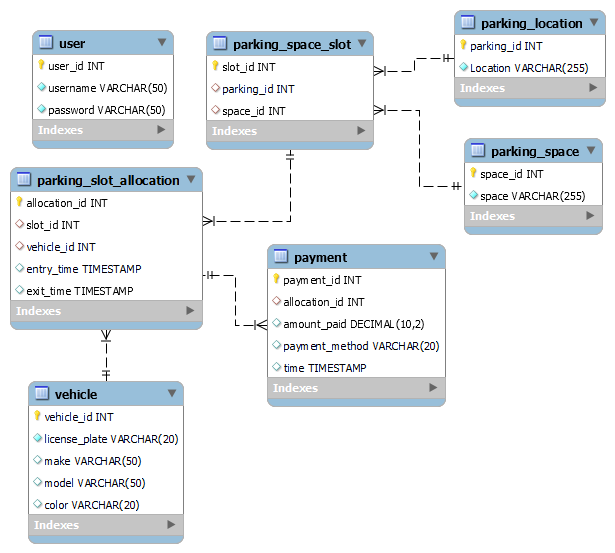
**Automated Car Parking System Database Design**

1.Description :

An automated car parking system is designed to efficiently manage parking lots by utilizing advanced technologies. This system optimizes space utilization and provides a seamless experience for both vehicle owners and administrators. Key tables include parking\_Location for diverse locations, parking\_space for different spaces, and parking\_space\_slot linking spaces and slots. The vehicle table stores vehicle details, while the parking\_slot\_allocation table tracks slot allocations. User accounts are managed by the User table, and payment transactions are recorded in the payment table.

2. Entity-Relationship Diagram :

Automated Car Parking System



3. Table Details:

### **parking\_Location**

Stores information about different parking locations.

| **Field** | **Datatype** | **Constraint** |
| --- | --- | --- |
| parking\_id | INT | Primary Key |
| Location | VARCHAR | NOT NULL |

### **parking\_space**

Records information about different parking spaces within a location.

| **Field** | **Datatype** | **Constraint** |
| --- | --- | --- |
| space\_id | INT | Primary Key |
| space | VARCHAR | NOT NULL |

### **parking\_space\_slot**

Manages the association between parking spaces and slots within a location.

| **Field** | **Datatype** | **Constraint** |
| --- | --- | --- |
| slot\_id | INT | Primary Key |
| parking\_id | INT | Foreign Key (references parking\_Location.parking\_id) |
| space\_id | INT | Foreign Key (references parking\_space.space\_id) |

### **vehicle**

Stores information about vehicles that use the parking facility.

| **Field** | **Datatype** | **Constraint** |
| --- | --- | --- |
| vehicle\_id | INT | Primary Key |
| license\_plate | VARCHAR | NOT NULL |
| make | VARCHAR |  |
| model | VARCHAR |  |
| color | VARCHAR |  |

### **parking\_slot\_allocation**

Tracks the allocation of parking slots to vehicles.

| **Field** | **Datatype** | **Constraint** |
| --- | --- | --- |
| allocation\_id | INT | Primary Key |
| slot\_id | INT | Foreign Key (references parking\_space\_slot.slot\_id) |
| vehicle\_id | INT | Foreign Key (references vehicle.vehicle\_id) |
| entry\_time | TIMESTAMP |  |
| exit\_time | TIMESTAMP |  |

### **User**

Manages user accounts for accessing the system.

| **Field** | **Datatype** | **Constraint** |
| --- | --- | --- |
| user\_id | INT | Primary Key |
| username | VARCHAR | NOT NULL |
| password | VARCHAR | NOT NULL |

### **payment**

Records payment transactions for parking.

| **Field** | **Datatype** | **Constraint** |
| --- | --- | --- |
| payment\_id | INT | Primary Key |
| allocation\_id | INT | Foreign Key (references parking\_slot\_allocation.allocation\_id) |
| amount\_paid | DECIMAL |  |
| payment\_method | VARCHAR |  |
| time | TIMESTAMP |  |