**Software Requirements Specification (SRS)**

**Project Title: PEC Parking Management System**

**1. Introduction**

**1.1 Purpose**

The PEC Parking Management System is designed to manage vehicle entry and exit within a parking lot in real time. It allows operators to log vehicle arrivals, process exits with automatic fee calculation, and view daily usage analytics including revenue reports.

**1.2 Scope**

This system supports:

* Logging vehicle entries and exits.
* Calculating parking fees based on duration.
* Updating vehicle information before exit.
* Viewing daily parking analytics (entries, revenue, average fees).
* Managing parking data through a web-based interface.

**1.3 Definitions**

| **Term** | **Description** |
| --- | --- |
| SRS | Software Requirements Specification |
| PHP | Server-side scripting language |
| MySQL | Relational Database Management System |
| Fee | Parking charge calculated on duration |

**2. Overall Description**

**2.1 Product Perspective**

This is a standalone web application that runs on a LAMP stack (Linux, Apache, MySQL, PHP). It interacts with a single MySQL database to track all vehicle activity.

**2.2 User Classes and Characteristics**

| **User Type** | **Role** |
| --- | --- |
| Parking Staff | Enters and exits vehicles, updates plate info |
| Admin | Views analytics, export reports (future scope) |

**2.3 Operating Environment**

* **Frontend:** HTML, CSS (basic styling)
* **Backend:** PHP 7.x or higher
* **Database:** MySQL 5.7+
* **Web Server:** Apache/Nginx
* **Browser:** Chrome, Firefox, Edge

**3. System Features**

**3.1 Vehicle Entry**

* Users input the license plate of a vehicle entering the lot.
* System records the current timestamp (entry\_time) and stores it in the database.

**3.2 Vehicle Exit**

* User clicks “Exit” button for a parked vehicle.
* System calculates duration and fee:
  + Fee = ₹20 per hour (minimum ₹20).
* Stores exit\_time and calculated fee.

**3.3 Vehicle Update (Edit Feature)**

* Before exit, users can update the license plate.
* A simple form allows editing and updating the record.

**3.4 Current Vehicle Status**

* Lists all vehicles currently inside the parking lot.

**3.5 Exit History**

* Shows recent 20 exited vehicles with:
  + Plate number
  + Entry time
  + Exit time
  + Parking fee

**3.6 Daily Analytics**

* Shows parking data for the last 30 days:
  + Total entries
  + Total revenue
  + Average fee per day

**4. Non-Functional Requirements**

**4.1 Performance**

* Should respond to entry/exit actions in under 2 seconds.
* Handles up to 500 active parking entries.

**4.2 Security**

* No login required in version 1.0.
* Future versions should implement user authentication and input validation.

**4.3 Maintainability**

* Code is modular: config.php, index.php.
* Easy to extend (add slots, export, graphs).

**5. Data Design**

**5.1 Database: vehicles**

| **Field** | **Type** | **Description** |
| --- | --- | --- |
| id | INT, PK, AI | Unique vehicle ID |
| plate | VARCHAR(20) | Vehicle license plate |
| entry\_time | DATETIME | Time of entry |
| exit\_time | DATETIME (null) | Time of exit |
| fee | DECIMAL(10,2) | Parking fee (nullable) |

**6. User Interface Mockup**

**Home Page Sections:**

* **Vehicle Entry Form**
* **Currently Parked Vehicles**
  + With Update + Exit buttons
* **Recent Exit History**
* **Daily Analytics Table**

**7. Assumptions and Dependencies**

* Vehicle plate numbers are manually entered (no cameras or OCR).
* Parking fees are calculated hourly.
* System runs on a single machine or local network.
* Admin analytics are only visible in the browser; no export in v1.0.

**8. Future Enhancements**

* User login system (Admin/Operator)
* CSV or PDF report export
* QR code vehicle tickets
* Mobile/responsive design
* Slot capacity and real-time availability
* Graphs/charts using Chart.js or Google Charts