

EASTERN MEDITERRANEAN UNIVERSITY

Course: CMSE 326 Software Quality Assurance and Testing

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Final Report

Project: Testing an Online Shopping Website

Website: Adidas Turkey Online Shop

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OUTLINE

1. INTRODUCTION

Software testing is the process of finding errors or discrepancies in a software project to find out whether it meets the end-users’ requirements/needs. Testing plays a pivotal role in software development by revealing system flaws early in the development cycle, thereby preventing economic loss and saving time. It involves the systematic verification of systems to identify errors, gaps, or missing requirements compared to the actual specifications.

In today's digital age, where websites and web applications are integral to business operations and user engagement, rigorous testing ensures that these platforms are error-free, secure, and provide a seamless user experience, ultimately contributing to the success of businesses and enhancing user satisfaction.

In this report, we delve into the intricacies of testing an online shopping website, examining its functionality, organization, and more. We will explore various testing methodologies, such as safety and security tests, link validity tests, usability tests, HTML and CSS Validation Tests, performance tests, and others, to comprehensively evaluate the website's performance and reliability.

1. PROJECT MANAGEMENT PLAN

During this process, we were able to hold some meetings where we discussed different strategies and divided different roles amongst ourselves which we were going to handle.

Below is a table showing the what was discussed and the corresponding dates;

|  |  |
| --- | --- |
| TASKS CARRIED OUT | DATE |
| Division of the task | 11/05/2024 |
| Carrying out the different tests | 16/05/2024 |
| Review of the tests done | 21/05/2024 |
| Compiling the work done | 25/05/2024 |
| Preparing the final report | 26/05/2024 |

Work done by each team member;

|  |  |
| --- | --- |
| Edgar Rugamba | * Selected the tests to be done * Distributed the work * Performed the SEO analysis test * Performed the speed test |
| Emmanuel Trevor Magala | * Collected the results from the tests * Performed the load tests * Performed the Image dimension test |
| Edidiong Etuk | * Performed the Compatibility test * Performed the Mobile support test * Performed the links validity test |

1. Brief Information about the Website
   1. History of the company

Adidas, one of the world's leading sportswear brands, was founded on August 18, 1949, by Adolf "Adi" Dassler in Herzogenaurach, Germany. The company's headquarters, known as the "World of Sports," remains in Herzogenaurach to this day. Adidas has a global presence, operating in numerous countries across the world. Adidas has played a significant role in sports history, collaborating with renowned athletes, teams, and organizations. The company's commitment to innovation has led to the development of groundbreaking technologies in footwear and apparel, enhancing athletes' performance and comfort.

* 1. Information about website

The Adidas website offers a wide range of sports and lifestyle products for customers to explore and purchase online. It provides a user-friendly shopping experience with detailed product descriptions, customization options, and new releases. The website also features athlete partnerships, team sponsorships, and lifestyle content related to sports, fashion, and culture. Customers can access customer support services and learn about Adidas' innovative technologies and sustainability initiatives. Overall, the Adidas website combines e-commerce functionalities with engaging content to cater to sports enthusiasts and fashion-conscious individuals.

* 1. Frameworks and languages used:

The Adidas website employs a mix of front-end and back-end technologies. For frontend development, it uses HTML, CSS, and JavaScript, possibly with frameworks like React or Angular. Backend technologies include Python, Java, Ruby, or Node.js, with frameworks like Django, Flask, Spring Boot, or Ruby on Rails. Database management involves RDBMS like MySQL or PostgreSQL, alongside possible NoSQL databases such as MongoDB. The website also utilizes web servers, CDNs, SSL for security, and may integrate e-commerce platforms like Magento or Shopify, creating a comprehensive and interactive online shopping platform.

1. Overview of the testing Strategy

For our testing strategy, we agreed to the carry out the tests we have listed below and also the tools we used to test the website.

|  |  |
| --- | --- |
| TEST | TOOL |
| Load test | Pingdom |
| SEO analysis test | UpCity.com |
| Image dimension test | GT Metrix |
| Speed test | Pagespeed |
| Compatibility test | PowerMapper |
| Mobile support test | Ready.mobi |
| Links validity test | Dr. Link Checker |

1. TESTING DETAILS

LOAD TEST

We used Pingdom and got a load time of 3.17seconds which was very slow for the website

A screenshot of a website

Description automatically generated

SEO ANALYSIS TEST

We used Upcity.com and got a score of 59 on the health score chart.

A screenshot of a computer

Description automatically generated

IMAGE DIMENSION TEST

We used GT Metrix to do the test and got a score of 60%

A screenshot of a web page

Description automatically generated

SPEED TEST

Used Page speed Insights where it got a score of 61 in the test

A screenshot of a computer

Description automatically generated

COMPATIBILITY TEST

Used PowerMapper to do the above test

A screenshot of a computer

Description automatically generated

MOBILE SUPPORT TEST

Used readymobi to do the test for the website and got a score of 4.12 out 5

A screenshot of a computer

Description automatically generated

LINKS VALIDITY TEST

Used Dr.Link check to carry out the links validity test

A screenshot of a computer

Description automatically generated

DISCUSSION OF TEST RESULTS

In the discussion of the test results we divided it into three sections i.e. bugs discovered, reasons for the bugs and how to remove them. This was done for each test.

LOAD TEST

Bugs discovered:

It has a moderate loading speed, has a Pagespeed Insight score of 61 and takes 3.17 seconds to load. This affects the bounce rates and web user satisfaction because most customers tend to run away from sites that take time to load.

Reasons for the bugs:

Heavy Code: This is since either the code is written in an inefficient manner, or the processing is not optimized for fast processing and therefore the load times are longer.

Database Inefficiency: Legacy SQL queries or a poorly thought-out data model can hinder data access, and potentially degrade the load.

How to remove the bugs:

Code Optimization

Minify CSS and JavaScript: Ensure you compact your CSS and JavaScript files by including a compiler such as UglifyJS or CSSNano.

Reduce HTTP Requests: There is a need to open many files, and this should be avoided by combining CSS and JavaScript files where possible.

Optimize Database

Database Indexing: Make certain that your database tables have indexes, this will help to facilitate your search.

Query Optimization: Analyze and enhance query writing in SQL to ensure that the time it takes to exe-cute the queries is minimal.

SEO ANALYSIS TEST

Bugs discovered:

Broken Meta Descriptions:

Meta tags: These are not well optimized or are missing in many cases, hence they may have an impact on the crawling and presentation of a website by a search engine.

Content Quality:

Website content might not be properly keyworded; the websites might not be populated with enough high-quality keyword-relevant content to feature appropriately on search engine results.

Reasons for the bugs:  
Broken Meta Descriptions: Meta tags are not set or damaged; a problem which can influence the way search engines read and display the site.

Content Quality: The content does not contain many keywords, rarely, or it may not be very good or applicable to what the search engine would like, thus deteriorating the ranking.

How to remove the bugs:

Correct Meta description and Link issues Audit Meta Descriptions:

Using such crawlers like Screaming Frog, SEMrush or SEO Site Checkup tool to crawl the site and compact list of issues with broken or missing meta descriptions.

Improve Content Quality Keyword Optimization:

Understand the topics of the web page and find out relevant keywords these keywords should be actively used in the text

IMAGE DIMENSION TEST

Bugs discovered:

Scored 60% in the GT Metrix test, indicating poor image optimization.

Reasons for the bugs:

Unoptimized Image Formats: They include but are not limited to: Utilizing large file formats not appropriate for web such as high-resolution PNGs instead of slim JPEGs or WebP prolongs page loading time.

Large Image Fonts: Another issue with the Myspace layout is that if it has image fonts that are too large, it will also slow down the loading of the page and the user experience will be bad.

How to remove the bugs:

Lazy Loading: This is one the features of the data dynamically which is still to be implemented; it refers to loading images that fall within the viewport area and not before.

Optimize Image Fonts

Font Compression: There are certain utilities that can help to make the fonts inscribed in images as small as possible.

Web Fonts: Choose web fonts like Google Fonts as these are fine tuned for use on the web.

SPEED TEST

Bugs discovered:

In the test Pagespeed Insights assessed website in 61 points that means medium rate of site performance.

Reasons for the bugs:

Large Image Files: Fullscreen and high-quality images that are not properly optimized lead to the worst performance by slowing down the page loading process.

Lack of Caching: Failure to implement browser or server caching implies that resources are reloaded each time the user accesses a particular page thus complicating the issue of loading times.

Server Configuration: Some difficulties associated with slow data processing or lack of a CDN (Content Delivery Network) might be caused by inefficient server settings.

How to remove the bugs:

Compress Images: TinyPNG, JPEG-Optimizer, or features incorporated in content management systems, are applications that enable the reduction of image size with no compromise to quality.

Responsive Images: As for the web design aspect, always use srcset in the HTML tags to adopt different images depending on the device the user is using.

Enable Caching

Browser Caching: Configure . htaccess files Server setting or any methods of making the browser cache the pages so that static contents will be cached.

Server Caching: Store additional content on a server, using Varnish or Redis to cache dynamically generated data for serving clients.

COMPATIBILITY TEST

Bugs discovered:

Minor compatibility issues found on some browsers.

Reasons for the bugs:

Non-Standard code i.e. code that doesn’t adhere to web standards

Lack of responsive design on some of the images of the website

How to remove the bugs:

Standardize the code:

Using features such as w3C validator for the CSS and HTML to adhere to web standards

Responsive design : Using media queries in CSS so as for the website to respond to various screen sizes and using flexible grids to adapt to various screen sizes

MOBILE SUPPORT TEST

Bugs discovered:

Mobile support test yielded excellent results, but improvements are still suggested.

Reasons for the bugs:

High page download weight impacting user experience on mobile devices.

How to remove the bugs:

Reducing the overall page weight by streamlining content and optimizing media files

LINKS VALIDITY TEST

We used Dr. Link Check, and no broken links were found on the website. This indicates that all links are functional and point to their intended destinations.

QUALITY OF THE WEBSITE AND SUGGESTED IMPROVEMENTS

Strengths

Cross-Browser Compatibility:

It also opens properly in all the supported browsers, which means that its usability is constant throughout all the browsers.

Mobile Support:

The best optimization for the most used portable gadgets make the website convenient to use on smartphones and tablets.

User-Friendliness:

The website is also easily accessed and is effective in managing user interaction, thereby being effective in terms of POS.

Link Validity:

For example, there are no broken links within this site, and this can be regarded as effective navigation that improves the level of trust from the audience.

Weaknesses

Loading Speed:

On the website there is about 61 % on Pagespeed Insights meaning that there is some kind of performance that is slowing down the loading time.

Image Optimization:

Poor optimization of images is indicated by the low GT Metrix image dimension test score of 60% complicated by the fact that slow loading time implications.

SEO Issues:

Even small issues such as improper meta descriptions or links that are broken can lead to considerations being made against a website by the search engines.

Compatibility Issues:

There are minor compatibility issues mentioned on some browsers implied which may have an impact on overall enjoyment to a small extent for some of the website’s visitors.

Suggested Improvements

1. Speed Optimization

Optimize Images: Optimize images; use codecs (e. g. WebP) to decrease its file size without sacrificing image quality. Utilize the srcset attribute to adhere to the concept of responsive images.

Enable Caching: Configuration of the browser and server caching is done to enhance the capability of the browser to store the static resources locally so that the time taken to refresh the content for the clients is reduced.

2. SEO Enhancements

Fix Meta Descriptions and Links: Meta description should be also audited and updated on a regular basis, and the process of fixing the broken links is to be performed with the help of some tools such as Screaming Frog or SEMrush.

Improve Content Quality: Make content more relevant and of high quality by merely using the keywords in a natural manner and providing that all the information is as up to date as it could be.

3. Image Optimization

Responsive Images: Make image formats to be in such a way that they can change according to the user’s screen size to reduce its loading time and benefit the user in every way possible.

4. Load Performance

Code Optimization: Media queries such as CSS and JavaScript files should be minified through a process like UglifyJS, CSSNano.

Optimize Database: Check indexes on database tables and make sure the queries used to call data from these tables make use of the indexes and are optimized.

5. Browser Compatibility

Standardize Code: Safeguard the website code so that it follows the web standards in a bid to avoid browser specific complications. The layout style used is CSS and there is nothing wrong with this as can be validated using CSS and HTML W3C Validators.

6. Mobile Experience

Reduce Page Weight: Optimize the Media files and scripts: there is generally a way to lower the overall page download weight each time the page must refresh or reload.

CONCLUSION

This result shows that the given website performs well in terms of compatibility and mobile friendly support, and in general the users seem to have a positive experience. However, it is important to note that by providing fixes to the mentioned weaknesses through specific optimizations, the improvement of the website’s quality, performance, and search engine visibility will be greatly boosted.

These changes will yield in the case of improving the page load time, increasing SERP ranking, and optimized its view on different devices and browsers. It is basic necessary to monitor and update each of these enhancements frequently to keep the website functioning smoothly, easy for the users and optimized to compete in the digital environment.