**//budgetLog.java class**

**package** demo;

**import** java.util.HashMap;

**import** java.util.List;

**import** java.util.Map;

**import** java.util.Scanner;

**import** java.util.ArrayList;

**public** **class** BudgetLog {

**private** **static** **final** Map<String, String> ***userCredentials*** = **new** HashMap<>();

**private** **static** **final** Map<String, List<Map<String, String>>> ***userBudgetLogs*** = **new** HashMap<>();

**private** **static** **final** Map<String, String> ***staticCredentials*** = **new** HashMap<>();

**private** **static** **final** List<Map<String, String>> ***staticExpenses*** = **new** ArrayList<>();

**static** {

***userCredentials***.put("roya", "roya23");

// Add sample expenses (you can add more)

Map<String, String> expense1 = **new** HashMap<>();

expense1.put("date", "01-09-2023");

expense1.put("category", "Food");

expense1.put("amount", "50.00");

Map<String, String> expense2 = **new** HashMap<>();

expense2.put("date", "22-09-2023");

expense2.put("category", "Travelling");

expense2.put("amount", "30.00");

Map<String, String> expense3 = **new** HashMap<>();

expense3.put("date", "13-04-2023");

expense3.put("category", "cloth");

expense3.put("amount", "1000.00");

Map<String, String> expense4 = **new** HashMap<>();

expense4.put("date", "19-05-2023");

expense4.put("category", "fee");

expense4.put("amount", "1150.00");

Map<String, String> expense5 = **new** HashMap<>();

expense5.put("date", "01-09-2023");

expense5.put("category", "others");

expense5.put("amount", "5000.00");

Map<String, String> expense6 = **new** HashMap<>();

expense6.put("date", "11-01-2023");

expense6.put("category", "Food");

expense6.put("amount", "150.00");

Map<String, String> expense7 = **new** HashMap<>();

expense7.put("date", "20-10-2023");

expense7.put("category", "electric bill");

expense7.put("amount", "250.00");

***staticExpenses***.add(expense1);

***staticExpenses***.add(expense2);

***staticExpenses***.add(expense3);

***staticExpenses***.add(expense4);

***staticExpenses***.add(expense5);

***staticExpenses***.add(expense6);

***staticExpenses***.add(expense7);

}

**public** **static** **void** main(String[] args) {

BudgetLog budgetLog = **new** BudgetLog();

budgetLog.run();

}

**public** **void** run() {

String authenticatedUser = authenticateUser();

System.***out***.println("Welcome, " + authenticatedUser + "!\n");

**while** (**true**) {

System.***out***.println("SELECT THE BUDGET LOG YOU WANT TO DISPLAY:");

System.***out***.println("1. DATE-WISE LOG");

System.***out***.println("2. MONTH-WISE LOG");

System.***out***.println("3. TOTAL BUDGET");

System.***out***.println("4. DELETE BUDGETARY LOG");

System.***out***.println("5. Exit");

Scanner scanner = **new** Scanner(System.***in***);

String choice = scanner.nextLine();

**switch** (choice) {

**case** "1":

System.***out***.print("Enter the date in DD-MM-YYYY format: ");

String dateInput = scanner.nextLine();

displayDatewiseLog(authenticatedUser, dateInput);

**break**;

**case** "2":

System.***out***.print("Enter the month number (1 to 12): ");

**int** monthInput = Integer.*parseInt*(scanner.nextLine());

displayMonthwiseLog(authenticatedUser, monthInput);

**break**;

**case** "3":

calculateTotalBudget(authenticatedUser);

**break**;

**case** "4":

deleteBudgetaryLog(authenticatedUser);

**break**;

**case** "5":

System.*exit*(0);

**default**:

System.***out***.println("Invalid choice. Please select a valid option.");

**break**;

}

}

}

**private** String authenticateUser() {

Scanner scanner = **new** Scanner(System.***in***);

**while** (**true**) {

System.***out***.print("Enter your username: ");

String username = scanner.nextLine();

System.***out***.print("Enter your password: ");

String password = scanner.nextLine();

// Check credentials from both userCredentials and staticCredentials

**if** ((***userCredentials***.containsKey(username) && ***userCredentials***.get(username).equals(password)) ||

(***staticCredentials***.containsKey(username) && ***staticCredentials***.get(username).equals(password))) {

**return** username;

} **else** {

System.***out***.println("Invalid credentials. Please try again.");

}

}

}

**private** **void** displayDatewiseLog(String username, String date) {

System.***out***.println("\nDATE-WISE LOG FOR " + date + " (User: " + username + "):");

List<Map<String, String>> userLogs = ***userBudgetLogs***.getOrDefault(username, **new** ArrayList<>());

// Simulate expenses for the specified date

List<Map<String, String>> datewiseExpenses = **new** ArrayList<>();

// Populate datewiseExpenses with expenses for the specified date

**for** (Map<String, String> expense : ***staticExpenses***) {

**if** (expense.get("date").equals(date)) {

datewiseExpenses.add(expense);

}

}

**if** (datewiseExpenses.isEmpty()) {

System.***out***.println("No expenses found for the specified date.");

} **else** {

**for** (Map<String, String> log : datewiseExpenses) {

System.***out***.println("Date: " + log.get("date") + ", Category: " + log.get("category") + ", Amount: $" + log.get("amount"));

}

}

}

**private** **void** displayMonthwiseLog(String username, **int** month) {

System.***out***.println("\nMONTH-WISE LOG FOR MONTH " + month + " (User: " + username + "):");

List<Map<String, String>> userLogs = ***userBudgetLogs***.getOrDefault(username, **new** ArrayList<>());

// Simulate expenses for the specified month

List<Map<String, String>> monthwiseExpenses = **new** ArrayList<>();

**for** (Map<String, String> expense : ***staticExpenses***) {

**int** expenseMonth = Integer.*parseInt*(expense.get("date").split("-")[1]);

**if** (expenseMonth == month) {

monthwiseExpenses.add(expense);

}

}

**for** (Map<String, String> log : monthwiseExpenses) {

System.***out***.println("Date: " + log.get("date") + ", Category: " + log.get("category") + ", Amount: $" + log.get("amount"));

}

}

**private** **void** calculateTotalBudget(String username) {

// Simulate a monthly budget for the user

**double** totalBudget = 1000.0; // Set your initial total budget here

**double** totalSpending = 0.0;

// Calculate total spending based on staticExpenses

**for** (Map<String, String> expense : ***staticExpenses***) {

totalSpending += Double.*parseDouble*(expense.get("amount"));

}

**double** currentBudget = totalBudget - totalSpending;

System.***out***.println("\nMONTHLY BUDGET (User: " + username + "):");

System.***out***.println("TOTAL BUDGET: $" + String.*format*("%.2f", totalBudget));

System.***out***.println("CURRENT BUDGET: $" + String.*format*("%.2f", currentBudget));

System.***out***.println("TOTAL SPENDING : $" + String.*format*("%.2f", totalSpending));

}

**private** **void** deleteBudgetaryLog(String username) {

Scanner scanner = **new** Scanner(System.***in***);

System.***out***.print("Enter the month number (1 to 12) for which you want to delete expenses: ");

**int** monthInput = Integer.*parseInt*(scanner.nextLine());

// Create a list to store expenses without the selected month's expenses

List<Map<String, String>> updatedExpenses = **new** ArrayList<>();

**for** (Map<String, String> expense : ***staticExpenses***) {

**int** expenseMonth = Integer.*parseInt*(expense.get("date").split("-")[1]);

**if** (expenseMonth != monthInput) {

updatedExpenses.add(expense);

}

}

// Update the staticExpenses with the updated list

***staticExpenses***.clear();

***staticExpenses***.addAll(updatedExpenses);

System.***out***.println("Expenses for the selected month deleted successfully! (User: " + username + ")");

}

}

//login.java class

**package** demo;

**import** java.util.ArrayList;

**import** java.util.List;

**import** java.util.Scanner;

**public** **class** Login {

**private** List<User> users;

**public** Login() {

users = **new** ArrayList<>();

users.add(**new** User("riyaz", "riyaz123"));

users.add(**new** User("riya", "riya783"));

users.add(**new** User("tae", "tae15"));

users.add(**new** User("kai", "kai23"));

users.add(**new** User("jisoo", "jisoo321"));

users.add(**new** User("jin", "jin07"));

users.add(**new** User("eunwo", "eunwo45"));

}

**public** User authenticate(Scanner scanner) {

System.***out***.println("+--------------------------------+");

System.***out***.println("| WELCOME TO BUDGET TRACKER APP |");

System.***out***.println("+--------------------------------+");

System.***out***.println("\nPlease login to continue");

System.***out***.println("\nEnter your username: ");

String enteredUsername = scanner.nextLine();

System.***out***.println("Enter your password: ");

String enteredPassword = scanner.nextLine();

**for** (User user : users) {

**if** (user.getUsername().equals(enteredUsername) && user.getPassword().equals(enteredPassword)) {

**return** user; // Authentication successful

}

}

**return** **null**; // Authentication failed

}

}

//main.java class

**package** demo;

**import** java.util.Scanner;

**public** **class** Main {

**public** **static** **void** main(String[] args) {

Scanner scanner = **new** Scanner(System.***in***);

User authenticatedUser = **null**;

Login login = **new** Login();

**while** (authenticatedUser == **null**) {

authenticatedUser = login.authenticate(scanner);

**if** (authenticatedUser == **null**) {

System.***out***.println("Login failed. Invalid username or password.");

}

}

**while** (**true**) {

*displayMainMenu*();

**int** choice = scanner.nextInt();

scanner.nextLine();

**switch** (choice) {

**case** 1:

// Set or update the monthly budget

**double** monthlyBudget = authenticatedUser.getMonthlyBudget();

**if** (monthlyBudget == 0.0) {

monthlyBudget = SetBudgetClass.*setMonthlyBudget*(scanner, authenticatedUser);

} **else** {

monthlyBudget = SetBudgetClass.*updateMonthlyBudget*(scanner, authenticatedUser);

}

authenticatedUser.setMonthlyBudget(monthlyBudget); // Update the user's budget

**break**;

**case** 2:

**if** (authenticatedUser != **null**) { // Check if the user is authenticated

Expense expenseManager = **new** Expense();

expenseManager.setAuthenticatedUser(authenticatedUser); // Set authenticated user

expenseManager.recordExpense(authenticatedUser, scanner);

} **else** {

System.***out***.println("Please log in to record expenses.");

}

**break**;

**case** 3:

**if** (authenticatedUser != **null**) { // Check if the user is authenticated

BudgetLog budgetLog = **new** BudgetLog();

budgetLog.run();// Call the run method in the Budgetlog class

} **else** {

System.***out***.println("Please log in to access budgetary logs.");

}

**break**;

**case** 4:

// Change Password

Password.*changePassword*(authenticatedUser.getUsername(), authenticatedUser.getPassword(), scanner);

**break**;

**case** 5:

// Exit the program

System.***out***.println("Exiting. Goodbye!");

scanner.close();

System.*exit*(0);

**break**;

**default**:

System.***out***.println("Invalid choice. Please select a valid option.");

}

}

}

**public** **static** **void** displayMainMenu() {

System.***out***.println("Menu:");

System.***out***.println(" ");

System.***out***.println("1. Set Monthly Budget");

System.***out***.println("2. Record an Expense");

System.***out***.println("3. Budgetary Logs");

System.***out***.println("4. Change Password");

System.***out***.println("5. Exit");

System.***out***.println(" ");

System.***out***.print("Enter your choice: ");

}

}

//setbudget.java class

**package** demo;

**import** java.util.Scanner;

**public** **class** SetBudgetClass {

**public** **static** **double** setMonthlyBudget(Scanner scanner, User user) {

System.***out***.println("Enter the monthly budget amount for user " + user.getUsername() + ": ");

**double** newBudget = scanner.nextDouble();

scanner.nextLine(); // Consume newline

user.setMonthlyBudget(newBudget);

System.***out***.println("Monthly budget set to $" + newBudget + " for user " + user.getUsername());

**return** newBudget;

}

**public** **static** **double** updateMonthlyBudget(Scanner scanner, User user) {

System.***out***.print("Do you want to update the monthly budget for user " + user.getUsername() + "? (Y/N): ");

String confirmation = scanner.nextLine().trim();

**double** newBudget = user.getMonthlyBudget(); // Initialize with the current budget

**if** (confirmation.equalsIgnoreCase("Y")) {

System.***out***.print("Enter the updated monthly budget amount for user " + user.getUsername() + ": ");

**double** updatedBudget = scanner.nextDouble();

scanner.nextLine(); // Consume newline

user.setMonthlyBudget(updatedBudget);

newBudget = updatedBudget; // Save the updated budget into newBudget

System.***out***.println("\nMonthly budget updated to $" + updatedBudget + " for user " + user.getUsername());

} **else** {

System.***out***.println("\nMonthly budget not updated for user " + user.getUsername());

}

**return** newBudget;

}

**public** **static** **double** getMonthlyBudget(User user) {

**return** user.getMonthlyBudget();

}

}

//user.java class

**package** demo;

**public** **class** User {

**private** String username;

**private** String password;

**private** **double** monthlyBudget;

**private** String date;

**private** String category;

**private** String description;

**public** User(String username, String password) {

**this**.username = username;

**this**.password = password;

**this**.monthlyBudget = 0.0;

**this**.date = "";

**this**.category = "";

**this**.description = "";

}

**public** String getUsername() {

**return** username;

}

**public** String getPassword() {

**return** password;

}

**public** **void** setPassword(String password) {

**this**.password = password;

}

**public** **double** getMonthlyBudget() {

**return** monthlyBudget;

}

**public** **void** setMonthlyBudget(**double** monthlyBudget) {

**this**.monthlyBudget = monthlyBudget;

}

**public** String getDate() {

**return** date;

}

**public** **void** setDate(String date) {

**this**.date = date;

}

**public** String getCategory() {

**return** category;

}

**public** **void** setCategory(String category) {

**this**.category = category;

}

**public** String getDescription() {

**return** description;

}

**public** **void** setDescription(String description) {

**this**.description = description;

}

}

//tax.java class

**package** demo;

**import** java.util.ArrayList;

**import** java.util.List;

**import** java.util.Scanner;

**class** Property {

**private** **double** baseValue;

**private** **boolean** inCity;

**private** **double** ageFactor;

**private** **double** builtUpArea;

// Constructors, getters, and setters

**public** **double** calculatePropertyTax() {

**double** tax;

**if** (inCity) {

tax = (builtUpArea \* ageFactor \* baseValue) + (0.5 \* builtUpArea);

} **else** {

tax = builtUpArea \* ageFactor \* baseValue;

}

**return** tax;

}

// Constructors, getters, and setters

**public** Property() {

}

**public** Property(**double** baseValue, **boolean** inCity, **double** ageFactor, **double** builtUpArea) {

**this**.baseValue = baseValue;

**this**.inCity = inCity;

**this**.ageFactor = ageFactor;

**this**.builtUpArea = builtUpArea;

}

**public** **double** getBaseValue() {

**return** baseValue;

}

**public** **void** setBaseValue(**double** baseValue) {

**this**.baseValue = baseValue;

}

**public** **boolean** isInCity() {

**return** inCity;

}

**public** **void** setInCity(**boolean** inCity) {

**this**.inCity = inCity;

}

**public** **double** getAgeFactor() {

**return** ageFactor;

}

**public** **void** setAgeFactor(**double** ageFactor) {

**this**.ageFactor = ageFactor;

}

**public** **double** getBuiltUpArea() {

**return** builtUpArea;

}

**public** **void** setBuiltUpArea(**double** builtUpArea) {

**this**.builtUpArea = builtUpArea;

}

}

**class** Vehicle {

**private** String registrationNumber;

**private** String brand;

**private** **double** purchaseCost;

**private** **double** velocity;

**private** **int** capacity;

**private** **int** vehicleType; // 1 for petrol, 2 for diesel, 3 for CNG/LPG

// Constructors, getters, and setters

**public** **double** calculateVehicleTax() {

**double** tax;

**if** (vehicleType == 1) {

tax = velocity + capacity + (0.10 \* purchaseCost);

} **else** **if** (vehicleType == 2) {

tax = velocity + capacity + (0.11 \* purchaseCost);

} **else** **if** (vehicleType == 3) {

tax = velocity + capacity + (0.12 \* purchaseCost);

} **else** {

// Handle invalid vehicle type

tax = 0;

}

**return** tax;

}

// Constructors, getters, and setters

**public** Vehicle() {

}

**public** Vehicle(String registrationNumber, String brand, **double** purchaseCost, **double** velocity, **int** capacity,

**int** vehicleType) {

**this**.registrationNumber = registrationNumber;

**this**.brand = brand;

**this**.purchaseCost = purchaseCost;

**this**.velocity = velocity;

**this**.capacity = capacity;

**this**.vehicleType = vehicleType;

}

**public** String getRegistrationNumber() {

**return** registrationNumber;

}

**public** **void** setRegistrationNumber(String registrationNumber) {

**this**.registrationNumber = registrationNumber;

}

**public** String getBrand() {

**return** brand;

}

**public** **void** setBrand(String brand) {

**this**.brand = brand;

}

**public** **double** getPurchaseCost() {

**return** purchaseCost;

}

**public** **void** setPurchaseCost(**double** purchaseCost) {

**this**.purchaseCost = purchaseCost;

}

**public** **double** getVelocity() {

**return** velocity;

}

**public** **void** setVelocity(**double** velocity) {

**this**.velocity = velocity;

}

**public** **int** getCapacity() {

**return** capacity;

}

**public** **void** setCapacity(**int** capacity) {

**this**.capacity = capacity;

}

**public** **int** getVehicleType() {

**return** vehicleType;

}

**public** **void** setVehicleType(**int** vehicleType) {

**this**.vehicleType = vehicleType;

}

}

**public** **class** tax {

**public** **static** **void** main(String[] args) {

List<Property> properties = **new** ArrayList<>();

List<Vehicle> vehicles = **new** ArrayList<>();

Scanner scanner = **new** Scanner(System.***in***);

**while** (**true**) {

System.***out***.println("Welcome to Tax Calculator App");

System.***out***.println("1. Add Property");

System.***out***.println("2. Add Vehicle");

System.***out***.println("3. Calculate Total Tax");

System.***out***.println("4. Close Application");

System.***out***.print("Enter your choice: ");

**int** choice = scanner.nextInt();

scanner.nextLine(); // Consume the newline character

**switch** (choice) {

**case** 1:

// Add Property

Property property = **new** Property();

System.***out***.print("Enter base value: ");

property.setBaseValue(scanner.nextDouble());

System.***out***.print("Is the property in the city? (true/false): ");

property.setInCity(scanner.nextBoolean());

scanner.nextLine(); // Consume the newline character

System.***out***.print("Enter age factor: ");

property.setAgeFactor(scanner.nextDouble());

System.***out***.print("Enter built-up area: ");

property.setBuiltUpArea(scanner.nextDouble());

properties.add(property);

System.***out***.println("Property added successfully!");

**break**;

**case** 2:

// Add Vehicle

Vehicle vehicle = **new** Vehicle();

System.***out***.print("Enter registration number: ");

scanner.nextLine(); // Consume the newline character

vehicle.setRegistrationNumber(scanner.nextLine());

System.***out***.print("Enter brand: ");

vehicle.setBrand(scanner.nextLine());

System.***out***.print("Enter purchase cost: ");

vehicle.setPurchaseCost(scanner.nextDouble());

System.***out***.print("Enter velocity: ");

vehicle.setVelocity(scanner.nextDouble());

System.***out***.print("Enter capacity: ");

vehicle.setCapacity(scanner.nextInt());

System.***out***.print("Enter vehicle type (1 for petrol, 2 for diesel, 3 for CNG/LPG): ");

vehicle.setVehicleType(scanner.nextInt());

vehicles.add(vehicle);

System.***out***.println("Vehicle added successfully!");

**break**;

**case** 3:

// Calculate Total Tax

**double** totalPropertyTax = properties.stream().mapToDouble(Property::calculatePropertyTax).sum();

**double** totalVehicleTax = vehicles.stream().mapToDouble(Vehicle::calculateVehicleTax).sum();

**double** totalTax = totalPropertyTax + totalVehicleTax;

System.***out***.println("Total Property Tax: " + totalPropertyTax);

System.***out***.println("Total Vehicle Tax: " + totalVehicleTax);

System.***out***.println("Total Tax Payable: " + totalTax);

**break**;

**case** 4:

// Close Application

System.***out***.println("Closing Application...");

scanner.close();

System.*exit*(0);

**default**:

System.***out***.println("Invalid choice. Please try again.");

}

}

}

}

//password.java class

**package** demo;

**import** java.util.Scanner;

**public** **class** Password {

**public** **static** **void** changePassword(String username, String currentPassword, Scanner scanner) {

System.***out***.print("Enter your old password: ");

String enteredCurrentPassword = scanner.nextLine();

**if** (currentPassword.equals(enteredCurrentPassword)) {

System.***out***.print("Enter your new password: ");

@SuppressWarnings("unused")

String newPassword = scanner.nextLine();

// Update the password in your data structure or database

// For this example, we'll print the new password

System.***out***.println("Password changed successfully for user " + username);

} **else** {

System.***out***.println("Current password is incorrect. Password change failed.");

}

}

}