

iSave - Database & Service Layer Plan

■ Suggested Database Tables for iSave

Users: Stores customer & admin data.

Products: Catalog of energy-saving products.

Categories: Groups products (LEDs, solar panels, smart plugs, etc.).

Orders: Tracks purchases.

OrderDetails: Products inside each order.

EnergyUsageStats: Tracks real-time & historical savings per user/product.

Predictions: Stores forecasted savings.

Recommendations: Personalized tips/advice for each user.

Reviews: User feedback & ratings.

Rewards: Gamification (badges, points).

Surveys: User engagement/feedback.

■ Core Service Functions for iSave

User Management

- RegisterUser(User user)
- Login(string email, string password)
- GetUserProfile(int userId)
- UpdateUserProfile(User user)
- DeleteUser(int userId)

Product & Category Management

- GetAllCategories()
- GetProductsByCategory(int categoryId)
- GetProductDetails(int productId)
- AddProduct(Product product)
- UpdateProduct(Product product)
- DeleteProduct(int productId)

Orders & Payments

- CreateOrder(int userId, List items)
- GetOrdersByUser(int userId)
- GetOrderDetails(int orderId)
- UpdateOrderStatus(int orderId, string status)
- ProcessPayment(int orderId, PaymentInfo payment)

Reviews & Ratings

- AddReview(int userId, int productId, int rating, string comment)
- GetReviewsForProduct(int productId)
- ApproveReview(int reviewId)

Energy Usage & Savings

- LogEnergyUsage(int userId, int productId, decimal hoursUsed)
- GetUserSavings(int userId)
- GetProductSavings(int productId)
- GetSavingsOverTime(int userId, string period)

Predictive Engine & Smart Advisor

- GetPredictedSavings(int userId)
- GetSmartRecommendations(int userId)
- GetSeasonalAdvice(int userId, string season)
- CompareWithTraditional(int productId)

Rewards & Gamification

- GetUserRewards(int userId)
- AddRewardPoints(int userId, int points)
- RedeemReward(int userId, int rewardId)

Surveys & Engagement

- SubmitSurveyResponse(int userId, int surveyId, string answer)
- GetSurveyResults(int surveyId)

Support / Utilities

- GetFAQ()
- AskVirtualAssistant(string question)
- FindNearestShop(string location)