Project Report: Nu-Pay Web Portal

Duration: 2023

Role: Software Engineer

X Technologies Used: PHP, CodeIgniter, MySQL, JavaScript, jQuery, AJAX, Bootstrap, RESTful APIs

1. Project Background

The Nu-Pay Web Portal is a comprehensive payment management platform designed to streamline and centralize customer payment tracking across multiple payment gateways. The system ensures efficient transaction processing, financial reporting, and real-time tracking to enhance operational efficiency.

Key Features:

✓ **Multi-Gateway Payment Integration** – Supports transactions from various payment providers.

✓ Centralized Transaction Data Retrieval – Optimized data fetching for faster processing.
✓ Financial Reporting & Tracking – Automates report generation for better financial oversight.

✓ Secure & Scalable – Implements role-based access control (RBAC) for user management.

2. Key Responsibilities & Contributions

- Multi-Payment Gateway Integration
 - Developed **APIs to connect multiple payment providers**, ensuring smooth transaction processing.
 - Standardized **payment data formats** for consistent reporting across different gateways.
 - Implemented webhooks for real-time payment status updates.

Transaction Processing & Data Optimization

- Optimized **database queries** to ensure fast and accurate transaction retrieval.
- Designed scalable database structures to support high transaction volumes.
- Integrated caching techniques to reduce server load and improve response times.
- Financial Reporting & Tracking
 - Developed automated report generation tools for daily, weekly, and monthly financial summaries.

- Implemented **filterable and exportable transaction logs** for in-depth financial analysis.
- Created interactive dashboards to track payment trends and transaction statuses.
- Security & Access Control
 - Implemented **role-based access control (RBAC)** to restrict data access based on user roles.
 - Ensured secure API communications using token-based authentication.
 - Conducted **regular security audits** to prevent vulnerabilities in financial data processing.

3. Challenges & Solutions

Challenges	Solutions Implemented
Integrating multiple payment gateways with different APIs	Standardized data structures and implemented custom API wrappers .
Handling large volumes of transaction data efficiently	Optimized MySQL queries and implemented data indexing .
Ensuring secure payment data handling	Implemented API authentication & encryption to protect sensitive data.
Generating real-time financial reports with minimal processing delay	Used asynchronous data processing & caching techniques .

4. Impact & Results

- **Improved Payment Processing:** Reduced transaction retrieval time by 50%.
- **Enhanced Security:** Implemented **strong access controls** for financial data.
- **Automated Financial Reporting:** Eliminated **manual report generation** delays.
- Seamless Multi-Gateway Integration: Enabled smooth transactions across various payment providers.

5. Screenshots & Visuals

(Disclaimer: All data shown in the screenshots is for testing purposes only.)

1) List of transaction

VU-PAY									
Dashboard	Transaction Ma	nagement/ Tran	saction Lis	ting				±.Ex	port Excel
RANSACTIONS	Show 10 ~ entr	ies						Search:	
Payment Transaction	REFERENCE ID 👙	PAYMENT TYPE	AMOUNT 🗘	STATUS ()	PAYMENT GATEWAY	OPTION C	TRANSACTION TYPE	CREATED DATE	ACTION
MANAGEMENT	2023071914	E-Wallet	0.10	Pending	Razer Merchant Services	Boost Pay	Merchant	2023-11-03 09:34:13	Z
Customer Management	2023071915	E-Wallet	0.10	Reversed	Razer Merchant Services	Boost Pay	Merchant	2023-11-03 09:51:57	2
🗂 User Management	2023071916	E-Wallet	0.10	Reversed	Razer Merchant Services	Boost Pay	Merchant	2023-11-03 09:52:18	2
LE Roles	2023071917	E-Wallet	0.10	Reversed	Razer Merchant Services	Boost Pay	Merchant	2023-11-03 09:52:32	2
	2023071918	E-Wallet	0.10	Reversed	Razer Merchant Services	Boost Pay	Merchant	2023-11-03 09:52:48	2
	2023071919	E-Wallet	0.10	Reversed	Razer Merchant Services	Boost Pay	Merchant	2023-11-03 09:53:04	2
	2023071920	E-Wallet	0.10	Reversed	Razer Merchant Services	Boost Pay	Merchant	2023-11-03 09:53:21	2
	2023071921	E-Wallet	0.10	Reversed	Razer Merchant Services	Boost Pay	Merchant	2023-11-03 09:53:57	2
	2023071922	E-Wallet	0.10	Reversed	Razer Merchant Services	Boost Pay	Merchant	2023-11-03 09:54:16	2
	2023071923	E-Wallet	0.10	Reversed	Razer Merchant Services	Boost Pay	Merchant	2023-11-03 09:54:31	2

2) List of all staff based on company selected

NU-PAY		User List				×			(
Dashboard	Customer Mana	EMAIL	MOBILE NUMBER	GENDER	AGE STATU	NUPAYID		+ Cr	eate Customer
	Show 10 ~ entry	zulaikha@gmail.com	01244552214	Female	23 Active	NVP23110005		Search:	
Payment Transaction	CUSTOMER NAME	freen@gmail.com	0124565555	Female	26 Active	NVP23110006	TATUS C	CREATED DATE	ACTION C
	Antaragrafik Sdn Bhr					Close	uctive	2023-09-21 10:11:11	⊠⊛≡
🗂 Customer Management	Cosmos Integrity En						votive	2023-11-08 15:25:02	⊠⊛≡
🗐 User Management	Cr8tive Solutions Sdn B	lhd	Pandan Indah	Selangor	Malaysia		Active	2023-09-19 15:43:32	⊠⊛≡
ts Roles	Dow Chemical Pacific L	td	Petaling Jaya	Selangor	Malaysia	46350	Active	2023-09-25 10:53:20	⊠⊛≡
	Gemilang Sdn Bhd		Cheras	Selangor	Malaysia	36000	Active	2023-11-16 16:01:13	⊠⊚≡
	Grab Media Sdn Bhd		Balakong	Selangor	Malaysia	43300	Inactive	2023-09-25 10:29:33	⊠⊛≡
	Hicom Diecastings Sdn	Bhd	Shah Alam	Selangor	Malaysia	40400	Active	2023-09-20 10:00:59	⊠⊚≡
	Indah Jaya Sdn Bhd		Seri Kembangan	Selangor	Mainysia	36000	Active	2023-11-07 16:50:08	⊠⊚≡
	Intel Technology Sdn B	hd	Bayan Lepas	Pulau Pinang	Malaysia	11900	Active	2023-09-25 10:32:55	⊠⊛≡
	JV Smart Vending Sdn.	Bhd	Seti Kembangan	Selangor	Malaysia	43300	Active	2023-10-09 10:51:38	⊠⊛≡

3) Role permission setting

→ C O D D						
Dashboard	Role Management/Role Listing/				Back to L	_
Payment Transaction	User Role					
	Admin					
MANAGEMENT	Admin	VIEW	UPDATE	CREATE	DELETE	
HANAGEMENT		VIEW	UPDATE	CREATE	DELETE	
	MODULE					
Customer Management	MODULE	2			0	
Customer Management	MODULE DASHBOARD Payment transaction	⊠ ⊠				

6. Conclusion

The Nu-Pay Web Portal successfully streamlined payment tracking, reporting, and transaction management while ensuring security and scalability.