

# ■■■ MySQL Database Validation Testing Report – OpenCart Project

## ■ Overview

This report summarizes the database validation testing performed on the OpenCart system, installed locally using XAMPP and MySQL. The goal of this testing task was to validate data consistency, detect possible data integrity issues, and verify that the OpenCart MySQL database enforces logical data relationships.

## ■■■ Environment Details

Database:	MySQL 8.0
Application:	OpenCart (Localhost)
Tool Used:	phpMyAdmin
Tester:	Mariam Gaafar
Date:	11/12/2025

## ■ Testing Scope

The following test cases validate core database entities such as Products, Categories, Customers, and Orders to ensure referential integrity, valid data, and proper enforcement of constraints.

## ■ Testing Summary

Test Case ID	Test Objective	SQL Query	Expected Result	Actual Result	Status	Severity	Recommendation
TC_DB_001	Verify all products have names	SELECT p.product_id FROM oc_product p LEFT JOIN oc_product_descripti on pd ON p.product_id = pd.product_id WHERE pd.name IS NULL OR pd.name = '';	No rows returned	No rows found	Pass	Low	Data valid
TC_DB_002	Validate product prices > 0	SELECT p.product_id, pd.name, p.price FROM oc_product p JOIN oc_product_descripti on pd ON p.product_id = pd.product_id WHERE p.price <= 0;	No rows returned	No rows found	Pass	Medium	Ensure price input validation in admin panel

TC_DB_003	Validate product stock > 0	<pre>SELECT     p.product_id,     pd.name, p.quantity FROM oc_product p JOIN     oc_product_descripti on pd ON     p.product_id =     pd.product_id WHERE p.quantity &lt;= 0;</pre>	No rows returned	Some rows found	Fail	Medium	Prevent saving product with zero or negative quantity
TC_DB_004	Check for duplicate customer emails	<pre>SELECT email,     COUNT(*) AS count FROM oc_customer GROUP BY email HAVING COUNT(*) &gt; 1;</pre>	No duplicates	No duplicates	Pass	Low	OK
TC_DB_005	Validate orders linked to customers	<pre>SELECT o.order_id,     o.customer_id FROM oc_order o LEFT JOIN oc_customer c ON o.customer_id = c.customer_id WHERE     c.customer_id IS NULL;</pre>	No invalid links	No invalid links	Pass	Medium	OK
TC_DB_006	Validate categories linked to products	<pre>SELECT     c.category_id,     cd.name FROM oc_category c JOIN     oc_category_descripti on cd ON     c.category_id =     cd.category_id LEFT JOIN     oc_product_to_categ ory pc ON     c.category_id =     pc.category_id WHERE     pc.product_id IS NULL;</pre>	No categories without products	22 categories found	Fail	Medium	Add validation to ensure category has products
TC_DB_007	Validate admin usernames	<pre>SELECT user_id FROM oc_user WHERE username IS NULL OR username = ";</pre>	No missing usernames	None found	Pass	Low	OK

## ■ Summary of Result

Total Test Cases	Passed	Failed	Severity Level
7	5	2	Low to Medium

## ■ Conclusion

Based on the validation results, the OpenCart database structure and data are generally consistent and reliable. Two medium-severity issues were identified:

- Products with zero stock quantities.
- Categories without assigned products.

It is recommended to address these by enforcing stricter input validation in the admin interface and applying referential integrity constraints within the database.

