Data Dictionary

Users Table

Stores customer and administrator information and preferences.

Field Name	Data Type	Key	Description
id	String	PK	Unique identifier for the user.
email	String	Unique	User's email address (used for login).
password	String		Hashed password for authentication.
full_name	String		User's full display name.
role	String		Authorization role (user or admin). Default is user.
gender	String		User's gender for recommendations.
height	Integer		User's height in cm.
body_type	String		User's body type description.
clothing_size	String		Preferred clothing size (e.g., S, M, L).
skin_tone	String		Skin tone for better rendering.
tryon_image_url	String		URL of the user's uploaded photo for virtual try-on.
is_active	Boolean		Account status flag.

Products Table

Stores catalog information for items available for virtual try-on.

Field Name	Data Type	Key	Description
id	String	PK	Unique identifier for the product.
name	String		Display name of the product.
category	String	FK	Category the product belongs to.
gender	String		Target gender (Men, Women, Unisex).
image_url	String		URL of the product image.
tryon_type	String		Type of try-on (Upper body, Lower body).
overlay_scale	Float		Scaling factor for AR overlay.
offset_x	Float		Horizontal offset for alignment.
offset_y	Float		Vertical offset for alignment.

Categories Table

Classifies products into logical groups.

Field Name	Data Type	Key	Description
id	String	PK	Unique identifier for the category.
name	String		Name of the category.
description	String		Optional description of the category.
image_url	String		Representative image for the category.

Table Relationship

Users and Products

> **Relationship:** Indirect Many-to-Many (Conceptual).

> **Description:** A user can try on multiple products, and a product can be tried on by multiple users.

Categories and Products

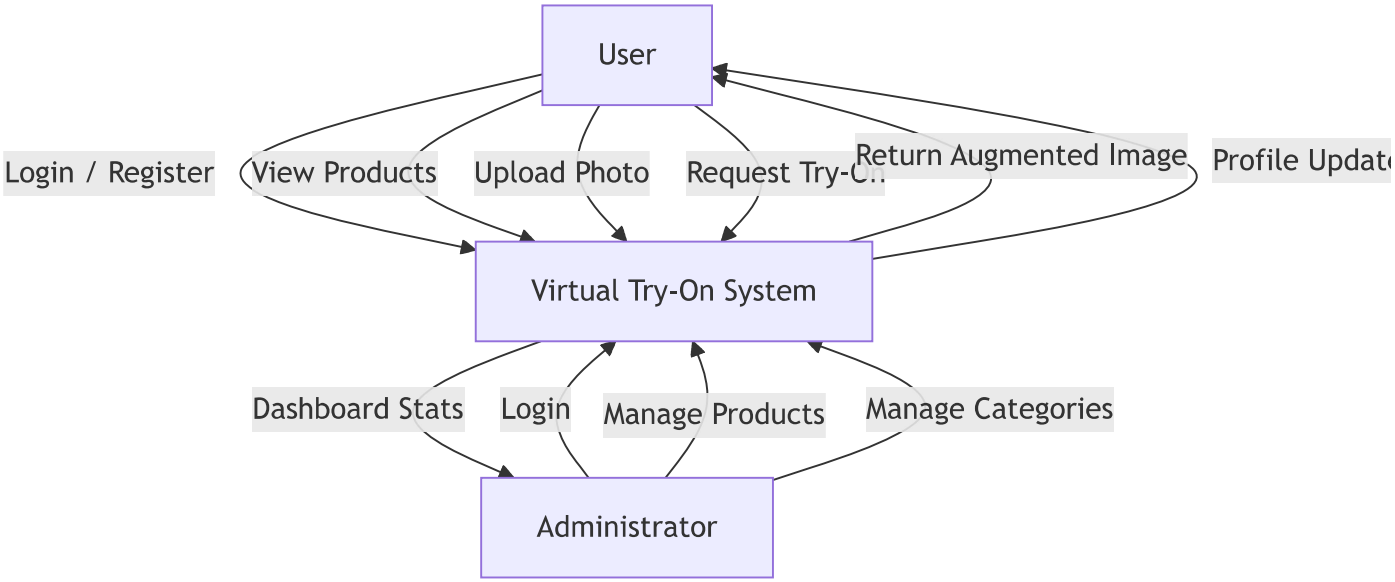
> **Relationship:** One-to-Many.

> **Description:** A single Category contains multiple Products. Each Product belongs to one specific Category.

Process Model

Context Analysis Diagram

This diagram illustrates the high-level interaction between external entities (User, Administrator) and the Virtual Try On System.



Modular Description

The system is divided into three primary modules.

User Module

> **Authentication:** Secure login, registration, and password recovery.

> **Profile Management:** Managing personal details, body measurements, and preferences.

> **Browsing:** Viewing available products and categories.

> **Product Interaction:** Selecting items for try-on.

Virtual Try-On Module (Core)

> **Image Processing:** Handles uploading and resizing of user photos.

> **AR/Overlay Logic:** Applies the clothing item onto the user's photo based on body mapping points.

> **Rendering:** Generates the final "try-on" image for the user to view.

Administrator Module

> **Dashboard:** View system statistics (user count, active products).

> **Product Management:** CRUD operations for clothing items.

> **Category Management:** Organizing products into collections.

Presentation Slides

Title Slide

Title: Virtual Try-On System
Subtitle: Revolutionizing E-Commerce with Augmented Reality
Presented by: [Your Name/Team Name]

Project Overview

Objective: To build an interactive mobile application that allows users to virtually try on clothing using their own photos.

Key Features:

> User Profiles: Personalized body measurements and preferences.
>
> Virtual Try-On: Realistic AR overlay of clothing on user photos.
>
> Admin Dashboard: Comprehensive management of products and users.
>
> Secure Authentication: Role-based access.

Problem Statement

The Challenge:

> High return rates in online fashion retail due to poor fit.
>
> Inability to visualize how clothes look on one's specific body type.

The Solution:

> A "Try-Before-You-Buy" digital experience.
>
> Sizing recommendations based on user data.

System Architecture

> **Frontend:** React Native (Expo), NativeWind
>
> **Backend:** Python (FastAPI), Supabase
>
> **Core Tech:** AR overlay logic, JWT Security

Data Models Overview

> **Users:** Stores profile data, measurements, and preferences.

> **Products:** Catalog of items with specific AR parameters.

> **Categories:** Organizational hierarchy for products.

Process Flow

> **Sign Up/Login:** Create a profile with body metrics.

> **Browse:** Select a category and product.

> **Upload:** Take or upload a full-body photo.

> **Try-On:** System overlays product on user image.

> **Result:** View and save the generated look.

Admin Features

> **Dashboard:** Real-time statistics.

> **Product Control:** Add new inventory, adjust AR settings.

> **User Management:** Monitor user activity.

Future Enhancements

> 3D Modeling: Upgrade from 2D overlay to full 3D cloth simulation.

> AI Recommendations: Machine learning suggestions.

> Social Sharing: Direct sharing of try-on looks to social media.

Conclusion

The Virtual Try-On System bridges the gap between physical and digital shopping.

Thank You!