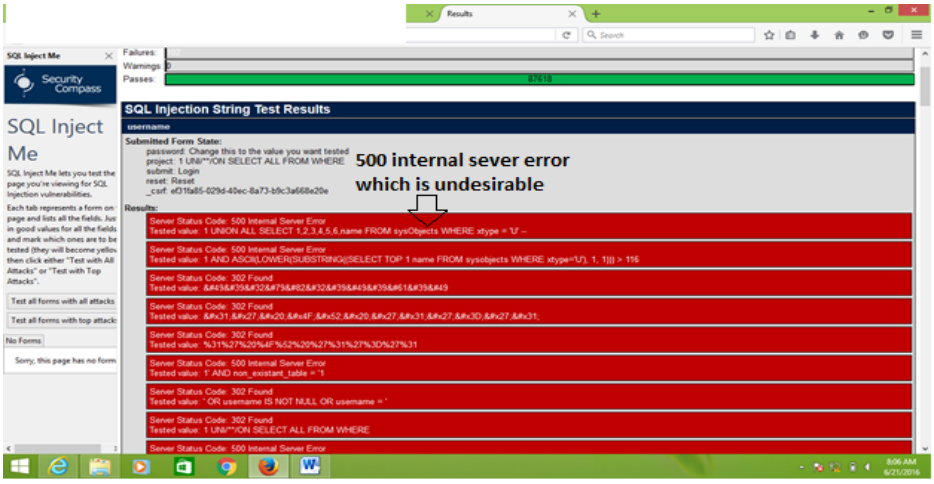
Screen shot 2:



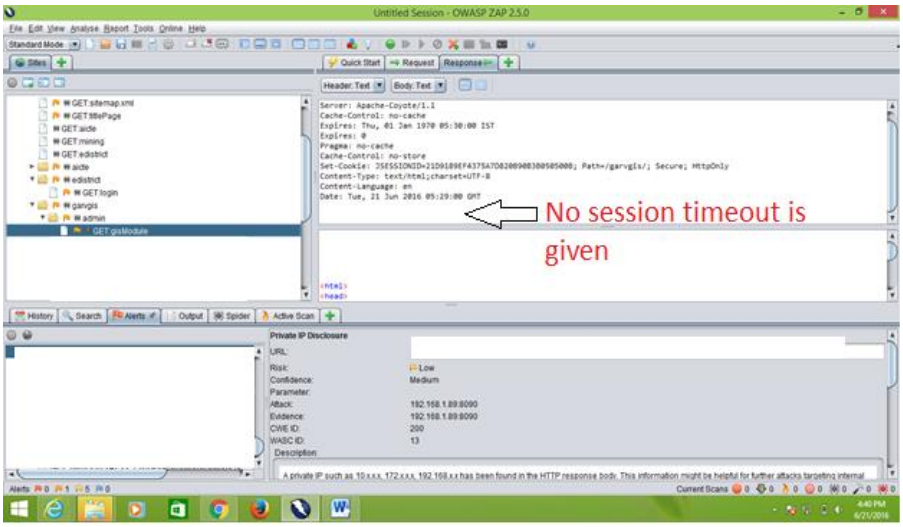
2.b



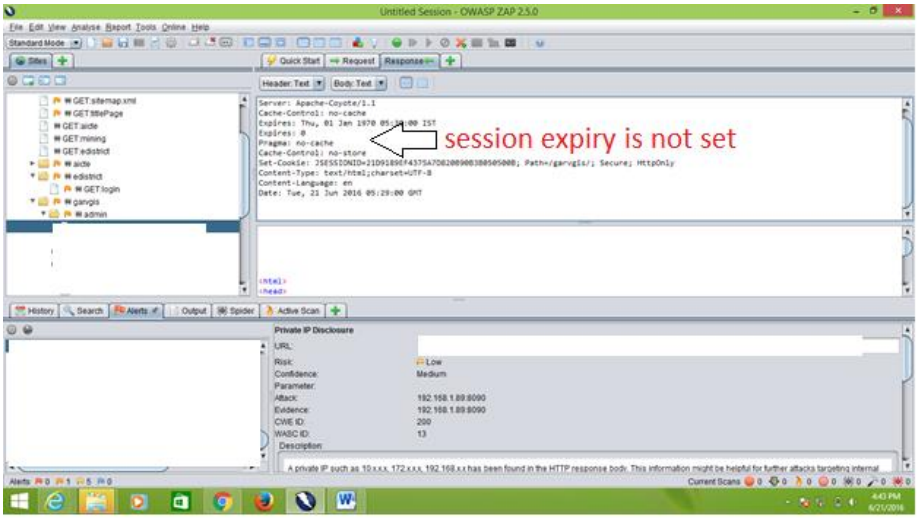
Screenshot no. 3:



Screen shot 4:



Screen shot 5:



Screenshot 6:

Access the admin functionality through simple login
by url crawling

PENETRATION TESTING

WORK DONE

Since Penetration testing can be extremely useful as well as extremely harmful and dangerous if used for malicious purposes, we were given the task to penetrate a PC at our workplace running Windows Operating System. To accomplish this we first made a bootable USB stick containing Kali Linux and ran the OS in Live mode. When Kali Linux booted up, the first step was information gathering. For this, we used two tools: ZenMap Scan and NMap Scan (inside Armitage only). The scan required us to enter the IP address of the target computer. After entering the IP address and letting the scan run, the results were saved in an XML file which will later be imported in Armitage.

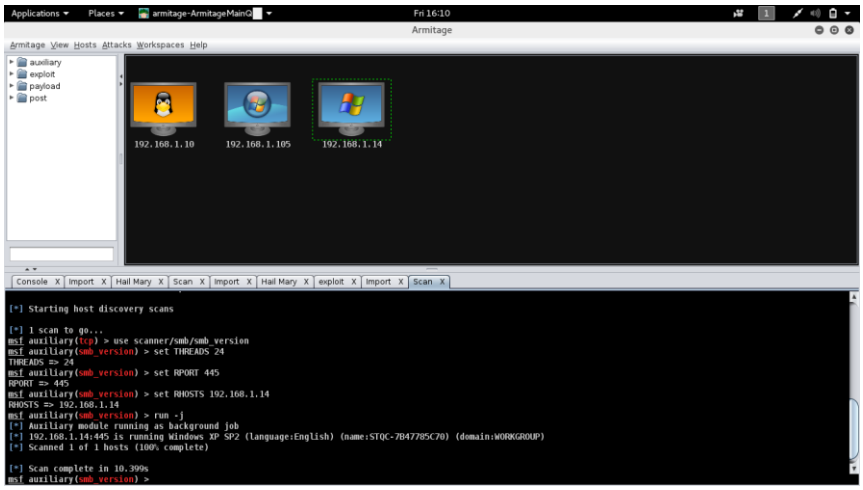
The next step was to run the Metasploit Framework, which was present in the desktop only. After this we needed to type Armitage in the same terminal that started the Framework Service. After running Armitage successfully, the XML file was imported which contained the detailed scan of target PC by going to Hosts -> Import Hosts. Once the import is finished, the PC will show up in the Armitage Application.

The next step was to scan the target PC to gather information such as the OS, username and the list of ports open in it to plan the exploit or attack. This was done by right clicking the icon of the PC and clicking scan. After the scan is completed Find Attacks command was run. When attacks are found, then we choose a suitable attack to exploit the target. Since out target PC was running Windows XP, we chose the netapi-ms08-067 attack to exploit the target. Since 445 Port was opened in the target, RHOST was set to 445 and LHOST to 8080 (Our PC).

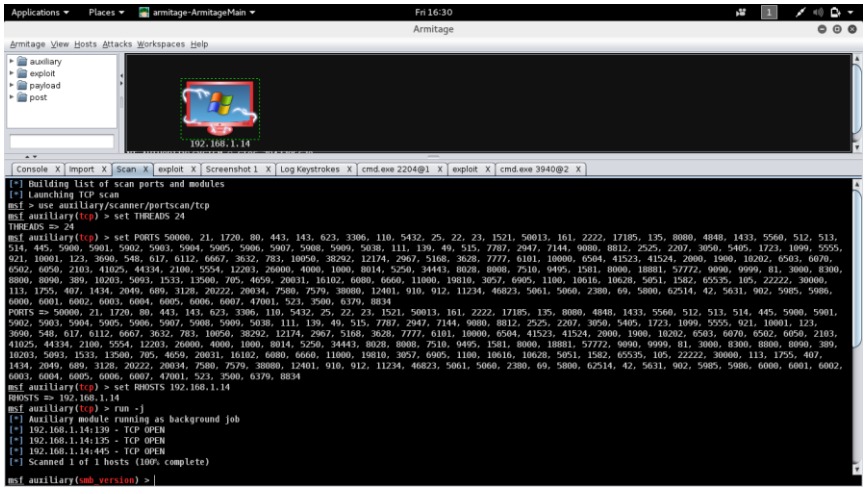
Once the attack successfully exploited the target PC, we ran Meterpreter (advanced, dynamically extensible payload that uses in-memory DLL injection stagers and is extended over the network at runtime) and did various stuff such as taking screenshot of the target PC screen, initiating keylogger service, controlling the target using shell commands, etc.
So, we were successfully able to penetrate inside the target PC and perform tasks without the knowledge of the target PC user.

SCREENSHOTS

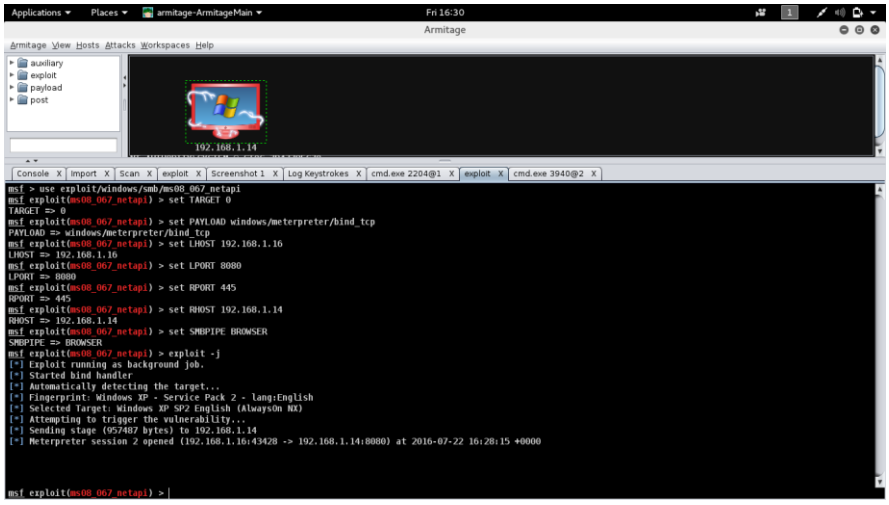
1. Scan Depicting the information of target PC such as the Operating System installed, username, etc.



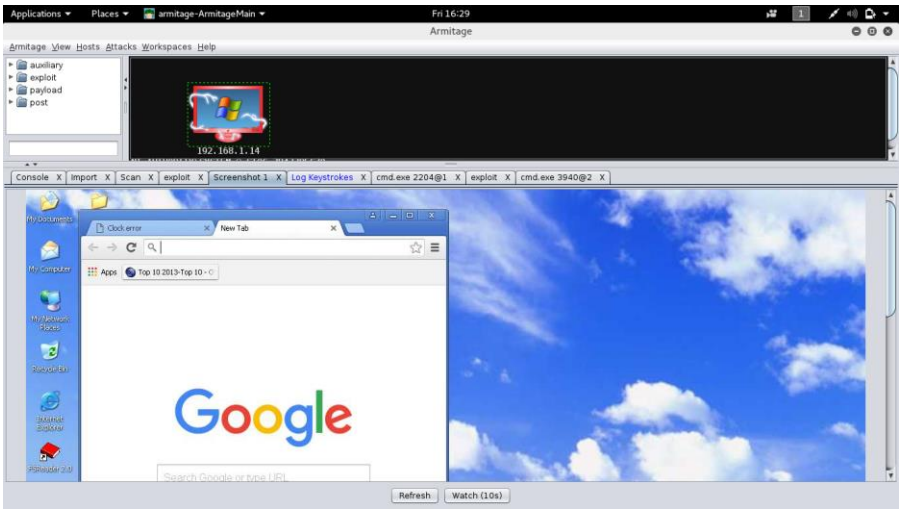
2. Scan depicting the open ports and other information of the target PC



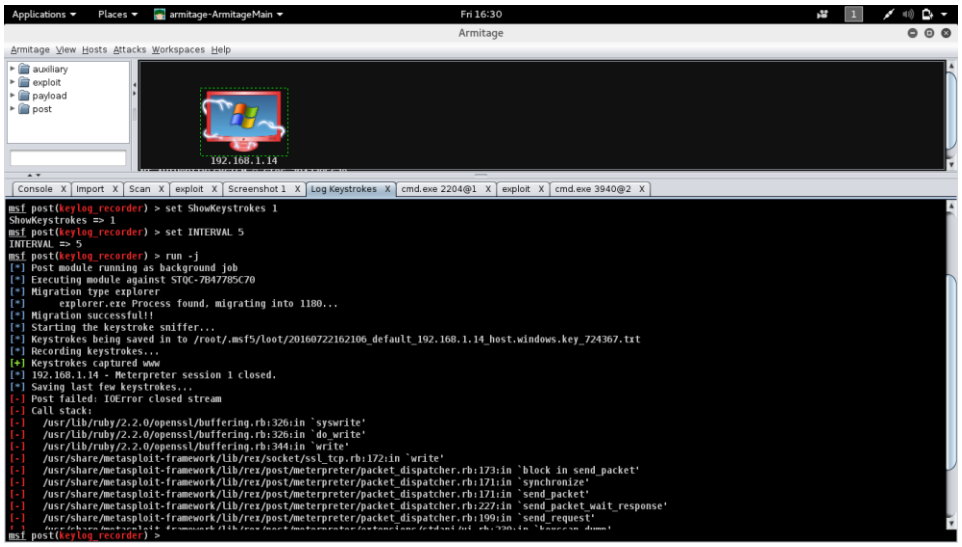
3. Running the netapi attack on the target and opening a meterpreter



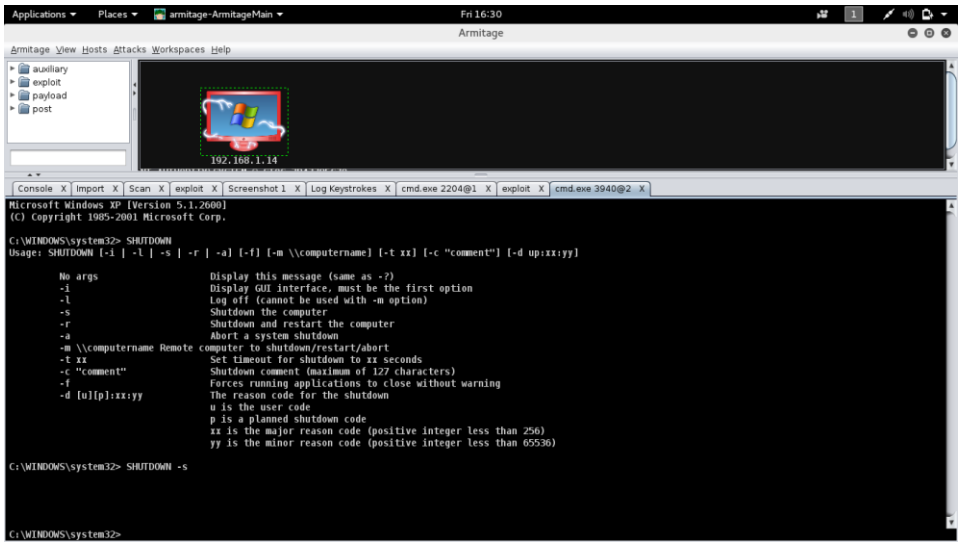
4. Capturing screenshot of target PC using Meterpreter



5. Log Keystrokes Service (Keylogger) implemented and keystrokes captured : “www”



6. Turning of the target PC using CMD command via meterpreter.



2. AUTOMATED TOOL

NAVIGATIONAL STEPS FOR LOADRUNNER LAB-EXERCISES

1.Creating Script Using Virtual User Generator

- Start-> program Files->Load Runner->Virtual User Generator
- Choose File->New
- Select type and Click Ok Button
- Start recording Dialog Box appears
- Besides Program to Record, Click Browser Button and Browse for the Application
- Choose the Working Dir
- Let start recording into sections Vuser_Init and click Ok button
- After the application appears, change sections to Actions.
- Do some actions on the application
- Change sections to Vuser_End and close the application
- Click on stop Recording Icon in the tool bar of Vuser Generator
- Insert the Start_Transaction and End_Transactions.
- Insert the Rendezvous Point
- Choose :Vuser->Run, Verify the status of script at the bottom in Execution Log.
- Choose:File->Save.(Remember the path of the script).

2.Running the script in the Controller with Wizard

- Start-> program Files->Load Runner->Controller.
- Choose: wizard option and click OK.
- Click Next in the welcome Screen
- In the host list , click add button and mention the machine name Click Next Button

- Select the related script you are generated in Vuser Generator(GUI Vuser Script,DB script,RTE script)
- Select Simulation group list, cilck edit button and change the group name ,No of Vuser.
- Click Next Button
- Select Finish Button.
- Choose: Group->Init or Group->Run or Scenario->Start.
- Finally Load runner Analysis graph report appears.

Analysis Graphs:

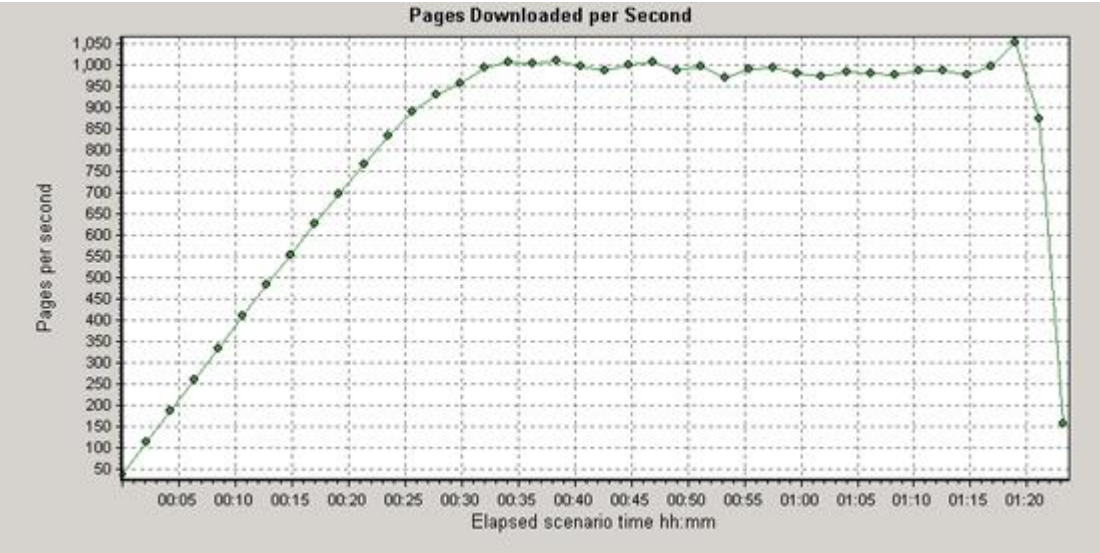


Figure 1. The throughput of the system in pages per second as load increases over time

Note that the throughput increases at a constant rate and then at some point levels off.

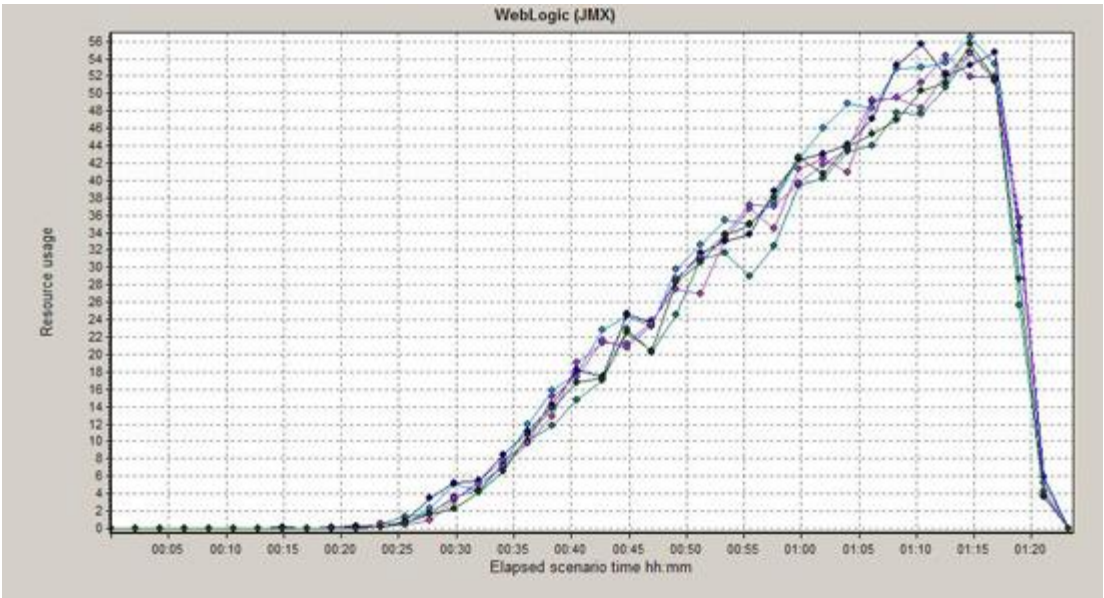


Figure 2. The execute queue length of the system as load increases over time

Note that the queue length is zero for a period of time, but then starts to grow at a constant rate. This is because there is a steady increase in load on the system, and although initially the system had enough free threads to cope with the additional load, eventually it became overwhelmed and had to start queuing them up.

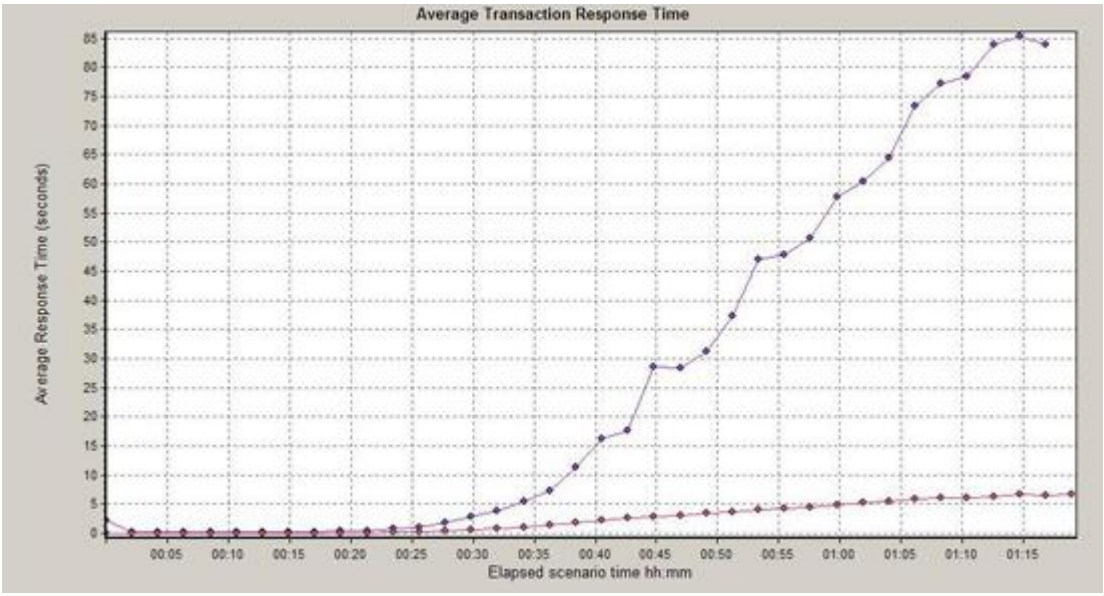


Figure 3. The response times of two transactions on the system as load increases over time

Note that at the same time as the execute queue (above) starts to grow, the response time also starts to grow at an increased rate. This is because the requests cannot be served immediately.

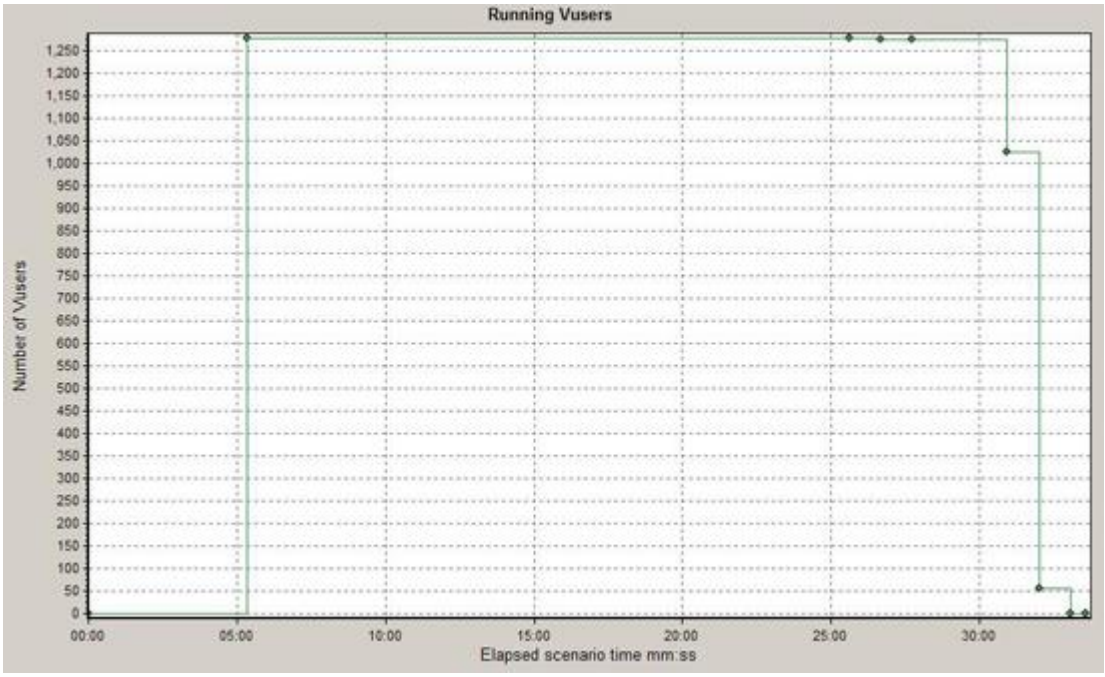


Figure 4. This is what a flat run looks like. All the users are loaded simultaneously.

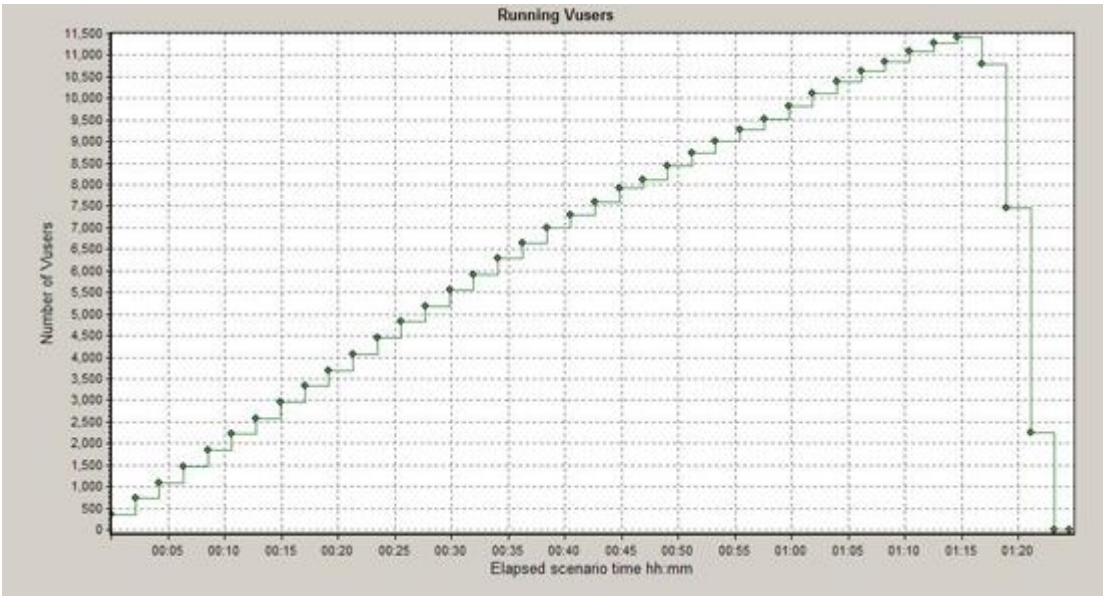


Figure 5. This is what a ramp-up run looks like. The users are added at a constant rate (x number per second) throughout the duration of the test.

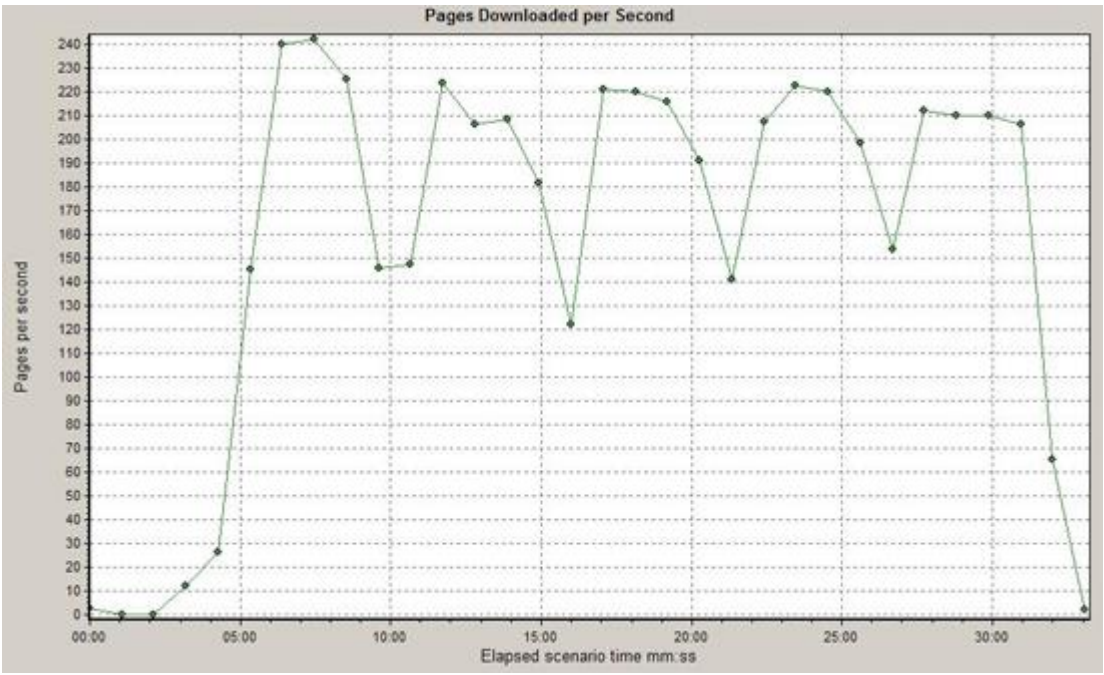


Figure 6. The throughput of the system in pages per second as measured during a flat run
Note the appearance of waves over time. The throughput is not smooth but rather resembles a wave pattern.

This is visible from all aspects of the system including the CPU utilization.

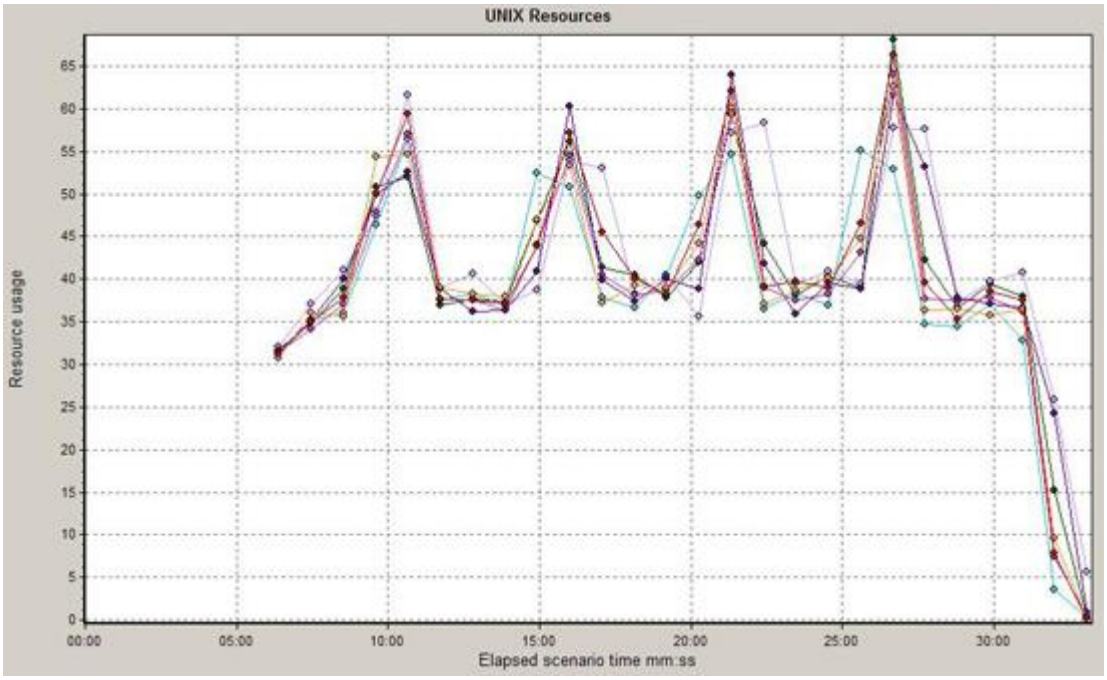


Figure 7. The CPU utilization of the system over time, as measured during a flat run
Note the appearance of waves over a period of time. The CPU utilization is not smooth but rather has very sharp peaks that resemble the throughput graph's waves.

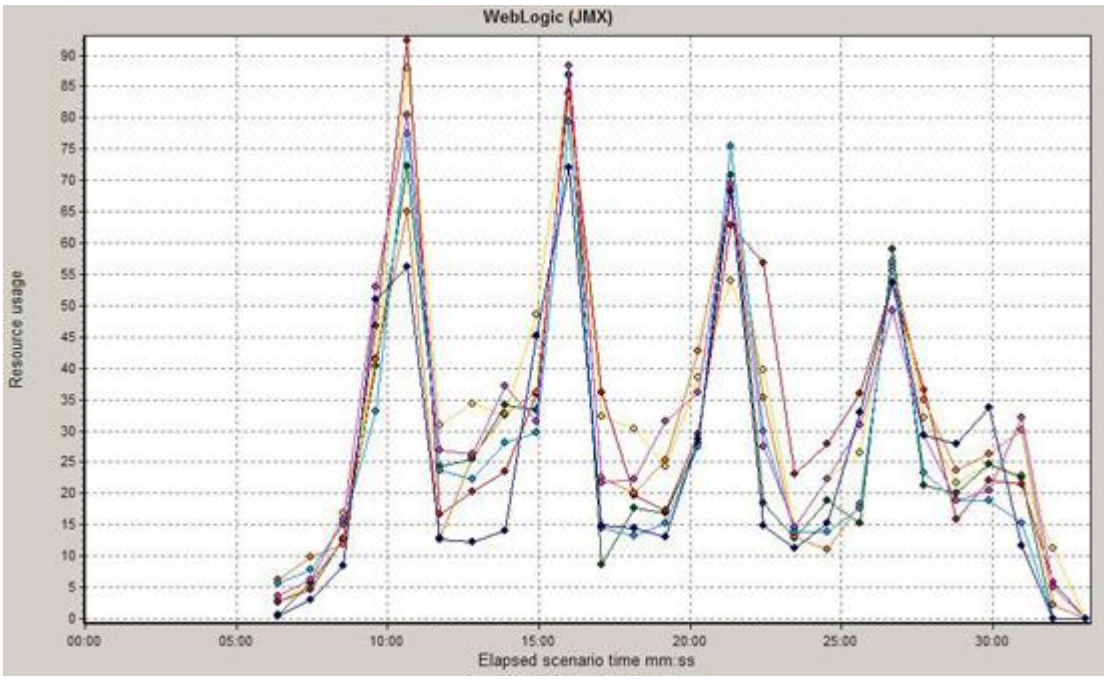


Figure 8. The execute queue of the system over time as measured during a flat run

Note the appearance of waves over time. The execute queue exactly mimics the CPU utilization graph above.

Finally, the response time of the transactions on the system will also resemble this wave pattern.

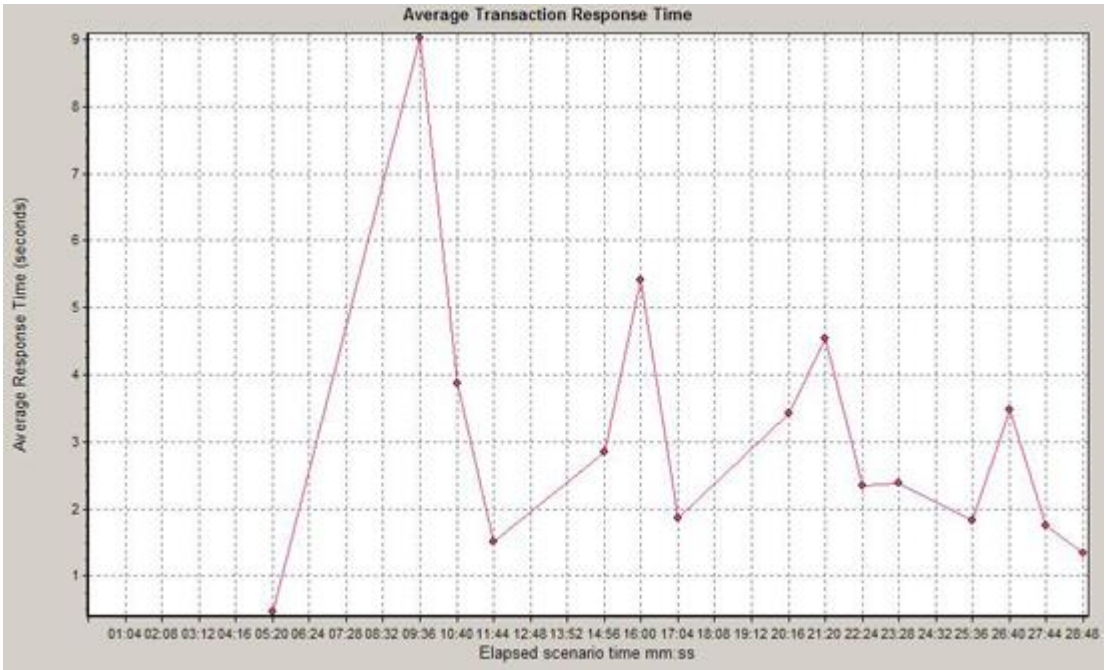


Figure 9. The response time of a transaction on the system over time as measured during a flat run

Note the appearance of waves over time. The transaction response time lines up with the above graphs, but the effect is diminished over time.

5.. ANALYSIS

1. It taught me about various Automated tools used for testing software's, web applications such as:
    - OWASP ZAP
    - IBM security Appscan
    - IBM Rational Policy Tester
    - SQL Inject me
    - XSS me
    - Burp suite
    - Paros
    - Load Runner…etc.
    - Came to know about various testing techniques
2. Taught me about various standards of testing such as IEEE 829,IEEE 730, ISO/IEC 9126 etc
3. It taught me about 115 guidelines for Indian Government websites etc.
4. The profession of software test is undergoing heavy changes at the moment: Agile teams erase the border between developers and testers, technology changes with growing speed and system get more complex with each release.
5. A demanding environment with customers calling for shorter time to market. Some might say that test is dead but if you look at it the tester is the protector of the brand so it is a profession with a future.
6. Development and test will move closer to the business units and you will need to communicate and team work a lot. Don't look at testing as a technical thing. Also see it from the business view.

6. CONCLUSION

I was a part of the Testing team and was actively involved in writing test plan, testing scenarios, test cases, reporting defect report, test report doing manual testing and automated testing of the project.

In this project we have applied our complete knowledge and are able to deliver what we have promised. We have focused on the core functionality of the project and many new ideas can be implemented. It was a completely sincere effort from our part.

In the end of testing phase of this project, we are very much sure that our project has an easy to use interface.

While developing the project we learnt so many things:

- Team dynamics and skills

So over all it was fantastic experience I have faced.

7. REFERENCES

1. *A Practitioner's Guide to Software Test Design By, Lee Copeland*
2. *Software engineering 6th Edition By Roger S. Pressman*
3. Software Requirement Specification of the concerned module
4. Software User Documentation of the concerned module
5. Gap Analysis Document of the concerned module
6. IEEE 830 standard for SRS
7. IEEE 1063 standard for User Documentation
8. IEEE 829 standard for Software Test Documentation.
9. www.wikipedia.org and www.istqb.org for definitions.
10. www.ogcio.gov.hk for "Guideline for Application Software Testing"
11. www.stqc.nic.in for Organization details.

8. APPENDIX

APPENDIX A: CHECKLIST ON UNIT TESTING

(This checklist to suggest areas for the definition of test cases is for information purpose only; and in no way is it meant to be an exhaustive list. Please also note that a negative tone that matches with section 6.1 suggestions has been used)

Input

1. Validation rules of data fields do not match with the program/data specification.
2. Valid data fields are rejected.
3. Data fields of invalid class, range and format are accepted.
4. Invalid fields cause abnormal program end.

Output

1. Output messages are shown with misspelling, or incorrect meaning, or not uniform.
2. Output messages are shown while they are supposed not to be; or they are not shown while they are supposed to be.
3. Reports/Screens do not conform to the specified layout with misspelled data labels/titles, mismatched data label and information content, and/or incorrect data sizes.
4. Reports/Screens page numbering is out of sequence.
5. Reports/Screens breaks do not happen or happen at the wrong places.
6. Reports/Screens control totals do not tally with individual items.
7. Screen video attributes are not set/reset as they should be.

File Access

1. Data fields are not updated as input.
2. “No-file” cases cause program abnormal end.
3. “Empty-file” cases cause program abnormal end.
4. Program data storage areas do not match with the file layout.
5. The last input record (in a batch of transactions) is not updated.

6. The last record in a file is not read while it should be.

7. Deadlock occurs when the same record/file is accessed by more than 1 user.

Internal Logic

1. Counters are not initialized as they should be.

2. Mathematical accuracy and rounding does not conform to the prescribed rules.

Job Control Procedures

1. A wrong program is invoked and/or the wrong library/files are referenced.

2. Program execution sequence does not follow the JCL condition codes setting.

3. Run time parameters are not validated before use.

Program Documentation

1. Documentation is not consistent with the program behavior.

Program Structure (through program walkthrough)

1. Coding structure does not follow installation standards.

Performance

1. The program runs longer than the specified response time.

Sample Test Cases

1. Screen labels checks.

2. Screen videos checks with test data set 1.

3. Creation of record with valid data set 2.

4. Rejection of record with invalid data set 3.

5. Error handling upon empty file 1.

6. Batch program run with test data set 4.

APPENDIX B: CHECKLIST ON FUNCTION TESTING

(This checklist to suggest areas for the definition of test cases is for information purpose only; and in no way is it meant to be an exhaustive list. Please also note that a negative tone that matches with section 6.1 suggestions has been used)

Comprehensiveness

1. Agreed business function is not implemented by any transaction/report.

Correctness

1. The developed transaction/report does not achieve the said business function.

Sample Test cases

1. Creation of records under user normal environment.
2. Enquiry of the same record from 2 terminals.
3. Printing of records when the printer is in normal condition.
4. Printing of records when the printer is off-line or paper out.
5. Unsolicited message sent to console/supervisory terminal when a certain time limit is reached.

APPENDIX C: CHECKLIST ON SYSTEMS TESTING

(This checklist to suggest areas for the definition of test cases is for information purpose only; and in no way is it meant to be an exhaustive list. Please also note that a negative tone that matches with section 6.1 suggestions has been used)

Volume Testing

1. The system cannot handle a pre-defined number of transaction.

Stress Testing

1. The system cannot handle a pre-defined number of transaction over a short span of time.

Performance Testing

1. The response times is excessive over a pre-defined time limit under certain workloads.

Recovery Testing

1. Database cannot be recovered in event of system failure.
2. The system cannot be restarted after a system crash.

Security Testing

1. The system can be accessed by a unauthorized person.
2. The system does not log out automatically in event of a terminal failure.

Procedure Testing

1. The system is inconsistent with manual operation procedures.

Regression Testing

1. The sub-system / system being installed affect the normal operation of the other systems / sub-systems already installed.

Operation Testing

1. The information inside the operation manual is not clear and concise with the application system.
2. The operational manual does not cover all the operation procedures of the system.

APPENDIX D: CHECKLIST FOR CONTRACTED-OUT SOFTWARE DEVELOPMENT

1. Tailor and refer this guidelines in the tender spec.
2. Check for the inclusion of an overall test plan in the tender proposal or accept it as the first deliverable from the contractor.
3. Set up a Test Control Sub-committee to monitor the testing progress.
4. Review and accept the different types of test plan, test specifications and test results.
5. Wherever possible, ask if there are any tools to demonstrate the structureness and test coverage of the software developed.
6. Perform sample program walkthrough.
7. Ask for a periodic test progress report.
8. Ask for the contractor contribution in preparing for the Acceptance Testing process.
9. Ask for a Test Summary Reportat the end of the project.

PROJECT DAILY TASK

DAY	TASK
1-7 -JUNE-2016	Learn about the s/w testing, its type, why it is necessary and Perform testing on already tested web application.
9-JUNE-2016	Understand the GIGW points which is provided by Indian government for Accessibility testing
10-JUNE-2016	Test the Indian government website1 against GIGW points
13-JUNE-2016	Test the website1 against GIGW point
14-JUNE-2016	Perform Functional testing on the Government Recruitment Portal form
15-JUNE-2016	Apply SQL inject me & XSS inject me tools on Recruitment form
16-JUNE-2016	Analyze and prepare report on its vulnerability issues
17-JUNE-2016	Perform testing on IBM RATIONAL POLICY TESTER tool
20-JUNE-2016	Analyze the reports of RPT tool REPORTS: 1.Broken Links 2.Spelling Errors 3.Web accessibility Guidelines 2.0 Level A compliance
21-JUNE-2016	Perform Functional testing on Land Allocation Web Application
2-JUNE-2016	Performance ,Volume and Security testing on Land Allocation Web Application
23-JUNE-2016	Learn about cookie, session token, password policy, privilege escalation, SSL enforcement
24-JUNE-2016	Check Vulnerability of web application using OWASP, ZAP , PAROS PROXY(Windows) and Burp Suite(Kali Linux)
27-JUNE-2016	Apply SQL inject me & XSS inject me tools on Land Allocation Web Application
28-JUNE-2016	Discuss about the flaws in the web

	application with developer
29-JUNE-2016	Prepare Defect report of web application
4-5-JULY-2016	Capture packets through PAROS PROXY and OWASP ZAP
6-JULY-2016	Capture packets through WIRESHARK
11-JULY-2016	Learn about the Performance testing and understand about the tool LOAD RUNNER and understand why tuning is imp.
12-JULY-2016	Learn about Mobile Security
13-JULY-2016	Learn about Mobile Security testing on the basis of OWASP TOP 10, SANS 20 and SANS 25
14-JULY-2016	Learn about Penetration testing
15-JULY-2016	Perform Penetration testing through METASPLOIT
18-JULY-2016	Perform Penetration testing on Server to check whether Server is vulnerable
19-JULY-2016	Perform Penetration testing on Operating System(Linux) through ARMITAGE
20-JULY-2016	Perform Penetration testing on Windows XP through ARMITAGE
21-JULY-2016	Perform Penetration testing on Web Application through SQLMAP
22-JULY-2016	Discuss about Project Report and PowerPoint Presentation with Mentor