

Source Code: AI Generated Report

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```
import json

import hashlib

import os

from datetime import datetime


DATA_FILE = 'finance_data.json'

def load_data():

    if os.path.exists(DATA_FILE):

        with open(DATA_FILE, 'r') as file:

            return json.load(file)

    return {"users": {}, "expenses": [], "budgets": {}}

def save_data(data):

    with open(DATA_FILE, 'w') as file:

        json.dump(data, file, indent=4)

def hash_password(password):

    return hashlib.sha256(password.encode()).hexdigest()

def register_user(username, password):

    data = load_data()

    if username in data['users']:
```

```
print("User already exists.")

return False

data['users'][username] = hash_password(password)

save_data(data)

print("User registered successfully.")

return True
```

```
def authenticate_user(username, password):

data = load_data()

hashed_password = hash_password(password)

if data['users'].get(username) == hashed_password:

    print("User authenticated successfully.")

    return True

print("Authentication failed.")

return False
```

```
def add_expense(username, amount, category, description):

data = load_data()

expense = {

    "username": username,

    "amount": amount,

    "category": category,

    "description": description,

    "date": datetime.now().isoformat()

}

data['expenses'].append(expense)
```

```
save_data(data)

print("Expense added successfully.")

def edit_expense(expense_index, amount=None, category=None, description=None):
    data = load_data()

    try:
        expense = data['expenses'][expense_index]

        if amount is not None:
            expense['amount'] = amount

        if category is not None:
            expense['category'] = category

        if description is not None:
            expense['description'] = description

        save_data(data)

        print("Expense updated successfully.")

    except IndexError:
        print("Expense not found.")

def delete_expense(expense_index):
    data = load_data()

    try:
        del data['expenses'][expense_index]

        save_data(data)

        print("Expense deleted successfully.")

    except IndexError:
        print("Expense not found.")
```

```
def set_budget(username, amount):

    data = load_data()

    data['budgets'][username] = amount

    save_data(data)

    print("Budget set successfully.")


def check_budget(username):

    data = load_data()

    budget = data['budgets'].get(username, 0)

    total_expenses = sum(expense['amount'] for expense in data['expenses'] if
expense['username'] == username)

    print(f"Budget: {budget}, Total Expenses: {total_expenses}")


def generate_report(username):

    data = load_data()

    user_expenses = [expense for expense in data['expenses'] if expense['username'] ==
username]

    total_expenses = sum(expense['amount'] for expense in user_expenses)

    print(f"Total expenses for {username}: {total_expenses}")

    for expense in user_expenses:

        print(f"{expense['date']}: {expense['description']} - ${expense['amount']}")



# Mock data for testing

register_user("test_user", "secure_password")

authenticate_user("test_user", "secure_password")
```

```
add_expense("test_user", 50, "Food", "Lunch")  
  
add_expense("test_user", 20, "Transport", "Bus ticket")  
  
edit_expense(0, description="Lunch at restaurant")  
  
delete_expense(1)  
  
set_budget("test_user", 100)  
  
check_budget("test_user")  
  
generate_report("test_user")
```