**Parking Management System**

| Parking Lot |
| --- |
| Attributes:  - parking\_lot\_id : int  - capacity : int  - current\_occupancy : int |
| Operations:  + addVehicle(vehicle: Vehicle) : void  + removeVehicle(vehicle: Vehicle) : void  + updateOccupancy(change: int) : void  + getAvailableSpaces() : int  + getLocation() : string  + setLocation(newLocation: string) : void |

| Vehicle |
| --- |
| Attributes:  - vehicle\_id : int  - model : string  - license\_plate\_number : string |
| Operations:  + enter(entryTime: datetime) : void  + exit(exitTime: datetime) : void  + calculateFee() : decimal  + makeReservation(reservationTime: datetime) : void  + applyForPermit(permitType: string, expirationDate: datetime) : void  + reportEnforcement(timestamp: datetime, issueDescription: string) : void |

| Entry/Exit |
| --- |
| Attributes:  - entry\_exit\_id : int  - timestamp : datetime  - entry\_or\_exit\_flag : string |
| Operations:  + recordEntry(entryTime: datetime) : void  + recordExit(exitTime: datetime) : void  + updateTimestamp(newTimestamp: datetime) : void  + updateEntryOrExitFlag(newFlag: string) : void  + getTimestamp() : datetime  + getEntryOrExitFlag() : string |

| Fee |
| --- |
| Attributes:  - fee\_id : int  - vehicle\_id : int  - entry\_time : datetime  - exit\_time : datetime  - total\_fee : decimal |
| Operations:  + calculateTotalFee() : decimal  + getEntryTime() : datetime  + getExitTime() : datetime  + getTotalFee() : decimal  + updateEntryTime(newEntryTime: datetime) : void  + updateExitTime(newExitTime: datetime) : void |

| Reservation |
| --- |
| Attributes:  - reservation\_id : int  - vehicle\_id : int  - reservation\_time : datetime |
| Operations:  + makeReservation() : void  + getReservationTime() : datetime  + cancelReservation() : void  + updateReservationTime(newTime: datetime) : void  + getRelatedVehicle() : Vehicle  + checkExpiration() : boolean |

| Occupancy |
| --- |
| Attributes:  - occupancy\_id : int (Primary Key)  - parking\_lot\_id : int (Foreign Key)  - timestamp : datetime |
| Operations:  + updateOccupancy() : void  + getTimestamp() : datetime  + getOccupancyCount() : int  + checkFullCapacity() : boolean  + updateTimestamp(newTimestamp: datetime) : void  + calculateOccupancyRate() : float |

| Payment |
| --- |
| Attributes:  - payment\_id : int  - fee\_id : int  - payment\_amount : decimal  - payment\_timestamp : datetime |
| Operations:  + processPayment() : void  + getPaymentAmount() : decimal  + getPaymentTimestamp() : datetime  + getRelatedFee() : Fee  + updatePaymentAmount(newAmount: decimal) : void  + updatePaymentTimestamp(newTimestamp: datetime) : void |

| Enforcement |
| --- |
| Attributes:  - enforcement\_id : int  - timestamp : datetime  - issue\_description : string |
| Operations:  + reportIssue() : void  + getTimestamp() : datetime  + getIssueDescription() : string  + getInvolvedVehicles() : List<Vehicle>  + updateTimestamp(newTimestamp: datetime) : void  + updateIssueDescription(newDescription: string) : void |

| Permit |
| --- |
| Attributes:  - permit\_id : int  - vehicle\_id : int  - permit\_type : string  - expiration\_date : datetime |
| Operations:  + issuePermit() : void  + getPermitType() : string  + getExpirationDate() : datetime  + updatePermitType(newType: string) : void  + updateExpirationDate(newDate: datetime) : void  + getRelatedVehicle() : Vehicle |

| Reporting |
| --- |
| Attributes:  - report\_id : int  - timestamp : datetime  - report\_content : string |
| Operations:  + generateReport() : string  + getTimestamp() : datetime  + getReportContent() : string  + addReportContent(content: string) : void  + updateTimestamp(newTimestamp: datetime) : void  + updateReportContent(newContent: string) : void |