Task:1 Student Grade Tracker

import java.util.ArrayList;

import java.util.Scanner;

public class GradeTracker {

    public static void main(String[] args) {

        Scanner scanner = new Scanner(System.in);

        ArrayList<String> students = new ArrayList<>();

        ArrayList<Double> grades = new ArrayList<>();

        System.out.println("Welcome to the Student Grade Tracker!");

        // Getting input from the teacher

        while (true) {

            System.out.print("Enter student name (or 'done' to finish): ");

            String name = scanner.nextLine();

            if (name.equalsIgnoreCase("done")) {

                break;

            }

            students.add(name);

            System.out.print("Enter " + name + "'s grade: ");

            double grade = scanner.nextDouble();

            scanner.nextLine(); // Consume newline character

            grades.add(grade);

        }

        // Calculate average

        double sum = 0;

        double highest = Double.MIN\_VALUE;

        double lowest = Double.MAX\_VALUE;

        int count = grades.size();

        for (double grade : grades) {

            sum += grade;

            if (grade > highest) {

                highest = grade;

            }

            if (grade < lowest) {

                lowest = grade;

            }

        }

        double average = sum / count;

        // Displaying results

        System.out.println("\nStudent Grades Summary:");

        for (int i = 0; i < students.size(); i++) {

            System.out.println(students.get(i) + ": " + grades.get(i));

        }

        System.out.println("\nAverage Grade: " + average);

        System.out.println("Highest Grade: " + highest);

        System.out.println("Lowest Grade: " + lowest);

        scanner.close();

    }

}

Task:2 Online Quiz Platform

import java.util.Scanner;

public class SimpleBankingApp {

    private static double balance = 0;

    private static Scanner scanner = new Scanner(System.in);

    public static void main(String[] args) {

        boolean quit = false;

        while (!quit) {

            printMenu();

            int choice = scanner.nextInt();

            scanner.nextLine(); // Consume newline character

            switch (choice) {

                case 1:

                    checkBalance();

                    break;

                case 2:

                    deposit();

                    break;

                case 3:

                    withdraw();

                    break;

                case 4:

                    quit = true;

                    System.out.println("Exiting the program. Goodbye!");

                    break;

                default:

                    System.out.println("Invalid choice. Please enter a number between 1 and 4.");

            }

        }

        scanner.close();

    }

    private static void printMenu() {

        System.out.println("\nMenu:");

        System.out.println("1. Check Balance");

        System.out.println("2. Deposit");

        System.out.println("3. Withdraw");

        System.out.println("4. Exit");

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

    }

    private static void checkBalance() {

        System.out.println("Your balance is: $" + balance);

    }

    private static void deposit() {

        System.out.print("Enter the amount to deposit: $");

        double amount = scanner.nextDouble();

        scanner.nextLine(); // Consume newline character

        if (amount <= 0) {

            System.out.println("Invalid amount. Please enter a positive number.");

        } else {

            balance += amount;

            System.out.println("$" + amount + " deposited successfully.");

        }

    }

    private static void withdraw() {

        System.out.print("Enter the amount to withdraw: $");

        double amount = scanner.nextDouble();

        scanner.nextLine(); // Consume newline character

        if (amount <= 0) {

            System.out.println("Invalid amount. Please enter a positive number.");

        } else if (amount > balance) {

            System.out.println("Insufficient funds. Your balance is: $" + balance);

        } else {

            balance -= amount;

            System.out.println("$" + amount + " withdrawn successfully.");

        }

    }

}

Task :3 Hotel Reservation System

import java.util.ArrayList;

import java.util.Scanner;

class Room {

    private String roomId;

    private String category;

    private boolean available;

    public Room(String roomId, String category) {

        this.roomId = roomId;

        this.category = category;

        this.available = true;

    }

    public String getRoomId() {

        return roomId;

    }

    public String getCategory() {

        return category;

    }

    public boolean isAvailable() {

        return available;

    }

    public void bookRoom() {

        available = false;

    }

    public void freeRoom() {

        available = true;

    }

}

class Reservation {

    private String guestName;

    private Room room;

    private String checkInDate;

    private String checkOutDate;

    public Reservation(String guestName, Room room, String checkInDate, String checkOutDate) {

        this.guestName = guestName;

        this.room = room;

        this.checkInDate = checkInDate;

        this.checkOutDate = checkOutDate;

    }

    public String getGuestName() {

        return guestName;

    }

    public Room getRoom() {

        return room;

    }

    public String getCheckInDate() {

        return checkInDate;

    }

    public String getCheckOutDate() {

        return checkOutDate;

    }

}

public class HotelReservationSystem {

    private ArrayList<Room> rooms = new ArrayList<>();

    private ArrayList<Reservation> reservations = new ArrayList<>();

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

    public HotelReservationSystem() {

        // Initialize rooms

        rooms.add(new Room("101", "Single"));

        rooms.add(new Room("102", "Double"));

        rooms.add(new Room("103", "Suite"));

    }

    public void searchAvailableRooms() {

        System.out.println("Available Rooms:");

        for (Room room : rooms) {

            if (room.isAvailable()) {

                System.out.println("Room ID: " + room.getRoomId() + ", Category: " + room.getCategory());

            }

        }

    }

    public void makeReservation(String guestName, String roomId, String checkInDate, String checkOutDate) {

        Room selectedRoom = null;

        for (Room room : rooms) {

            if (room.getRoomId().equals(roomId)) {

                selectedRoom = room;

                break;

            }

        }

        if (selectedRoom == null) {

            System.out.println("Invalid Room ID. Reservation failed.");

            return;

        }

        selectedRoom.bookRoom();

        Reservation reservation = new Reservation(guestName, selectedRoom, checkInDate, checkOutDate);

        reservations.add(reservation);

        System.out.println("Reservation successful. Booking details:");

        System.out.println("Guest Name: " + guestName);

        System.out.println("Room ID: " + roomId);

        System.out.println("Check-in Date: " + checkInDate);

        System.out.println("Check-out Date: " + checkOutDate);

    }

    public void viewBookingDetails() {

        if (reservations.isEmpty()) {

            System.out.println("No bookings yet.");

            return;

        }

        System.out.println("Booking Details:");

        for (Reservation reservation : reservations) {

            System.out.println("Guest Name: " + reservation.getGuestName());

            System.out.println("Room ID: " + reservation.getRoom().getRoomId());

            System.out.println("Check-in Date: " + reservation.getCheckInDate());

            System.out.println("Check-out Date: " + reservation.getCheckOutDate());

            System.out.println();

        }

    }

    public static void main(String[] args) {

        HotelReservationSystem system = new HotelReservationSystem();

        Scanner scanner = new Scanner(System.in);

        boolean quit = false;

        while (!quit) {

            System.out.println("\nHotel Reservation System Menu:");

            System.out.println("1. Search Available Rooms");

            System.out.println("2. Make Reservation");

            System.out.println("3. View Booking Details");

            System.out.println("4. Quit");

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

            int choice = scanner.nextInt();

            scanner.nextLine(); // Consume newline character

            switch (choice) {

                case 1:

                    system.searchAvailableRooms();

                    break;

                case 2:

                    System.out.print("Enter Guest Name: ");

                    String guestName = scanner.nextLine();

                    System.out.print("Enter Room ID: ");

                    String roomId = scanner.nextLine();

                    System.out.print("Enter Check-in Date: ");

                    String checkInDate = scanner.nextLine();

                    System.out.print("Enter Check-out Date: ");

                    String checkOutDate = scanner.nextLine();

                    system.makeReservation(guestName, roomId, checkInDate, checkOutDate);

                    break;

                case 3:

                    system.viewBookingDetails();

                    break;

                case 4:

                    quit = true;

                    System.out.println("Exiting the system. Goodbye!");

                    break;

                default:

                    System.out.println("Invalid choice. Please enter a number between 1 and 4.");

            }

        }

        scanner.close();

    }

}