

FINAL PROJECT

Webapp Vitis.It testing

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Original author Jonas Jusaitis

Software Development Academy
TesterRemoteLT4 Course
2021

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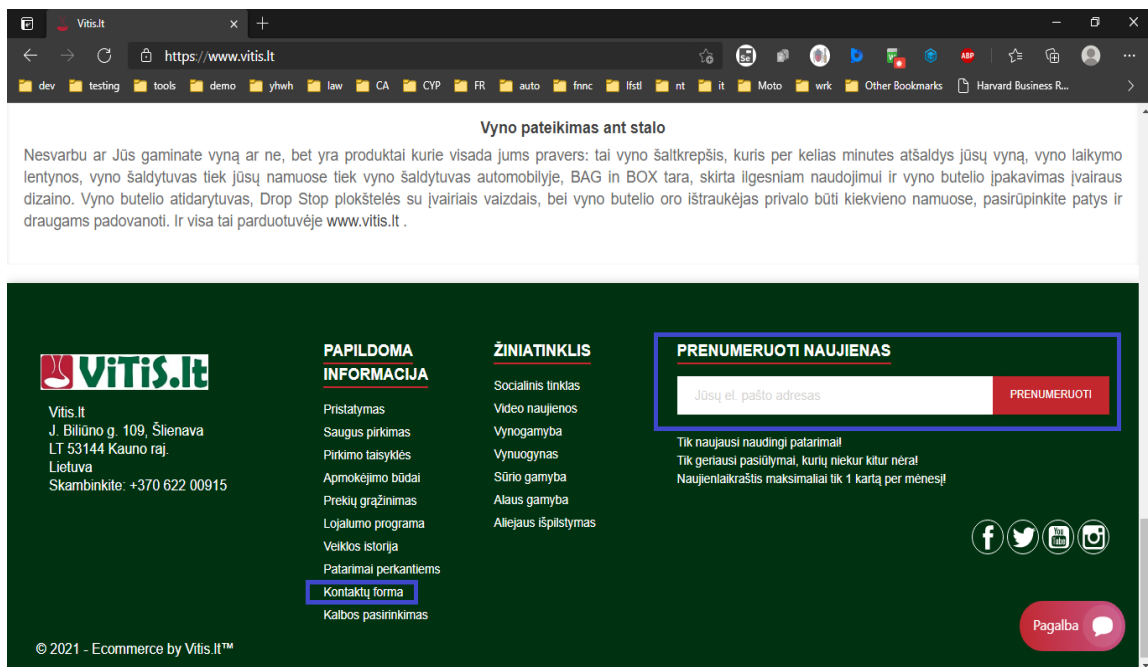
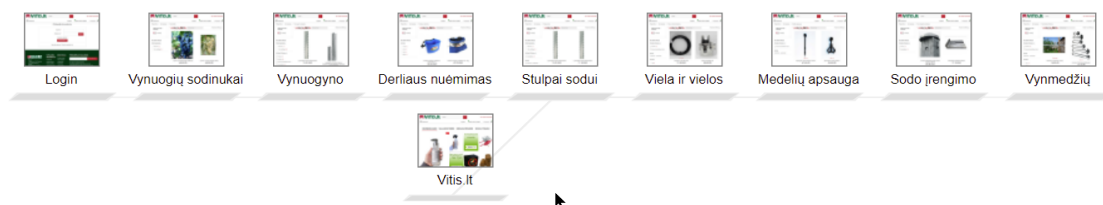
1. DOCUMENT PURPOSE

This work purpose is to apply acquired knowledge at the academy through a testing of selected checklist items in Usability, Functionality, Client-side Performance and Best Practices for a multiple page e-commerce application vitis.lt.

2. TESTING SECTION

For a detailed testing it was selected Footer area - Newsletter and Support Form testing.

For experience based testing - Main/Home page, Login, Cart, Product pages.



PARDUOTUVĖS INFORMACIJA

Registracijos adresas

Vitis.lt
J. Biliūno g. 109, Šilena
LT 53144 Kauno raj.
Lietuva

Sandėlio adresas

Rhenus Logistics, Metelių g.
12, LT-02236 Vilnius

Rekvizitai

PVM kodas:
LT100008435015
Įmonės kodas: 303012128

Mokėjimas iš Banko sąskaitos

Swedbank:
LT127300010134958559

Paysera:
LT023500010001255565

SUSISIEKITE SU MUMIS

Vartotojų pagalba

Skirta padaliniui

El. pašto adresas

jūs@elpastas.lt

Priedas

PASIRINKITE DOKUMENTĄ

Neprivaloma

Pranešimas

Vieta Jūsų pranešimui

Saugumo patikra

☐ Aš ne robotas



IŠSIŲSTI



PREKIŲ KREPŠELIS



Prailginimo kilpa Inkarui į žemę FENOX 200 mm ilgio

Vieneto kaina: 1,15 EUR
1.107-988.01

100

2 299 000,00 EUR

2000000 prekių
Pristatymas 2 299 000,00 EUR
Nemokama

Turite nuolaidų kodą?

Viso (su PVM) 2 299 000,00 EUR
Su PVM 399 000,00 EUR

UŽSAKYTI

< Grįžti į apsipirkimą


Norimos prekės

Nėra prekių sąrašo

» Mano norimų prekių sąrašo valdymas



3. TESTING CHECKLIST

Checklist was prepared according to time constraints. Items (described later and marked with ) were selected for more detailed testing with written test cases, bug reports; other checklist items were checked with experience based approach and marked either pass, fail or checked.

❑ Usability:

- Web page content should be correct without any spelling or grammatical errors **FAIL**
- All the text should be properly aligned. **FAIL**
- All the error messages should be correct without any spelling or grammatical errors and the error message should match with the field label. **FAIL**
- Check for success/error messages to be in the same language **FAIL**
- Tool tip text should be there for every field. **FAIL**
- All the fields should be properly aligned. **FAIL**
- Enough space should be provided between field labels, columns, rows, and error messages. **FAIL**
- All the buttons should be in a standard format and size. **PASS**
- Home link should be there on every single page. **PASS**
- Check for broken links and images. **FAIL**
- Confirmation message should be displayed for any kind of update and delete operation. **FAIL**
- Check the site on different resolutions (640 x 480, 600x800 etc.?) **PASS**
- Check the tab should work properly. **PASS**
- Scroll bar should appear only if required. **FAIL**
- If there is an error message on submit, the information filled by the user should be there. **PASS**
- Title should display on each web page **PASS**
- All fields (Textbox, dropdown, radio button, etc) and buttons should be accessible by keyboard shortcuts and the user should be able to perform all operations by using keyboard. **FAIL**

❑ Functionality:

- ❖ Test if user can subscribe to Newsletter (Footer area) **FAIL**
- ❖ Test Support form functionality **PASS**
- Test all the mandatory fields should be validated. **PASS**
- Test the asterisk sign should display for all the mandatory fields. **FAIL**
- Test the system should not display the error message for optional fields. **PASS**
- Test the max length of every field to ensure the data is not truncated. **FAIL**
- Test the pop up message ("This field is limited to 500 characters") should display if the data reaches the maximum size of the field. **FAIL**
- Test all input fields for special characters. **FAIL**
- Test the timeout functionality. **PASS**

- Test the functionality of the buttons available **PASS**
- Test the Privacy Policy & FAQ is clearly defined and should be available for users. **FAIL**
- Test if any functionality fails the user gets redirected to the custom error page. **PASS**

❑ Client-side Performance:

- Test the client-side performance of a page on both mobile and desktop devices. **CHECK**

❑ Best Practices:

- Test application for vulnerability to XSS attacks. **CHECK**

4. DETAILED TEST CASES

There were selected two use cases for more detailed functionality testing:

UC_VTS_001 - User tries to subscribe to Newsletter

UC_VTS_002 - User fills Support contacts form

Test cases were prepared for different scenarios:

Project Name	Vitis.lt										
Module Name											
Created By	Jonas										
Created Date	2021-03-16										
Reviewed By											
Review Date	YYYY-MM-DD		Environment	Windows 10, Edge browser							
Test Scenario ID	Test Scenario Description	Test Case ID	Test Case Description	Preconditions	Test Data	Test Steps	Expected Result	Post Conditions	Actual Result	Status	Executed By
TS_VTS_001	Newsletter subscription verification	TC_V_Newsletter_001	User inputs correct e-mail	Browser, Internet connection, Valid URL, Test Data	<URL>: https://vitis.lt <email>: "yosomom596@heroulo.com"	1. Open <URL> in a browser 2. Scroll to the bottom of the page 3. Enter <email> into "Prenumeruoti naujienas" input field 4. Click "Prenumeruoti" button	Subscription should be succesfull	Success message should be displayed, and confirmation email recieved	No success message, no email recieved, page just refreshes	Fail	Jonas
TS_VTS_001	Newsletter subscription verification	TC_V_Newsletter_002	User leaves input field empty	Browser, Internet connection, Valid URL, Test Data	<URL>: https://vitis.lt <email>: ""	1. Open <URL> in a browser 2. Scroll to the bottom of the page 3. Click "Prenumeruoti" button	Subscription should NOT be succesfull	Error message "Invalid email address" should be displayed	Subscription is not successful. No error message displayed	Fail	Jonas
TS_VTS_001	Newsletter subscription verification	TC_V_Newsletter_003	User inputs invalid e-mail	Browser, Internet connection, Valid URL, Test Data	<URL>: https://vitis.lt <email>: "##### ##### ##### ##### \$\$ com"	1. Open <URL> in a browser 2. Scroll to the bottom of the page 3. Enter <email> into "Prenumeruoti naujienas" input field 4. Click "Prenumeruoti" button	Subscription should NOT be succesfull	Error message "Invalid email address" should be displayed	Subscription is not succesfull. No error message displayed	Fail	Jonas
Test Scenario ID	Test Scenario Description	Test Case ID	Test Case Description	Preconditions	Test Data	Test Steps	Expected Result	Post Conditions	Actual Result	Status	Executed By
TS_VTS_002	Support form functionality verification	TC_V_Support_001	User inputs every field correctly	Browser, Internet connection, Valid URL, Test Data	<URL>: https://www.vitis.lt/kontaktu-forma <email>: yosomom596@heroulo.com <Message>: "This is a test message"	1. Open <URL> in a browser 2. Enter <Message> into Pranesimas text area 3. Click on "Aš ne robotas" reCAPTCHA checkbox 4. Click "Išsiusti" button	Form resets to empty input fields	Message "Your message has been successfully sent to our team" should be visible. User should recieve confirmation email.	Success message is displayed, information filled is not reset.	Fail	Jonas
TS_VTS_002	Support form functionality verification	TC_V_Support_002	User inputs every field correctly, except doesnt click reCAPTCHA checkbox	Browser, Internet connection, Valid URL, Test Data	<URL>: https://www.vitis.lt/kontaktu-forma <email>: yosomom596@heroulo.com <Message>: "This is a test message"	1. Open <URL> in a browser 2. Enter <Message> into Pranesimas text area 3. Click "Išsiusti" button	Form should retain values	Error message "reCAPTCHA klaida" should be visible	Error message is displayed, information entered in "Pranesimas" area is intact.	Pass	Jonas

TS_VTS_002	Support form functionality verification	TC_V_Support_003	User inputs message, clicks reCAPTCHA checkbox, leaves email input empty	Browser, Internet connection, Valid URL, Test Data	<URL>: https://www.vitis.lt/kontaktu-forma <email>: "" <Message>: "This is a test message"	1. Open <URL> in a browser 2. Leave <email> input empty 3. Enter <Message> into Pranesimas text area 4. Click "Issiusti" button	Message should not be send, input filled should be there	Message "Invalid email address." should be displayed	Error message is displayed, information entered in "Pranesimas" area is intact.	Pass	Jonas
TS_VTS_002	Support form functionality verification	TC_V_Support_004	User inputs correct email, clicks reCAPTCHA checkbox, leaves message area empty	Browser, Internet connection, Valid URL, Test Data	<URL>: https://www.vitis.lt/kontaktu-forma <email>: yosomom596@herouloulo.com <Message>: ""	1. Open <URL> in a browser 2. Enter <email> 3. Leave "Pranesimas" text area empty 4. Click reCAPTCHA checkbox 5. Click "Issiusti" button	Message should not be send, input filled should be there	Message "The message cannot be blank." should be displayed	Error message is displayed, information entered in "Pranesimas" area is intact.	Pass	Jonas

Test Scenario ID	Test Scenario Description	Test Case ID	Test Case Description	Preconditions	Test Data	Test Steps	Expected Result	Post Conditions	Actual Result	Status	Executed By
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TS_VTS_002	Support form functionality verification	TC_V_Support_005	User inputs correct email, attaches document, enters message, clicks reCAPTCHA checkbox	Browser, Internet connection, Valid URL, Test Data	<URL>: https://www.vitis.lt/kontaktu-forma <email>: yosomom596@herouloulo.com <Attachment>: "text file a.txt" <Message>: "This is a text message"	1. Open <URL> in a browser 2. Enter <email> 3. Attach <Attachment> 4. Enter <Message> into Pranesimas text area 5. Click reCAPTCHA checkbox 6. Click "Issiusti" button	Message should send, information filled should be reset, confirmation email should be sent	Message "Your message has been successfully sent to our team." should be visible. User should receive confirmation email.	Success message not displayed, information filled is not reset, confirmation email received	Fail	Jonas
TS_VTS_002	Support form functionality verification	TC_V_Support_006	User inputs invalid email, enters message, clicks reCAPTCHA checkbox	Browser, Internet connection, Valid URL, Test Data	<URL>: https://www.vitis.lt/kontaktu-forma <email>: #-5@1.c <Message>: "This is a text message"	1. Open <URL> in a browser 2. Enter <email> 4. Enter <Message> into Pranesimas area 5. Click reCAPTCHA checkbox 6. Click "Issiusti" button	Message should not send, information filled should be there	Message "Invalid email address." should be displayed	Success message "Your message has been successfully sent to our team." is displayed, information filled is retained.	Fail	Jonas

TS_VTS_002	Support form functionality verification	TC_V_Support_007	User inputs valid email, enters very long message, clicks reCAPTCHA checkbox	Browser, Internet connection, Valid URL, Test Data	<URL>: https://www.vitis.lt/kontaktu-forma <email>: yosomom596@herouloulo.com	1. Open <URL> in a browser 2. Enter <email> 4. Enter 2000 characters message into Pranesimas text area 5. Click reCAPTCHA checkbox 6. Click "Issiusti" button	Input maximum limit should be set	Error message "Input limit is reached" should be displayed	Success message "Your message has been successfully sent to our team." is displayed, information filled is not reset, confirmation email received	Fail	Jonas
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5. FOUND BUGS/ISSUES:

➤ For selected use case testing there was found:

- Newsletter subscription form functionality is not working/implemented, user gets no clue what's going on, page just refreshes after hitting “Prenumeruoti” button, no confirmation email received.
- No comprehensive email validity check in forms (accepts #-\$\$@1.c, etc)
- Support form is working, but design is flawed, no error or success messages are always displayed, message in “Pranesimas” text area is not checked for maximum character length.

The screenshot shows a Jira issue page for a project named 'Vitis'. The issue title is '[FUNC] - Newsletter subscription is not functioning'. The issue is currently in the 'In Progress' state. The description states: 'Bug is found while testing and trying to subscribe to Newsletter with valid email'. The steps to reproduce are: 1. Open <https://vitis.lt> in a browser, 2. Scroll to the bottom of the page (Footer), 3. Enter yosomom596@heroulo.com into the "Prenumeruoti" input field. The expected result is 'Success or failure message should be displayed, confirmation email received', and the actual result is 'Nor error nor success message displayed, no confirmation email received'. The environment is listed as 'Windows 10' and 'Edge 89 browser'. The issue has one attachment. The right sidebar shows the issue's metadata: Reporter is 'Jo Ju', Assignee is 'Unassigned', Labels are 'Form', 'Newsletter', and 'email+check', Priority is 'Medium', and it has 'Open TestRail: Cases' and 'Open TestRail: Runs' links. There is a 'Show 7 more fields' link and a 'Configure' button at the bottom right.

Projects / Vitis / VTS-1

[FUNC] - Newsletter subscription is not functioning

Attach Create subtask Link issue

Description

Bug is found while testing and trying to subscribe to Newsletter with valid email

Steps to reproduce:

1. Open <https://vitis.lt> in a browser
2. Scroll to the bottom of the page (Footer)
3. Enter yosomom596@heroulo.com into the "Prenumeruoti" input field

Expected result: Success or failure message should be displayed, confirmation email received

Actual result: Nor error nor success message displayed, no confirmation email received

Environment

Windows 10
Edge 89 browser

Attachments (1)

YOUR PINNED FIELDS

Reporter Jo Ju

Assignee Unassigned

Labels [Form](#) [Newsletter](#) [email+check](#)

Priority Medium

TestRail: Cases [Open TestRail: Cases](#)

TestRail: Runs [Open TestRail: Runs](#)

[Show 7 more fields](#)
Original estimate, Time tracking, Epic Link, Components, Fix versions, ...

Created 1 hour ago Configure



Vitis.lt
J. Biliūno g. 109, Šilėnava
LT 53144 Kauno raj.
Lietuva
Skambinkite: +370 622 00915

PAPILDOMA INFORMACIJA

- Pristatymas
- Saugus pirkimas
- Pirkimo taisyklės
- Apmokėjimo būdai
- Prekių grąžinimas
- Lojalumo programa
- Veiklos istorija
- Patarimai perkantiems
- Kontaktų forma
- Kalbos pasirinkimas

ŽINIATINKLIS

- Socialinis tinklas
- Video naujienos
- Vynogamyba
- Vynuogynas
- Sūrio gamyba
- Alaus gamyba
- Aliejaus išpilstymas

PRENUMERUOTI NAUJENAS

PRENUMERUOTI



Tik naujausi naudingi patarimai!
Tik geriausi pasiūlymai, kurių niekur kitur nėra!
Naujienlaiškis tik 1 kartą per mėnesį!












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Projects /  Vitis /  VTS-2

[FUNC] - Support form does not check email validity

 Attach
  Create subtask
  Link issue
  ...

Description

Steps to reproduce:

1. Open <https://vitis.lt/kontaktu-forma> in a browser
2. Enter #-S@1.c into email input field
3. Enter "a" message into Pranesimas" text area
4. Click "As ne robotas" reCAPTCHA checkbox
5. Click "Išsiusti" button


Expected result: Message "Invalid email" should be displayed, entered information in the form retained


Actual result: Success message "Your message has been successfully sent to our team." is displayed

Environment

Windows 10
Edge 89 browser

Attachments (1)







Pro tip: press **M** to comment


In Progress

YOUR PINNED FIELDS

Reporter  Jo Ju

Assignee  Unassigned


Labels [Form](#) [Support](#) [email+check](#)

Priority  Medium

TestRail: Cases [Open TestRail: Cases](#)

TestRail: Runs [Open TestRail: Runs](#)

[Show 7 more fields](#)
Original estimate, Time tracking, Epic Link, Components, Fix versions, ...

Created 22 hours ago  Configure

Updated 2 hours ago

PARDUOTUVĖS INFORMACIJA

Registracijos adresas

Vitis.lt
J. Bilūdno g. 109, Šilena
LT 53144 Kauno raj.
Lietuva

Sandėlio adresas

Rhenus Logistics, Metelių g. 12, LT-02236 Vilnius

Rekvizitai

PVM kodas: LT100008435015
Įmonės kodas: 303012128

Mokėjimas iš Banko sąskaitos

Swedbank: LT127300010134958559

Paysera: LT023500010001255565

Vitis.lt MB

Mokėjimas iš Paysera sąskaitos

Paysera: EVP0510001255565

Your message has been successfully sent to our team.

SUSISIEKITE SU MUMIS

Vartotojų pagalba Skirta padaliniui

El. pašto adresas #.\$@1.c

Priedas PASIRINKITE DOKUMENTĄ Neprivaloma

Pranešimas
a

Saugumo patikra
☐ Aš ne robotas

Pagalba
ISŠIUSTI

Projects / Vitis / VTS-3

[FUNC] - Support form message text area does not check for maximum character length

Attach Create subtask Link issue

Description

Steps to reproduce:

1. Open <https://vitis.lt/kontaktu-forma> in a browser
2. Enter any email in an email input field
3. Enter 2000+ character length message in "Pranešimas" text area
4. Click "Aš ne robotas" reCAPTCHA checkbox
5. Click "Išsiusti" button

Expected result: Message "Length should not exceed 200 characters" should be displayed

Actual result: Success message "Your message has been successfully sent to our team." is displayed

Environment

Windows 10
Edge 89 browser

Attachments (1)



Add a comment...

Pro tip: press **M** to comment

1

In Progress

YOUR PINNED FIELDS

Reporter Jo Ju

Assignee Unassigned

Labels [Form](#) [Message](#) [Support](#)
[Text+length](#)

Priority Medium

TestRail Cases Open TestRail: Cases

TestRail Runs Open TestRail: Runs

Show 7 more fields

Original estimate, Time tracking, Epic Link, Components, Fix versions, ...

Created 20 hours ago


Updated 1 hour ago

Configure

Your message has been successfully sent to our team.

Vitis.lt
J. Biliūno g. 109, Šilėnava
LT 53144 Kauno raj.
Lietuva

 Rhenus Logistics, Meteliu g. 12, LT-02236 Vilnius

 PVM kodas: LT100008435015
Įmonės kodas: 303012128

 Swedbank: LT127300010134958559

Vitis.It MB

 Paysera: EVP0510001255565

 Skambinkite:
+370 622 00915

Your message has been successfully sent to our team.

Vartotojų pagalba

El. pašto adresas

Priedas PASIRINKITE DOKUMENTĄ Neprivaloma

[illegible]

Saugumo patikra

☐ Aš ne robotas

reCAPTCHA
Privatumas - Saugumas

IŠSIŪSTI

Pagalba

[FUNC] - Support message entered information doesn't reset after sending it to support team

 Attach Create subtask Link issue

Steps to reproduce:

1. Open <https://vitis.it/kontaktu-forma> in a browser
2. Enter any email in an email input field
3. Enter "a" message in "Pranesimas" text area
4. Click "As ne robotas" reCAPTCHA checkbox
5. Click "Issiusti" button

Expected result: Form should reset to empty fields

Actual result: Form retains entered information

Environment

Windows 10
Edge 89

Attachments (1)



In Progress ▾

YOUR PINNED FIELDS

Reporter Jo Ju

Assignee Unassigned

Labels Form Support

Priority ↑ Medium

[TestRail: Cases](#) [Open TestRail: Cases](#)

TestRail: Runs Open TestRail: Runs

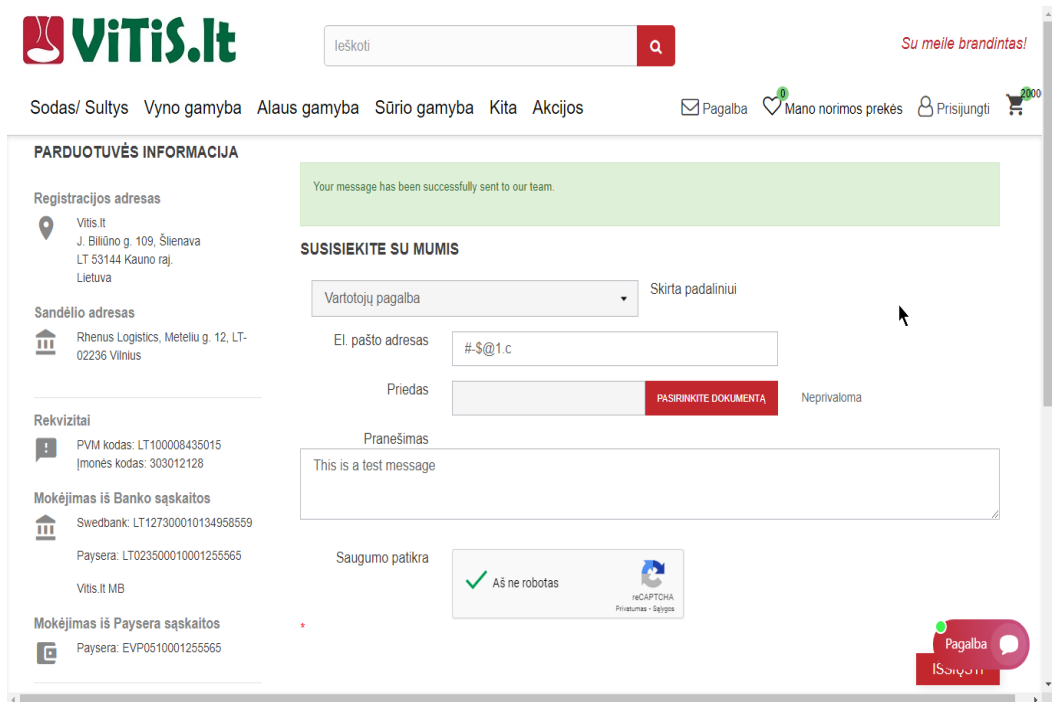
▼ Show 7 more fields

Original estimate, Time tracking, Epic Link, Components, Fix versions, ...

Created 51 minutes ago

Updated 4 minutes ago

 [Configure](#)



For experience based testing:

Usability Issues:

- Home page Breadcrumb/Sandwich positioning is not consistent, it appears all over the place while changing resolution.



REKOMENDUOJAME

NAUJAUSIOS PREKĖS

GERIAUSIAI PERKAMOS

DOVANA VYNDARIUI

-20%



CompactLees
Erbslöh

ERBSLÖH



ieškoti



REKOMENDUOJAME

NAUJAUSIOS PREKĖS

GERIAUSIAI PERKAMOS

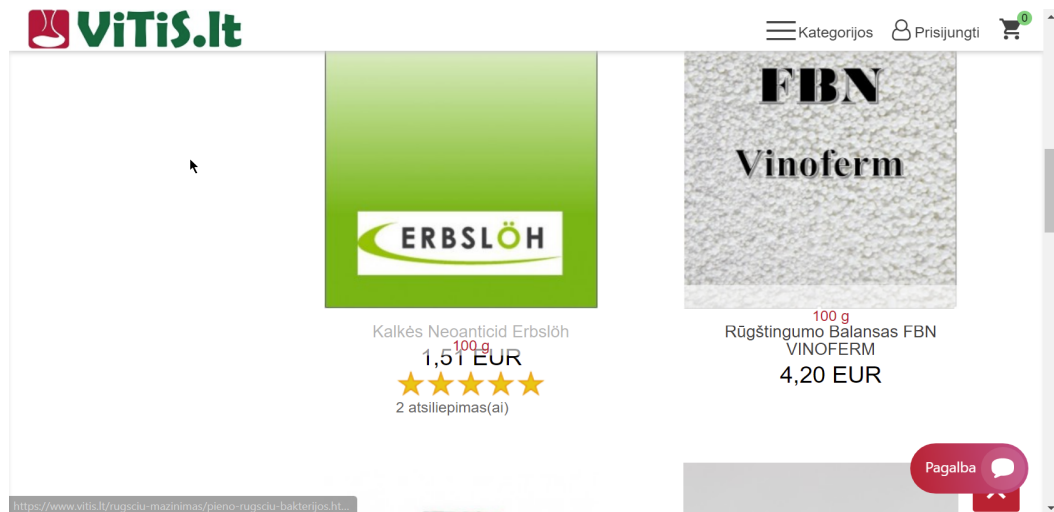
DOVANA VYNDARIUI

-20%



Antibakterinis rankų ploviklis

- Image elements do not have [alt] attributes. Informative elements should aim for short, descriptive alternate text. Decorative elements can be ignored with an empty alt attribute.
- Text is not properly aligned here and there, items overlapping.



- Some images are broken.
- Buttons do not have an accessible name.
- Footer: Company information text is not aligned properly (Desktop view).



- Footer: Language selection (Kalbos pasirinkimas) choice is not implemented.
- Footer: Broken "Video naujienos" href link (misspelled as "youtube").
- Footer: "Socialinis tinklas" link is missing.

❑ Functionality Issues:

It is allowed to put any infinite number of goods to Cart, no check.

User Registration form is flawed. User can register with various fake date, i.e. firstname, surname can be more than 32 characters, but system allows to register. Later when

purchasing an item, Server error page is displayed showing particular input cant be more than 32 characters.

❑ Best Practices Issues:

- Code includes front-end JavaScript libraries with known security vulnerabilities, 6 vulnerabilities detected:

Bootstrap@4.0.0-alpha.5 (19 Oct, 2016) - Cross-site Scripting (XSS) (Medium Severity).

Affected versions of this package are vulnerable to Cross-site Scripting (XSS) via the data-target attribute.

As of date of 16/03/2021 - latest version is **4.6.0**

jQuery@2.2.4 (20 May, 2016) - Cross-site Scripting (XSS) (Medium Severity). Affected versions of this package are vulnerable to Cross-site Scripting (XSS) Passing HTML containing <option> elements from untrusted sources - even after sanitizing it - to one of jQuery's DOM manipulation methods (i.e. .html(), .append(), and others) may execute untrusted code.

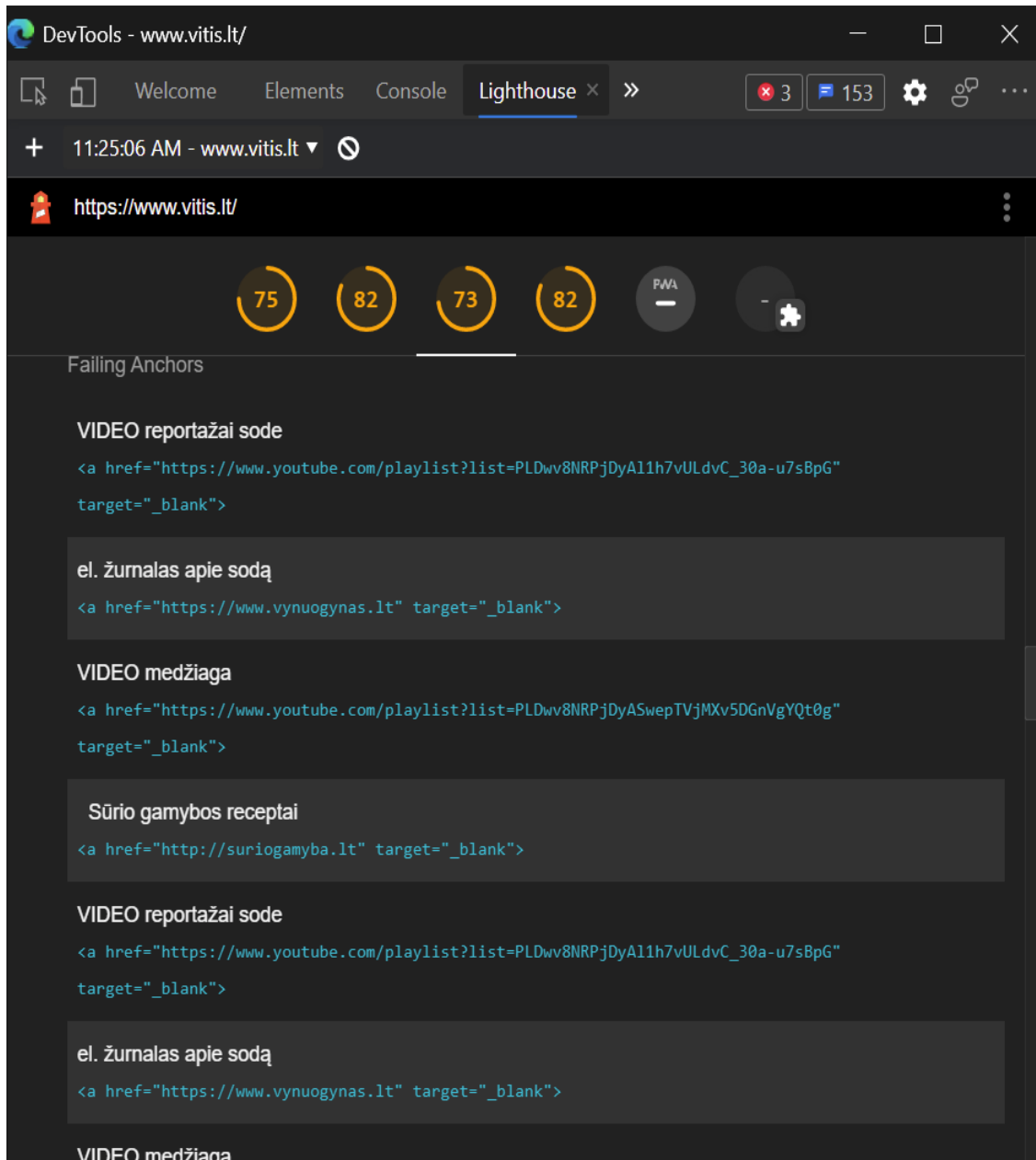
As of date 16/03/2021- latest version is **3.6.0**

jQuery_UI@1.10.3 (2014 version) Cross-site Scripting (XSS) (High Severity). Affected versions of this package are vulnerable to Cross-site Scripting (XSS). One of the provided elements is a dialog, which also supports showing custom text for closing via the [_closeText_](https://api.jqueryui.com/dialog/#option-closeText) property. However, the content of this property is added to the HTML with no sanitization, allowing arbitrary scripts. If you allow user input to be passed through to the _closeText_ property, you may have a Cross-site Scripting (XSS) vulnerability.

As of date of 2021.03.16 - latest version is **1.12.1**

- Links to cross-origin destinations are unsafe. Add `rel="noopener"` or `rel="noreferrer"` to any external links to improve performance and prevent security vulnerabilities.:

When you link to a page on another site using the `target="_blank"` attribute, you can expose your site to performance and security issues:

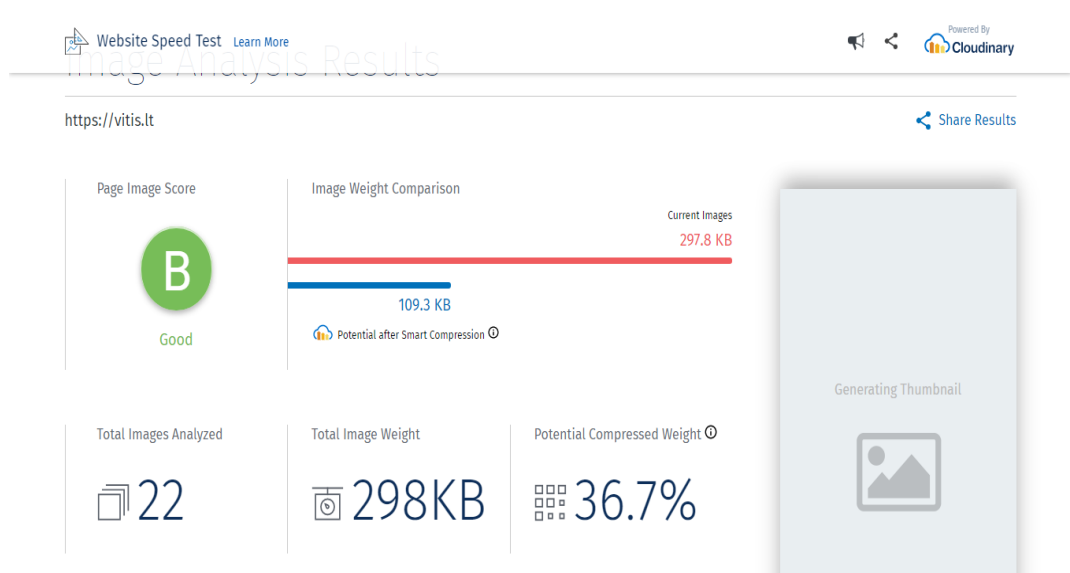


❑ Performance (client-side) issues

According to Google Mobile-Friendly Test PageSpeed Insights, page *vitis.lt* is not mobile friendly. The most impactful items are: third party chat widget Smartsupp, unused JavaScript code, multiple page redirects, render-blocking resources, unused CSS code, not deferred offscreen images, high initial server response time. Application is more desktop friendly with the high initial server response time having most impact.

6. IMPROVEMENTS:

- ☐ Fix broken links and typos.
- ☐ Implement Newsletter subscription functionality.
- ☐ Improve Support form design, correct text in a email field “jūs@elpastas.lt” .
- ☐ Include Sitemap at Footer.
- ☐ Implement Language selection for more opportunities.
- ☐ RWD can be improved.
- ☐ There is no Privacy policy and terms of use information:
 - What is collected
 - How it's stored
 - How it might be used
- ☐ Contact form should improve design and functionality issues should be corrected.
- ☐ A Map or a link to a map (company contact details) could be implemented.(Footer).
- ☐ Login form for merchants, affiliates (Footer).
- ☐ Press (Footer).
- ☐ Search (Footer).
- ☐ Leverage the font-display CSS feature to ensure text is user-visible while webfonts are loading.
- ☐ Serve static assets with efficient cache policy. (longer cache lifetime).
- ☐ Serve images in *next-gen* formats (PNG or JPEG used instead).



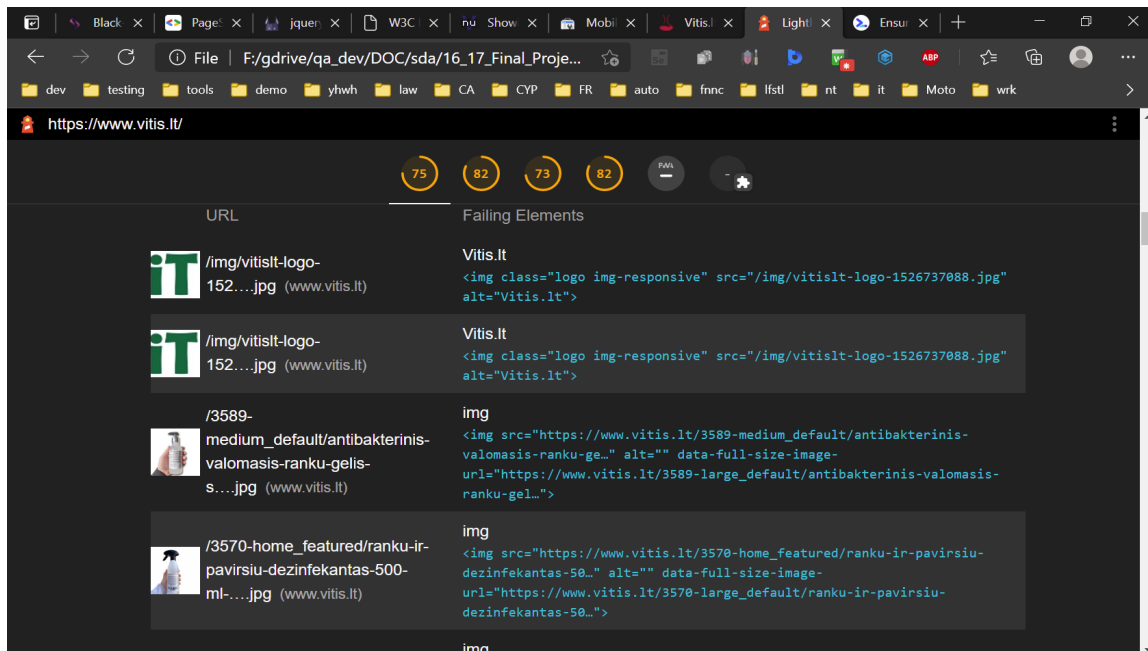
- ☐ Avoid an excessive DOM size 1453 elements. A large DOM will increase memory usage, cause longer style calculations, and produce costly layout reflows.
- ☐ Avoid *document.write()*. For users on slow connections, external scripts dynamically injected via `document.write()` can delay page load by tens of seconds.

- ❑ Reduce the impact of third-party code. Chat widget Smartsupp may not be the best choice. [How do different chat widgets impact site performance?](https://debugbear.com/en/blog/how-different-chat-widgets-affect-site-performance/) (debugbear.com).

Here's an overall performance comparison of the different chat widgets.

Name	FCP	JS Time	Weight	Chat displayed
LiveAgent	1.0s	309ms	79KB	2.5s
Zoho Desk	1.0s	259ms	67KB	3.3s
GetSiteControl	1.0s	315ms	106KB	3.1s
MyLiveChat	1.0s	430ms	67KB	5.0s
Crisp	1.0s	311ms	155KB	5.4s
Comm100	1.0s	295ms	220KB	5.4s
Userlike	1.0s	404ms	146KB	5.3s
Formilla	1.0s	590ms	181KB	5.9s
Tidio	1.0s	540ms	208KB	5.3s
LiveChat	1.0s	328ms	385KB	5.7s
Smartsupp	1.0s	1000ms	164KB	4.4s
Intercom	1.0s	514ms	301KB	5.5s
Jivochat	1.0s	612ms	299KB	5.5s
Drift	1.0s	441ms	464KB	4.8s
PureChat	1.0s	620ms	264KB	7.4
HelpScout	1.0s	660ms	379KB	6.6
Tawk.to	1.0s	645ms	749KB	3.5s
Kayako	1.0s	628ms	364KB	9.4s
Olark	1.0s	778ms	405KB	7.3s
Zendesk	1.0s	991ms	533KB	9.3s
FreshChat	2.3s	361ms	564KB	2.8s

- ❑ Set an explicit *width* and *height* on image elements to reduce layout shifts and improve CLS (Cumulative layout shift).



- ❑ Reduce *initial server response* time.

7. *TEST DESIGN TECHNIQUES, TOOLS AND RESOURCES USED:*

- ❑ Google Lighthouse (Browsers Developer Tools).
- ❑ <https://developers.google.com/speed/pagespeed/insights/>.
- ❑ <https://web.dev/measure/>.
- ❑ <https://validator.w3.org/checklink>.
- ❑ [Mobile-Friendly Test - Google Search Console](#).
- ❑ [WebPageTest - Website Performance and Optimization Test](#).
- ❑ <https://icons8.com/articles/website-footer-design/>.
- ❑ Atlassian Jira.
- ❑ Black-box techniques: use case testing, equivalence partitioning, boundary value analysis, decision tables, state transition.
- ❑ Experience based testing: checklist-based testing, error guessing, exploratory testing.

8. *REFLECTION:*

It was a great experience to use all current knowledge and acquire new on the go by working on this small project. It is much more valuable by actually doing things to reinforce what was learned through the course at SD Academy with the knowledge shared by wonderful teachers.