**DBMS-Driven Financial and Investment Management System**

**Codes Used**

1. **Database creation sql code**

-- Create Customer Table

CREATE TABLE Customer (

Cust\_ID INT AUTO\_INCREMENT PRIMARY KEY,

F\_Name VARCHAR(50),

L\_Name VARCHAR(50),

DOB DATE,

Age INT,

Address TEXT,

Mobile\_no VARCHAR(15)

);

-- Create Bank Table

CREATE TABLE Bank (

B\_name VARCHAR(50),

Code INT PRIMARY KEY,

City VARCHAR(50),

Address TEXT

);

-- Create Branch Table

CREATE TABLE Branch (

Branch\_Code INT PRIMARY KEY,

Branch\_name VARCHAR(50),

Address TEXT,

Code INT,

FOREIGN KEY (Code) REFERENCES Bank(Code)

);

-- Create Employee Table

CREATE TABLE Employee (

Emp\_id INT AUTO\_INCREMENT PRIMARY KEY,

Emp\_name VARCHAR(100),

Address TEXT,

Mobile\_no VARCHAR(15),

Branch\_Code INT,

FOREIGN KEY (Branch\_Code) REFERENCES Branch(Branch\_Code)

);

-- Create Account Table

CREATE TABLE Account (

Account\_No INT AUTO\_INCREMENT PRIMARY KEY,

Balance DECIMAL(10, 2),

Cust\_ID INT,

FOREIGN KEY (Cust\_ID) REFERENCES Customer(Cust\_ID)

);

-- Create Investments Table

CREATE TABLE Investments (

Investment\_ID INT AUTO\_INCREMENT PRIMARY KEY,

AccountID INT,

Amount DECIMAL(10, 2),

LockInPeriod INT,

Interest\_rate DECIMAL(5, 2),

Inception\_date DATE,

FOREIGN KEY (AccountID) REFERENCES Account(Account\_No)

);

-- Create Returns Table

CREATE TABLE Returns (

Return\_ID INT AUTO\_INCREMENT PRIMARY KEY,

Return\_amt DECIMAL(10, 2),

Return\_Date DATE,

Investment\_ID INT,

FOREIGN KEY (Investment\_ID) REFERENCES Investments(Investment\_ID)

);

-- Create Policy Table

CREATE TABLE Policy (

Policy\_ID INT AUTO\_INCREMENT PRIMARY KEY,

Policy\_Name VARCHAR(100),

Duration INT, -- Duration in months

Interest\_Rate DECIMAL(5, 2)

);

INSERT INTO Policy (Policy\_Name, Duration, Interest\_Rate)

VALUES

('Fixed Deposit', 12, 6.5),

('Recurring Deposit', 24, 5.8),

('Mutual Funds', 36, 8.2);

1. **App.py code**

from flask import Flask, render\_template, request, redirect

import mysql.connector

app = Flask(\_\_name\_\_)

# Database connection

db = mysql.connector.connect(

host="localhost",

user="root", # Default XAMPP MySQL user

password="", # No password for XAMPP MySQL

database="InvestmentManagement"

)

@app.route('/')

def index():

return render\_template('index.html')

@app.route('/add\_customer', methods=['GET', 'POST'])

def add\_customer():

if request.method == 'POST':

fname = request.form['fname']

lname = request.form['lname']

dob = request.form['dob']

age = request.form['age']

address = request.form['address']

mobile\_no = request.form['mobile\_no']

cursor = db.cursor()

cursor.execute("""

INSERT INTO Customer (F\_Name, L\_Name, DOB, Age, Address, Mobile\_no)

VALUES (%s, %s, %s, %s, %s, %s)

""", (fname, lname, dob, age, address, mobile\_no))

db.commit()

return redirect('/')

return render\_template('add\_customer.html')

@app.route("/investment\_policies", methods=["GET", "POST"])

def investment\_policies():

policies = [

{"Policy\_ID": 1, "Policy\_Name": "Fixed Deposit", "Duration": 12, "Interest\_Rate": 6.5},

{"Policy\_ID": 2, "Policy\_Name": "Recurring Deposit", "Duration": 24, "Interest\_Rate": 5.8},

{"Policy\_ID": 3, "Policy\_Name": "Mutual Funds", "Duration": 36, "Interest\_Rate": 8.2},

]

if request.method == "POST":

# Handle investment form submission

if 'amount' in request.form: # Investment form

account\_id = request.form['account\_id']

policy\_id = request.form['policy\_id']

amount = float(request.form['amount'])

investment\_success = "Investment Successful"

return render\_template("investment\_policies.html", investment\_success=investment\_success, policies=policies)

# Handle return calculation form submission

elif 'customer\_id' in request.form: # Return calculation form

customer\_id = request.form['customer\_id']

policy\_id = request.form['policy\_id']

principal = float(request.form['principal'])

interest\_rate = 6.5 # Example rate

lock\_in\_period = 12 # Example period

return\_amount = principal \* (1 + (interest\_rate / 100) \* lock\_in\_period)

monthly\_payment = return\_amount / lock\_in\_period

return\_data = {

"policy": policy\_id,

"principal": principal,

"return\_amount": return\_amount,

"monthly\_payment": monthly\_payment,

"lock\_in\_period": lock\_in\_period

}

return render\_template("investment\_policies.html", return\_data=return\_data, policies=policies)

return render\_template("investment\_policies.html", policies=policies)

@app.route('/calculate\_return', methods=['GET', 'POST'])

def calculate\_return():

return\_data = None

if request.method == 'POST':

customer\_id = request.form['customer\_id']

policy\_id = request.form['policy\_id']

principal = float(request.form['principal'])

cursor = db.cursor(dictionary=True)

cursor.execute("SELECT \* FROM Policy WHERE Policy\_ID = %s", (policy\_id,))

policy = cursor.fetchone()

if policy:

lock\_in\_period = policy['Duration']

interest\_rate = policy['Interest\_Rate']

return\_amount = principal \* (1 + (float(interest\_rate) / 100) \* lock\_in\_period)

monthly\_payment = return\_amount / lock\_in\_period # Monthly payment estimate

return\_data = {

'policy': policy['Policy\_Name'],

'principal': principal,

'return\_amount': return\_amount,

'monthly\_payment': monthly\_payment,

'lock\_in\_period': lock\_in\_period

}

return render\_template('calculate\_return.html', return\_data=return\_data)

@app.route('/view\_customer', methods=['GET', 'POST'])

def view\_customer():

customer\_data = None

if request.method == 'POST':

customer\_id = request.form['customer\_id']

cursor = db.cursor(dictionary=True)

cursor.execute("""

SELECT Cust\_ID, F\_Name, L\_Name, Mobile\_no FROM Customer WHERE Cust\_ID = %s

""", (customer\_id,))

customer = cursor.fetchone()

cursor.execute("""

SELECT Account\_No, Balance FROM Account WHERE Cust\_Id = %s

""", (customer\_id,))

accounts = cursor.fetchall()

cursor.execute("""

SELECT Investment\_ID, Amount, Policy\_Name, LockInPeriod, Interest\_rate

FROM Investments WHERE AccountID IN (SELECT Account\_No FROM Account WHERE Cust\_Id = %s)

""", (customer\_id,))

investments = cursor.fetchall()

cursor.execute("""

SELECT r.Return\_amt, r.Investment\_ID FROM Returns r

INNER JOIN Investments i ON r.Investment\_ID = i.Investment\_ID

INNER JOIN Account a ON i.AccountID = a.Account\_No

WHERE a.Cust\_Id = %s

""", (customer\_id,))

returns = cursor.fetchall()

customer\_data = {

'customer': customer,

'accounts': accounts,

'investments': investments,

'returns': returns

}

return render\_template('view\_customer.html', customer\_data=customer\_data)

if \_\_name\_\_ == '\_\_main\_\_':

app.run(debug=True)

1. **Index.html**

<!DOCTYPE html>

<html>

<head>

<title>Investment Management</title>

</head>

<body>

<h1>Investment Management System</h1>

<a href="/add\_customer">Add Customer</a><br>

<a href="/investment\_policies">Investment Policies</a><br>

<a href="/view\_customer">View Customer</a>

</body>

</html>

1. **Add\_customer.html**

<!DOCTYPE html>

<html>

<head>

<title>Add Customer</title>

</head>

<body>

<h1>Add Customer</h1>

<form method="POST">

<label>First Name:</label><br>

<input type="text" name="fname" required><br>

<label>Last Name:</label><br>

<input type="text" name="lname" required><br>

<label>Date of Birth:</label><br>

<input type="date" name="dob" required><br>

<label>Age:</label><br>

<input type="number" name="age" required><br>

<label>Address:</label><br>

<textarea name="address" required></textarea><br>

<label>Mobile Number:</label><br>

<input type="text" name="mobile\_no" required><br>

<input type="submit" value="Add Customer">

</form>

</body>

</html>

1. **Investment\_policies.html**

<!DOCTYPE html>

<html>

<head>

<title>Investment Policies</title>

</head>

<body>

<h1>Investment Policies</h1>

<table border="1">

<tr>

<th>ID</th>

<th>Policy Name</th>

<th>Duration (months)</th>

<th>Interest Rate</th>

</tr>

{% for policy in policies %}

<tr>

<td>{{ policy.Policy\_ID }}</td>

<td>{{ policy.Policy\_Name }}</td>

<td>{{ policy.Duration }}</td>

<td>{{ policy.Interest\_Rate }}%</td>

</tr>

{% endfor %}

</table>

<h2>Make an Investment</h2>

{% if investment\_success %}

<p>{{ investment\_success }}</p>

{% endif %}

<form method="POST" action="/investment\_policies">

<label>Account ID:</label>

<input type="number" name="account\_id" required><br><br>

<label>Select Policy:</label>

<select name="policy\_id" required>

{% for policy in policies %}

<option value="{{ policy.Policy\_ID }}">{{ policy.Policy\_Name }}</option>

{% endfor %}

</select><br><br>

<label>Investment Amount:</label>

<input type="number" name="amount" step="0.01" required><br><br>

<input type="submit" value="Invest">

</form>

<h2>Calculate Return</h2>

<form method="POST" action="/investment\_policies"> <!-- Make sure this action is correct -->

<label>Customer ID:</label>

<input type="number" name="customer\_id" required><br><br>

<label>Select Policy:</label>

<select name="policy\_id" required>

{% for policy in policies %}

<option value="{{ policy.Policy\_ID }}">{{ policy.Policy\_Name }}</option>

{% endfor %}

</select><br><br>

<label>Principal Amount:</label>

<input type="number" name="principal" step="0.01" required><br><br>

<input type="submit" value="Calculate">

</form>

{% if return\_data %}

<h3>Return Estimate</h3>

<p>Policy: {{ return\_data.policy }}</p>

<p>Principal: {{ return\_data.principal }}</p>

<p>Estimated Return Amount: {{ return\_data.return\_amount }}</p>

<p>Monthly Payment: {{ return\_data.monthly\_payment }}</p>

<p>Lock-in Period: {{ return\_data.lock\_in\_period }} months</p>

{% endif %}

<a href="/">Back to Home</a>

</body>

</html>

1. **Calculate\_return.html**

<!DOCTYPE html>

<html lang="en">

<head>

<meta charset="UTF-8">

<meta name="viewport" content="width=device-width, initial-scale=1.0">

<title>Calculate Return</title>

</head>

<body>

<h1>Calculate Investment Return</h1>

<!-- Form to calculate the return based on policy and principal amount -->

<form method="POST">

<label for="policy\_id">Select Policy:</label>

<select name="policy\_id" id="policy\_id" required>

{% for policy in policies %}

<option value="{{ policy.Policy\_ID }}">{{ policy.Policy\_Name }} (Duration: {{ policy.Duration }} months, Interest: {{ policy.Interest\_Rate }}%)</option>

{% endfor %}

</select><br><br>

<label for="principal">Principal Amount:</label>

<input type="number" id="principal" name="principal" step="0.01" required><br><br>

<input type="submit" value="Calculate Return">

</form>

<!-- If return amount is calculated, display it -->

{% if return\_amount %}

<h3>Estimated Return</h3>

<p><strong>Policy Name:</strong> {{ policy\_name }}</p>

<p><strong>Principal Amount:</strong> {{ principal }}</p>

<p><strong>Estimated Return Amount:</strong> {{ return\_amount }}</p>

<p><strong>Estimated Monthly Payment:</strong> {{ monthly\_payment }}</p>

<p><strong>Lock-in Period:</strong> {{ lock\_in\_period }} months</p>

{% endif %}

<br><br>

<a href="/">Back to Home</a>

</body>

</html>

1. **View\_customer.html**

<!DOCTYPE html>

<html>

<head>

<title>View Customer</title>

</head>

<body>

<h1>View Customer</h1>

<form method="POST">

<label>Customer ID:</label>

<input type="text" name="customer\_id" required>

<input type="submit" value="Search">

</form>

{% if customer\_data %}

<h2>Customer Details</h2>

<p>Name: {{ customer\_data.customer.F\_Name }} {{ customer\_data.customer.L\_Name }}</p>

<p>Mobile: {{ customer\_data.customer.Mobile\_no }}</p>

<h2>Accounts</h2>

<table border="1">

<tr>

<th>Account No</th>

<th>Balance</th>

</tr>

{% for account in customer\_data.accounts %}

<tr>

<td>{{ account.Account\_No }}</td>

<td>{{ account.Balance }}</td>

</tr>

{% endfor %}

</table>

<h2>Investments</h2>

<table border="1">

<tr>

<th>Investment ID</th>

<th>Amount</th>

<th>Policy Name</th>

<th>Lock-in Period</th>

<th>Interest Rate</th>

</tr>

{% for investment in customer\_data.investments %}

<tr>

<td>{{ investment.Investment\_ID }}</td>

<td>{{ investment.Amount }}</td>

<td>{{ investment.Policy\_Name }}</td>

<td>{{ investment.LockInPeriod }}</td>

<td>{{ investment.Interest\_rate }}</td>

</tr>

{% endfor %}

</table>

<h2>Returns</h2>

<table border="1">

<tr>

<th>Return Amount</th>

<th>Investment ID</th>

</tr>

{% for ret in customer\_data.returns %}

<tr>

<td>{{ ret.Return\_amt }}</td>

<td>{{ ret.Investment\_ID }}</td>

</tr>

{% endfor %}

</table>

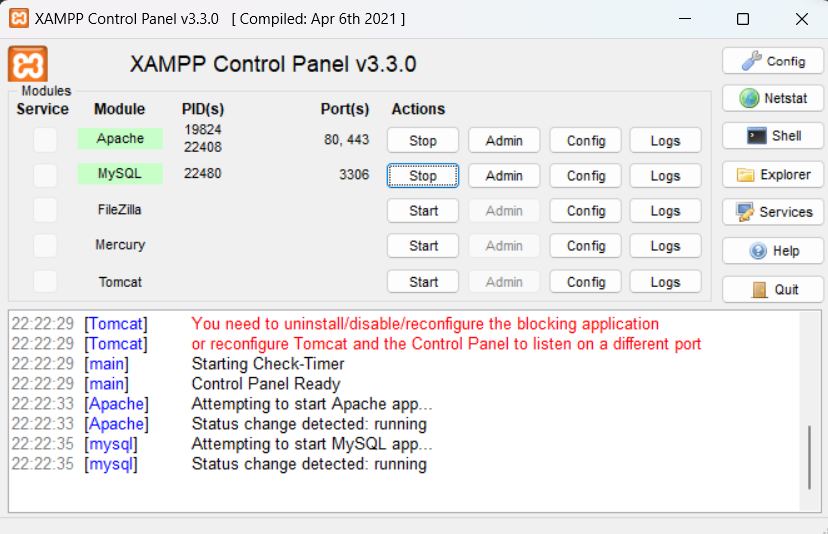
{% endif %}

</body>

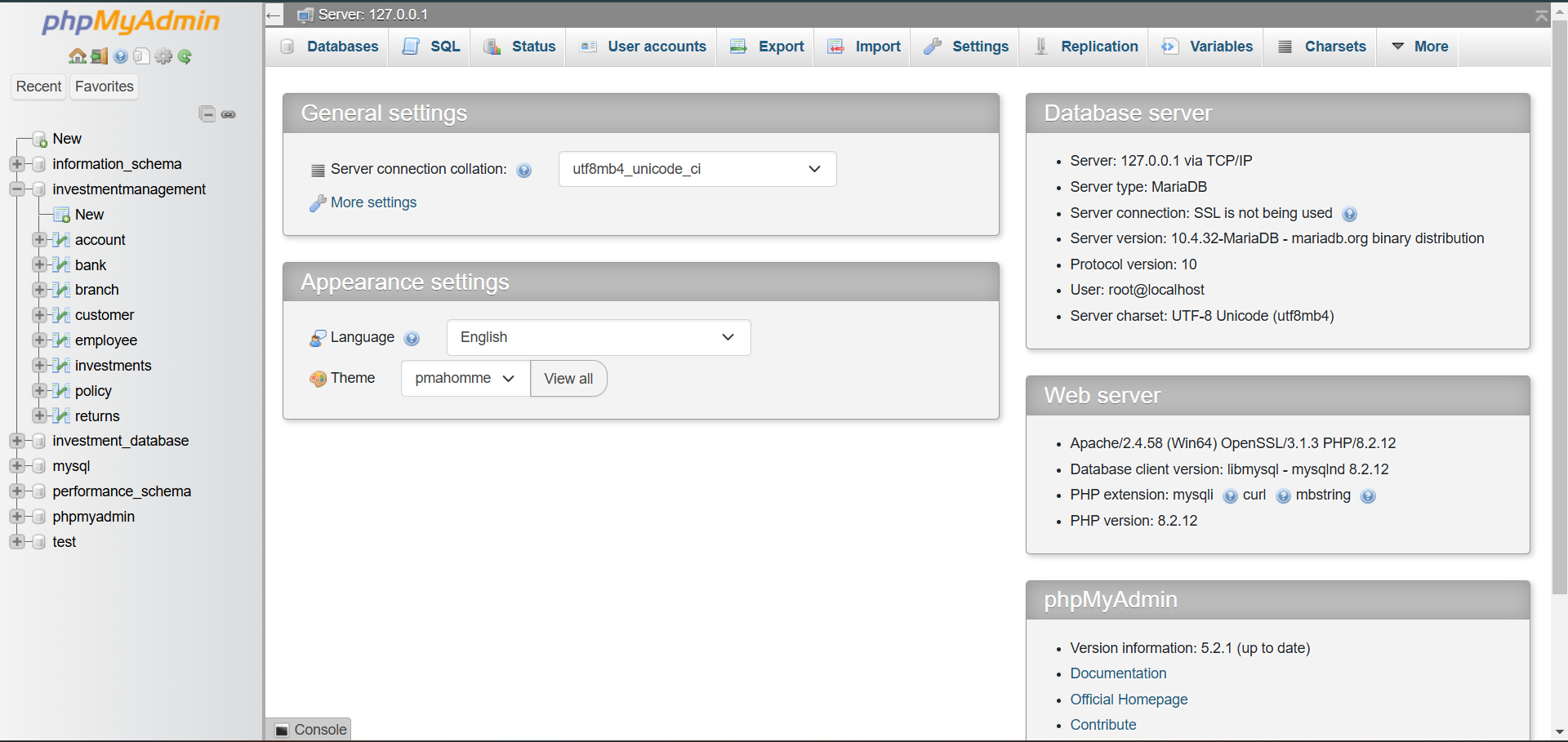
</html>

**Implementation Snippets**

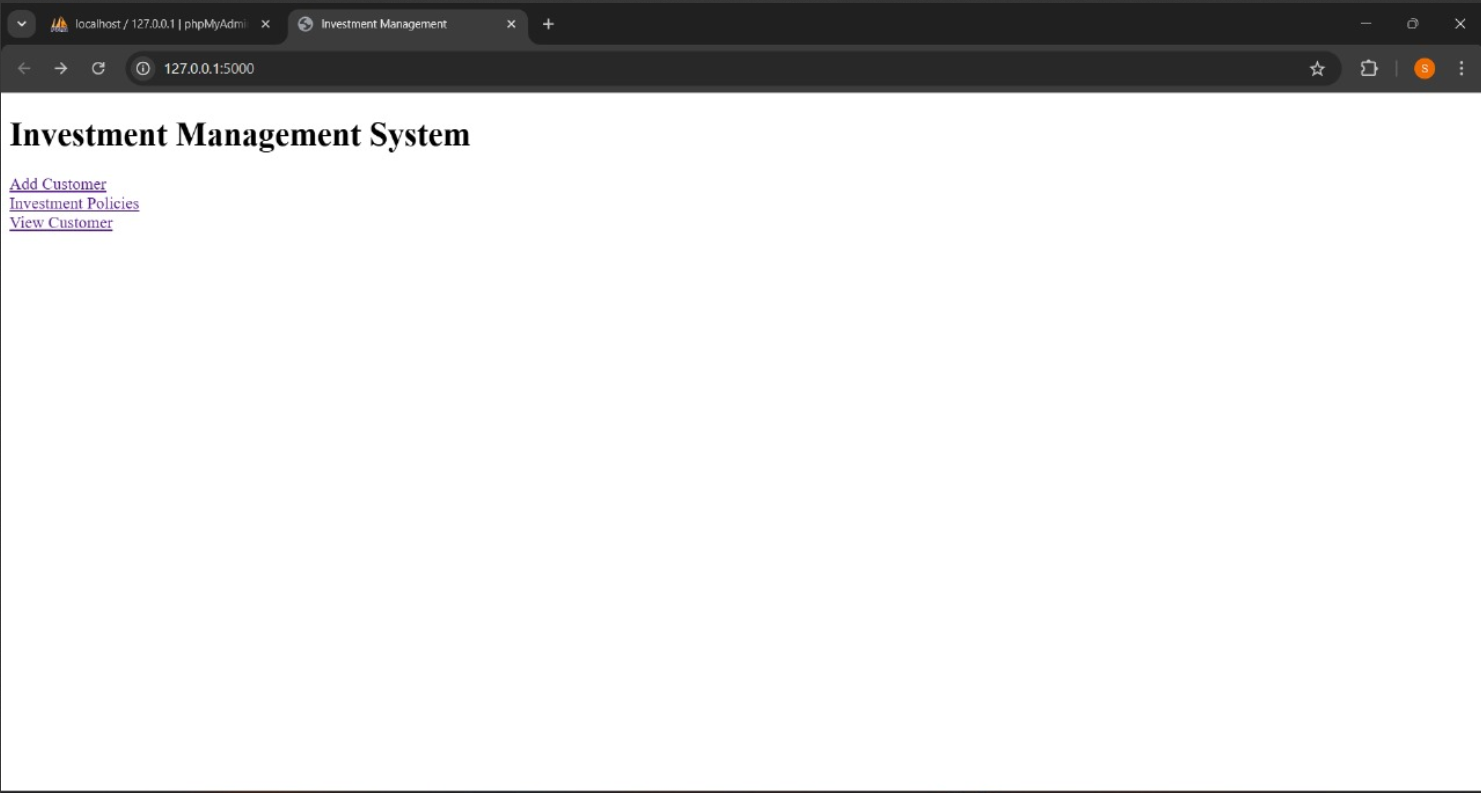
**Xampp tool**



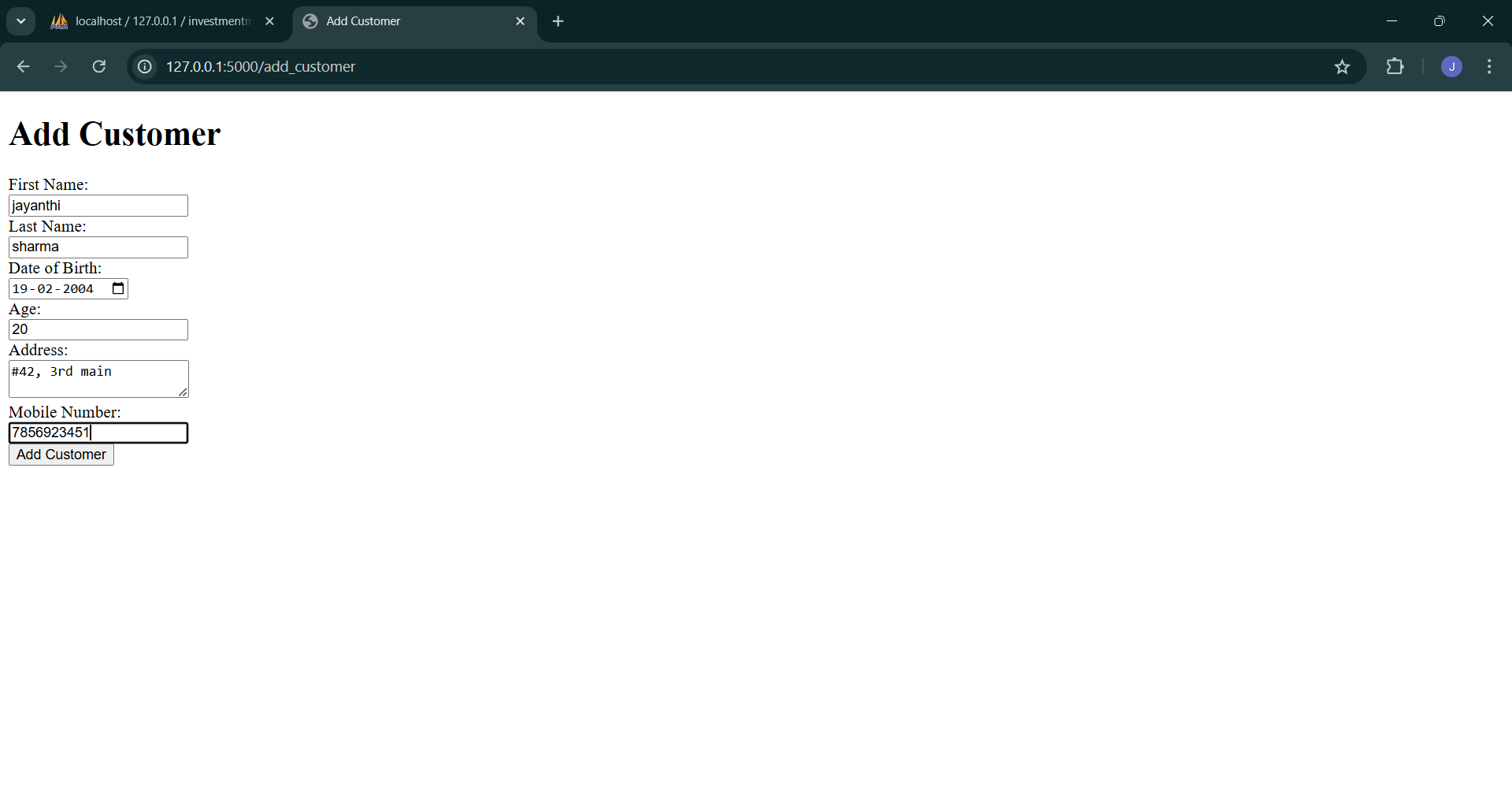
**Initial state of our database**



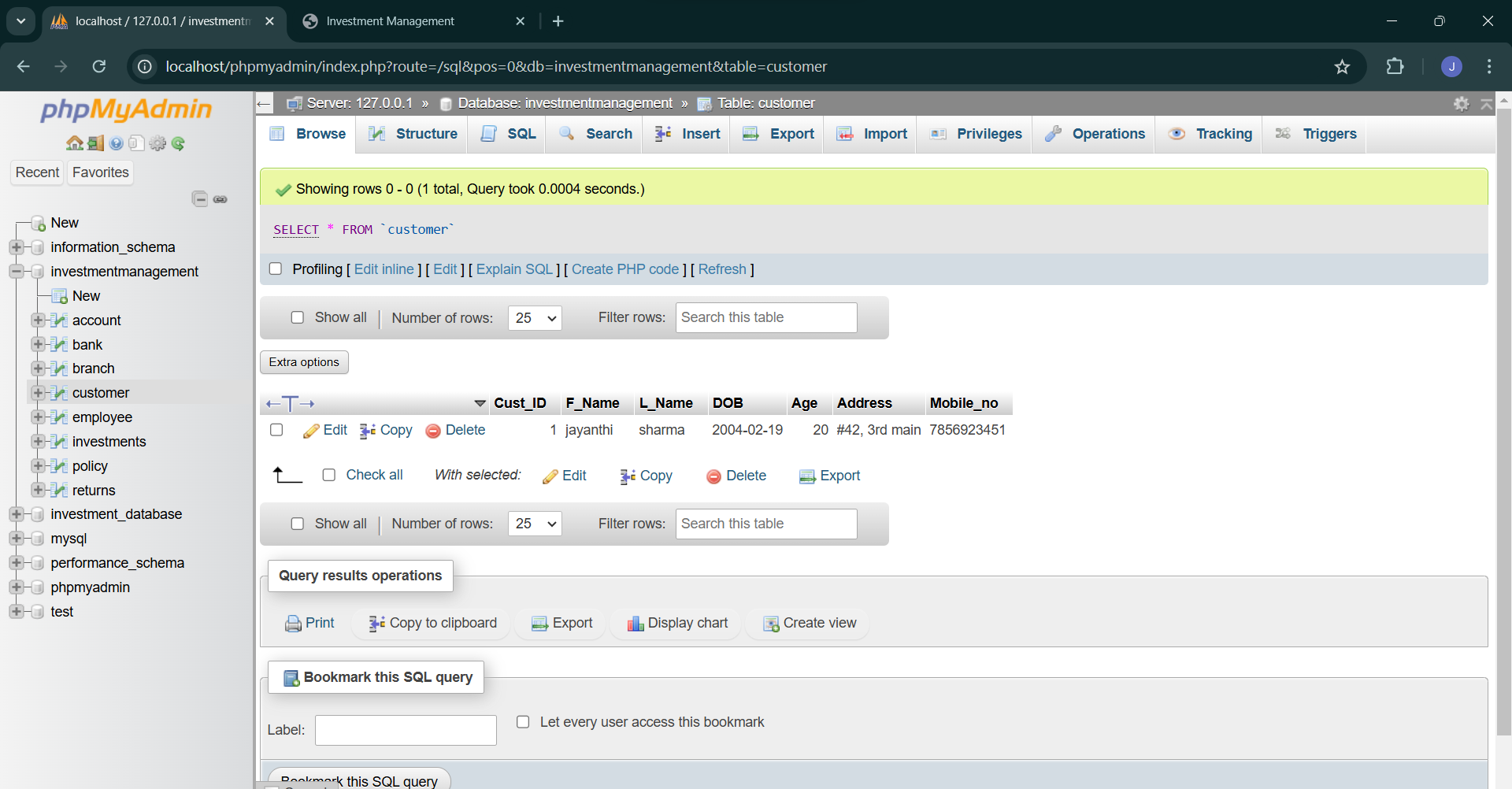
**Project front end**

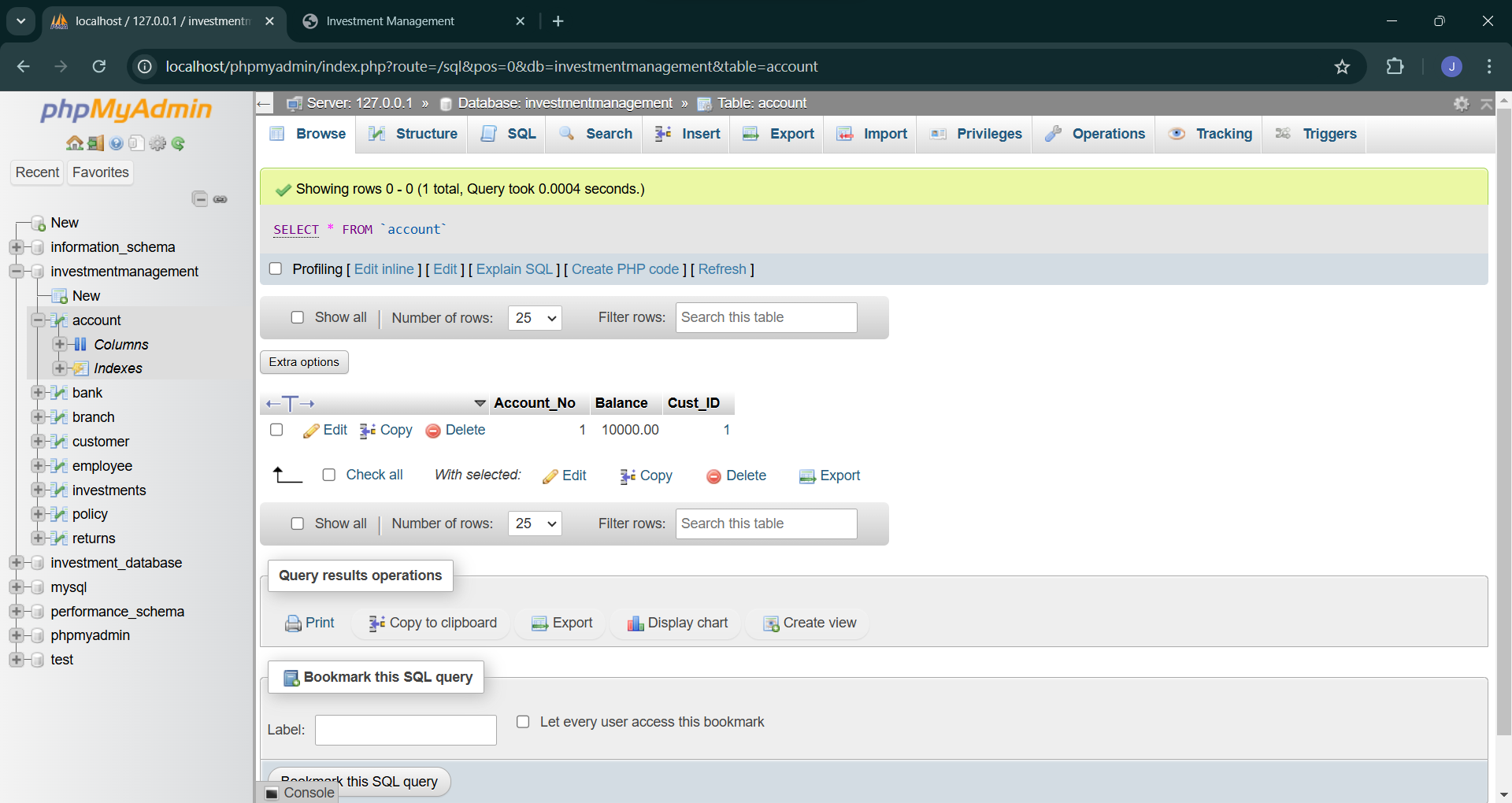


1. **Adding a new customer**

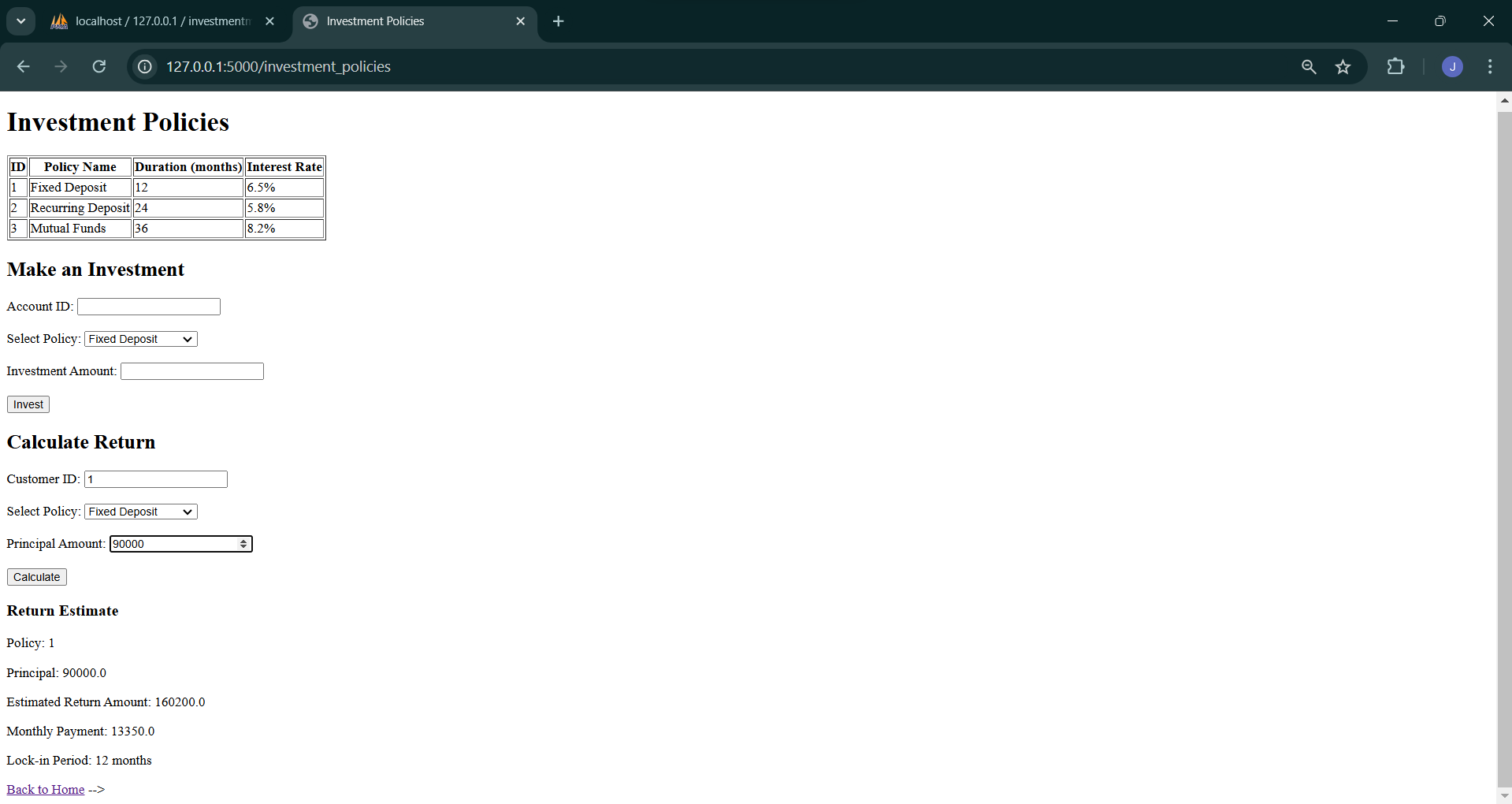


**Updates in database**

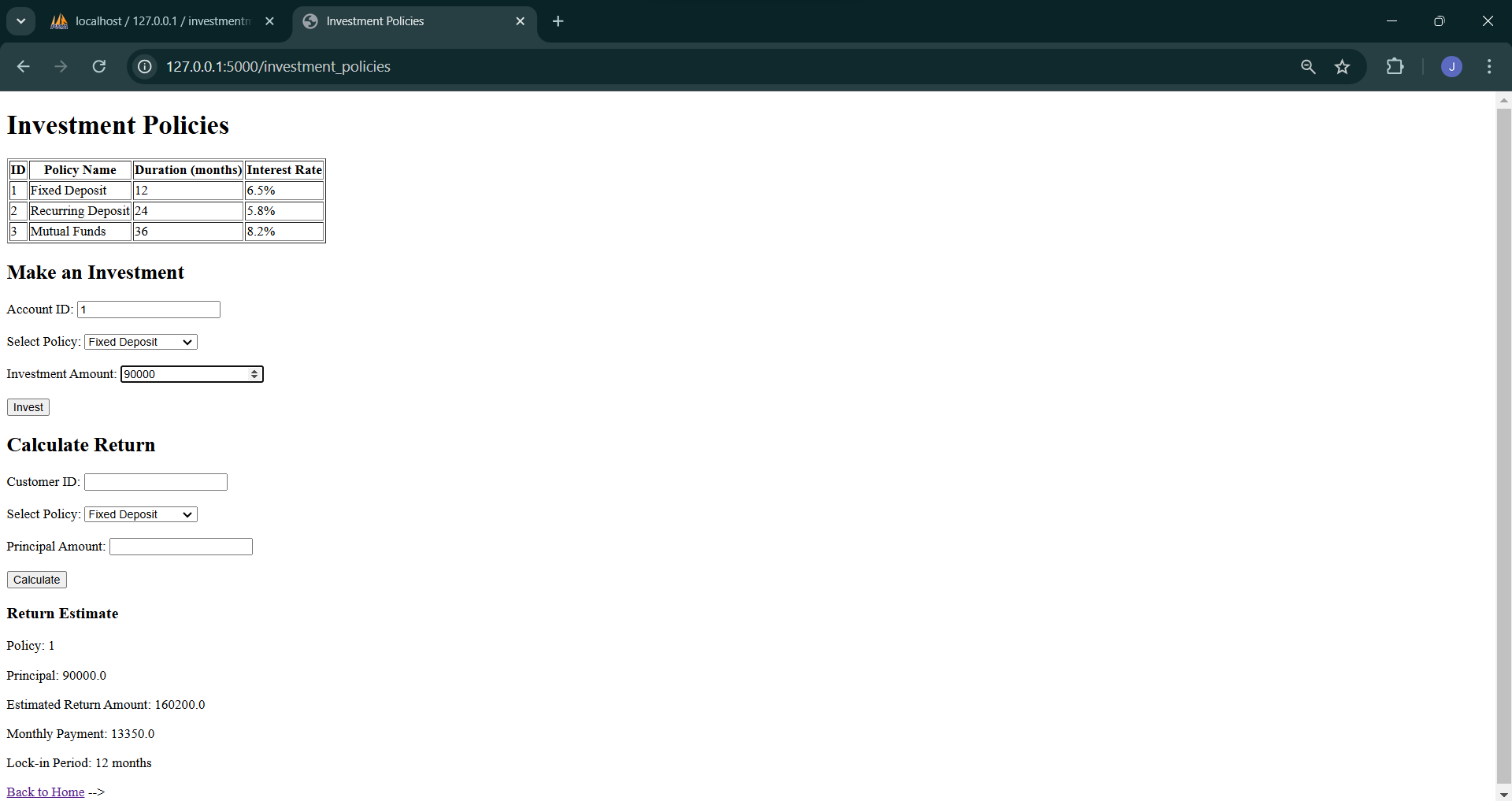




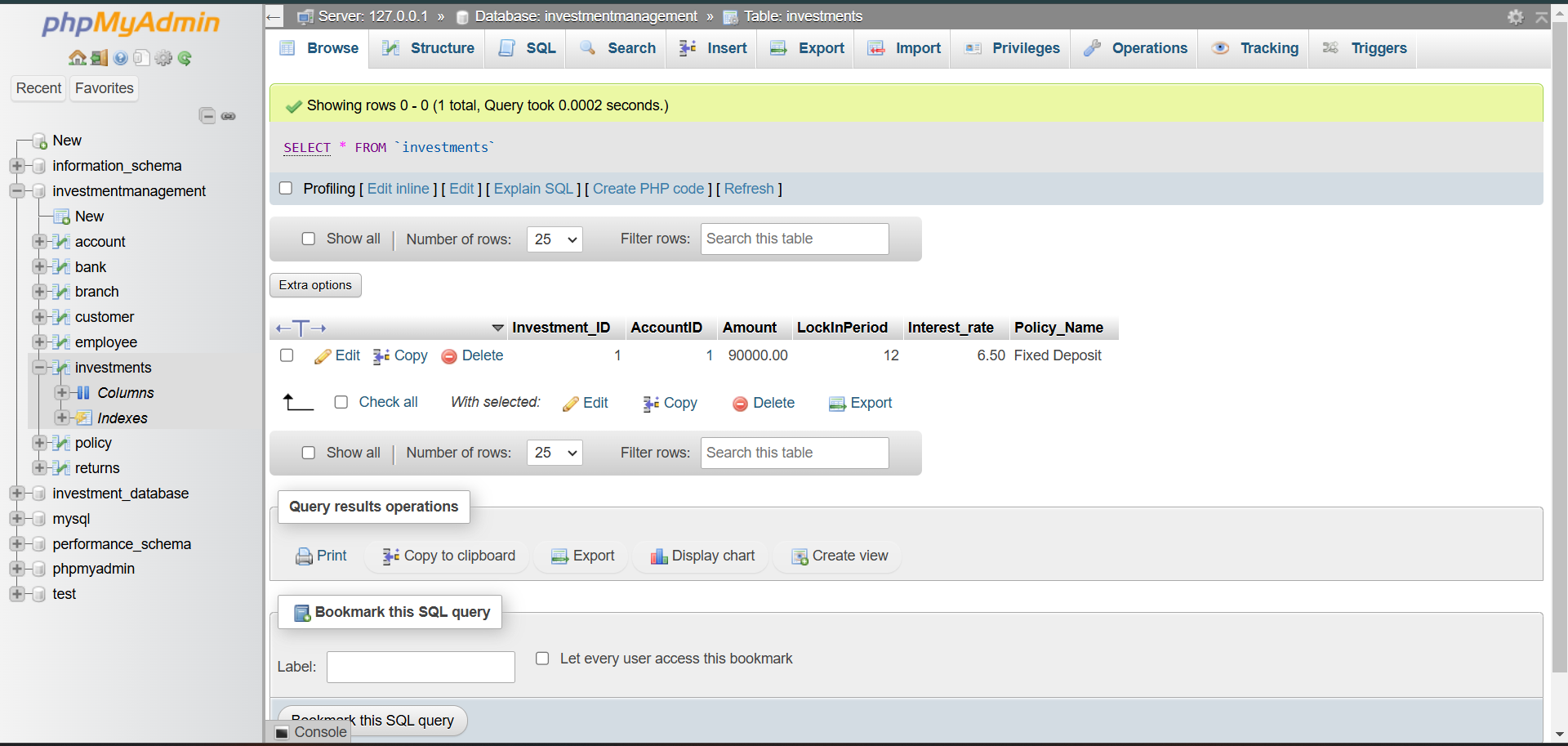
1. **Calculating returns for an fd**

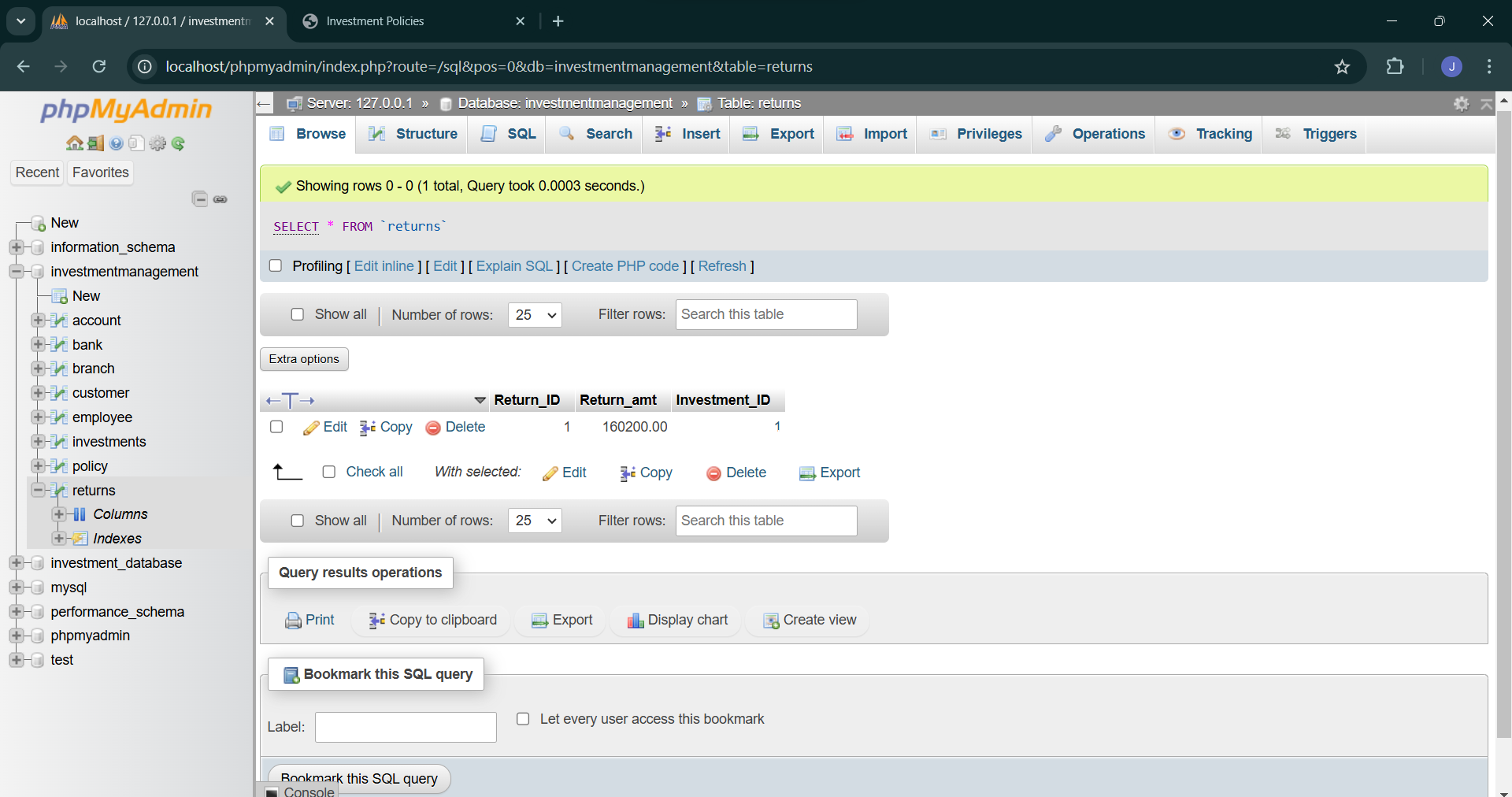


1. **Making an investment**



**Database updates**





1. **Viewing a customer**

