**Welcome to the Mall Management System**

1. **Manage Shops and Outlets**
   * 1.1 Add New Shop
   * 1.2 Search for a Shop
   * 1.3 List All Shops
   * 1.4 Remove a Shop
2. **Security Management**
   * 2.1 Add New Guard
   * 2.2 View Guard Schedule
   * 2.3 Rotate Shifts
3. **Parking Management**
   * 3.1 Allocate Parking Slot
   * 3.2 Check Parking Availability
   * 3.3 View Parking Records
   * 3.4 Release Parking Slot
4. **Visitor Management**
   * 4.1 Register Visitor Entry
   * 4.2 View Visitor Logs
   * 4.3 Issue Visitor Token
5. **Navigation System**
   * 5.1 Find Shop Location
   * 5.2 Show Mall Layout
   * 5.3 Find Shortest Path Between Shops

**Menu Option Descriptions:**

### 1. ****Manage Shops and Outlets****

* **Add New Shop:** Input shop details (name, category, floor).
* **Search for a Shop:** Enter shop name or category to find its location.
* **List All Shops:** Display all shops sorted by name or category.
* **Remove a Shop:** Remove a shop from the system.

### 2. ****Security Management****

* **Add New Guard:** Input guard details (name, shift time).
* **View Guard Schedule:** Display the schedule of all guards.
* **Rotate Shifts:** Shift guards using a circular linked list.

### 3. ****Parking Management****

* **Allocate Parking Slot:** Input vehicle details and allocate a slot.
* **Check Parking Availability:** Display available parking slots.
* **View Parking Records:** Show details of parked vehicles.
* **Release Parking Slot:** Free up a slot when a vehicle leaves.

### 4. ****Visitor Management****

* **Register Visitor Entry:** Input visitor details and issue a token.
* **View Visitor Logs:** Show records of all visitors.
* **Issue Visitor Token:** Provide a token number to visitors for tracking.

### 5. ****Navigation System****

* **Find Shop Location:** Input shop name to get its location.
* **Show Mall Layout:** Display a simple floor plan.
* **Find Shortest Path Between Shops:** Input two shop names to get the shortest path.

### 6. ****Exit****

* Exit the program gracefully.

**Concepts which we used while making this Projects and Menu option:**

| **Menu Option** | **DSA Concepts** |
| --- | --- |
| Manage Shops and Outlets | Array, Linked List, Hashing, Sorting, Binary Search |
| Security Management | Circular Linked List, Queue |
| Parking Management | Min-Heap, BST, Hash Table, Queue |
| Visitor Management | Queue, Stack, Linked List |
| It Optional Navigation System | Graph, BFS/DFS, Dijkstra’s Algorithm, Stack |