Project Report

on

SpendWise

Smart spending made simple

Purpose & Objective

Purpose:

To develop a web-based expense tracking system using python - django framework that helps users monitor analyze and optimize their spending patterns.

Objectives:

- Provide secure user authentication
- Enable CRUD operations for expenses
- Categorize expenses for better analysis
- Visualize spending through charts and reports
- Offer mobile-responsive interface

Features & Functionality

Feature	Description
User Authentication	Secure login/logout with session management
Expense Management	Add/edit/delete expenses with categories
Dashboard	Summary of total spending and category breakdown
Data Visualization	Interactive charts using Chart.js
Responsive Design	Works on desktop, tablet, and mobile
Filtering	Filter expenses by date range and categories

Hardware & Software Specifications

Hardware Requirements

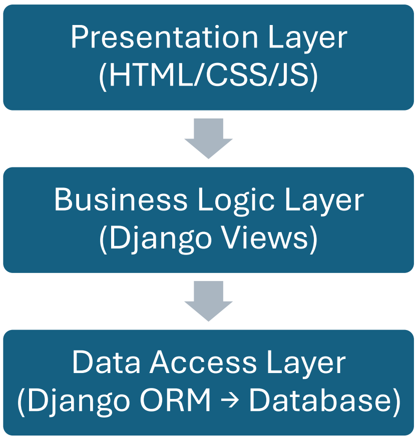
OS	Windows 10
Processor	Intel(R) Core(TM) i3-7020U CPU @ 2.30GHz 2.30 GHz
Installed RAM	4.00 GB (Minimum 2.00 GB RAM)
System type	64-bit operating system, x64-based processor

Software Requirements:

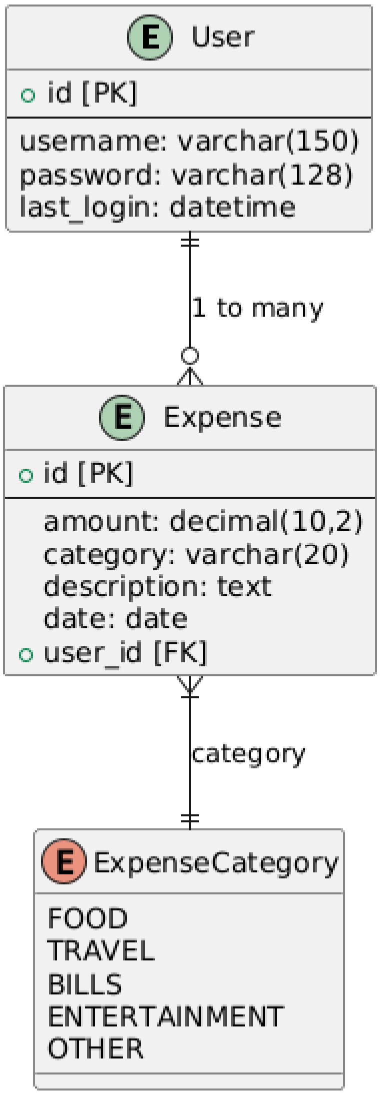
Programming Language	Python 3.8+
Web Framework	Django 4.2
Database	PostgreSQL/SQLite
Front End	Bootstrap 5

Project Architecture

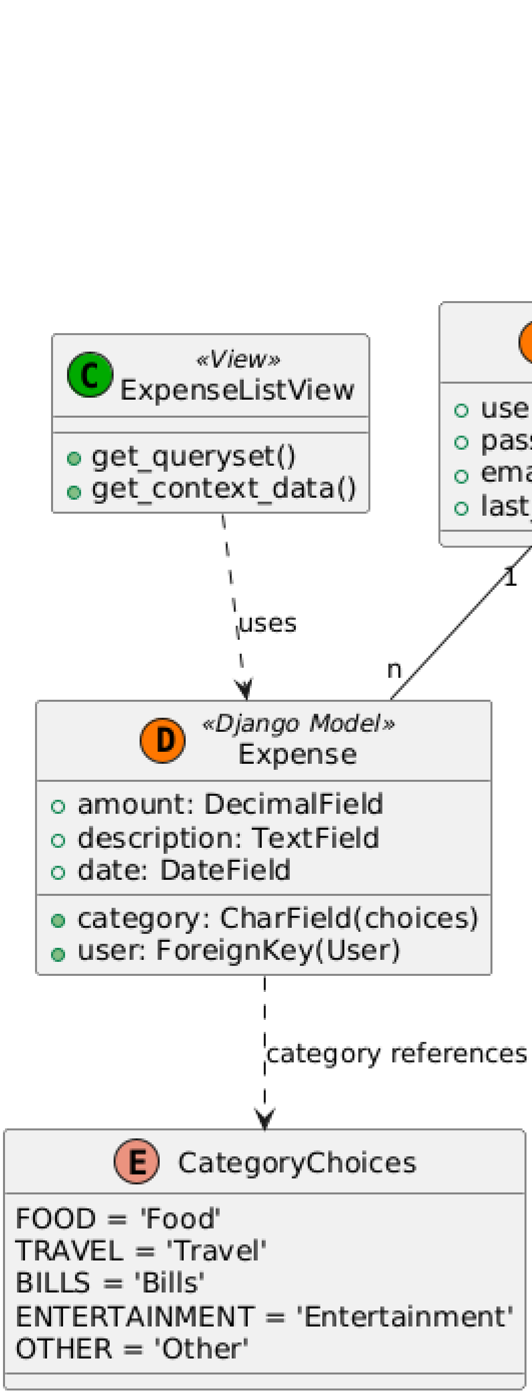
Three-Tier Architecture:



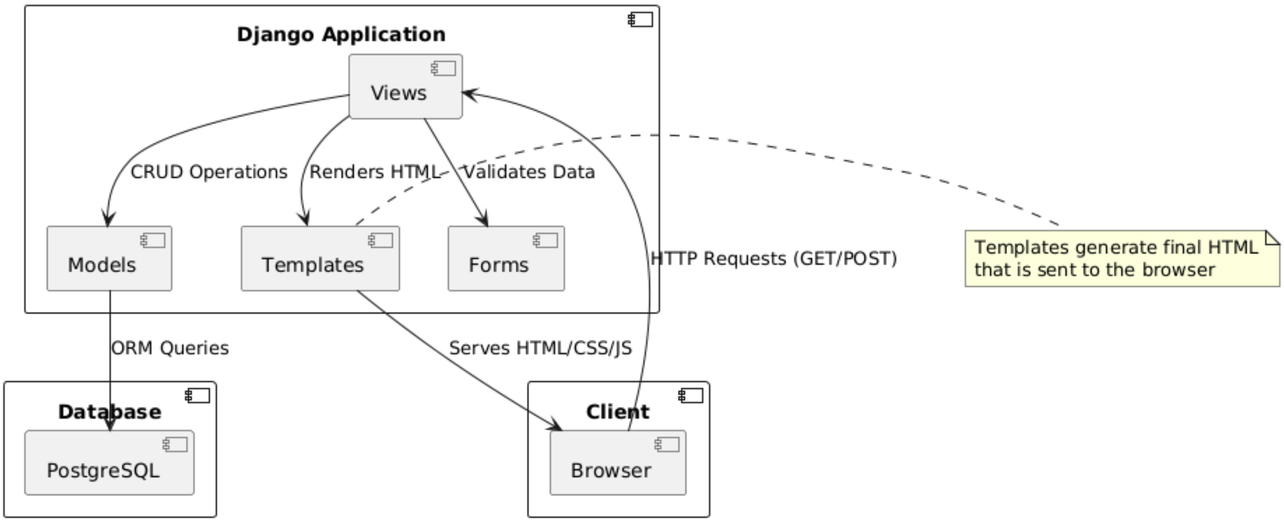
E-R Diagram



Class Diagram



Component Diagram



Database Design

User Table

Field	Data Type	Parameters	Description
Username	CharField	Max_length=150,unique=True	User’s login identifier
Email	EmailField	Max_length=254,unique=True	User’s contact email
Password	CharField	Max_length =128	Hashed password
Last_loign	DateTimeField	Null=True,auto_now=True	Session Tracking

Expense Table

Field	Data Type	Parameters	Description
User	ForeignKey	to=user, on_delete=CASCADE	Owner of the expense
Amount	DecimalField	Max_digits=10,decimal_places=2	Expense value
Category	CharField	Max_length=20,choices=CATEGORIES	Spending category
Description	TextField	Blank=True,null=True	Optional notes
Date	DateField	Default=timezone.now	When expense occured

Category Choices

Categories
Food
Travel
Bills
Entertainement
Other

Key Relationships

Relationship	**Type**	**Description**
User ⇨ Expense	One to Many	One user can have many expenses
Expense ⇨ Category	Many to One	Each expense has one category

UI/UX Design

Design Principles:

The Expense Tracker app features a clean, intuitive UI/UX design built with Bootstrap 5 for responsiveness and Chart.js for data visualization. Key design principles include:

Minimalist Interface: Streamlined layout with clear typography and ample white space to reduce cognitive load.

Mobile-First Approach: Fully responsive design ensuring seamless use on all devices.

Visual Hierarchy: Color-coded expense categories and interactive charts for quick insights.

User-Centric Workflow: One-click actions (add/edit expenses), real-time feedback, and intuitive navigation.

Accessibility: High-contrast colors and ARIA labels for inclusive usability.

The design prioritizes speed and clarity, enabling users to log expenses in under 10 seconds while providing actionable financial insights through interactive dashboards.

Deployment

PythonAnywhere

PythonAnywhere is a cloud-based platform specializing in Python web app hosting. Key features:

- Pre-configured Django environment
- Built-in database (MySQL/PostgreSQL) support
- Web-based console for management
- Automatic HTTPS with Let's Encrypt

Git

Git is a **distributed version control system** that:

- Tracks code changes with commit history
- Enables team collaboration
- Allows branching for feature development
- Integrates with platforms like GitHub/GitLab

Why This Stack?

PythonAnywhere: Simplifies Django deployment without server management

Git: Ensures code safety and version control

PostgreSQL: Robust database for financial data

Deployment Steps:

1. Push code to GitHub/GitLab
2. Create PythonAnywhere account
3. Configure virtual environment
4. Set up WSGI file
5. Migrate database
6. Collect static files

Source Code:

Login.html

```
{% extends 'base.html'%}
{% load static %}
{% block content %}
<div class="container">
    <div class="row justify-content-center">
        <div class="col-md-6 col-lg-4">
            <div class="card shadow-lg mt-5">
                <!-- Logo Section -->
                <div class="text-center mt-4">
                    <img src="{% static 'expenses/images/Logo.jpg' alt="Logo"%}"
                         alt="Expense Tracker Logo"
                         class="img-fluid"
                         style="max-height: 100px;">
                    <h2 class="mt-3">Expense Tracker</h2>
                </div>

                <!-- Login Form -->
                <div class="card-body p-4">
                    <form method="post">
                        {% csrf_token %}
                        <div class="mb-3">
```

```
              <label for="username" class="form-label">Username</label>
              <input type="text"
                  class="form-control"
                  id="username"
                  name="username"
                  required>
            </div>
            <div class="mb-3">
              <label for="password" class="form-label">Password</label>
              <input type="password"
                  class="form-control"
                  id="password"
                  name="password"
                  required>
            </div>
            <button type="submit" class="btn btn-primary w-100">
              <i class="fas fa-sign-in-alt me-2"></i> Login
            </button>
          </form>
          <div class="text-center mt-3">
            <p class="mb-0">Don't have an account?
              <a href="{% url 'signup' %}">Sign Up</a>
            </p>
          </div>
        </div>
      </div>
    </div>
  </div>
</div>
{% endblock %}
```

Add_expense.html

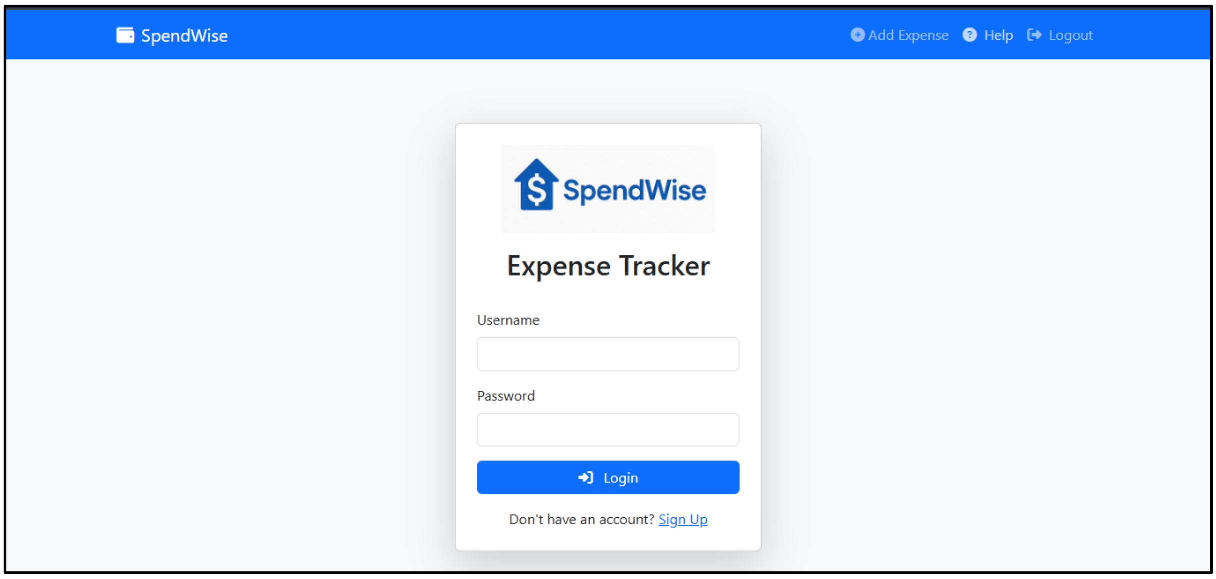
```
{% extends 'base.html' %}


{% block content %}
<div class="card shadow col-md-6 mx-auto">
   <div class="card-header bg-white">
      <h4 class="mb-0">{% if form.instance.id %}Edit{% else %}Add{% endif %}
Expense</h4>
   </div>
   <div class="card-body">
      <form method="post">
         {% csrf_token %}
         <div class="mb-3">
            {{ form.amount.label_tag }}
            <div class="input-group">
               <span class="input-group-text">$</span>
               {{ form.amount }}
            </div>
         </div>
         <div class="mb-3">
            {{ form.category.label_tag }}
            {{ form.category }}
         </div>
         <div class="mb-3">
            {{ form.description.label_tag }}
            {{ form.description }}
         </div>
         <button type="submit" class="btn btn-primary w-100">
            <i class="fas fa-save me-2"></i>Save
         </button>
      </form>
```

```
    </div>
</div>
{% endblock %}
```

Output Screenshots:

1. Login/Registration



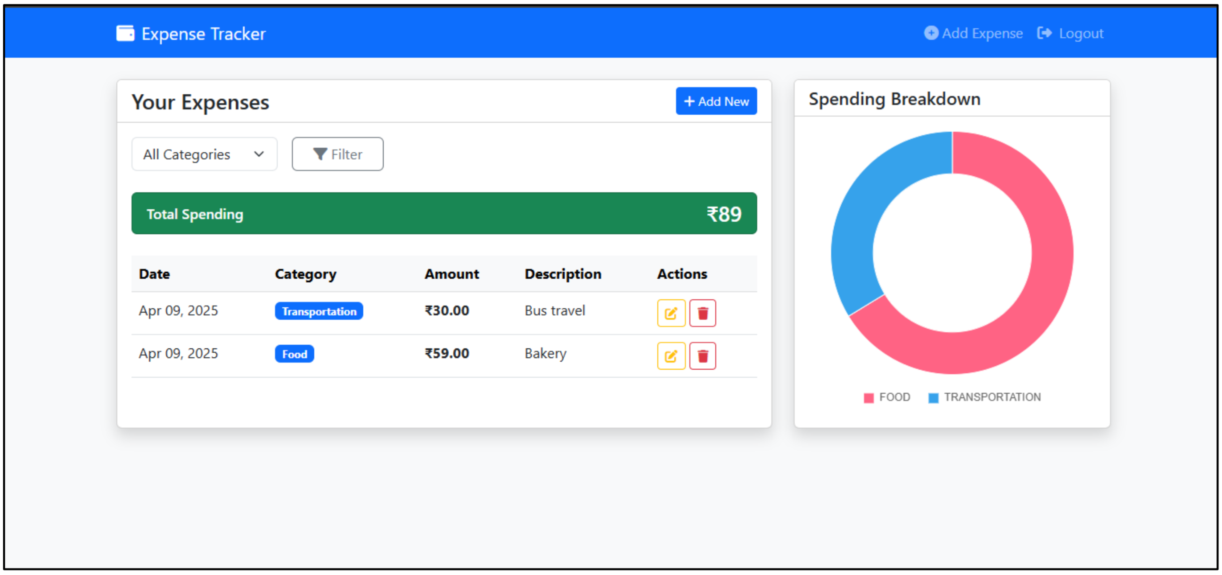
Expense Tracker

Username

Password

Don't have an account? Sign Up

2. Dashboard with summary cards



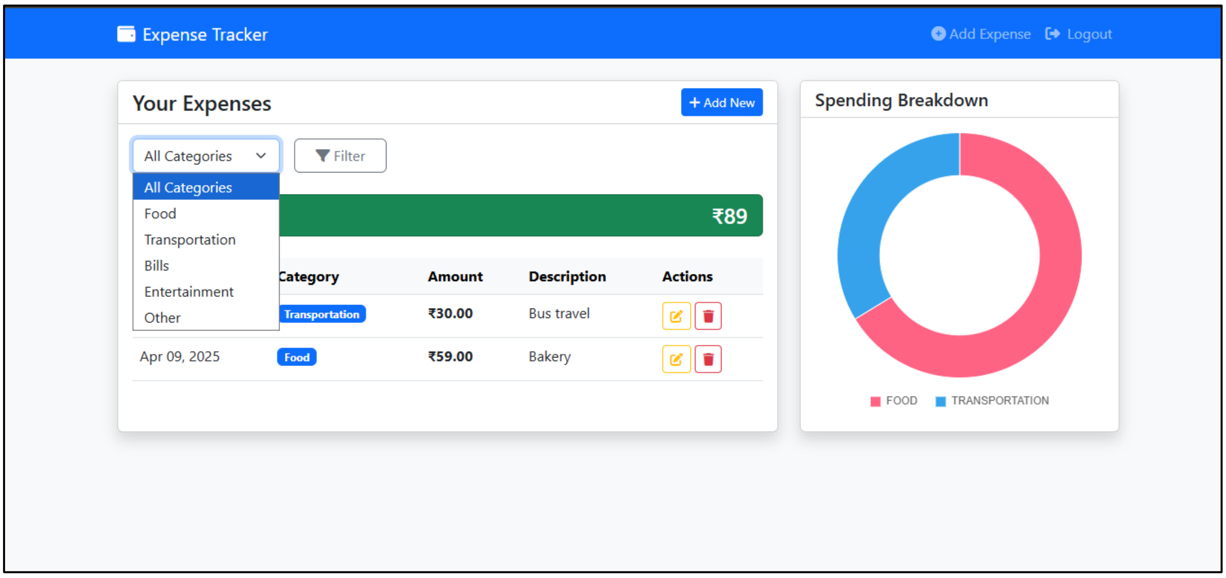
Your Expenses

Total Spending ₹89

Date	Category	Amount	Description	Actions
Apr 09, 2025	Transportation	₹30.00	Bus travel	
Apr 09, 2025	Food	₹59.00	Bakery	

Spending Breakdown

3. Expense list with filters



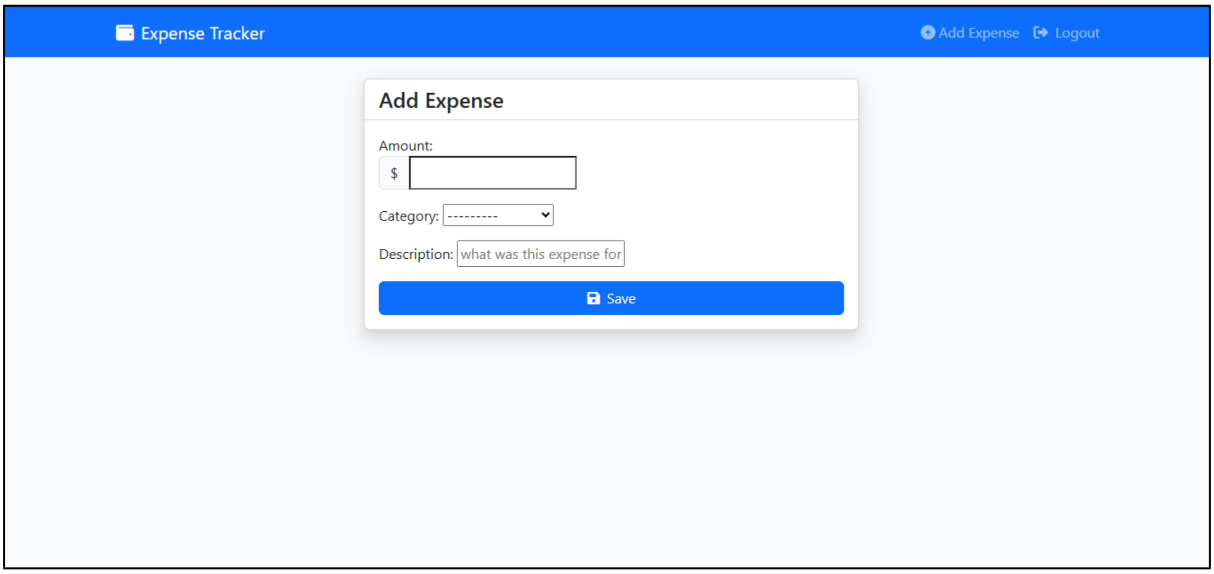
Your Expenses

₹89

	Category	Amount	Description	Actions
	Transportation	₹30.00	Bus travel	
Apr 09, 2025	Food	₹59.00	Bakery	

Spending Breakdown

4. Add/Edit expense form



Add Expense

Amount: $

Category: ---------

Description: what was this expense for