DEWY

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DEWY

OBJECTIVES & RESPOSIBILITIES

- Build an AI-powered web tool for diagnosing skin conditions.

- Use image + quiz inputs to provide both medical predictions and personalized recommendations.

Sruthi- Frontend (Quiz UI & Image Upload)
Siddartha-Frontend (Dashboard, Output Display)
Varshit- CNN Model for Image Classification
Haryashw- CNN Integration & Prediction API
Rithwika- Quiz Model (Random Forest)
Abhigna -Training Quiz Model, Mapping Logic
Charitha -Flask Backend & API Integration
Antara Dataset Curation & JSON Recommendations

PROBLEM STATEMENT

Millions of people suffer from common skin conditions but lack timely access to dermatologists due to high consultation costs, limited availability, or geographic constraints. Early and accurate diagnosis is critical for effective treatment, yet self-diagnosis is often inaccurate and potentially harmful.

PROCESS

1

USER INPUT

- User uploads an image of the affected skin area.
- User answers a quiz about skin type, symptoms, and lifestyle

2

AI-BASED PREDICTION

- Image → Processed by CNN model, returns skin condition with confidence score.
- Quiz → Processed by Random Forest model, gives text-based diagnosis.

3

RESULTS & RECOMMENDATIONS

- Predictions from both models are displayed side-by-side for transparency.
- Personalized recommendations: treatments, products, and diet tips.
- Option to download a full PDF report for future reference.

REQUIREMENTS

Functional Requirements

- Upload skin image for analysis
- Fill and submit skin-type quiz
- Get predictions from CNN (image) & Random Forest (quiz)
- View both results side-by-side
- Receive personalized treatment, product, and diet suggestions
- Download report as PDF

Non-Functional Requirements

- Simple and clean user interface
- Fast prediction (under 3 seconds)
- Easily upgradable for new conditions
- Runs on any modern web browser
- Handles errors gracefully
- No data stored – ensures user privacy

ARCHITECTURE & DESIGN

- **Frontend:**
- HTML, CSS, JavaScript (Bootstrap)
- **Backend**:
- Python Flask API
- **ML Models:**
- CNN (Image-based diagnosis using TensorFlow)
- Random Forest (Quiz-based prediction using Scikit-learn)
- **Data Sources:**
- Uploaded skin images
- User quiz answers
- JSON-based recommendation engine
- 🔄 **Flow Diagram:**
- Frontend (User Input) ↔ Flask API ↔ CNN/Random Forest Models ↔ JSON Output ↔ Frontend (Results + PDF)
- 🛠️ **Design Decisions**
- Modular MVC pattern for separation of concerns
- Separate endpoints for CNN and Random Forest (SLM) for easier scaling
- JSON-based recommendations for simple, editable advice logic
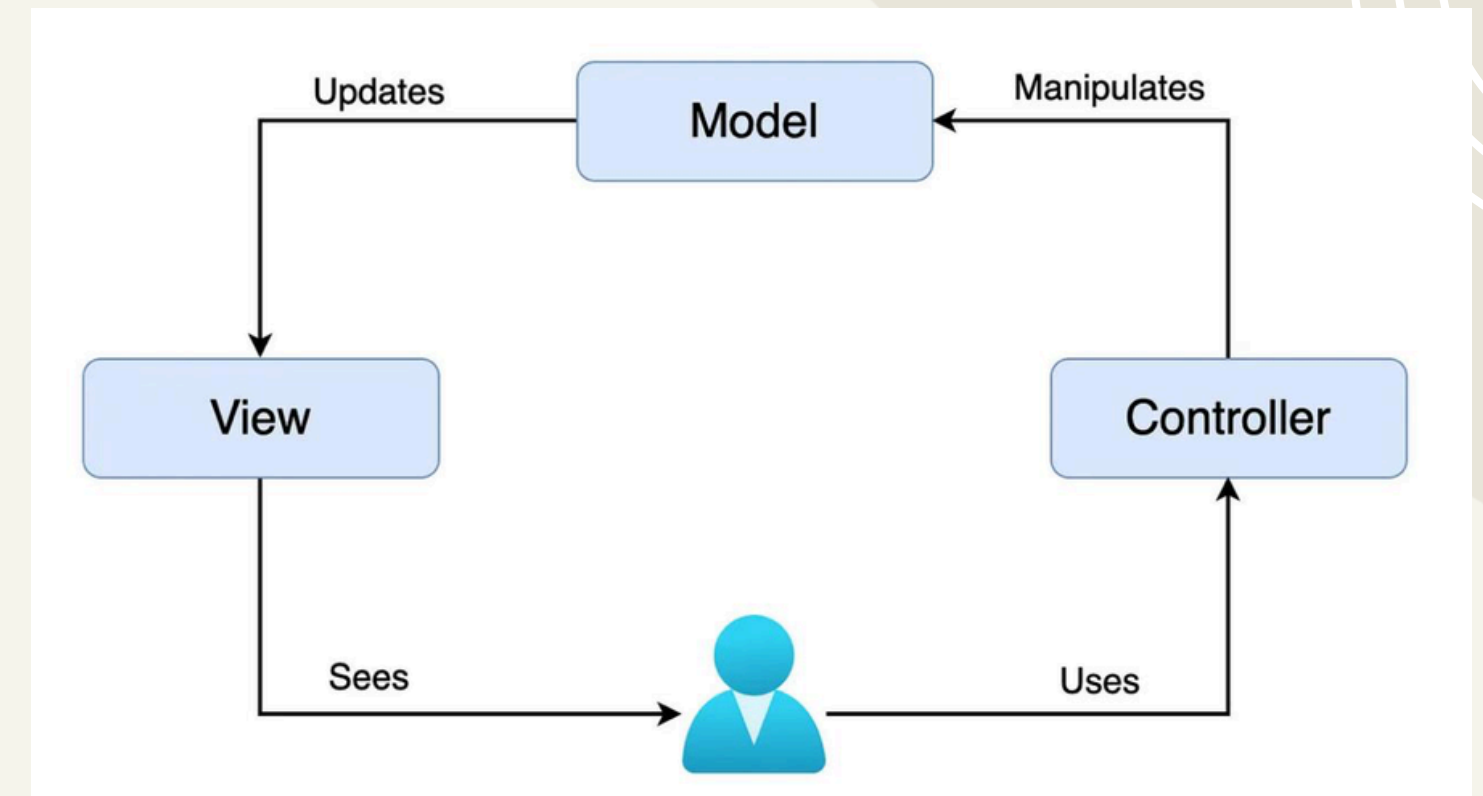
CONCLUSION

Summary
AI-based assistant using CNN (image) + Random Forest (quiz)
Real-time predictions, personalized advice, and PDF reports
Simple, modular, and privacy-focused design

💡 **Key Learnings**
AI in healthcare needs accuracy, ethics, and testing
Modular architecture helps with scalability and updates
User needs should always shape design choices

Future Scope
Add more conditions, support mobile use
Potential for telemedicine and rural outreach
Integration with doctors or chatbot for next-level care

THANK YOU