**TREUE TECHNOLIGIES**

**INTERNSHIP PROGRAME**

**TASK -1**

**ONLINE PARKING SYSTEM :**

**Develop an online parking system where users can search for available parking spots, book them. The system should provide real-time updates on parking availability and allow users to manage their bookings. Implement features like user registration, parking spot search, booking confirmation**

import java.util.ArrayList;

import java.util.HashMap;

import java.util.List;

import java.util.Map;

import java.util.Scanner;

class User {

private String username;

private String password;

public User(String username, String password) {

this.username = username;

this.password = password;

}

public String getUsername() {

return username;

}

public String getPassword() {

return password;

}

}

class ParkingSpot {

private int spotId;

private String location;

private boolean isAvailable;

public ParkingSpot(int spotId, String location) {

this.spotId = spotId;

this.location = location;

this.isAvailable = true;

}

public int getSpotId() {

return spotId;

}

public String getLocation() {

return location;

}

public boolean isAvailable() {

return isAvailable;

}

public void bookSpot() {

isAvailable = false;

}

public void freeSpot() {

isAvailable = true;

}

}

public class ParkingSystem {

private Map<String, User> users = new HashMap<>();

private List<ParkingSpot> parkingSpots = new ArrayList<>();

private Map<String, ParkingSpot> bookings = new HashMap<>();

private int spotCounter = 1;

public void registerUser(String username, String password) {

User user = new User(username, password);

users.put(username, user);

}

public void addParkingSpot(String location) {

ParkingSpot spot = new ParkingSpot(spotCounter++, location);

parkingSpots.add(spot);

}

public void searchParkingSpots() {

System.out.println("Available Parking Spots:");

for (ParkingSpot spot : parkingSpots) {

if (spot.isAvailable()) {

System.out.println("Spot ID: " + spot.getSpotId() + ", Location: " + spot.getLocation());

}

}

}

public void bookParkingSpot(String username, int spotId) {

ParkingSpot spot = bookings.get(username);

if (spot != null) {

System.out.println("You have already booked a spot.");

} else {

for (ParkingSpot availableSpot : parkingSpots) {

if (availableSpot.getSpotId() == spotId && availableSpot.isAvailable()) {

availableSpot.bookSpot();

bookings.put(username, availableSpot);

System.out.println("Booking confirmed. Spot ID: " + spotId + ", Location: " + availableSpot.getLocation());

return;

}

}

System.out.println("Spot with ID " + spotId + " is not available.");

}

}

public static void main(String[] args) {

ParkingSystem parkingSystem = new ParkingSystem();

Scanner scanner = new Scanner(System.in);

// User Registration

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

String username = scanner.nextLine();

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

String password = scanner.nextLine();

parkingSystem.registerUser(username, password);

// Adding Parking Spots

parkingSystem.addParkingSpot("Parking Lot A");

parkingSystem.addParkingSpot("Parking Lot B");

parkingSystem.addParkingSpot("Parking Lot C");

// User Login (In a real system, you'd implement proper authentication)

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

String loggedInUser = scanner.nextLine();

// Search for Available Parking Spots

parkingSystem.searchParkingSpots();

// Booking a Spot

System.out.print("Enter spot ID to book: ");

int spotId = scanner.nextInt();

parkingSystem.bookParkingSpot(loggedInUser, spotId);

// Close the scanner

scanner.close();

}

}