

GRADUATION PROJECT

Testing Web Application

Agenda

- Introduction
- Problem Statement
- Solution Overview
- System Design
- Demo
- Conclusion

Project Overview

Testing Web Application

- **Team Members**

Menna Allah Tarek EL Shahid (Team Leader)

Yasmine Alsyied Marey

Nermeen Elsayed Mohammed Fawzy

Asmaa Atef Abd- El Naby Shahin

- **Supervisor**

Eng :Basil Khalid

- **Tech Stack**

Selenium

◆ Overview

In this project, our team applied three different testing approaches Manual Testing, Automation Testing, and API Testing to ensure full coverage and validation of the entire web application.

1. Manual Testing (Executed test scenarios on the web application (Demo Blaze))

Key Advantages

- Strong UI validation: catches visual and usability issues automation may miss.
- Flexible & efficient for exploratory testing.
- Useful in early development stages where requirements frequently change.

2. Automation Testing (Automated major flows on SauceDemo using Selenium)

Key Advantages

- Saves time on repetitive test cases.
- More accurate, reducing human error.
- Ideal for regression testing after each build or deployment.

3. API Testing(Tested Fake Store (Platzi) API)

Key Advantages

- Fast execution and easier debugging compared to UI tests.
- Deep backend coverage even when UI is unavailable or unstable.
- Supports early testing before frontend development is complete.

Menna Tarek – Manual, Automation & API Testing

Manual Testing :

I performed manual testing on the Sign Up, log in, log out, About Us And Contact.

docs.google.com/spreadsheets/d/1M5OPdqDelTm5EHInkRjBHhZwK4TBnJD2H6EV_IqESi8/edit?gid=0#gid=0

Manual Testing Project on DemoBlaze Website

id	Title	Precondition	Steps	Test Data	Expected Result	Actual Result	Status	Bug Report
1	Sign Up with valid username & password		1. Go to Sign Up page 2. Enter valid username & password 3. Click Sign Up		Account created successfully and alert appears	Alert: "Sign up successful."	Pass	
3	Sign Up with empty username		1. Go to Sign Up page 2. Leave username empty, enter valid password 3. Click Sign Up		Error message: "Please fill out Username and Password"	Alert: "Please fill out Username and Password"	Pass	
4	Sign Up with empty password		1. Go to Sign Up page 2. Enter valid username, leave password empty 3. Click Sign Up		Error message: "Please fill out Username and Password"	Alert: "Please fill out Username and Password"	Pass	
5	Sign Up with existing username		1. Go to Sign Up page 2. Enter an already registered username and password 3. Click Sign Up		Error message: "This user already exists"	Alert: "This user already exists."	Pass	
6	Sign Up with weak/short password	User is on Sign Up page	1. Go to Sign Up page 2. Enter valid username and weak password 3. Click Sign Up		Error message: "Password must be ≥ 8 characters"	DemoBlaze does not validate password length → User created anyway	Fail	https://docs.google.com/document/d/1c1whwVC5oND2ipM8nR16mVqXyUuUUA85Gq78PzUY/edit?usp=sharing
7	username with Arabic characters		1. Enter Arabic username 2. Enter valid password 3. Click Sign Up	username = محمد , Password = "Test@123"	System should accept both English and Arabic usernames	System displays "Sign up successful"	Pass	
8	username with extra long input		1. Enter long username (50+ chars) 2. Click Sign Up	Username = "Mennaaa", Password = "Test@123"	System should show alert "Username too long"	System displays "Sign up successful"	Fail	https://docs.google.com/document/d/1V1FNfUOqh2kvSSWfQeAGq_vwiev_c4yCeSnQyQd8ZYHc/edit?usp=sharing
9	Verify password requires at least one uppercase letter		1. Enter password without uppercase 2. Click Sign Up	Username = "Menna", Password = "Test@123"	System should show alert "Password must include at least one uppercase letter"	System displays "Sign up successful"	Fail	
10	Verify password requires at least one number		1. Enter password without numbers 2. Click Sign Up	Username = "Menna", Password = "Test@abc"	System should show alert "Password must include at least one number"	System displays "Sign up successful"	Fail	https://docs.google.com/document/d/1Fb5ir4C-f2ly2Yh1Lko6pFL5Q7fF86lkWxcSm2isBWA/edit?usp=sharing
11	Verify password requires at least one special character		1. Enter password without special character 2. Click Sign Up	Username = "Menna", Password = "Test123"	System should show alert "Password must include at least one special character"	System displays "Sign up successful"	Fail	

sign up | log in | log out | About Us | Contact | Categories | Open Payment Form | Close Payment Form | enter Payment details | Confirm Purchase | Clear Cart

Bug Report (Sign up #6)

Bug Report

Title: System allows sign-up with weak/short password

Environment: DemoBlaze Website

Precondition: User is logged out and on Sign-Up modal

Steps:

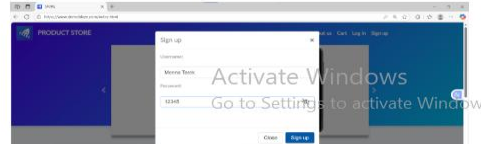
1. Open DemoBlaze
2. Click "Sign Up"
3. Enter valid username
4. Enter password < 8 characters (e.g., 12345)
5. Click "Sign Up" Expected Result: Alert "Password must be ≥ 8 characters" and user not created

Expected Result:

System should reject the short password and display an error message (e.g., "Password must be at least 8 characters long"). User account should NOT be created

Actual Result: System accepts password and creates user successfully

Attachments:



Manual Testing : I performed manual testing on Checkout (Payment process)

docs.google.com/spreadsheets/d/1M5OPdqDelTm5EHInkRjBHHzWk4TbnJD2H6EV_lqESi8/edit?gid=1070808103#gid=1070808103

Manual Testing Project on DemoBlaze Website

ID	Title	Preconditions	test data	Steps	Expected Result	Actual Result	statues	Bug report
1	Open Payment Form	- add product to the cart - User is on the cart page		- Go to the Cart page. - Click the "Place Order" button	- Payment form opens successfully. - Fields displayed: Name, Country, City, Credit Card, Month, Year. - Message: "Payment form opened successfully." - the system should not allow checkout if cart is empty	Payment form opened as expected; all fields displayed correctly.	pass	
2	Open Payment Form	user is on the cart page without adding product to the cart		- Go to the Cart page. - Click the "Place Order" button	- the system should not allow checkout if cart is empty alert message should appear "your cart is empty please add items before proceeding to payment."	- the payment form opened directly even though no items were added to the cart - no validation message appeared	fail	https://docs.google.com/document/d/1wKrSGi8MfqpCoFLsBY3yAOLVFzvGz30O20NLTICA/edit?usp=sharing
3	Open Payment Form	- add product to the cart - User is on the cart page	Check the amount displayed in the payment form	- Go to the Cart page. - Click the "Place Order" button	Amount should match the order total and be visible	Amount is correctly displayed at the top of the payment form	pass	

Bug Report

Actual Result:

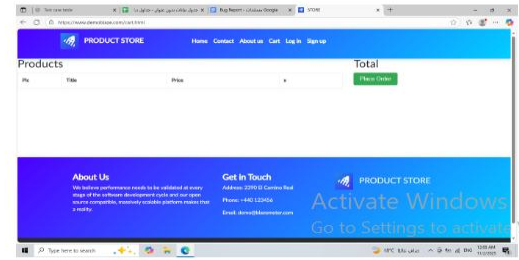
- The Payment form opened directly even though no items were added to the cart.
- No validation or error message appeared.

Severity: High
Priority: High

Status: New
Type: Functional / Validation Bug

Notes:
This issue allows users to reach the payment step without having any products in the cart, which can cause transaction and logic inconsistencies.

Screenshot



The screenshot shows a web browser window displaying the 'PRODUCT STORE' checkout page. The page has a blue header with navigation links: Home, Contact, About us, Cart, Log In, Sign up. Below the header, there's a 'Products' section with a table showing 'Id', 'Title', 'Price', and a 'Total' button. The bottom of the page features an 'About Us' section, a 'Get in Touch' section with contact information, and a 'PRODUCT STORE' section with an 'Activate Windows' watermark.

Manual Testing : I performed manual testing on the View Cart, Add product, Remove Product And Update Product Quantity

docs.google.com/spreadsheets/d/1M5OPdqDeITm5EHInkRjBHzWk4TBnjD2H6EV_lqESi8/edit?gid=2066549525#gid=2066549525

Manual Testing Project on DemoBlaze Website

ID	Test Scenario	Precondition	Steps	Expected Result	Actual Result	Status	Bug Report
TC7 Product Details	View cart when it contains products	At least one product is already added to the cart	1. Open the website. 2. Click on "Add to Cart" for any product. 3. Go to the "Cart" page.	Products are displayed with image, name, price, quantity, delete button, and total at the bottom	Product displayed correctly in cart with image, name, price, delete button, and total visible on the side	pass	
5	View cart when it is empty	No products are added to	1. Open the website 2. Click on "Add to Cart" for any product. 3. Go to the "Cart" page.	A message "No items in cart" should appear, and no products or totals should be displayed	Cart opens normally but shows an empty space — no "No items in cart" message displayed	fail	https://docs.google.com/document/d/1OKKPDMLGAWVCL6OYVPKtqIBRVC3XkrC63_VgPEKIWA/edit?usp=sharing
8	Verify total amount is visible and accurate	The cart contains at least	1. Open the website 2. Click on "Add to Cart" for any product 3. Go to the "Cart" page 4. Remove a product 5. Add another product	Total should be clearly visible at the bottom and correctly match (Price x Quantity)	Total is visible and matches the correct price calculation	pass	

Bug Report (Cart)

Title:
System does not display "No items in cart" message when cart is empty

Environment:
DemoBlaze Website

Precondition:
User has no products added to cart

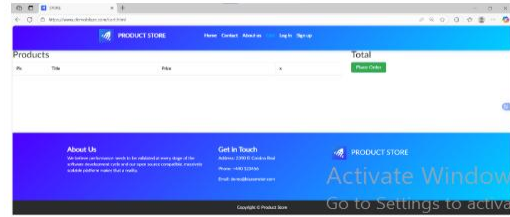
Steps:

1. Open DemoBlaze website
2. Do not add any items to the cart
3. Click on the "Cart" button to open cart page

Expected Result:
Cart page should display a message like: **"No items in cart"** and no product rows or totals should be shown

Actual Result:
Cart opens but show a blank space with no items and no **"No items in cart"** message

Attachments:



sign up log in log out About Us Contact Categories Open Payment Form Close Payment Form enter Payment details Confirm Purchase

Type here to search

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Manual Testing : I performed manual testing on the Categories

docs.google.com/spreadsheets/d/1M5OPdqDeITm5EHInKjBhHzWk4TBnjD2H6EV_lqESi8/edit?gid=682168969#gid=682168969

Manual Testing Project on DemoBlaze Website

id	Title	Precondition	Steps	Test Data	Expected Result	Actual Result	Status	Bug Report
2	View Phones category (page 1)	User is logged in OR guest	1. Click Phones in Navbar		Only phone products are displayed on first page	Only phones displayed	Pass	
3	View Laptops category (page 1)	User is logged in OR guest	1. Click Laptops in Navbar		Only laptop products are displayed on first page	Only laptops displayed	Pass	
4	View Monitors category (page 1)	User is logged in OR guest	1. Click Monitors in Navbar		Only monitor products are displayed on first page	Only monitors displayed	Pass	
5	Previous button on page 2 of category	User opened page 2 of Phones/Laptops/Monitors	1. Go to a category 2. Navigate to page 2 3. Click Previous	Phones/Laptops/Monitors	Goes back to previous page of the same category	Returns to main page with all products	Fail	https://docs.google.com/document/d/1NomuqsEtK8BqRRSMf9vccaKeKQOnbmth_SqFPh9ZLU/edit?usp=sharing
6	Phones → Next page	User clicked Phones	1. Click Phones 2. Navigate with Next	Phones	Should show only phones (page 2)	Shows Laptops/Monitors mixed	Fail	https://docs.google.com/document/d/1A1_iGNdM33_9vuH1FFJolWSwyGcZdsMLzuaa_jiedJ8/edit?usp=sharing
7	Laptops → Next page	User clicked Laptops	1. Click Laptops 2. Navigate with Next	Laptops	Should show only laptops (page 2)	Shows laptops + monitors mixed	Fail	https://docs.google.com/document/d/1A1_iGNdM33_9vuH1FFJolWSwyGcZdsMLzuaa_jiedJ8/edit?usp=sharing
8	Monitors → Next page	User clicked Monitors	1. Click Monitors 2. Navigate with Next	Monitors	Should show only monitors (page 2)	Shows laptops + monitors mixed	Fail	https://docs.google.com/document/d/1wW7yK2Mi6aC9aL1AWMmFhWQhZNGfRh-TWvRiLRINDpM/edit?usp=sharing
9	Verify category name highlighted after selection	Open Home Page	1. Click on "Phones" 2. Observe UI		The selected category should be highlighted (visually marked)	Category not highlighted (no UI change)	Fail	
10	Verify product details (image, name, price) display correctly for selected category	Open Home Page	1. Click on "Phones" 2. Observe displayed items		Product name, image, and price should display correctly	All products displayed correctly	Pass	
11	Verify "Next" button is disabled or hidden on the last page of category	Open category (Phones/Laptops/Monitors) and navigate to last page	1. Click "Next" until last page 2. Observe "Next" button		"Next" button should be disabled or hidden when on last page	"Next" button not visible on last page	Pass	

Bug Report (Category #5)

Title: Previous button on category page 2 returns to all products instead of previous category page

Environment: DemoBlaze Web — Production

Preconditions:

User is on page 2 of any category (Phones/Laptops/Monitors)

Steps:

- Go to Home Page
- Click a category (Phones / Laptops / Monitors)
- Click Next to go to page 2
- Click Previous

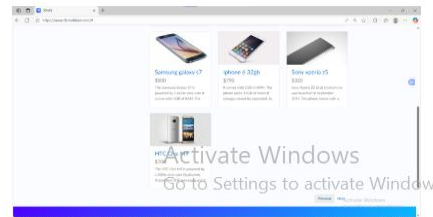
Expected Result:

User should return to page 1 of the same category

Actual Result:

User returns to the main page with all products

Attachments:



Activate Windows
Go to Settings to activate Windows.

sign up | log in | log out | About Us | Contact | Categories | Open Payment Form | Close Payment Form | enter Payment details | Confirm Purchase | Clear Cart After P

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Automation Testing :

I performed Automation testing on the Check out And About

https://drive.google.com/drive/folders/1mKx-Vv9lOS2O4IM0_cHyCi-rn3TTPzaM?usp=sharing

Automation Testing :

I performed Automation testing on the Login, Logout And Reset app state

<https://drive.google.com/drive/folders/1K2TxGzl6vrfRAcsfogUoJwAdUjOKH7il>

Automation Testing :

I performed Automation testing on the Add to cart And Remove

<https://drive.google.com/drive/folders/1dqhsTarGUtLbF54nATzzQsftAnklizzR>

Automation Testing :

I performed Automation testing on the Footer link And Sort box

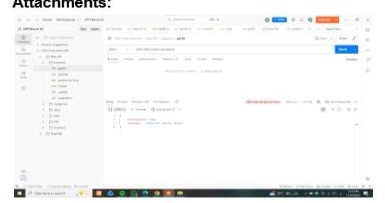
<https://drive.google.com/drive/folders/1cThVORVSsko-usGUI0O2EllgTABS14p9M>

API Testing :

I performed API testing on the All Products, Get a single product by ID, Create a product, Update a product And Authentication with JWT (Login)

docs.google.com/spreadsheets/d/1wGYPi54EtUoPD_PKVqJp3j21xDfOaAiNIHG_I8AeUI8/edit?gid=0#gid=0

API Testing on Platzi

Id	API Name	EndPoints	Method	Test Steps	Expected result	Actual result	Status Code	Bug Report	
1	Products	/Products	GET	1-Open Postman 2-Set Method to GET 3-Enter the endpoint URL 4-Click Send 5-Observe the response and status code	- Status 200 OK - List of products returns with correct fields	As Expected	200 OK (PASS)	<p>Bug Report(All Products)</p> <p>System should return:</p> <ul style="list-style-type: none"> 405 Method Not Allowed Message indicating that POST is not supported on this endpoint <p>Actual Result:</p> <p>System returns:</p> <p>statusCode: 500 message: "Internal server error"</p> <p>The server crashes instead of returning the appropriate validation error.</p> <p>Attachments:</p>  <p>Priority: Medium</p> <p>Severity: High</p> <p>Reason: Unexpected server crash indicates backend error handling issue. A wrong method shouldn't break the API.</p> <p>Go to Settings to activate Windows.</p> <p>Assigned To: Backend Developpe</p>	
2			POST	1-Open Postman 2-Set Method to POST 3-Enter endpoint /products 4-Click Send 5-Observe status code and error message	"statusCode": 405 "message": "Method Not Allowed"	"statusCode": 500, "message": "Internal server error"	500 Internal Server Error (FAIL)		https://docs.google.com/document/d/1gHILQrX2LB2F0_9SNMmLCedXMOV2hx64ldqxyWQ1dog/edit?usp=sharing
3			GET	1-Open Postman 2-Set Method to GET 3-Enter wrong endpoint /product 4-Click Send 5-Observe status code and error message	"message": "Cannot GET /api/v1/product", "error": "Not Found", "statusCode": 404	As Expected	404 Not Found (PASS)		
4			GET	1-Open Postman 2-Set Method GET 3-Enter endpoint /products 4-Click Send 5-Verify each product in response has all required fields with correct type	Each product must have: - id (Number) - title (String) - slug (String) - price (Number) - description (String) - category (Object with id, name, slug, image, createdAt, updatedAt) - images (Array) - createdAt (Date) - updatedAt (Date)	As Expected	200 OK (PASS)		
5			GET	1-Open Postman 2-Set Method GET 3-Enter endpoint /products 4-Click Send 5-Observe response headers	- Access-Control-Allow-Origin = * - Content-Type = application/json; charset=utf-8 - Strict-Transport-Security present - X-Content-Type-Options = nosniff - X-Frame-Options = SAMEORIGIN - Content-Security-Policy present - Cross-Origin-Opener-Policy = same-origin - Cross-Origin-Resource-Policy = same-origin	As Expected	200 OK (PASS)		
6			GET	1-Open Postman 2-Set Method GET 3-Enter endpoint /products 4-Click Send 5-Observe response headers	- Access-Control-Allow-Origin = * - Content-Type = application/json; charset=utf-8 - Strict-Transport-Security present - X-Content-Type-Options = nosniff - X-Frame-Options = SAMEORIGIN - Content-Security-Policy present - Cross-Origin-Opener-Policy = same-origin - Cross-Origin-Resource-Policy = same-origin	As Expected	200 OK (PASS)		

All Products | Get a single product by id | Create a product | Update a product | Authentication with JWT(Login) | Get a single category by slug | Create a category | Delete a category

Type here to search

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docs.google.com/spreadsheets/d/1wGYPI54EtUoPd_PKVqJp3j21xDbOaAiNIHG_I8AeUI8/edit?gid=1564463331#gid=1564463331

Windows taskbar showing search bar, taskbar icons (File Explorer, Microsoft Edge, Spotify, Word, WhatsApp, Chrome, Camera, OneDrive, Outlook), system tray (22°C, 12:30 PM, 11/30/2025, ENG, network, volume, battery).

API Testing :

I performed API testing on the Get a single category by slug, Create a category And Delete a category

docs.google.com/spreadsheets/d/1wGYPi54EtUoPD_PKVqJp3j21xDfOaAiNIHG_I8AeUI8/edit?gid=1502199944#gid=1502199944

API Testing on Platzi

	A	B	C	D	E	F	G	H	I
	Id	API Name	EndPoints	Method	Test Steps	Expected result	Actual result	Status Code	Bug Report
1					1. Open Postman 2. Method = POST 3. URL → /categories/ 4. Body → raw → JSON: { "name": "Electronics", "image": "https://i.imgur.com/example.jpg" } 5. Click Send	201 Created, response Contains new data(id, name, image, createdAt, updatedAt)	As Expected	201 Created (PASS)	
2					Body missing name: { "image": "https://i.imgur.com/example.jpg" }	400 Bad Request – "name is required"	"statusCode": 500, "message": "Internal server error"	500 Internal Server Error (FAIL)	https://docs.google.com/document/d/1JHcxuHS3l_gq58SVc4qlx1ubdeYW6YETW5tcrXIUz/edit?usp=sharing
3					Body with empty name: { "name": "", "image": "https://i.imgur.com/example.jpg" }	"statusCode": 400 "error": "Bad Request", "message": ["name should not be empty"]	As Expected	400 Bad Request (PASS)	
4					Body missing image: { "name": "Electronics" }	"statusCode": 400 "error": "Bad Request", "message": ["image should not be empty", "image must be a URL address"]	As Expected	400 Bad Request (PASS)	
5		Categories	/categories/	POST					
6					Invalid image URL: { "name": "Electronics", "image": "invalid_url" }	400 Bad Request – "image must be a valid URL"	201 Created	201 Created (FAIL)	https://docs.google.com/document/d/1u3FSSGWW7uGyEZ3VUhUbbnuUsRaiQuBHHct57BQvVyc/edit?usp=sharing
7					Duplicate category name: { "name": "Electronics", "image": "https://i.imgur.com/example.jpg" }	409 Conflict – "Category already exists"	400 Bad Request "message": "SqliteError: UNIQUE constraint failed: category.slug",	400 Bad Request (FAIL)	https://docs.google.com/document/d/1JwIKv4kegaTlhWVKWao-uKTaCtDof81niA_Q2cah4iQo/edit?usp=sharing
8					Body with extra fields: { "name": "Electronics", "image": "https://i.imgur.com/example.jpg", "role": "admin" }	201 Created – extra fields ignored	400 Bad Request "message": "SqliteError: UNIQUE constraint failed: category.slug"	400 Bad Request (FAIL)	https://docs.google.com/document/d/1HTQVVYy3PhwhqIp2qgbAJjCICUQ8mJ39BKu14uSYd0R/edit?usp=sharing

Bug Report

Title: Missing name field causes 500 Internal Server Error

Environment: Categories API — POST /categories/

Precondition: Postman open, valid API URL

Steps to Reproduce:

1. Open Postman
2. Set Method = POST
3. URL = /categories/
4. Body → raw → JSON: { "image": "https://i.imgur.com/example.jpg" }
5. Click Send

Expected Result: 400 Bad Request – "name is required"

Actual Result: 500 Internal Server Error – "Internal server error"

Attachments:

Severity: High

Update a product Authentication with JWT(Login) Get a single category by slug Create a category Delete a category Filter by Title Filter by Price Filter by Category

Type here to search

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API Testing :

I performed API testing on the Filter by Title, Filter by Price, Filter by Category.

docs.google.com/spreadsheets/d/1wGYPi54EtUoPD_PKVqJp3j21xDfOaAiNIHG_I8AeUI8/edit?gid=148712802#gid=148712802

API Testing on Platzi

Id	API Name	EndPoints	Method	Test Steps	Expected result	Actual result	Status Code	Bug Report
1#	Products	/products/?price=100	Get	1. Open Postman 2. Method = GET 3. URL = https://api.escuelajs.co/api/v1/products/?price=100 4. Click Send	Array of products with price exactly 100	As Expected	200	
2#		/products/?price=0		1. Open Postman 2. Method = GET 3. URL = https://api.escuelajs.co/api/v1/products/?price=0 4. Click Send	Array of products with price exactly 0	200 Ok List of All products	200	https://docs.google.com/document/d/135J7Z154ToMUyPMD2cmQIDxIRJKEFG7aqatyTaL8/edit?usp=sharing
3#		/products/?price=-50		1. Open Postman 2. Method = GET 3. URL = https://api.escuelajs.co/api/v1/products/?price=-50 4. Click Send	400 Bad Request price must be positive	empty array	200	https://docs.google.com/document/d/13FvQg3rDXLxKXgFHKmJkrU0-3iJAB2HGQsJhz5QY/edit?usp=sharing
4#		/products/?price=abc		1. Open Postman 2. Method = GET 3. URL = https://api.escuelajs.co/api/v1/products/?price=abc 4. Click Send	400 Bad Request Error message	Array of products	200	https://docs.google.com/document/d/19JgcfY2AmiJjingM9Uub7eF5coJLYh8MyQthUmiAXWXL/edit?usp=sharing
5#		/products/?price=999999		1. Open Postman 2. Method = GET 3. URL = https://api.escuelajs.co/api/v1/products/?price=999999 4. Click Send	empty array	As Expected	200	
6#		/products/		1. Open Postman 2. Method = GET 3. URL = https://api.escuelajs.co/api/v1/products/ 4. Click Send	All products returned or default behavior	All products returned	200	
7#		/products/?price=100; DROP TABLE products;--		1. Open Postman 2. Method = GET 3. URL = /products/?price=100; DROP TABLE products;-- 4. Click Send	400 Bad Request, no crash	200 OK returns all products (filter ignored)	200 Ok (FAIL)	https://docs.google.com/document/d/1w165wpuAPIUYiN3oASRmPltLag72dTve5u_Klgzmo/edit?usp=sharing
8#		/products/?price=100; DROP TABLE products;--		1. Open Postman 2. Method = GET 3. URL = /products/?price=100; DROP TABLE products;-- 4. Click Send	400 Bad Request, no crash			

Update a product | Authentication with JWT (Login) | Get a single category by slug | Create a category | Delete a category | Filter by Title | Filter by Price | Filter by Category

Bug Report(API ignores price filter when price = 0)

Steps to Reproduce:

- Open Postman
- Set Method = GET
- Enter URL: https://api.escuelajs.co/api/v1/products/?price=0
- Click Send

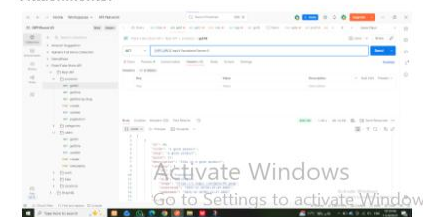
Expected Result:

- API should return only products where price == 0
- If no product has price 0 → should return EMPTY ARRAY []

Actual Result:

- API returns a list of all products regardless of price
- Filter is ignored

Attachments:



Severity: Medium

System Design

- [Git Hub Link](#)
- [Manual testing Link](#)
- [Automation Testing Link](#)
- [API Testing Link](#)

Conclusion

- Summary

We applied three testing techniques to cover UI, backend logic, and automation stability.

Each method provided different insights and helped uncover defects at different layers.

Together, they gave us 100% test coverage and improved overall quality of the system.

Thank you