

Lab Work 5: Technical Report – Digital Payment API Integration

Objective

To understand the process of integrating a local e-commerce site with a Nepali digital payment API (eSewa).

Steps:

1. Selecting a payment provider

eSewa was chosen as our payment provider due to its popularity and robust API documentation.

2. Creating the report

a. Introduction

From Lab 1 to Lab 4, we were engaged in various work that involved:

Lab 1: Decided on the programming language, I went with Next.js with Postgres as my database for my ecommerce platform and created a basic user authentication system which includes user registration and login functionality.

Lab 2: Listed the products with the help of a form with product categorization which helped to enhance filtering. Also added a search functionality to enable easy finding of the product. Also added filtering by price to make it more dynamic.

Lab 3: Created an interactive shopping cart system where the users were allowed to add the listed product to their carts. The cart included all the necessary details along with the tax and delivery charge. The users were also allowed to add and remove products from the cart.

Lab 4: Implemented the product feedback and review system, where the user after payment can review their products, in the form of rating and description of their feedback. The feedback was displayed on the products page along with the average rating.

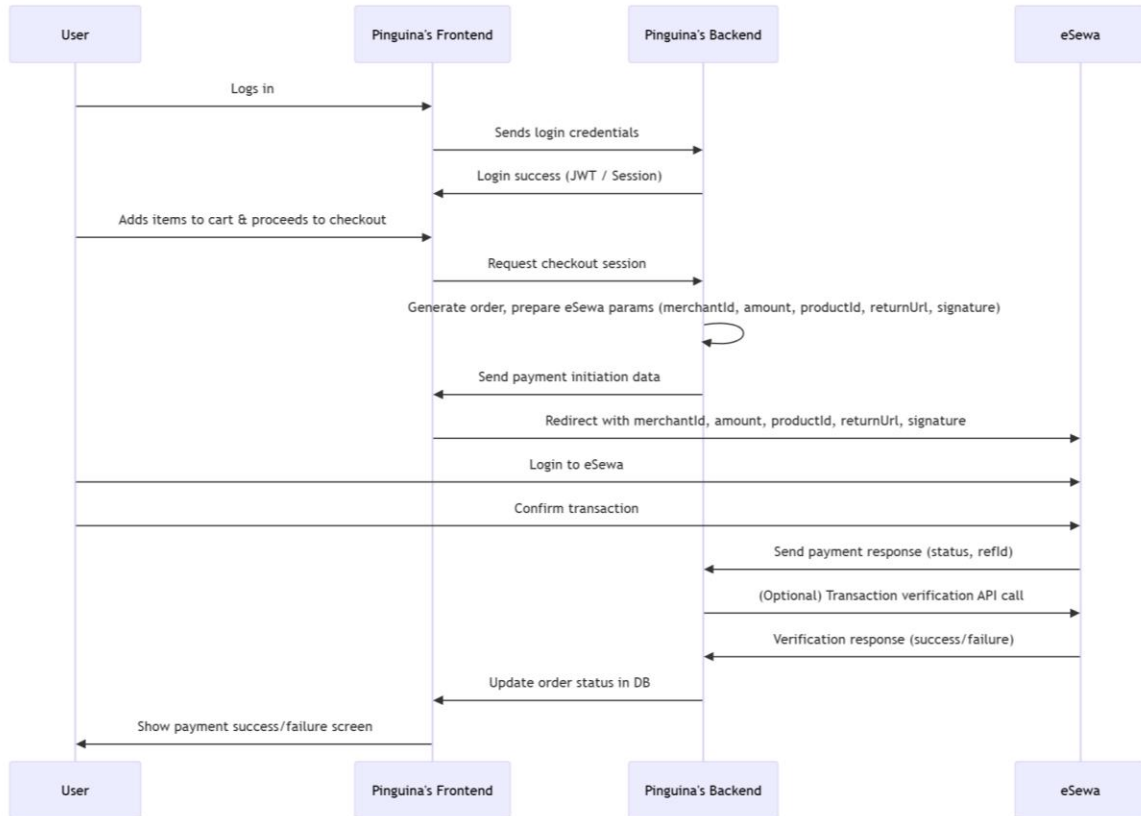
In Lab 5, the focus is integrating eSewa, Nepal's popular digital payment gateway, into the checkout process so that customers can securely pay online.

About eSewa:

eSewa is the Nepal's first online payment gateway which supports payment for goods and services, mobile recharge, utility bill payments, and more. It provides APIs for merchants to integrate into their websites and offers secure HTTP POST transaction requests with server-side verification.

b. System Flow Diagram

Below is the system interaction between the E-commerce App and eSewa API:



c. Integration Steps

Step 1: Account Registration

Create an eSewa Merchant Account via their official merchant registration page to obtain:
Merchant Code (merchant_id)
Secret Key (if applicable)

Step 2: Obtain API Credentials

From eSewa's merchant dashboard:
Merchant Code (e.g., EPAYTEST for testing)

Test Environment URLs:

Payment URL: <https://uat.esewa.com.np/epay/main>

Transaction Verification URL: <https://uat.esewa.com.np/epay/transrec>

Step 3: Callback/Redirect URL Setup

Success URL – Redirects when payment is successful.

Failure URL – Redirects when payment fails or is canceled.

Configure these in both your code and eSewa merchant dashboard.

Step 4: Payment Request Format

POST Form Fields (Payment initiation):

Parameter	Description	Example
amt	Payment Amount	100
psc	Service Charge	0
pdv	Delivery Charge	0
txAmt	Tax Amount	0
tAmt	Total Amount	100
pid	Unique Transaction ID	ABCD12345
scd	Merchant Code	EPAYTEST
su	Success Callback URL	https://localhost:3000/eseva/success
fu	Failure Callback URL	https://localhost:3000/eseva/failure

Sample HTML Payment Request Form:

```
<form action="https://uat.esewa.com.np/epay/main" method="POST">
  <input value="100" name="amt" type="hidden">
  <input value="0" name="psc" type="hidden">
  <input value="0" name="pdv" type="hidden">
  <input value="0" name="txAmt" type="hidden">
  <input value="100" name="tAmt" type="hidden">
  <input value="ABCD12345" name="pid" type="hidden">
  <input value="EPAYTEST" name="scd" type="hidden">
  <input value="https://example.com/success" type="hidden"
name="su">
  <input value="https://example.com/failure" type="hidden"
name="fu">
  <input value="Submit" type="submit">
</form>
```

Screenshots after esewa payment integration:

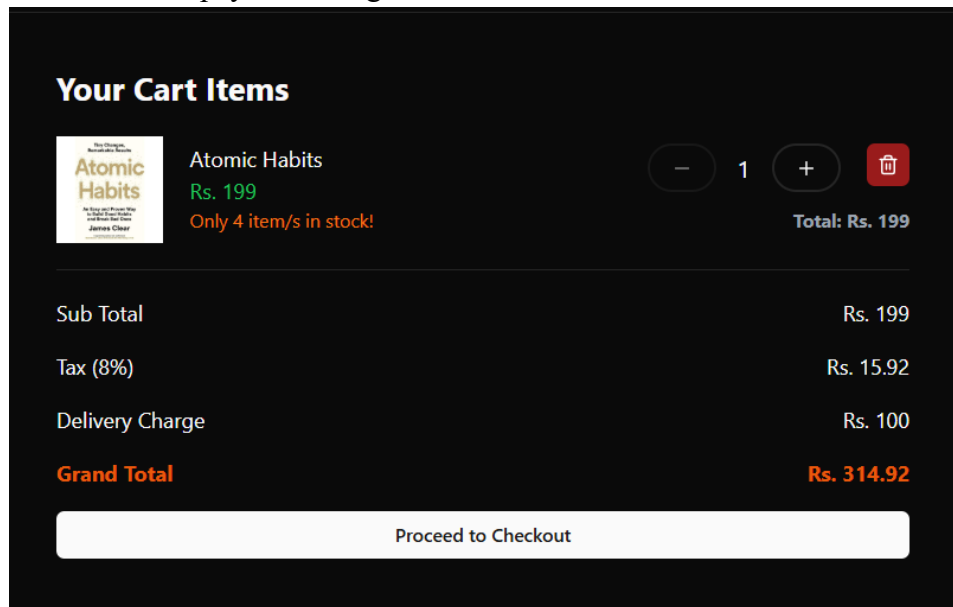


Figure 1: Checkout screen

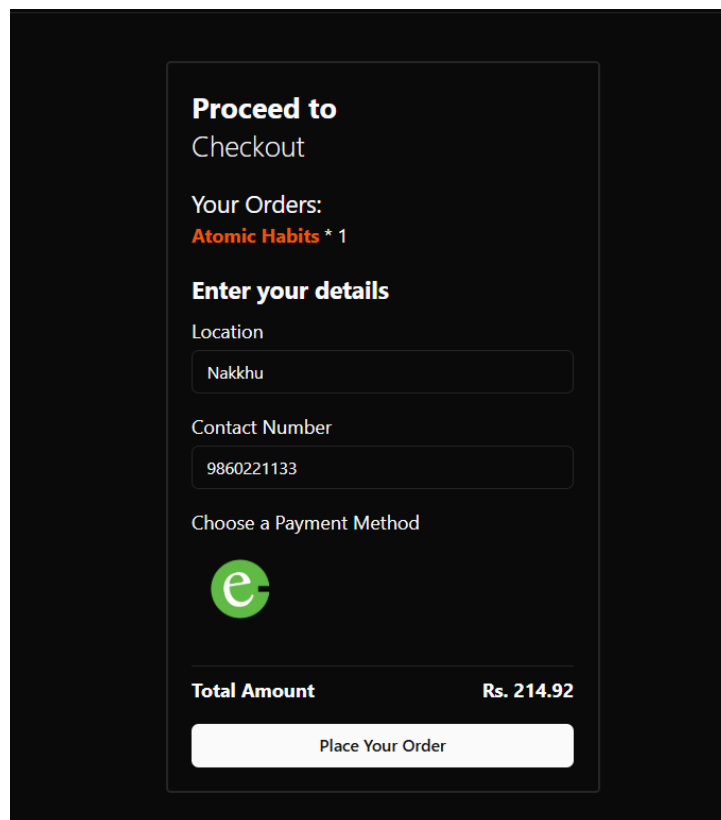


Figure 2: Selecting payment option

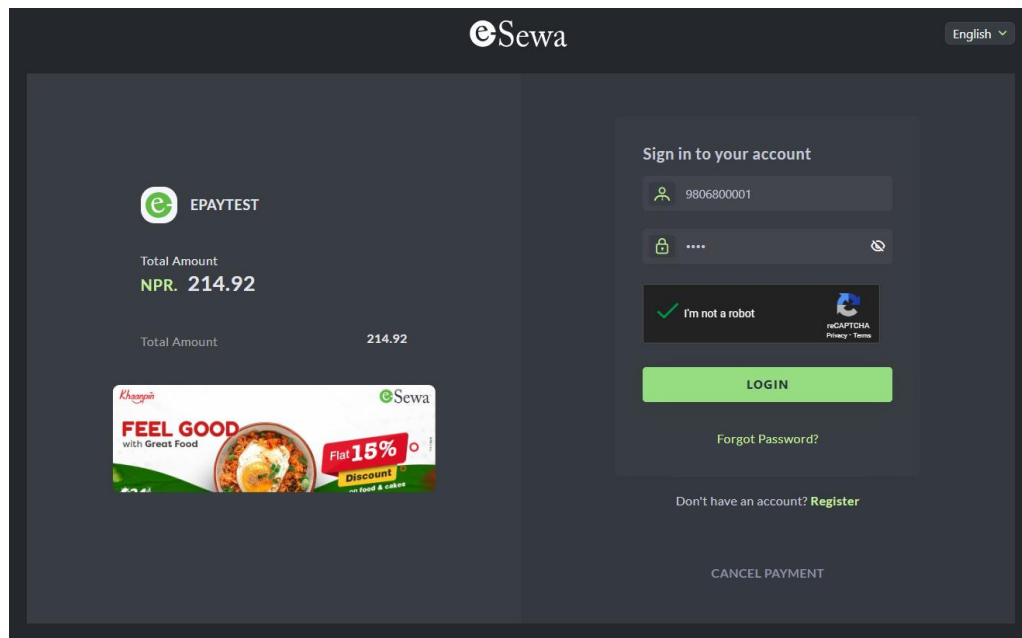


Figure 3: eSewa Login Screen

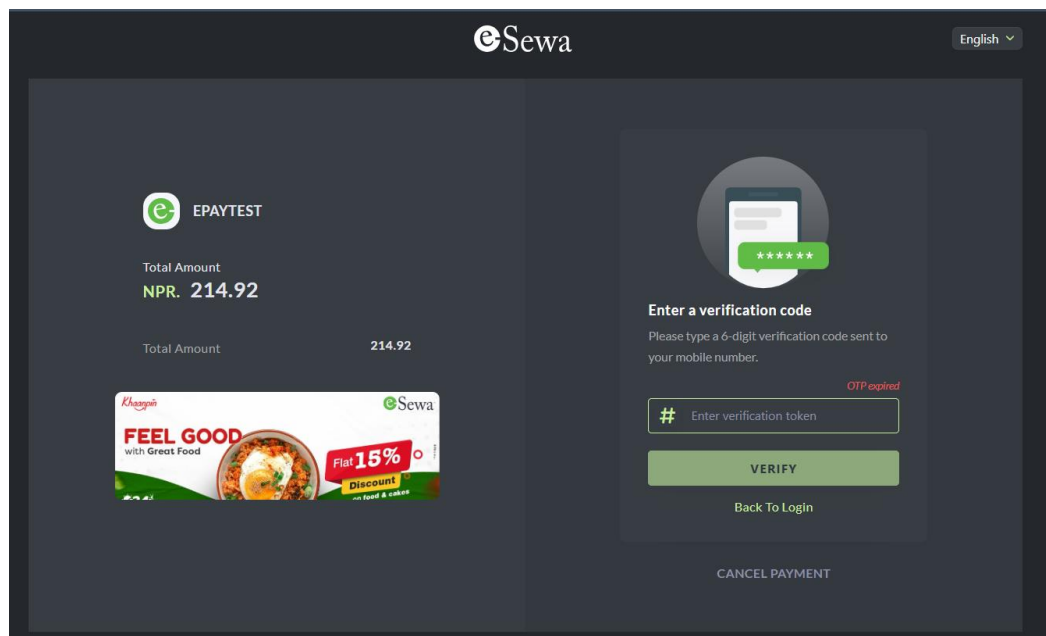


Figure 4: eSewa OTP screen

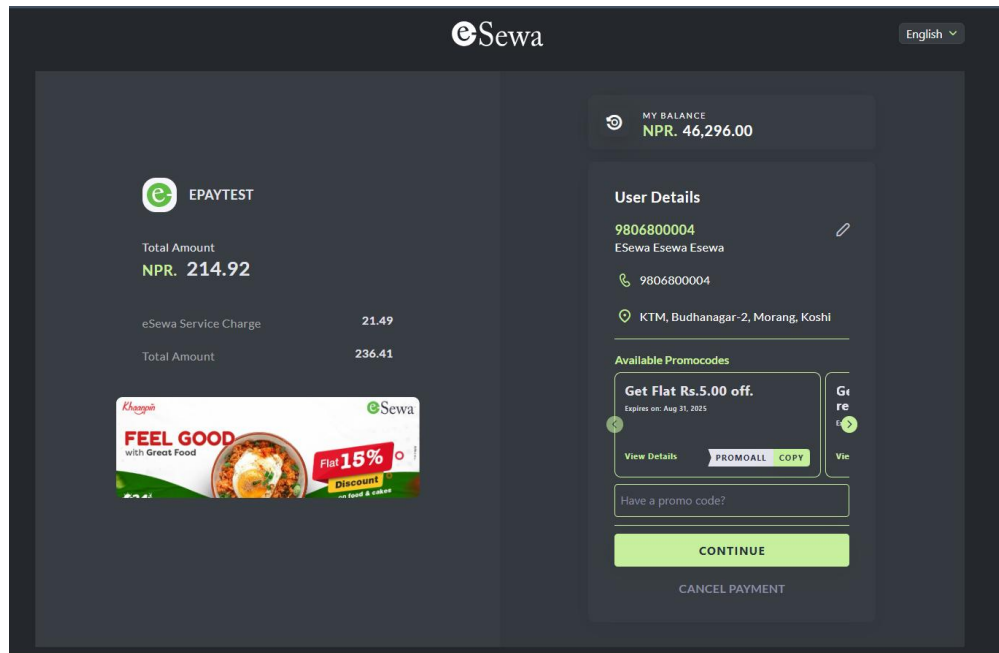


Figure 5: Final payment screen

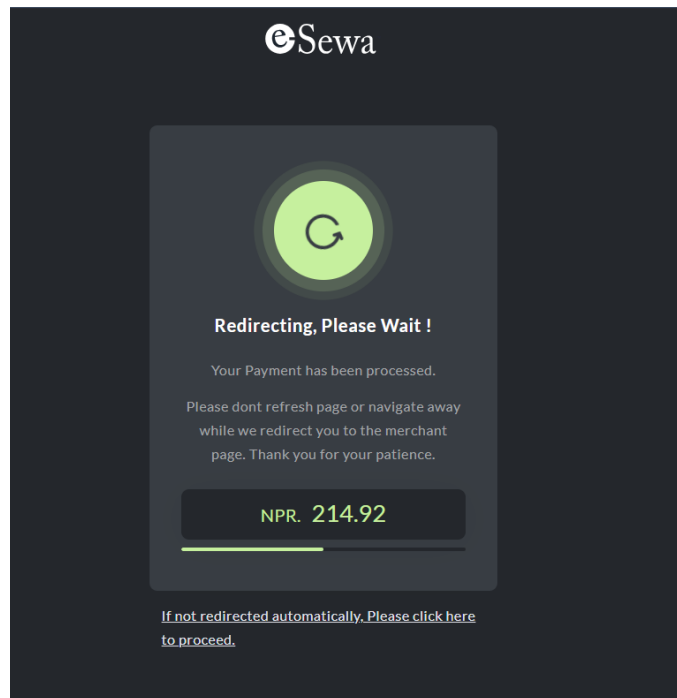


Figure 6: Redirecting to Our App

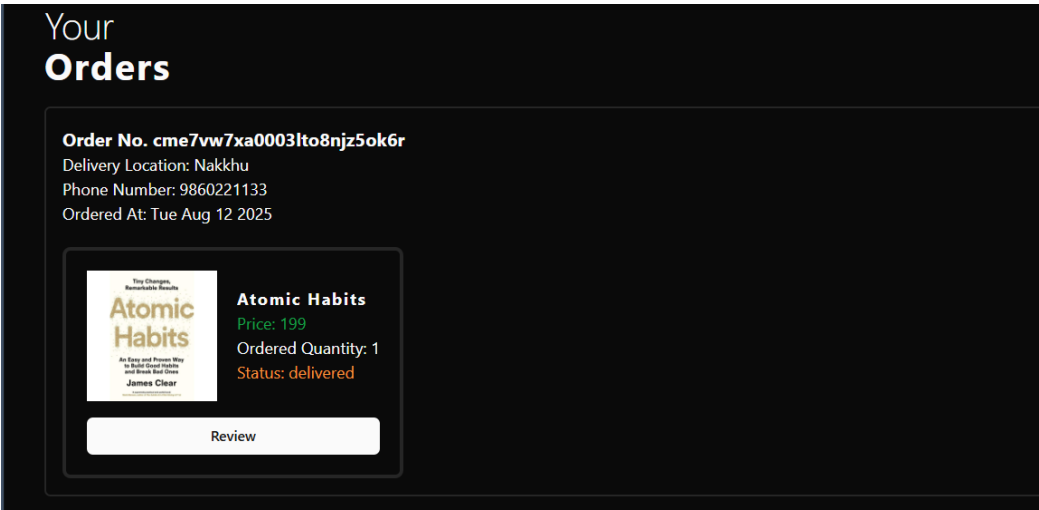


Figure 7: Order page after successful payment

	id [PK] text	transactionId text	orderId text	amount double precision	status "PaymentStatus"	createdAt timestamp without time zone (3)
1	cmcqz9mfs0009ltmkob5ghiry	000B550	cmcqz9mf60005ltmkodv9kf...	214.92	PAID	2025-07-06 01:12:34.264

Figure 8: Database after successful payment

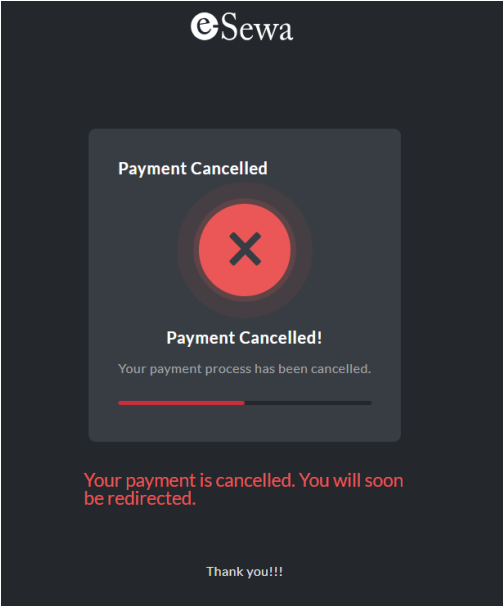


Figure 9: eSewa Payment Cancellation

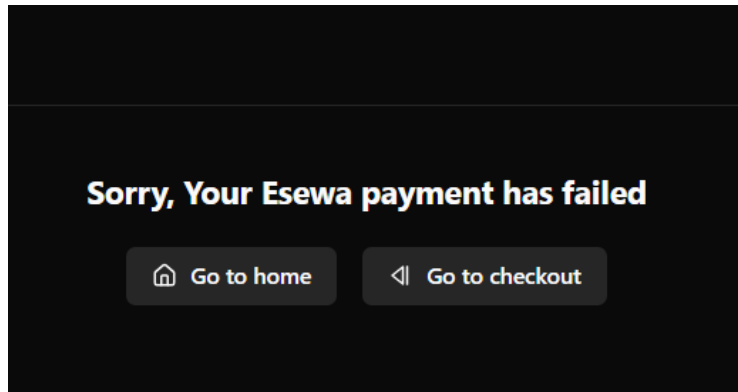


Figure 10: Esewa failed payment in the app

3. Documentation and reference

Official Docs: <https://developer.esewa.com.np/pages/Introduction>

Test Credentials:

eSewa ID: 9806800001/2/3/4/5

Password: Nepal@123

MPIN: 1122 (for application only)

Merchant ID/Service Code: EPAYTEST

Token:123456

Secret Key: 8gBm/:&EnhH.1/q