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TEAM NAME: RESTYLE

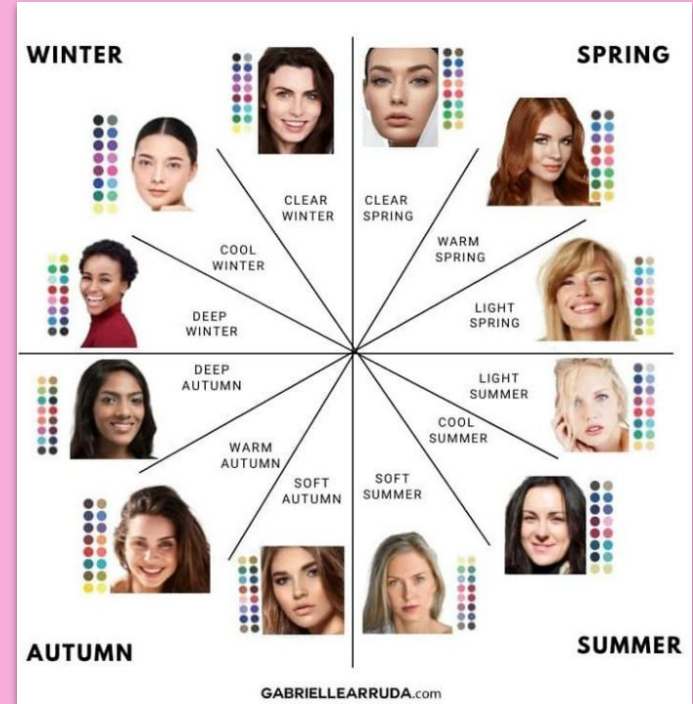
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Our Solution

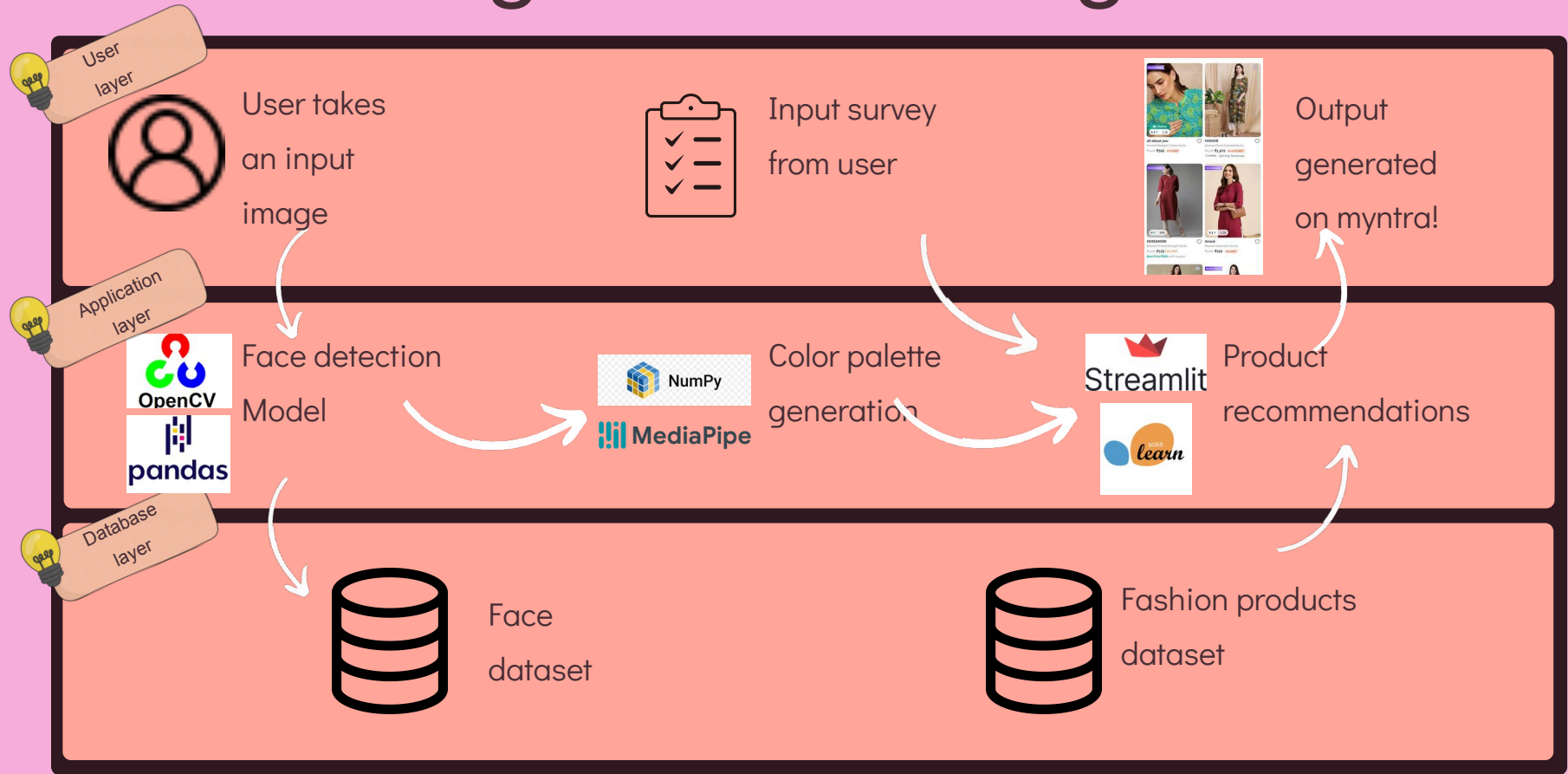
Theme: Engagement on a shopping platform

Problem Statement: developing a user-friendly and accessible recommendation system that analyzes a person's facial unique features and suggests a personalized color palette for clothing and other products.

Color analysis is a professional method for identifying colors that harmonize with the user's natural coloring (skin tone, hair color, eye color). Our goal is to recommend clothes that will actually look good on the user and not just on the model by choosing color palette that flatter each user. The 12 Seasons approach is a refined system that builds upon the four-season approach by incorporating additional factors like brightness and depth.



High Level Design



Face Detection Model

Image Segmentation: User uploads an image. Using OpenCV and the MediaPipe library, the selfie undergoes image segmentation and creates a mask to isolate the face from the background. The background is replaced with a default color.

Face Detection and Reshaping: OpenCV is utilized to detect the face in the segmented image. The image is then reshaped to exclude non-facial parts, ensuring accurate analysis.

Face Dataset: The dataset used to test this model is the Face dataset. A collection of 7.2k+ images. A mix of all common creeds, races, age groups and profiles to ensure no bias.

Color Palette Generation Model

RGB to HSL Conversion: The face image's pixel colors are converted from RGB to HSL to understand the hue(temperature), depth and chroma of the image.

K-Means Clustering: The K-means clustering algorithm is applied to the HSL values to identify distinct color clusters on the face. Each cluster represents a dominant color.

Seasonal Mapping: Based on the detected temperature, depth, and chroma levels, the model maps the user's face to one of the predefined seasons. Each season is associated with a specific color palette.

Product Recommendation Model

Taking user survey: The user selects the details of the product which they are looking for. These selections act as a filter to recommend the products the user wants.

Product Data Handling: The csv parser reads the available product data on the website and filters out the product based on the user survey. The seasonal color palette generated earlier further filters out clothes which are best for the user.

Fashion Product Dataset: It has 44k products with multiple category labels, descriptions and high-resolution images.

Integration with myntra app: The user uploads a selfie, then we use face detection and color palette generation to select a seasonal color palette which works as a filter. This helps the user find products that complement their skin tone, enhancing their shopping experience.