**Database Name: AutoTuneDB**

This database is designed to manage user profiles, vehicle information, service maintenance records, diagnostics, product features, user roles, and other relevant data for the AutoTune system.

**Tables**

1. **UserProfiles**
   * **Purpose**: Stores details of users in the system.
   * **Columns**:
     + UserID (INT, PK): Unique identifier for each user, auto-incremented.
     + Username (VARCHAR(255), NOT NULL): Username of the user.
     + Password (VARCHAR(255), NOT NULL): Encrypted user password.
     + Email (VARCHAR(255)): Users email address.
     + PhoneNumber (VARCHAR(20)): Users phone number.
     + Address (VARCHAR(255)): Users address.
     + RegistrationDate (DATETIME, Default NOW()): Date and time of user registration.
     + LastLoginDate (DATETIME): Date and time of last login.
2. **VehicleInformation**
   * **Purpose**: Stores information about user vehicles.
   * **Columns**:
     + VehicleID (INT, PK): Unique identifier for each vehicle.
     + UserID (INT, FK): Foreign key referencing UserProfiles(UserID), with cascading delete.
     + Make (VARCHAR(50)): Vehicle make (e.g., Honda, Toyota).
     + Model (VARCHAR(50)): Vehicle model (e.g., Accord, Camry).
     + Year (INT): Vehicle production year.
     + VIN (VARCHAR(50)): Vehicle Identification Number.
     + Mileage (INT): Mileage of the vehicle.
     + FuelConsumption (DECIMAL(10,2)): Fuel consumption metrics.
3. **ServiceMaintenance**
   * **Purpose**: Stores records of maintenance services performed on vehicles.
   * **Columns**:
     + ServiceID (INT, PK): Unique identifier for each service entry.
     + VehicleID (INT, FK): Foreign key referencing VehicleInformation(VehicleID), with cascading delete.
     + ServiceType (VARCHAR(100)): Type of service (e.g., Oil Change, Tire Rotation).
     + ServiceProvider (VARCHAR(255)): Provider of the service.
     + ServiceDate (DATETIME): Date of the service.
     + Cost (DECIMAL(10,2)): Cost of the service.
     + NextMaintenanceDate (DATETIME): Suggested date for next maintenance.
4. **DiagnosticsTuning**
   * **Purpose**: Stores diagnostic data and tuning parameters for vehicles.
   * **Columns**:
     + DiagnosticID (INT, PK): Unique identifier for each diagnostic entry.
     + VehicleID (INT, FK): Foreign key referencing VehicleInformation(VehicleID), with cascading delete.
     + DiagnosticData (TEXT): Data from diagnostic checks.
     + TuningParameters (TEXT): Tuning parameters applied.
     + Date (DATETIME, Default NOW()): Date and time of the diagnostic entry.
5. **ProductFeatures**
   * **Purpose**: Stores information about product features available in the AutoTune system.
   * **Columns**:
     + FeatureID (INT, PK): Unique identifier for each feature.
     + FeatureName (VARCHAR(255)): Name of the feature.
     + Description (TEXT): Detailed description of the feature.
     + FeatureStatus (ENUM('Active', 'Inactive')): Status of the feature.
     + Pricing (DECIMAL(10,2)): Cost of the feature.
6. **Roles**
   * **Purpose**: Defines user roles within the system.
   * **Columns**:
     + RoleID (INT, PK): Unique identifier for each role.
     + RoleDescription (VARCHAR(255)): Description of the role.
7. **UserRoles**
   * **Purpose**: Establishes many-to-many relationships between users and roles.
   * **Columns**:
     + UserRoleID (INT, PK): Unique identifier for each role assignment.
     + UserID (INT, FK): Foreign key referencing UserProfiles(UserID), with cascading delete.
     + RoleID (INT, FK): Foreign key referencing Roles(RoleID), with cascading delete.
8. **AuditLogs**
   * **Purpose**: Stores logs of actions taken by users for auditing purposes.
   * **Columns**:
     + LogID (INT, PK): Unique identifier for each log entry.
     + UserID (INT, FK): Foreign key referencing UserProfiles(UserID), with cascading delete.
     + ActionTaken (VARCHAR(255)): Description of the action.
     + Timestamp (DATETIME, Default NOW()): Date and time of the action.
     + Status (ENUM('Success', 'Failure')): Status of the action.
9. **AuthTokens**
   * **Purpose**: Stores authentication tokens for users.
   * **Columns**:
     + TokenID (INT, PK): Unique identifier for each token.
     + UserID (INT, FK): Foreign key referencing UserProfiles(UserID), with cascading delete.
     + Token (VARCHAR(255)): Authentication token.
     + ExpiryDate (DATETIME): Expiration date of the token.
10. **UserSettings**
    * **Purpose**: Stores user-specific settings.
    * **Columns**:
      + SettingID (INT, PK): Unique identifier for each setting.
      + UserID (INT, FK): Foreign key referencing UserProfiles(UserID), with cascading delete.
      + SettingName (VARCHAR(255)): Name of the setting.
      + SettingValue (VARCHAR(255)): Value for the setting.
11. **Notifications**
    * **Purpose**: Stores notifications for users.
    * **Columns**:
      + NotificationID (INT, PK): Unique identifier for each notification.
      + UserID (INT, FK): Foreign key referencing UserProfiles(UserID), with cascading delete.
      + NotificationContent (TEXT): Content of the notification.
      + CreatedAt (DATETIME, Default NOW()): Date and time of notification creation.
      + ReadStatus (ENUM('Read', 'Unread')): Read status of the notification.
12. **Payments**
    * **Purpose**: Records payment transactions.
    * **Columns**:
      + PaymentID (INT, PK): Unique identifier for each payment.
      + UserID (INT, FK): Foreign key referencing UserProfiles(UserID), with cascading delete.
      + Amount (DECIMAL(10,2)): Payment amount.
      + PaymentDate (DATETIME, Default NOW()): Date of payment.
      + PaymentMethod (ENUM('Credit Card', 'Debit Card', 'PayPal')): Payment method.
      + TransactionStatus (ENUM('Success', 'Failed')): Status of the payment.
13. **ServiceReminders**
    * **Purpose**: Stores reminders for upcoming vehicle services.
    * **Columns**:
      + ReminderID (INT, PK): Unique identifier for each reminder.
      + VehicleID (INT, FK): Foreign key referencing VehicleInformation(VehicleID), with cascading delete.
      + ReminderDate (DATETIME): Date for the reminder.
      + ServiceType (VARCHAR(100)): Type of service for the reminder.
14. **ReportSchedule**
    * **Purpose**: Stores report scheduling preferences for users.
    * **Columns**:
      + ScheduleID (INT, PK): Unique identifier for each report schedule.
      + UserID (INT, FK): Foreign key referencing UserProfiles(UserID), with cascading delete.
      + VehicleID (INT, FK): Foreign key referencing VehicleInformation(VehicleID), with cascading delete.
      + ReportType (VARCHAR(100)): Type of report.
      + Frequency (VARCHAR(50)): Frequency of report generation (e.g., daily, weekly).
      + Email (VARCHAR(100)): Email to send the report to.