

## **1. Overview & Goal**

From the initial business pitch document and PRD, StyleSync remains an AI-powered digital styling assistant designed to help users select daily outfits tailored to their own wardrobe, mood, occasion, and weather. The goal of the prototype in this phase was to build a simplified, functional version of the original concept using Google AI Studio and to demonstrate how generative AI can support everyday decision-making in a practical, user-facing way.

For this prototype, the focus was narrowed to three core interactions:

- Uploading wardrobe images
- Selecting daily context (mood, occasion, weather)
- Generating an AI-produced outfit suggestion along with optional shopping recommendations

The purpose of this stage was not to deliver the full set of features imagined in Phase 1, but rather to build a minimal, working system that shows how AI can interpret user-provided clothing images and context to make reasonable styling suggestions.

The prototype demonstrates the core value of StyleSync: reducing the time and stress users spend deciding what to wear by providing simple, personalized recommendations based on only the items they already own.

## **2. Core Features (Implemented)**

### **My Wardrobe**

Users can upload photos of their own clothing items. Each upload includes optional metadata such as a display name, category (e.g., top, trousers, shoes), and simple tags (e.g. relaxed fit). Uploaded items appear immediately in a horizontal gallery so the user can visually confirm what is in their wardrobe.

### **Today's Context**

Users select three key inputs:

- Mood (e.g., relaxed, bloated)
- Occasion (e.g., casual outing, work)
- Weather (free-text, such as "20°C, sunny")

These selections are passed to the AI along with the wardrobe images.

### **AI Outfit Feed**

The AI generates an outfit suggestion built from the user's uploaded images. The output includes:

- A set of clothing images arranged as an outfit
- A brief explanation describing why the suggested combination fits the user's context

### **Shop Assist**

Users can enter a shopping goal (e.g., "I need more professional clothes"). The AI returns a

small set of recommended items and a short justification for why each would complement the user's wardrobe. This demonstrates how AI could support smarter, more context-driven shopping decisions.

The app includes a simple confirmation system for generated outfits. After the AI suggests an outfit, the user can either tick ✓ to confirm it as their outfit for the day or select X to reject it. When rejected, the system immediately generates a new outfit suggestion based on the same uploaded items and context. This interaction provides a lightweight feedback loop, allowing users to quickly cycle through options until they find a suitable look.

### 3. AI Specification

The AI component is the central functional element of the prototype. It uses Google's Gemini model to perform two key tasks: outfit generation and shopping recommendations.

#### Outfit Generation

##### Input:

- Images of clothing items the user uploaded
- User-selected mood
- User-selected occasion
- User-provided weather description

##### Output:

- A simple outfit assembled using the wardrobe images
- A short explanation describing why those pieces make sense together

The model analyses the basic labels and filenames of the clothing images and produces combinations that align with the user's stated context. The purpose is not to perform deep visual analysis at this stage, but to demonstrate how generative AI can reason conceptually with user inputs.

#### Shopping Recommendations

##### Input:

- The wardrobe image list
- The user's free-text shopping goal

##### Output:

- A short list of new item suggestions (e.g., trousers, blazers, shoes) and a link (TBD).
- A concise explanation for each recommendation

The recommendations reflect the need identified by the user and show how AI could help fill wardrobe gaps in a future, more advanced version.

#### Why These AI Tasks Were Chosen

These tasks are small, practical, and achievable within the constraints of Google AI Studio. They clearly demonstrate how AI can generate personalized, context-aware suggestions without

requiring a complex backend or large-scale modelling. They also align directly with the original project goals: helping users decide what to wear and shop more intentionally.

#### 4. Technical Architecture

##### Frontend

The prototype is built as a simple web application using HTML, CSS, TypeScript/JavaScript, and the structure generated through AI Studio. The user interface includes:

- Image upload fields
- A wardrobe display gallery
- Select menus for mood and occasion
- A free-text field for weather
- Buttons to trigger outfit generation and shopping recommendations

All interactions occur within a single-page interface for ease of use and design at this point.

##### AI Integration

The frontend sends the user's inputs and a list of the uploaded clothing items to Google's Gemini model. The model then returns a structured response that the interface formats into the outfit preview section or the Shop Assist results section.

This simple pipeline reflects the goal of the prototype stage: to show the feasibility and flow of AI-powered reasoning without needing a full production system.

#### 5. Prompting Strategy & Iteration Log

Three main prompt patterns were developed during the build process. Each prompt type was refined through multiple iterations until the UI looked and worked as I wanted it to.

##### Outfit Generation Prompt

"What outfit should the user wear today using only the items in this wardrobe? Use the mood, occasion, and weather to decide what makes sense. Output images of the items you recommend, plus one short explanation of why this outfit fits the context."

Iterations mainly focused on achieving consistent output formatting so the application could reliably display the correct images.

##### Shop Assist Prompt

"Based on the user's wardrobe and this shopping goal, suggest a few new clothing items that would complement their existing wardrobe. Explain briefly why each suggestion makes sense."

Iterations focused on shortening explanations and ensuring recommendations reflected the wardrobe provided rather than generic fashion advice.

## UI Design Prompt

"Improve the UI styling for the app. Make it look more modern and minimal, with rounded cards, soft shadows, and a warm sunset color theme. Keep the layout simple and responsive, and ensure the wardrobe grid, outfit cards, and buttons all match the same visual style."

## 6. UX & Design Notes

The visual design of the prototype is intentionally simple. The focus was on clarity rather than advanced styling. The three core sections, My Wardrobe, Today's Context, and AI Outfit Feed, mirror the structure envisioned in the Phase 1 concept and make the user flow straightforward.

The interface allows users to understand immediately what to do next: upload items, select their context, and generate an outfit. The limited styling reflects a functional prototype rather than a polished consumer-facing product, but it successfully demonstrates the core idea.

## 7. Next Steps

If developed further, the next stage would focus on the following:

- Improving the visual layout and styling of the interface
- Adding feedback mechanisms such as "like," "dislike," or "swap this top but keep the shoes"
- Allowing the AI to analyse images more deeply if possible
- Integrating weather APIs instead of free-text input
- Expanding shopping recommendations to include real product links
- Allowing the AI to search nearby stores to determine best place to purchase
- Adding learning systems so the model adapts over time based on user behavior

Overall, the Phase 2 prototype successfully demonstrates the feasibility of StyleSync's core concept: the ability for AI to help users make smarter, context-aware outfit decisions using their real wardrobes.