Magic Mirror
Your Pocket Dermatologist

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JOHNS HOPKINS
WHITING SCHOOL
of ENGINEERING
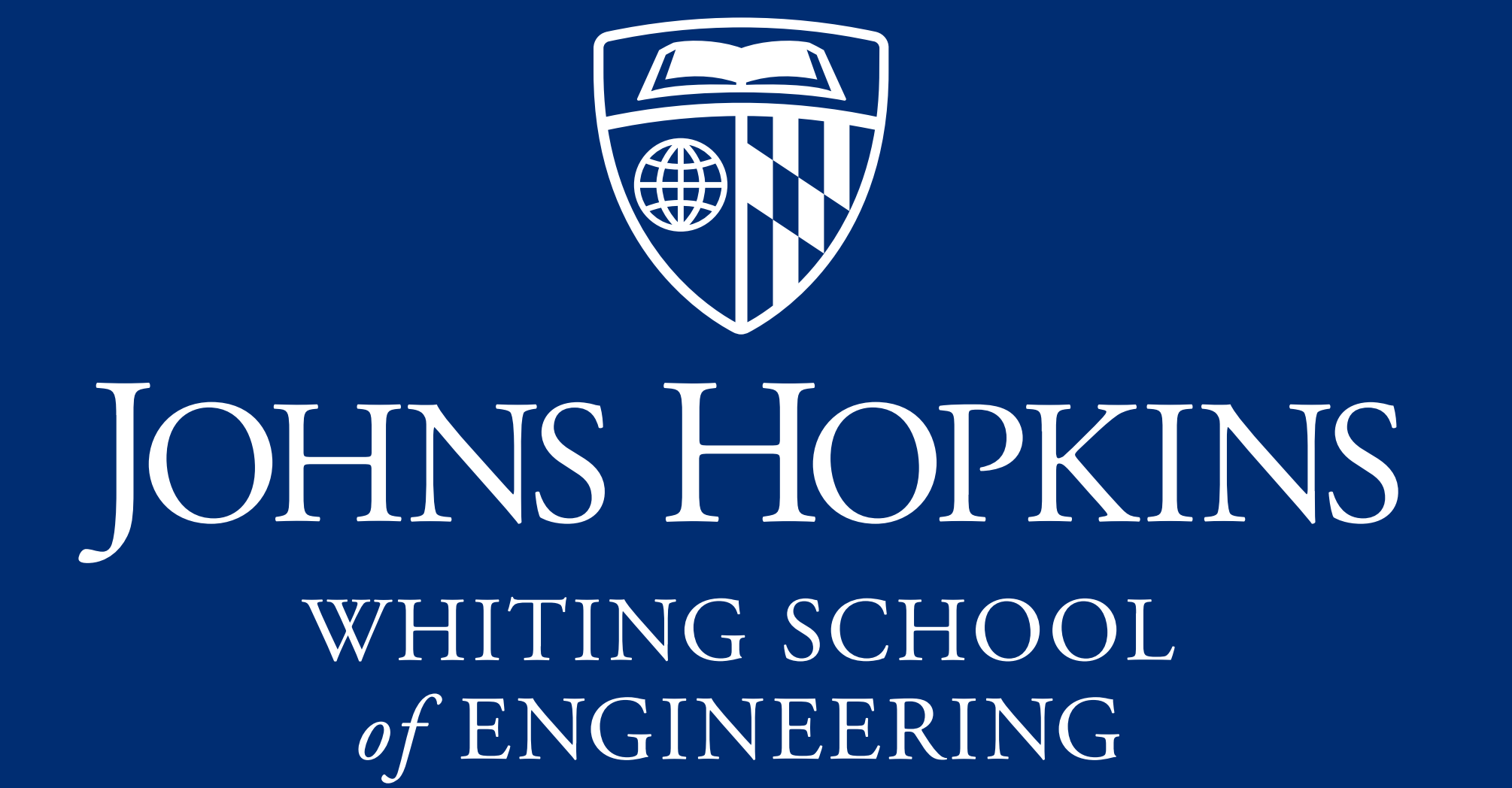
Introduction

A Skincare Problem Millions Face

Many people struggle to understand their own skin needs. Visiting a dermatologist can be costly and inconvenient, while online product recommendations are often generic and unreliable. Skincare decisions are made blindly—without data, without precision, and without confidence.

In a world where personalization is becoming the norm, the skincare industry still lacks a scalable and affordable way to deliver personalized, expert-level advice to consumers. information.

Objectives

Our goal is to build **Magic Mirror** — an AI-powered skincare analysis app that enables users to scan their face using a smartphone and instantly receive personalized skincare insights and product recommendations based on real data.

**How Might We Make Personalized Skincare Accessible to Everyone**

Materials and Methods

A feasible solution is building a **smartphone-based application** that combines:

- **Computer Vision + AI**: Trained on a diverse dataset of skin conditions (e.g., dryness, acne, redness, pigmentation) with dermatologist input.
- **Lightweight, User-Friendly Interface**: Users simply take a photo, and the app returns results in seconds.
- **Smart Recommendation**: Product suggestions are linked to specific concerns, using affiliate partnerships with trusted skincare brands.
- **Feedback Loop**: Users track skin changes over time, allowing the algorithm to learn and adapt for better recommendations.

Results or Findings

1 4-STEP PROCESS

"Magic Mirror," enhances users' skin health awareness through 4 steps:

- **Step 1: Identify Skin Concerns -** We used AI-powered facial scanning to detect common skin issues like acne, wrinkles, and dark spots with image analysis and trained datasets.

- **Step 2: Analyze Skin Health -** Our system assesses moisture, tone, and sensitivity to provide a skin condition score based on personalized facial metrics.

- **Step 3: Recommend Products -** Based on the skin analysis, the system suggests skincare routines and over-the-counter products tailored to the user's unique needs.

- **Step 4: Track Progress Over Time** Users can scan their face regularly and track improvements or changes through side-by-side comparisons and health score trends.

Dermatologist In Your Pocket
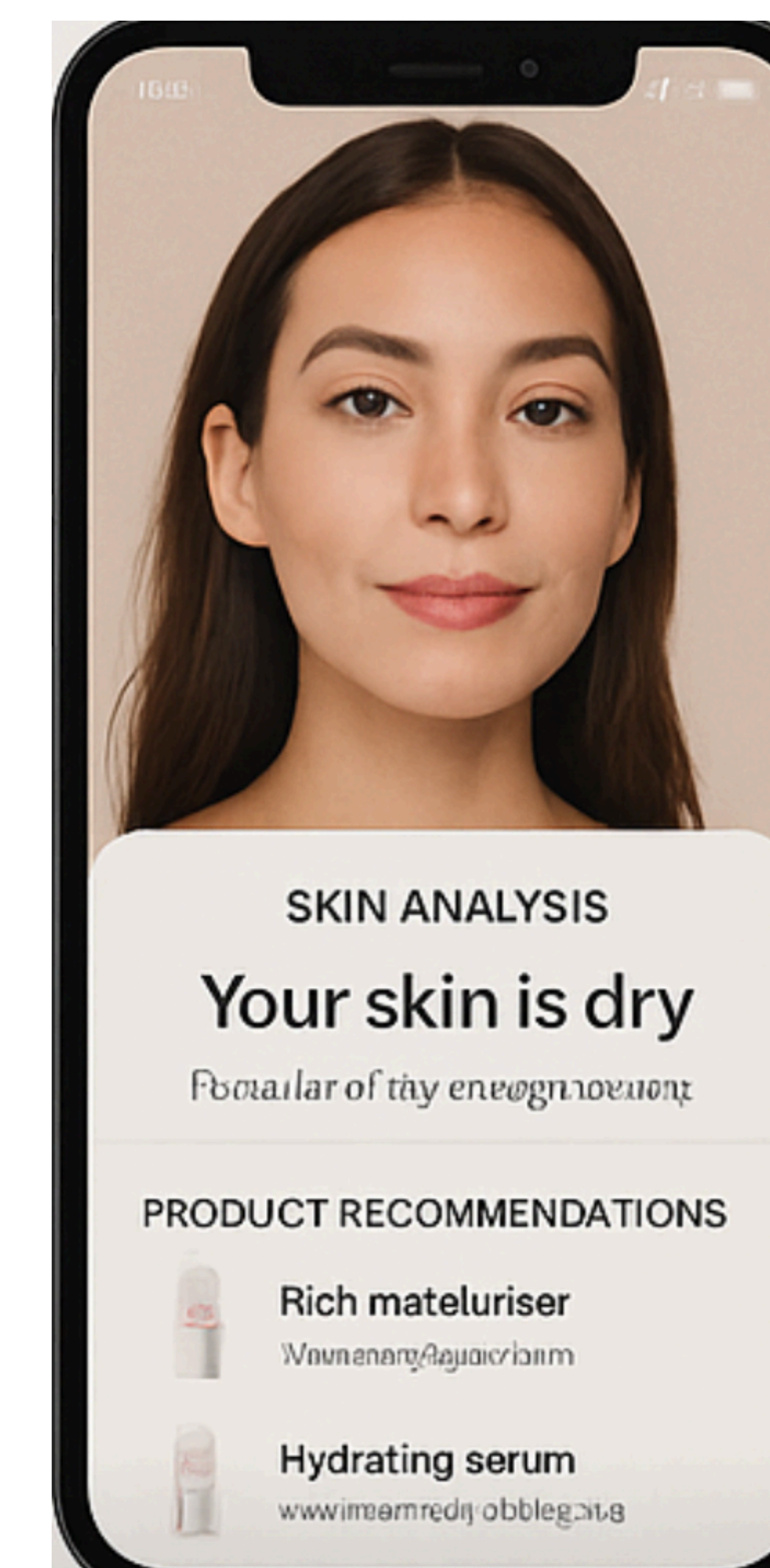
Picture taken

SKIN ANALYSIS
Your skin is dry

Skin analysis result

PRODUCT RECOMMENDATIONS

Rich mateluriser

Hydrating serum
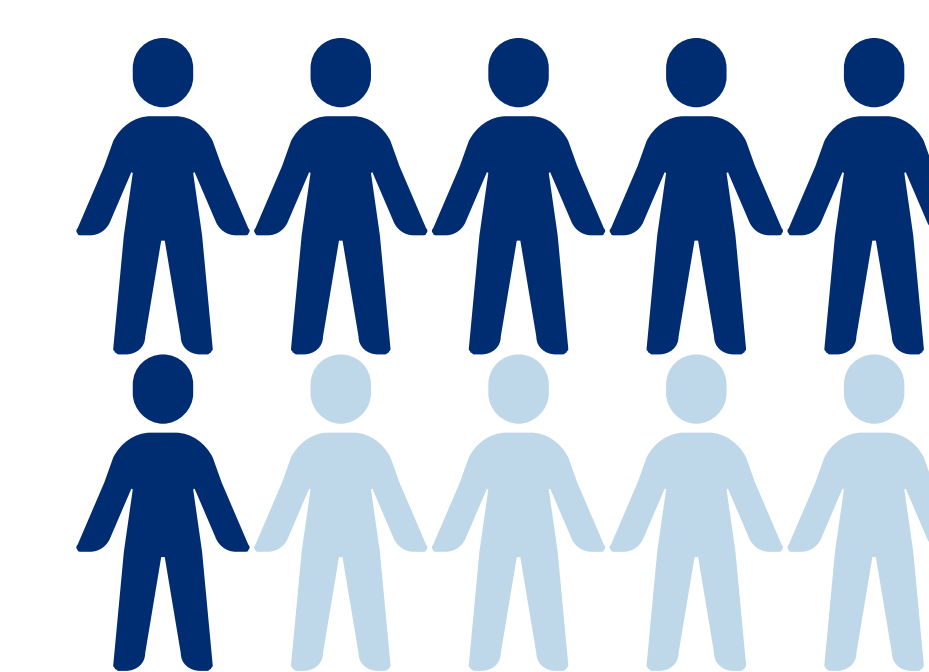
Products recommendation

2 DESIGN PROTOTYPE & FEATURES

- ★ Touch-Free Skin Scan Interface
- ★ Real-Time Feedback with AI Recommendations
- ★ Simple UI Designed for Everyday Use

3 DISCOVERIES & INNOVATIONS

- **Innovation in Workflow:** Combined image preprocessing with machine learning pipelines to reduce analysis time.

- **Key Learning:** Users prefer a gentle, non-clinical experience — this shaped our choice of color palette, tone of feedback, and product suggestions.

- **Next Steps:** We will integrate dermatologist-approved routines and expand recommendations based on seasonal and environmental data.

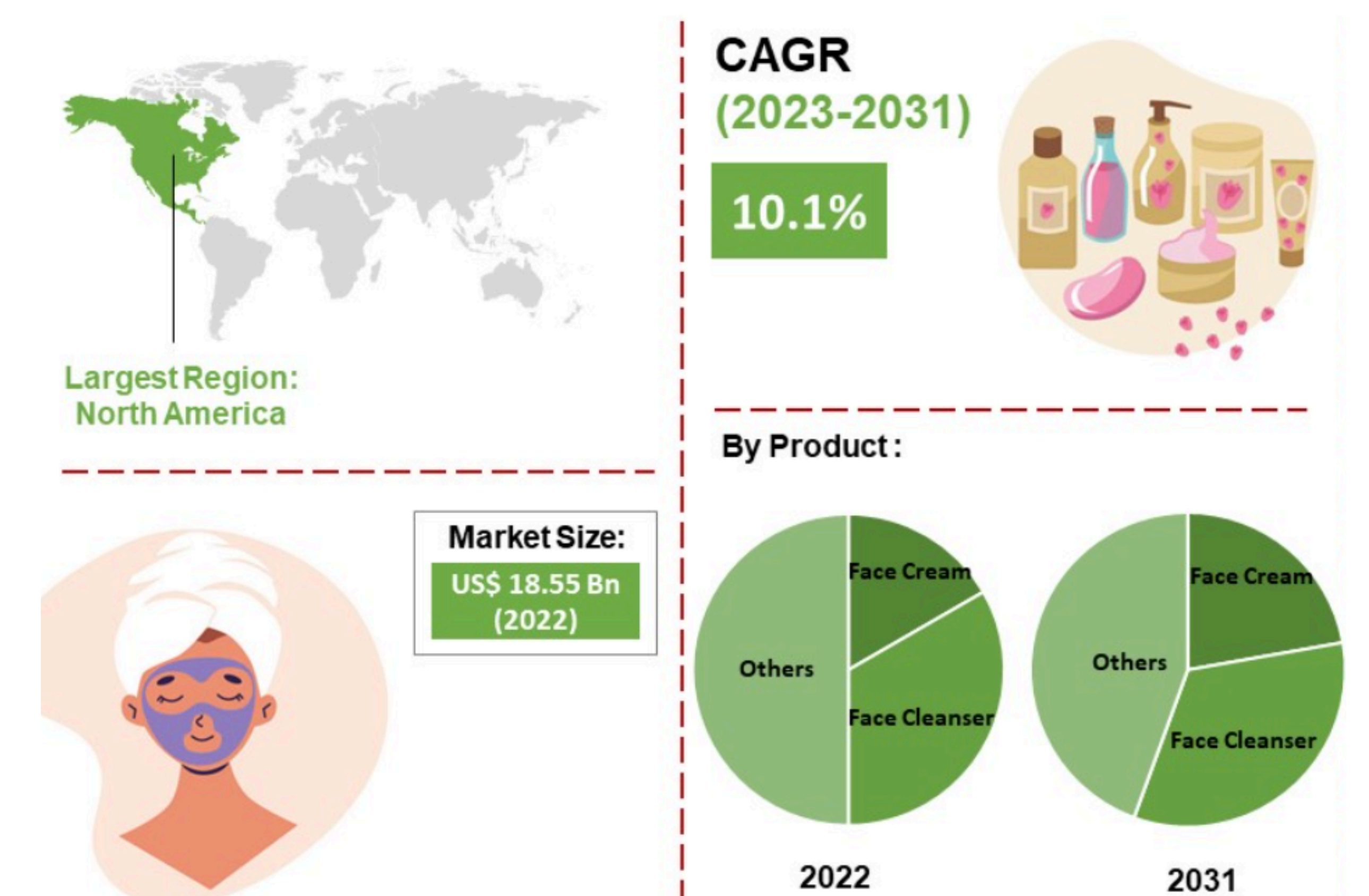**Over 60%**
of women are wrong about their skin type...

We are Here to Solve Your Skin Problems!

4 WHY INVEST IN US

- $150B US Market
- 10.1% CAGR growth
- No other competitor App

Global Personalized Skin Care Market Research Report

Largest Region: North America

CAGR (2023-2031)
10.1%

Market Size: US$ 18.55 Bn (2022)

By Product:

Face Cream
Others
Face Cleanser
2022

Face Cream
Others
Face Cleanser
2031

Conclusion

Magic Mirror is more than an app—it's a **personalized skincare advisor in your pocket**, bridging the gap between advanced AI research and everyday skincare decisions.

Next Steps
We are actively seeking to:

- **Partner with Leading Skincare Brands** to enrich our recommendation engine and deliver trusted, product-specific solutions to users.
- **Collaboration with AI Researchers and Dermatology Experts** working on facial analysis to bring cutting-edge technologies into real-world, consumer-facing applications.
- Expand Our Prototype Testing to include more **diverse skin tones**, environments, and user