ICT 171

CLOUD SERVER PROJECT

DOCUMENTATION

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Global IP Address: 13.50.145.230

Domain: <https://financetracker.click/>

# 1. EC2 Instance Setup

## Step 1: Launch EC2 Instance

- Chose Ubuntu Server 22.04 LTS on AWS EC2.  
- Created and downloaded a new .pem key pair.  
- Selected t2.micro (free tier) instance type.  
- Allowed HTTP, HTTPS, and SSH in the security group settings.

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## Step 2: Connect to EC2

Connected using EC2 Instance Connect

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# 2. Web Server Installation

## Step 3: Install Apache

sudo apt update  
sudo apt install apache2 -y



## Step 4: Install PHP

sudo apt install php libapache2-mod-php php-mysql -y



## Step 5: Install MySQL

sudo apt install mysql-server -y  
sudo mysql\_secure\_installation



# 4. Database Setup

## Step 6: Create Database and User

CREATE DATABASE finance\_tracker;  
CREATE USER 'finance\_user'@'localhost' IDENTIFIED BY 'An171\_2016';  
GRANT ALL PRIVILEGES ON finance\_tracker.\* TO 'finance\_user'@'localhost';  
FLUSH PRIVILEGES;

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## Step 7: Create Tables

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CREATE TABLE users (  
 id INT AUTO\_INCREMENT PRIMARY KEY,  
 username VARCHAR(50) NOT NULL UNIQUE,  
 password VARCHAR(255) NOT NULL  
);

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CREATE TABLE transactions (  
 id INT AUTO\_INCREMENT PRIMARY KEY,  
 type ENUM('income', 'expense') NOT NULL,  
 category VARCHAR(255) NOT NULL,  
 amount DECIMAL(10, 2) NOT NULL,  
 date DATE NOT NULL  
);

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CREATE TABLE expenses (  
 id INT AUTO\_INCREMENT PRIMARY KEY,  
 user\_id INT,  
 amount DECIMAL(10, 2) NOT NULL,  
 type ENUM('income', 'expense') NOT NULL,  
 category VARCHAR(100) NOT NULL,  
 description TEXT,  
 date DATE NOT NULL,  
 FOREIGN KEY (user\_id) REFERENCES users(id)  
);

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# 5. Backend Development (PHP)

# Backend Development

## db.php - Database Connection

This file connects the application to the MySQL database.

<?php  
$host = 'localhost';  
$db = 'finance\_tracker';  
$user = 'finance\_user';  
$pass = 'An171\_2016';  
  
$conn = new mysqli($host, $user, $pass, $db);  
  
if ($conn->connect\_error) {  
 die('Connection failed: ' . $conn->connect\_error);  
}  
?>

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## register.php - User Registration

Handles user registration and inserts new users into the database.

<!DOCTYPE html>  
<html>  
<head>  
 <title>Register - Finance Tracker</title>  
 <style>  
 body { font-family: Arial; display: flex; align-items: center; justify-content: center; height: 100vh; background-color: #f4f4f4; }  
 .container { background: #fff; padding: 30px; box-shadow: 0px 0px 10px #ccc; border-radius: 8px; text-align: center; width: 300px; }  
 input[type=text], input[type=password] { width: 100%; padding: 10px; margin: 10px 0; }  
 input[type=submit] { padding: 10px 20px; background-color: #007bff; color: #fff; border: none; cursor: pointer; }  
 </style>  
</head>  
<body>  
 <div class="container">  
 <h2>Create an Account</h2>  
 <form method="POST" action="register.php">  
 <input type="text" name="username" placeholder="Username" required><br>  
 <input type="password" name="password" placeholder="Password" required><br>  
 <input type="submit" name="register" value="Register"><br>  
 </form>  
 <p>Already have an account? <a href="login.php">Login here</a></p>  
 </div>  
</body>  
</html>

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## login.php - User Login

Verifies user credentials and starts a session.

<?php  
session\_start();  
if (isset($\_SESSION['user\_id'])) {  
 header("Location: index.php");  
 exit;  
}  
?>  
<!DOCTYPE html>  
<html>  
<head>  
 <title>Login - Finance Tracker</title>  
 <style>  
 body { font-family: Arial; display: flex; align-items: center; justify-content: center; height: 100vh; background-color: #f4f4f4; }  
 .container { background: #fff; padding: 30px; box-shadow: 0px 0px 10px #ccc; border-radius: 8px; text-align: center; width: 300px; }  
 input[type=text], input[type=password] { width: 100%; padding: 10px; margin: 10px 0; }  
 input[type=submit] { padding: 10px 20px; background-color: #28a745; color: #fff; border: none; cursor: pointer; }  
 </style>  
</head>  
<body>  
 <div class="container">  
 <h2>Welcome to the Finance Tracker</h2>  
 <p>Register or login to get started.</p>  
 <form method="POST" action="login.php">  
 <input type="text" name="username" placeholder="Username" required><br>  
 <input type="password" name="password" placeholder="Password" required><br>  
 <input type="submit" name="login" value="Login"><br>  
 </form>  
 <p>Don't have an account? <a href="register.php">Register here</a></p>  
 </div>  
</body>  
</html>

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## index.php - Finance Tracker Main Page

Allows users to enter and view expenses and income and delete transactions.

<?php

session\_start();

if (!isset($\_SESSION['user\_id'])) {

header("Location: login.php");

exit();

}

include 'db.php';

$user\_id = $\_SESSION['user\_id'];

if ($\_SERVER['REQUEST\_METHOD'] == 'POST') {

$type = $\_POST['type'];

$amount = $\_POST['amount'];

$category = $\_POST['category'];

$description = $\_POST['description'];

$date = $\_POST['date'];

$stmt = $conn->prepare("INSERT INTO expenses (user\_id, type, amount, category, description, date) VALUES (?, ?, ?, ?, ?, ?)");

$stmt->bind\_param("isdsss", $user\_id, $type, $amount, $category, $description, $date);

$stmt->execute();

$stmt->close();

}

if (isset($\_GET['delete'])) {

$delete\_id = $\_GET['delete'];

$stmt = $conn->prepare("DELETE FROM expenses WHERE id = ? AND user\_id = ?");

$stmt->bind\_param("ii", $delete\_id, $user\_id);

$stmt->execute();

$stmt->close();

}

$result = $conn->prepare("SELECT id, type, amount, category, description, date FROM expenses WHERE user\_id = ? ORDER BY date DESC");

$result->bind\_param("i", $user\_id);

$result->execute();

$result->store\_result();

$result->bind\_result($id, $type, $amount, $category, $description, $date);

?>

<!DOCTYPE html>

<html>

<head>

<title>Finance Tracker</title>

<style>

body {

font-family: Arial, sans-serif;

background: #f4f4f4;

padding: 20px;

text-align: center;

}

.container {

max-width: 700px;

margin: auto;

background: white;

padding: 30px;

box-shadow: 0 0 10px rgba(0,0,0,0.1);

}

table {

width: 100%;

border-collapse: collapse;

margin-top: 20px;

}

th, td {

padding: 12px;

border: 1px solid #ccc;

}

th {

background: #f2f2f2;

}

form {

margin-bottom: 20px;

}

input, select {

padding: 10px;

width: calc(100% - 22px);

margin-bottom: 10px;

}

.logout-btn {

float: right;

background: #e74c3c;

color: white;

padding: 8px 16px;

text-decoration: none;

border-radius: 4px;

}

.logout-btn:hover {

background: #c0392b;

}

</style>

</head>

<body>

<div class="container">

<a class="logout-btn" href="logout.php">Logout</a>

<h2>Welcome to your Finance Tracker</h2>

<form method="post">

<select name="type" required>

<option value="">Select Type</option>

<option value="Income">Income</option>

<option value="Expense">Expense</option>

</select>

<input type="number" name="amount" step="0.01" placeholder="Amount in AED" required>

<input type="text" name="category" placeholder="Category" required>

<input type="text" name="description" placeholder="Description" required>

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

<button type="submit">Add Entry</button>

</form>

<table>

<tr>

<th>Type</th>

<th>Amount (AED)</th>

<th>Category</th>

<th>Description</th>

<th>Date</th>

<th>Action</th>

</tr>

<?php while ($result->fetch()): ?>

<tr>

<td><?php echo htmlspecialchars($type); ?></td>

<td><?php echo number\_format($amount, 2); ?> AED</td>

<td><?php echo htmlspecialchars($category); ?></td>

<td><?php echo htmlspecialchars($description); ?></td>

<td><?php echo htmlspecialchars($date); ?></td>

<td><a href="?delete=<?php echo $id; ?>" onclick="return confirm('Are you sure you want to delete this entry?');">Delete</a></td>

</tr>

<?php endwhile; ?>

</table>

</div>

</body>

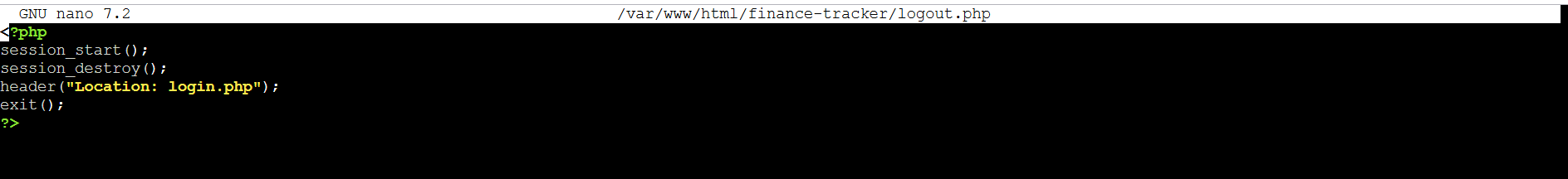
</html>

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## logout.php - Logging Out

<?php  
session\_start();  
session\_destroy();  
header("Location: login.php");  
exit;  
?>



**DNS Setup**

For my domain, I purchased it directly from AWS using their route 53 service.

After purchasing the domain, I linked it to the public IP address of my instance by creating a new record in the hosted zone.

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**HTTPS setup and SSL/TSL**

To set up HTTPS for my website I first ensured that HTTPS (port 443) was enabled for my instance under the inbound security rules.

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And then, to secure my website with SSL, I used certbot.

Installing certbot:  
sudo apt install certbot python3-certbot-apache -y

Run certbot:  
sudo certbot –apache  
  
followed the prompts and provided my email and domain name to register.

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