Dhirubhai Ambani
Institute of Information and Communication Technology

IT314 – Software Engineering
GROUP – 9

Non-Functional Requirement Testing

STAYEAZY – HOTEL BOOKING SYSTEM

Instructor: Prof. Saurabh T.

December 02, 2024

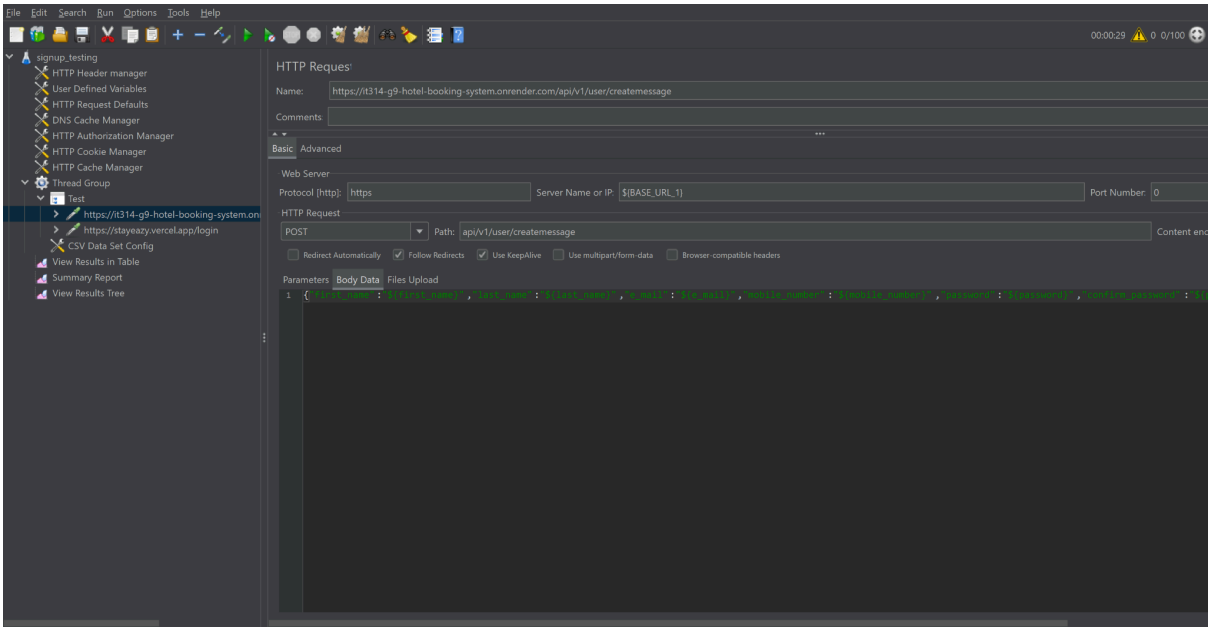
Performance testing:

Overview

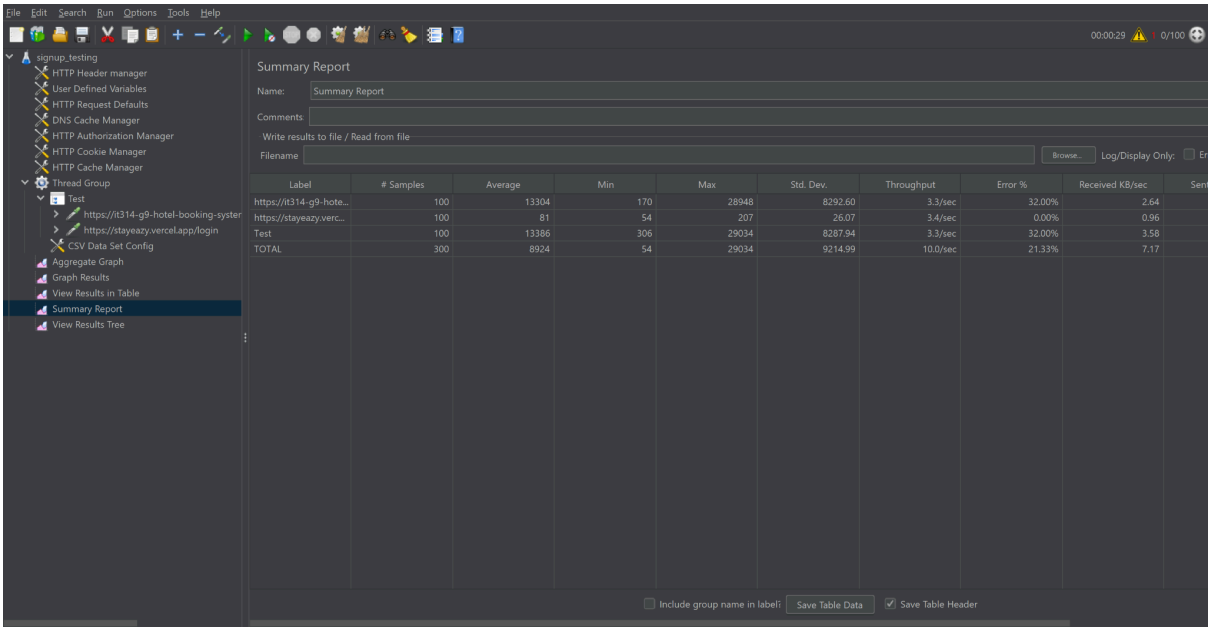
Test Name: Performance Test of Hotel Booking System
Tool Used: JMeter (via BlazeMeter)

- Load Testing on user signup:

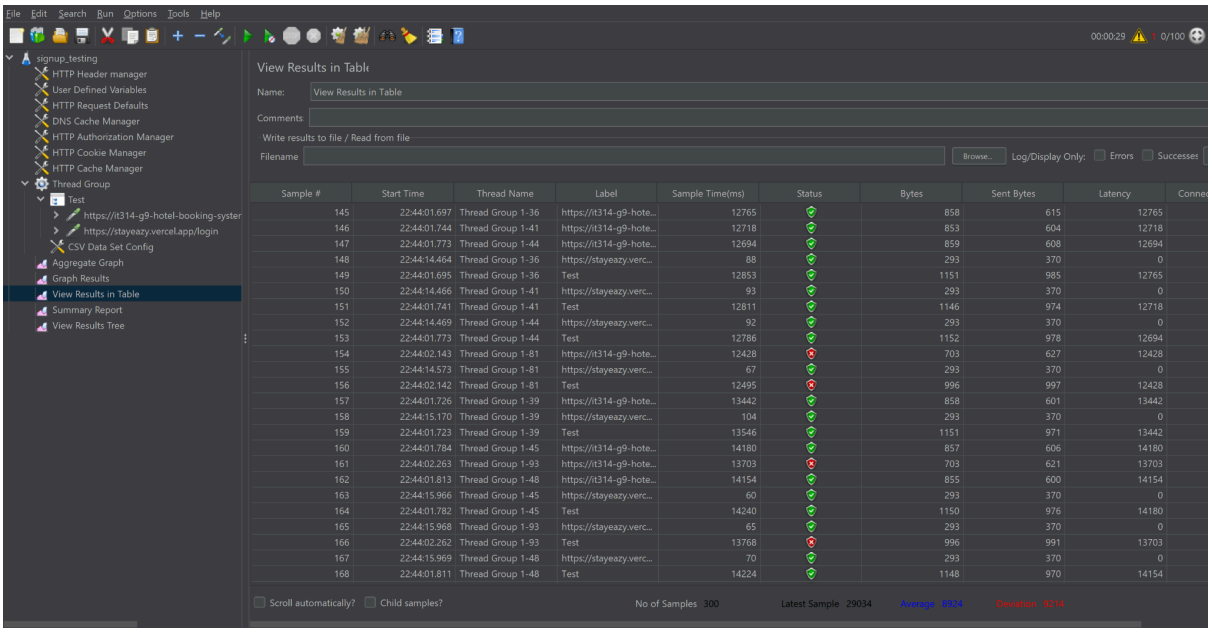
Create Request:



Summary Report:

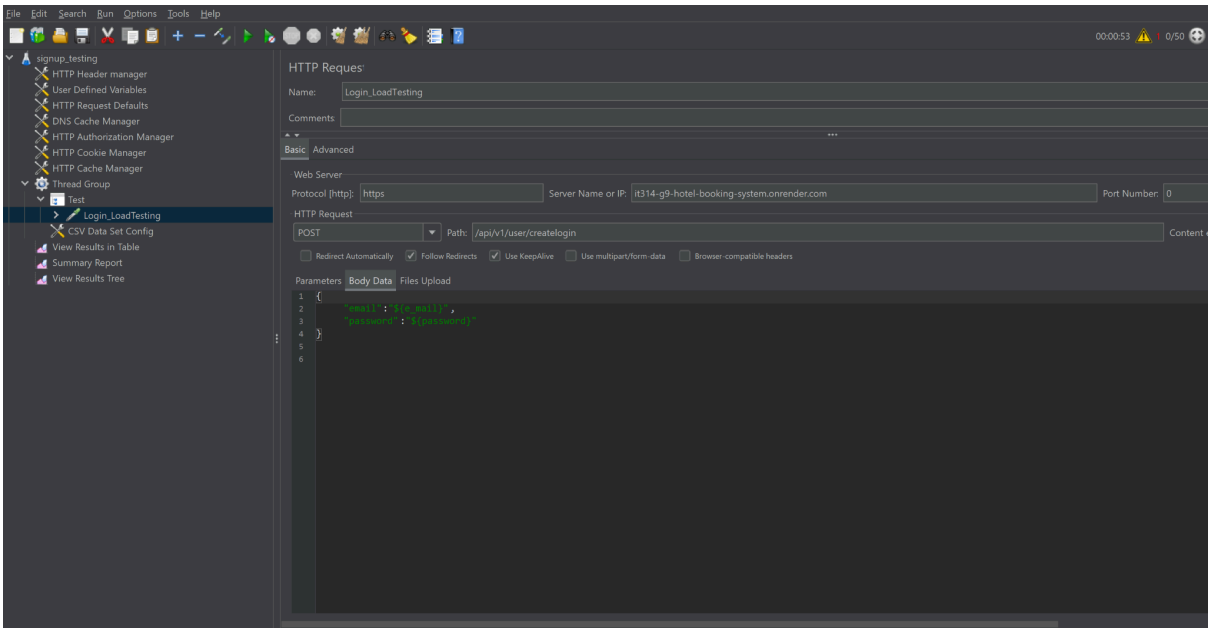


Result in Table:

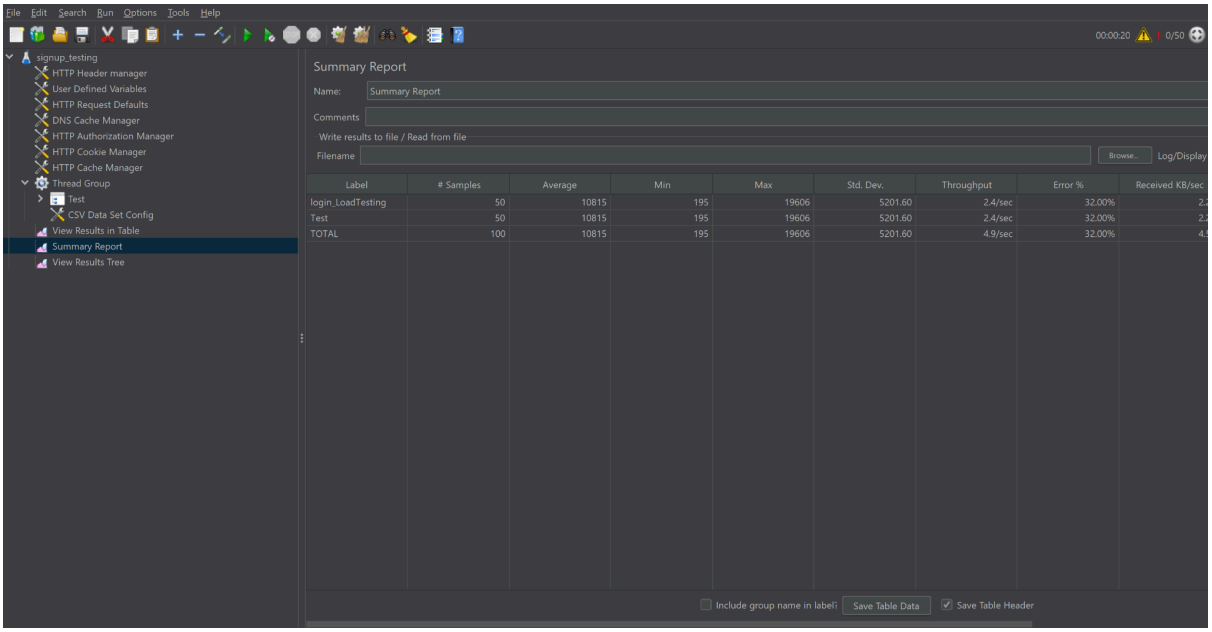


- Load Testing on user login:

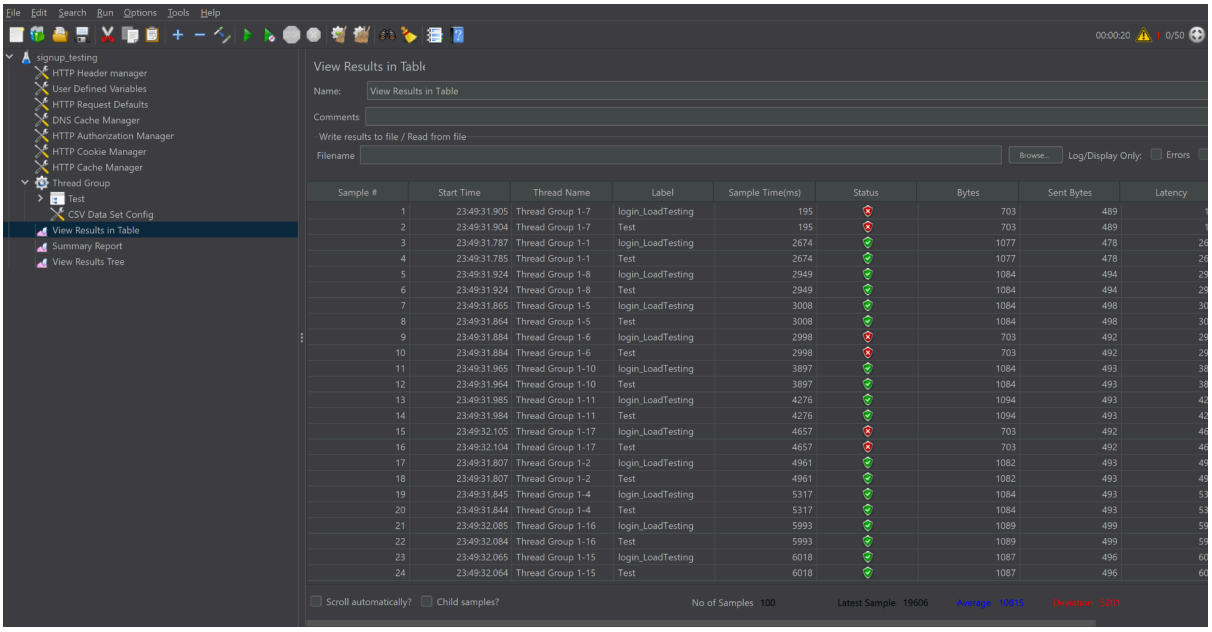
Create Request:



Summary Report:



Result in Table:



Compatibility Testing

Overview

- Compatibility testing was conducted on StayEazy website across various browsers on Windows 11 and MacOS. The testing aimed to verify smooth functionality, responsiveness, and consistent performance across all platforms.

Test Environment :

Operating System: Windows 11, MacOS

Browsers Tested:

- Google Chrome
- Safari
- Mozilla Firefox
- Brave

Results:

1. Google Chrome

    - Fully compatible with seamless performance. All features rendered correctly without any issues.

2. Safari

    - Fully compatible and delivered excellent performance. Behaved similarly to Chrome with no discrepancies observed.

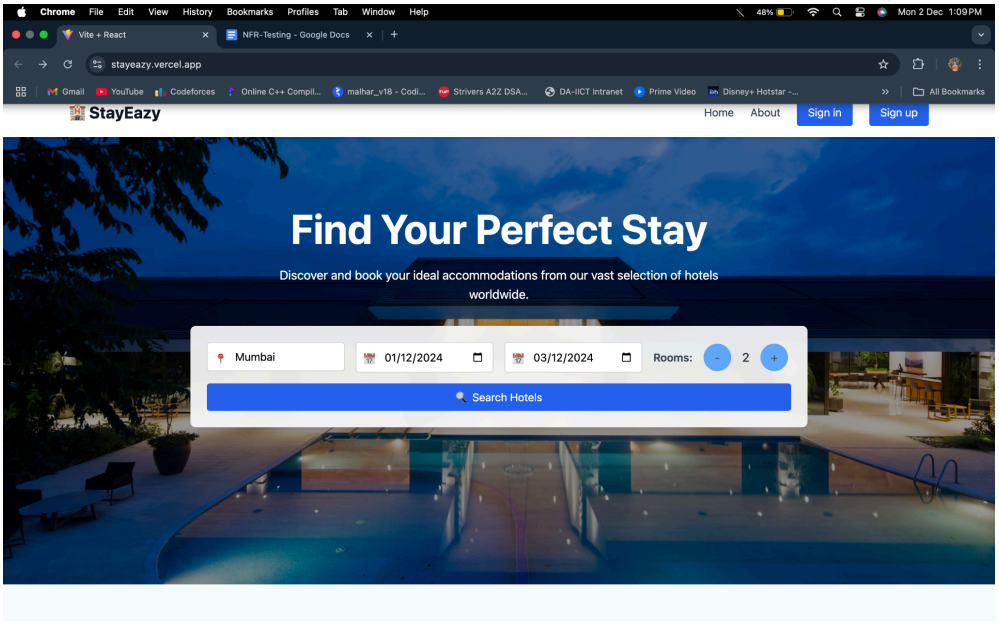
3. Mozilla Firefox

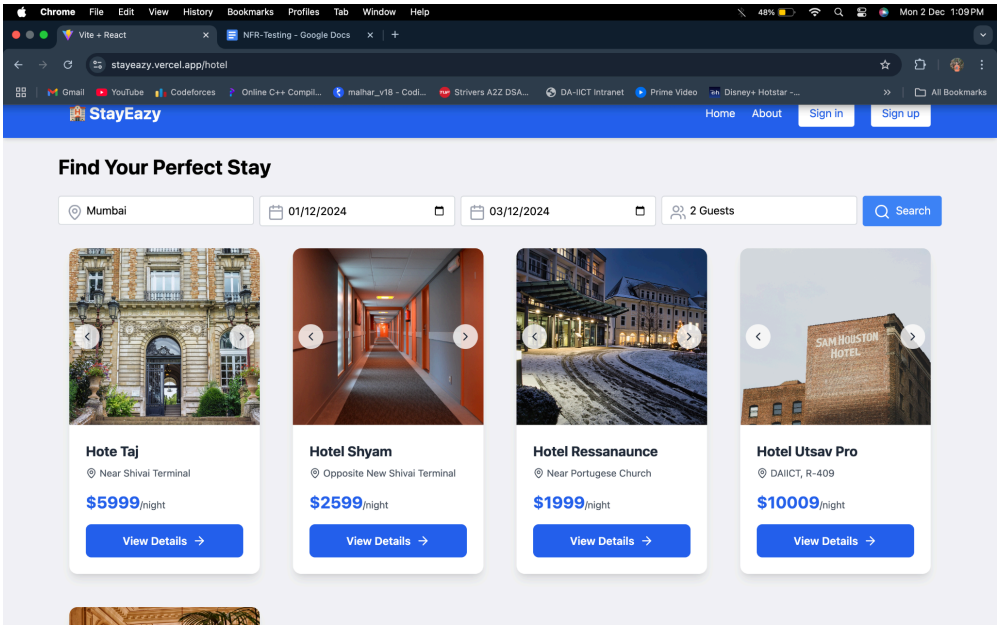
    - Fully compatible with smooth operation and consistent feature rendering.

4. Brave

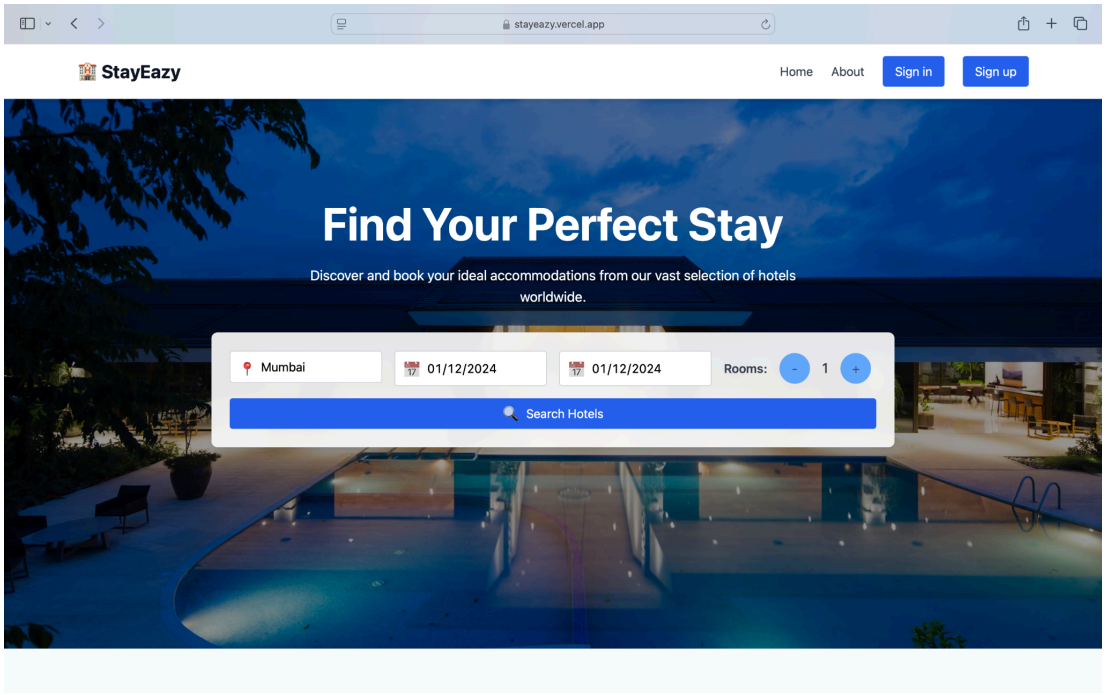
- Compatible for essential features, with good performance given its lightweight nature.

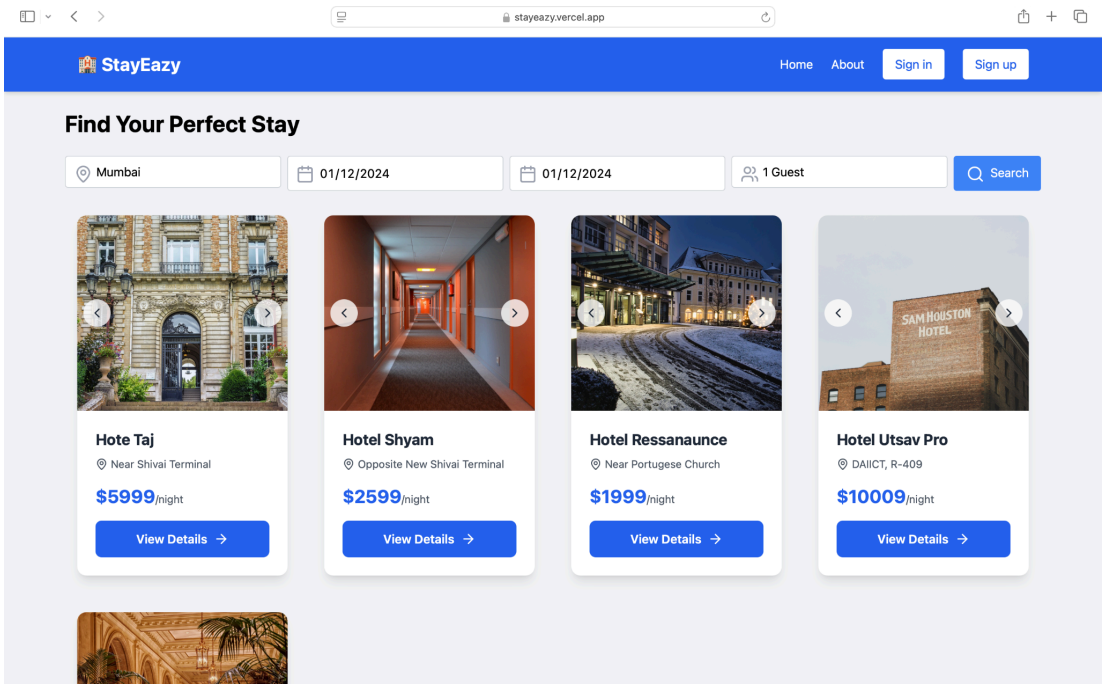
Google Chrome:





Safari:


stayeazy.vercel.app
StayEazy
Home
About
Sign in
Sign up
Find Your Perfect Stay
Discover and book your ideal accommodations from our vast selection of hotels worldwide.
Mumbai
01/12/2024
01/12/2024
Rooms:
1
Search Hotels


stayeazy.vercel.app
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Find Your Perfect Stay
Mumbai
01/12/2024
01/12/2024
1 Guest
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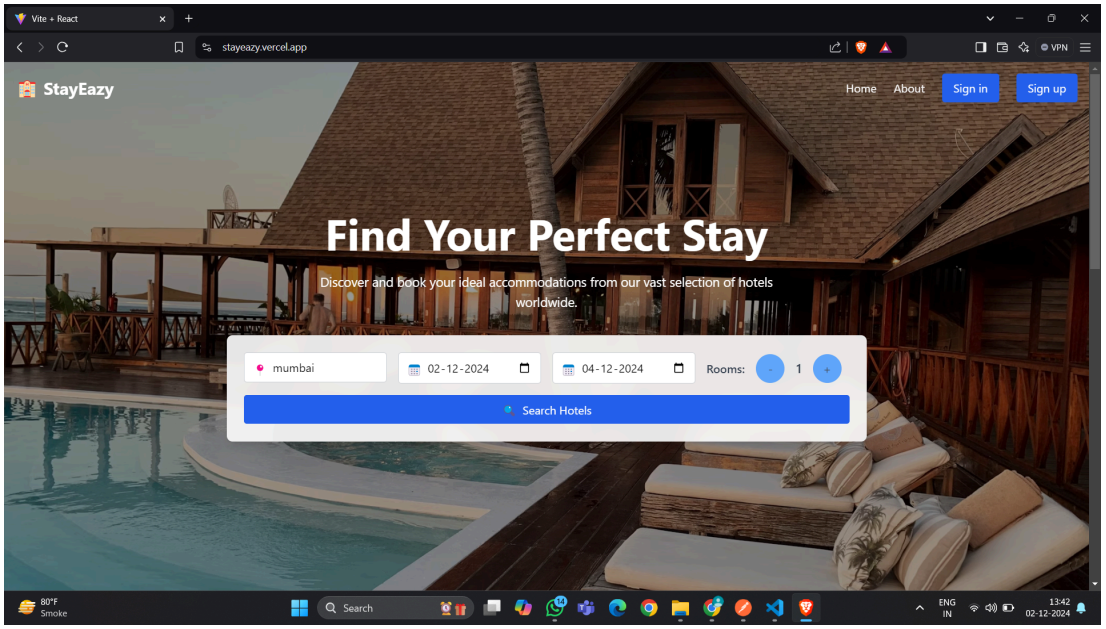
Hote Taj
Near Shivai Terminal
$5999/night
View Details
Hotel Shyam
Opposite New Shivai Terminal
$2599/night
View Details
Hotel Ressanaunce
Near Portugese Church
$1999/night
View Details
Hotel Utsav Pro
DAIICT, R-409
$10009/night
View Details

Brave: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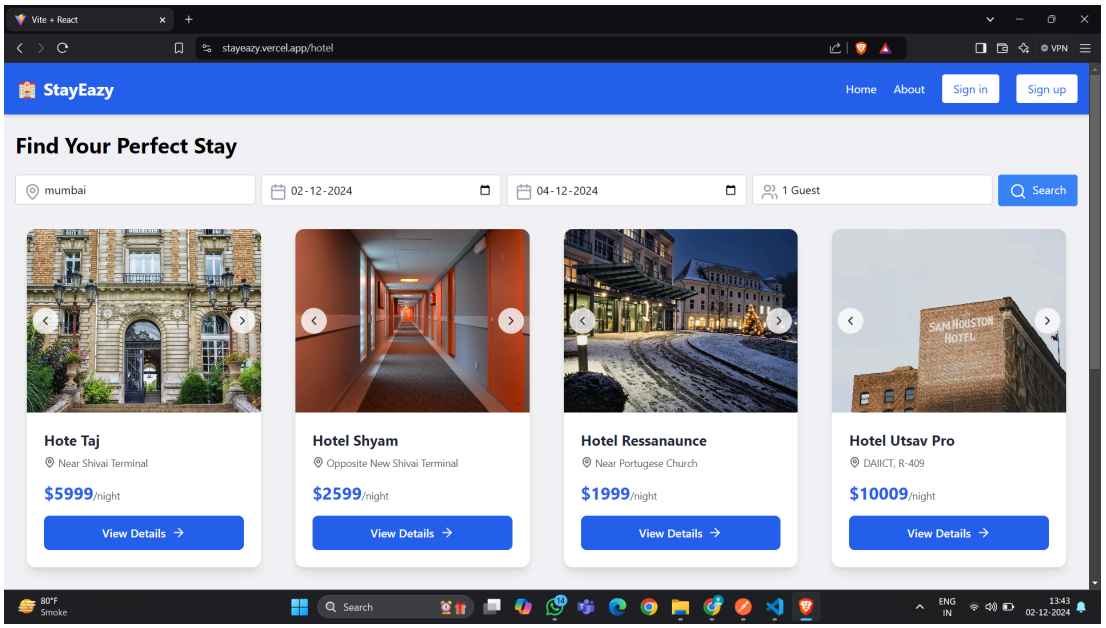
Vite + React
stayeazy.vercel.app/hotel
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View Details
Hotel Utsav Pro
DAIICT, R-409
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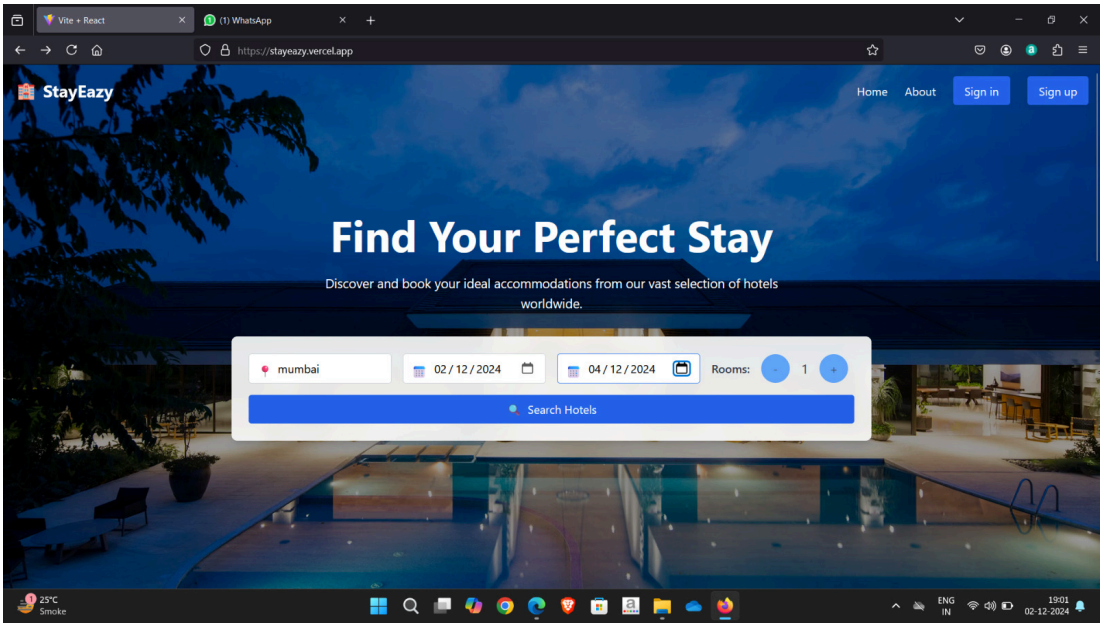
Firefox: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(1) WhatsApp
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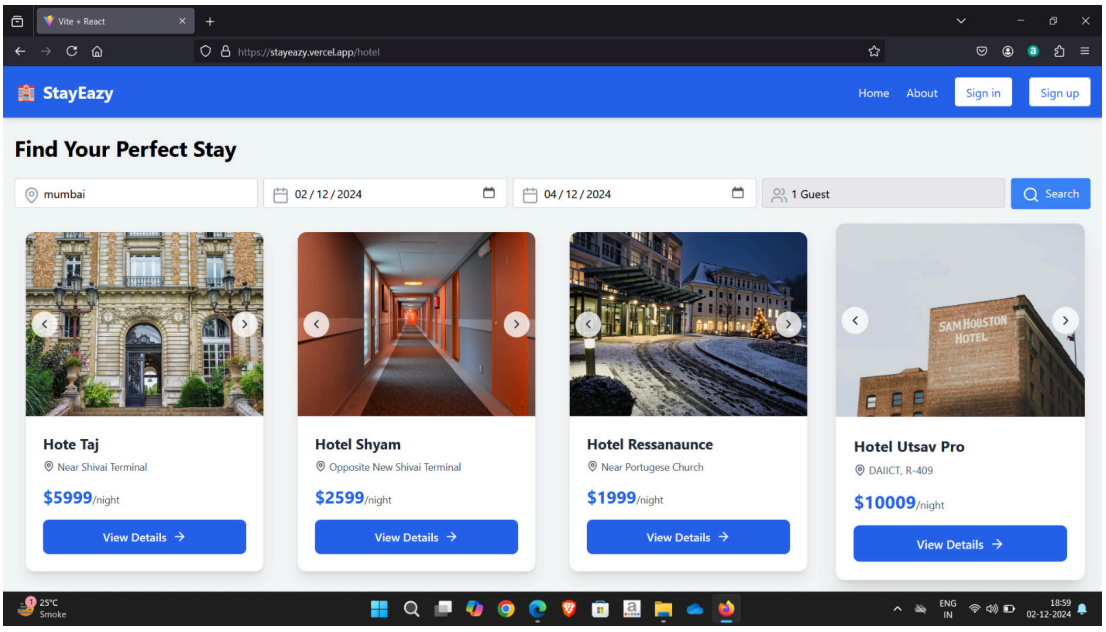
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02-12-2024

Security Testing using Pentest-Tools

Overview of Pentest-Tools

Pentest-Tools is an online platform designed to facilitate penetration testing, focusing on evaluating the security of systems, networks, and web applications. It offers a comprehensive suite of automated tools to identify vulnerabilities, assess configurations, and ensure compliance with security standards.

By simulating cyberattacks, Pentest-Tools helps proactively identify threats, ensuring systems remain robust against unauthorized access and data breaches.

Role in Non-Functional Requirements (NFR) Testing:

Pentest-Tools is particularly valuable in the following areas of NFR testing:

- **Security Testing**: Verifies adherence to security best practices by identifying vulnerabilities like SQL injection and configuration issues.
- **Reliability Testing**: Evaluates the system's resilience to malicious attacks that could disrupt availability or functionality.
- **Data Privacy**: Assesses the mechanisms in place to safeguard sensitive user and donor information.

By incorporating Pentest-Tools into NFR testing, organizations can bolster their security posture, enhance system reliability, and provide a safer platform for end users.

Website Vulnerability Scanner Report

✔ https://stayeazy.vercel.app/

The Light Website Scanner didn't check for critical issues like SQLi, XSS, Command Injection, XXE, etc. Upgrade to run Deep scans with 40+ tests and detect more vulnerabilities.

Summary

Overall risk level:
Low

Risk ratings:

High:	0
Medium:	0
Low:	4
Info:	34

Scan information:

Start time:	Dec 01, 2024 / 23:21:00 UTC+0530
Finish time:	Dec 01, 2024 / 23:26:16 UTC+0530
Scan duration:	5 min, 16 sec
Tests performed:	38/38
Scan status:	Finished

Findings

Missing security header: Content-Security-Policy

CONFIRMED

URL	Evidence
https://stayeazy.vercel.app/	Response does not include the HTTP Content-Security-Policy security header or meta tag Request / Response

Details

Risk description:
The risk is that if the target application is vulnerable to XSS, lack of this header makes it easily exploitable by attackers.

Recommendation:
Configure the Content-Security-Header to be sent with each HTTP response in order to apply the specific policies needed by the application.

References:
https://cheatsheetseries.owasp.org/cheatsheets/Content_Security_Policy_Cheat_Sheet.html
https://developer.mozilla.org/en-US/docs/Web/HTTP/Headers/Content-Security-Policy

Classification:
CWE : CWE-693
OWASP Top 10 - 2017 : A6 - Security Misconfiguration
OWASP Top 10 - 2021 : A5 - Security Misconfiguration

Missing security header: Referrer-Policy

CONFIRMED

URL	Evidence
https://stayeazy.vercel.app/	Response headers do not include the Referrer-Policy HTTP security header as well as the <meta> tag with name 'referrer' is not present in the response. Request / Response

Details

Risk description:
The risk is that if a user visits a web page (e.g. "http://example.com/pricing/") and clicks on a link from that page going to e.g.

"https://www.google.com", the browser will send to Google the full originating URL in the `Referer` header, assuming the Referrer-Policy header is not set. The originating URL could be considered sensitive information and it could be used for user tracking.

Recommendation:
The Referrer-Policy header should be configured on the server side to avoid user tracking and inadvertent information leakage. The value `no-referrer` of this header instructs the browser to omit the Referer header entirely.

References:
https://developer.mozilla.org/en-US/docs/Web/Security/Referer_header:_privacy_and_security_concerns

Classification:
CWE : CWE-693
OWASP Top 10 - 2017 : A6 - Security Misconfiguration
OWASP Top 10 - 2021 : A5 - Security Misconfiguration

Missing security header: X-Content-Type-Options

CONFIRMED

URL	Evidence
https://stayeazy.vercel.app/	Response headers do not include the X-Content-Type-Options HTTP security header Request / Response

Details

Risk description:
The risk is that lack of this header could make possible attacks such as Cross-Site Scripting or phishing in Internet Explorer browsers.

Recommendation:
We recommend setting the X-Content-Type-Options header such as `X-Content-Type-Options: nosniff` .

References:
https://developer.mozilla.org/en-US/docs/Web/HTTP/Headers/X-Content-Type-Options

Classification:
CWE : CWE-693
OWASP Top 10 - 2017 : A6 - Security Misconfiguration
OWASP Top 10 - 2021 : A5 - Security Misconfiguration

Server software and technology found

UNCONFIRMED

Software / Version	Category
Google Sign-in	Authentication
Lucide	Font scripts
React	JavaScript frameworks
React Router 6	JavaScript frameworks
Tailwind CSS	UI frameworks
Vercel	PaaS
Vite	Miscellaneous
HSTS	Security

Details

Risk description:
The risk is that an attacker could use this information to mount specific attacks against the identified software type and version.

Recommendation:
We recommend you to eliminate the information which permits the identification of software platform, technology, server and operating system: HTTP server headers, HTML meta information, etc.

References:
https://owasp.org/www-project-web-security-testing-guide/stable/4-Web_Application_Security_Testing/01-Information_Gathering/02-

Fingerprint_Web_Server.html

Classification:
OWASP Top 10 - 2017 : A6 - Security Misconfiguration
OWASP Top 10 - 2021 : A5 - Security Misconfiguration

Screenshot:

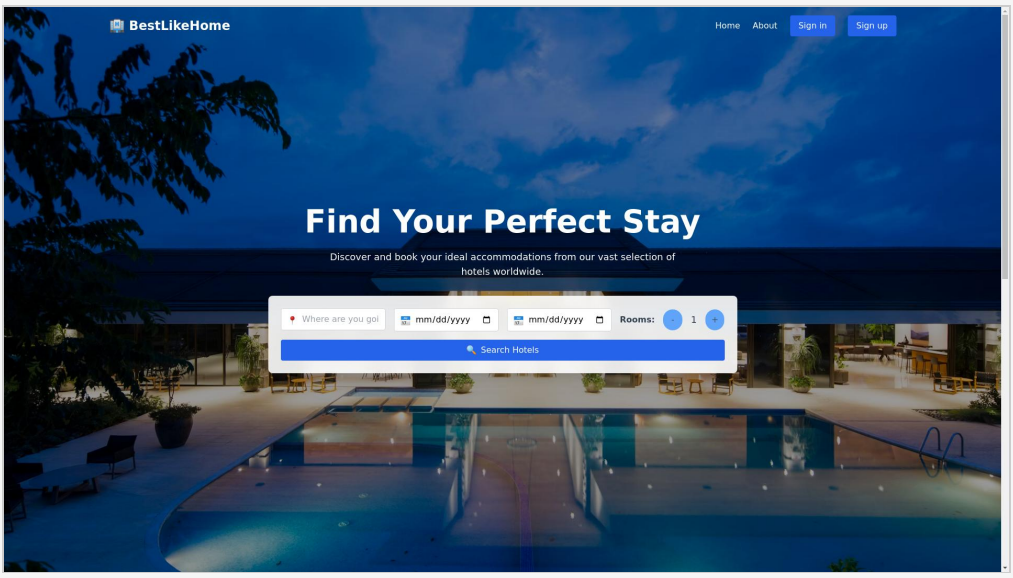

Figure 1. Website Screenshot

Spider results

URL	Method	Page Title	Page Size	Status Code
https://stayeazy.vercel.app/	GET	Vite + React	515 B	200
https://stayeazy.vercel.app/assets	GET	Vite + React	515 B	200
https://stayeazy.vercel.app/assets/	GET	Vite + React	515 B	200

Details

Risk description:
The table contains all the unique pages the scanner found. The duplicated URLs are not available here as scanning those is considered unnecessary

Recommendation:
We recommend to advanced users to make sure the scan properly detected most of the URLs in the application.

References:
All the URLs the scanner found, including duplicates (available for 90 days after the scan date)

Website is accessible.

Nothing was found for vulnerabilities of server-side software.

Nothing was found for client access policies.

Nothing was found for robots.txt file.

Nothing was found for absence of the security.txt file.

- Outdated JavaScript libraries were merged into server-side software vulnerabilities.
- Nothing was found for use of untrusted certificates.
- Nothing was found for enabled HTTP debug methods.
- Nothing was found for administration consoles.
- Nothing was found for information disclosure.
- Nothing was found for software identification.
- Nothing was found for sensitive files.
- Nothing was found for interesting files.
- Nothing was found for enabled HTTP OPTIONS method.
- Nothing was found for secure communication.
- Nothing was found for directory listing.
- Nothing was found for error messages.
- Nothing was found for debug messages.
- Nothing was found for code comments.
- Nothing was found for missing HTTP header - Strict-Transport-Security.
- Nothing was found for Insecure Direct Object Reference.
- Nothing was found for domain too loose set for cookies.
- Nothing was found for mixed content between HTTP and HTTPS.
- Nothing was found for internal error code.

Nothing was found for HttpOnly flag of cookie.

Nothing was found for Secure flag of cookie.

Nothing was found for login interfaces.

Nothing was found for Server Side Request Forgery.

Nothing was found for Open Redirect.

Nothing was found for Exposed Backup Files.

Nothing was found for unsafe HTTP header Content Security Policy.

Nothing was found for OpenAPI files.

Nothing was found for file upload.

Scan coverage information

List of tests performed (38/38)

- Starting the scan...
- Checking for missing HTTP header - Content Security Policy...
- Checking for missing HTTP header - Referrer...
- Checking for missing HTTP header - X-Content-Type-Options...
- Spidering target...
- Checking for website technologies...
- Checking for vulnerabilities of server-side software...
- Checking for client access policies...
- Checking for robots.txt file...
- Checking for absence of the security.txt file...
- Checking for outdated JavaScript libraries...
- Checking for use of untrusted certificates...
- Checking for enabled HTTP debug methods...
- Checking for administration consoles...
- Checking for information disclosure... (this might take a few hours)
- Checking for software identification...
- Checking for sensitive files...
- Checking for interesting files... (this might take a few hours)
- Checking for enabled HTTP OPTIONS method...
- Checking for secure communication...
- Checking for directory listing...
- Checking for error messages...
- Checking for debug messages...
- Checking for code comments...
- Checking for missing HTTP header - Strict-Transport-Security...
- Checking for Insecure Direct Object Reference...
- Checking for domain too loose set for cookies...
- Checking for mixed content between HTTP and HTTPS...
- Checking for internal error code...
- Checking for HttpOnly flag of cookie...
- Checking for Secure flag of cookie...
- Checking for login interfaces...
- Checking for Server Side Request Forgery...
- Checking for Open Redirect...

- ✔ Checking for Exposed Backup Files...
- ✔ Checking for unsafe HTTP header Content Security Policy...
- ✔ Checking for OpenAPI files...
- ✔ Checking for file upload...

Scan parameters

target:	https://stayeazy.vercel.app/
scan_type:	Light
authentication:	False

Scan stats

Unique Injection Points Detected:	1
URLs spidered:	3
Total number of HTTP requests:	16056
Average time until a response was received:	0ms
Total number of HTTP request errors:	282