Promotion Suggestion Lifecycle

Introduction

The Promotion Suggestion feature in the AKA Studio marketing platform provides AI-powered, data-driven recommendations to help small business owners run effective campaigns. This document outlines the lifecycle of these suggestions, including their generation, user interaction, archiving, and the role of feedback in improving future suggestions.

Lifecycle

Step	Description
1. Trigger	The process starts when the user clicks "Generate Suggestions," prompting the AI to create recommendations from product-level sales data.
2. Display & User Action	Suggestions appear under the Promotions tab. Users can accept, dismiss with feedback, or ignore the suggestion.
3. Auto-Archiving	Suggestions not dismissed are archived based on factors like age and active suggestion count.
4. Feedback Loop	Dismissed suggestions, along with user feedback, inform future suggestions, creating a feedback loop that refines the AI's recommendations.

## Step 1: Trigger

Design Objectives

1. Generate AI input based on the user's action (clicking "Generate Suggestions").
2. Provide relevant insights to the AI using up-to-date product-level sales data.
3. Ensure real-time generation of suggestions with a response time under two minutes, while temporarily disabling further user interaction.

For details on how the input is constructed and fed to the AI, refer to the "Promotion Suggestion Generation."

Screenshots

**Generation Button without Sales Data**

The "Generate Suggestions" button will be disabled, and when hovered over, it will show a tooltip indicating that sales data needs to be uploaded first.
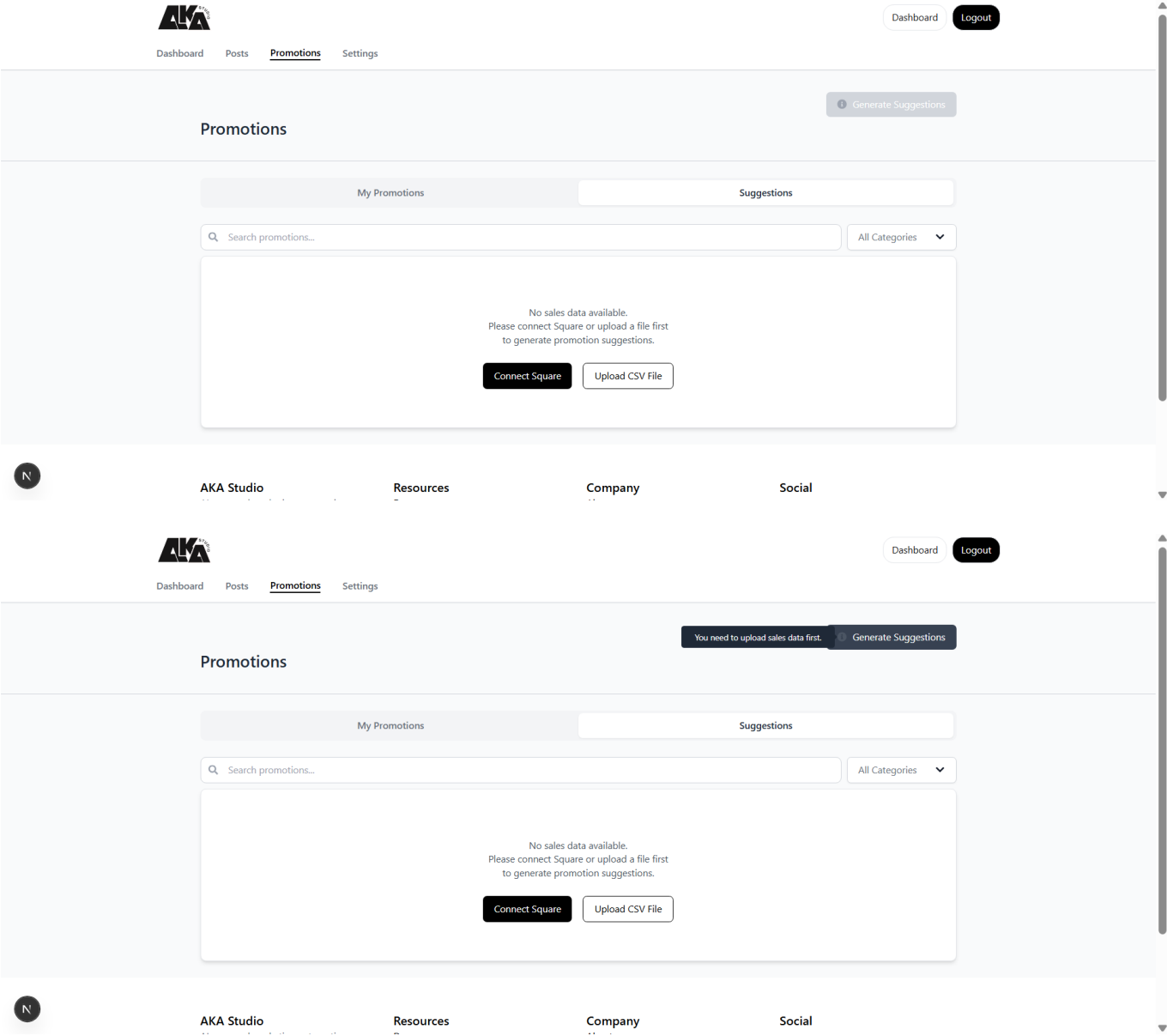
Generation Button with Sales Data

The "Generate Suggestions" button will be active, and when clicked, it will trigger the AI-powered suggestion generation process. The suggestions will be displayed in the "Suggestions" tab.
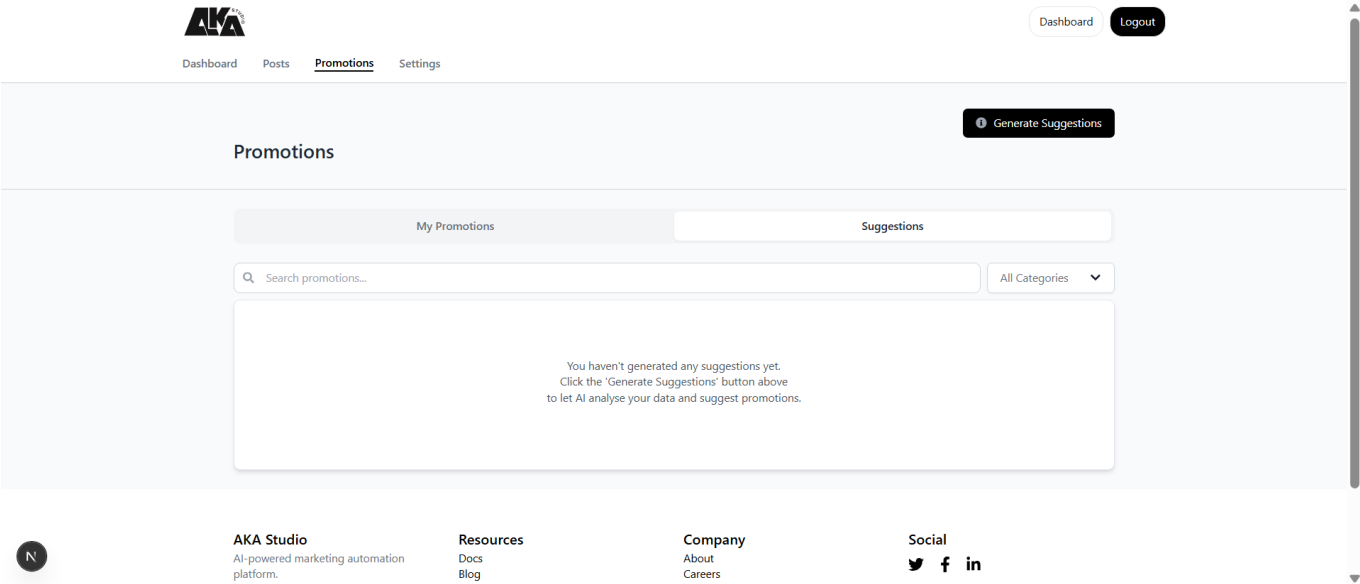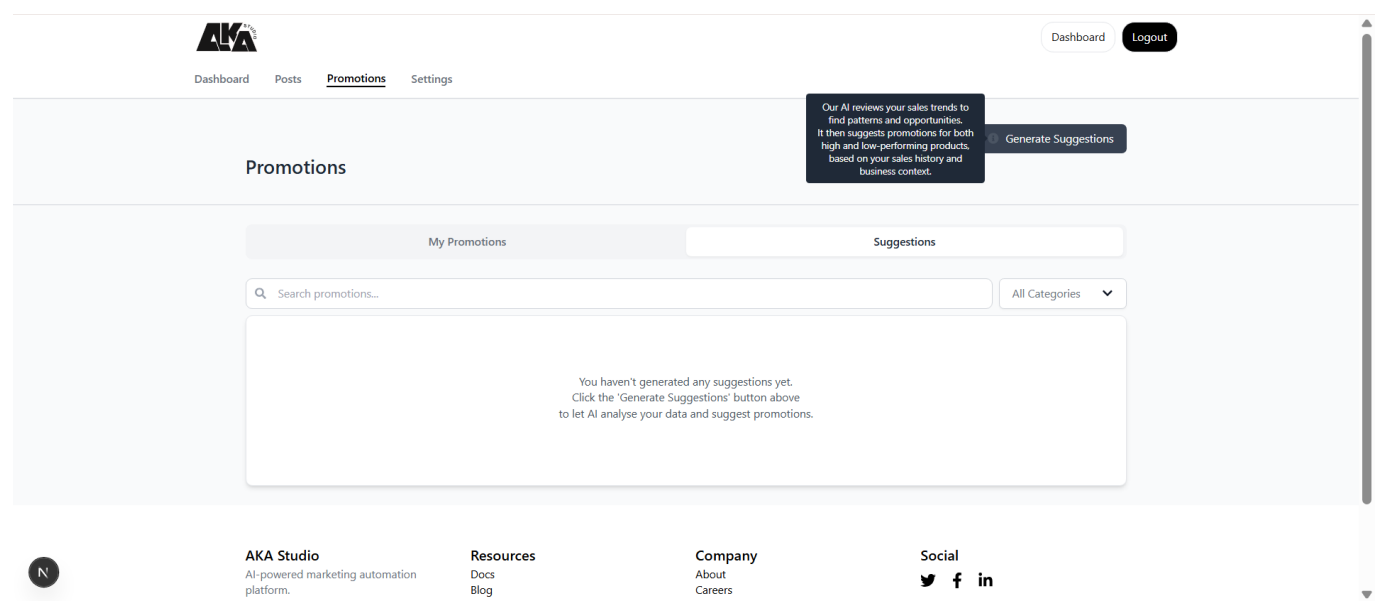
Loading Modal while Generating

While the AI is generating suggestions, a loading modal is displayed to prevent user interaction. Once the generation is complete, a success message appears and the suggestions are shown in the "Suggestions" tab.
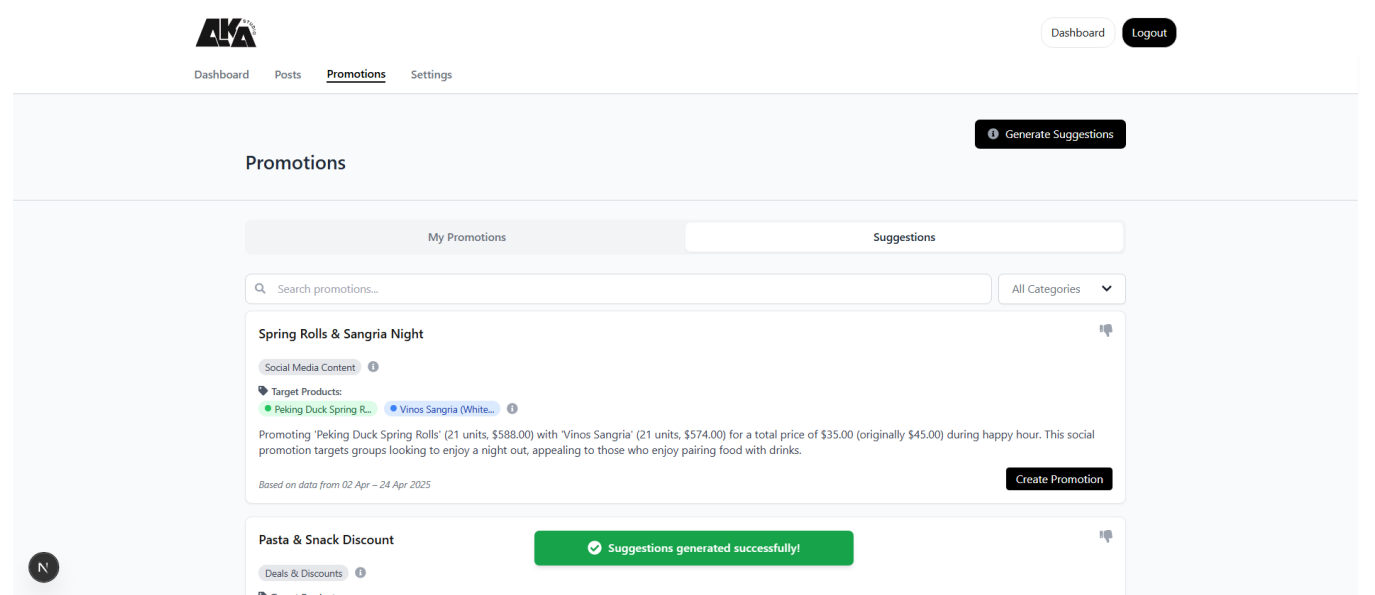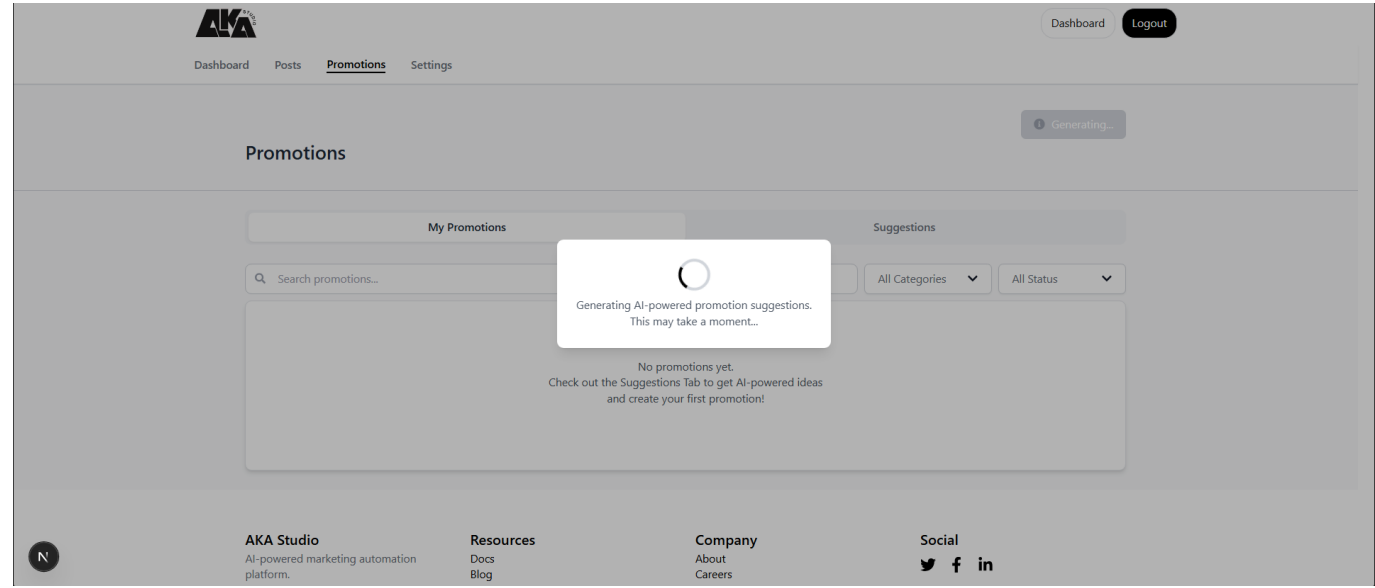
Step 2: Display & User Action

Design Objectives

1. Ensure clear, concise information is provided, including product tags.
2. Provide intuitive options for users to accept, dismiss with feedback, or ignore suggestions.
3. Create a visually appealing and easy-to-navigate display.

Screenshots

Suggestion Card

Each suggestion card displays the title, description, category, and the related product. Hovering over the product shows a tooltip with the price and variation information, and clicking it redirects to the corresponding menu item for editing. The card also shows the date of the sales data used for the suggestion. Users can either dismiss the suggestion or create a promotion based on it.
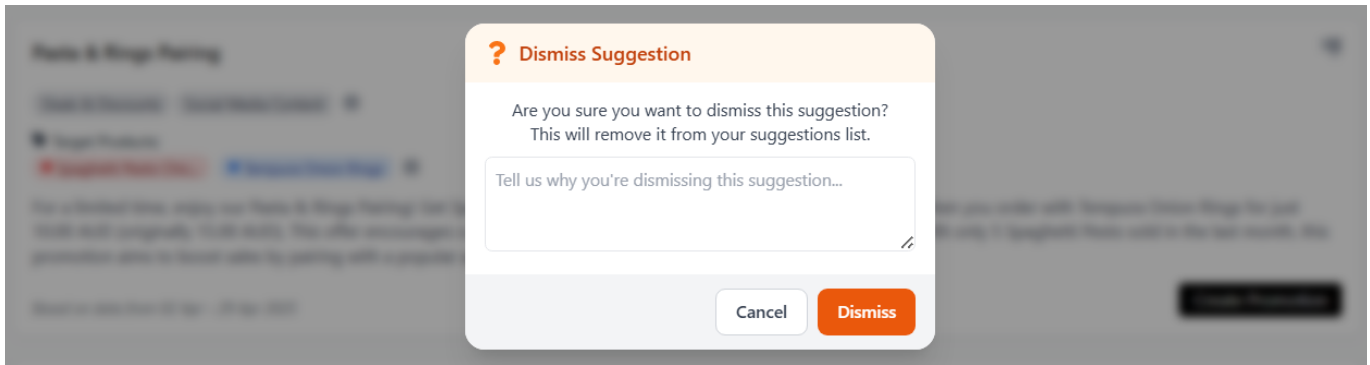

Accept

Clicking the "Create Promotion" button opens a date selector, allowing the user to choose the promotion's start and end dates. Once a date is selected, the promotion appears in the Promotions section.
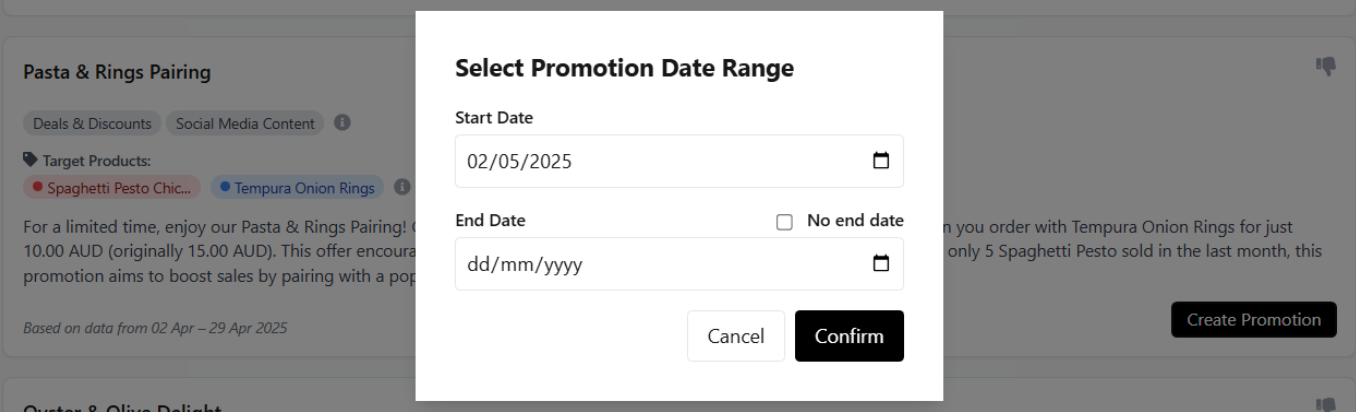
Dismiss

Clicking the "Dismiss" button opens a confirmation modal where users can optionally provide feedback on the suggestion.

Step 3: Auto-Archiving

Design Objectives

1. Maintain a relevant set of suggestions for users
2. Prevent suggestion overload
3. Prioritize newer suggestions based on recent data
4. Archive outdated suggestions automatically
5. Maintain suggestion history for analysis

Algorithm Details

The auto-archiving algorithm employs a dual-criteria approach:

1. **Time-Based Archiving**:

   - Suggestions older than a defined threshold (default: 30 days) are automatically archived
   - This ensures suggestions remain timely and based on recent data
   - Archived by setting `is_dismissed = True` and adding automated feedback

2. **Count-Based Archiving**:

   - Maintains a maximum number of active suggestions (default: 5)
   - When exceeded, archives the oldest suggestions
   - Preserves the most recent and relevant suggestions
   - Uses `ORDER BY created_at` to identify the oldest suggestions

Archiving Process

1. Time-based archiving occurs first, setting any suggestions older than the threshold to dismissed
2. Active suggestion count is evaluated after time-based archiving
3. If active count exceeds the maximum, oldest suggestions are identified using `order_by('created_at')`
4. Bulk update is performed for efficiency using Django's `filter(id__in=oldest_ids).update()`
5. Feedback is automatically applied to distinguish auto-archived items

Step 4: Feedback Loop

Design Objectives

1. Capture qualitative user feedback on suggestions

2. Distinguish user-dismissed from auto-archived suggestions
3. Build a feedback corpus for AI model improvement
4. Provide simple, intuitive feedback interface
5. Track suggestion lifecycle metrics

Feedback Integration with AI Model

The collected feedback is incorporated into future suggestion generation through the feedback context and these feedback entries are incorporated into the AI prompt.

```python
def _get_feedback_context(self, business):
    """
    Retrieve recent dismissal feedback for AI context.

    This provides the AI with information about previously rejected
    suggestions to improve future recommendations.
    """
    recent_dismissed = PromotionSuggestion.objects.filter(
        business=business,
        is_dismissed=True
    ).exclude(
        feedback=None
    ).exclude(
        feedback=''
    ).exclude(
        feedback__startswith="Auto-archived"  # Exclude system-generated feedback
    ).order_by('-created_at')[:5]  # Get 5 most recent feedback entries

    feedback_context = []
    if recent_dismissed.exists():
        for dismissed in recent_dismissed:
            if dismissed.product_names and dismissed.feedback:
                feedback_context.append({
                    'product_names': dismissed.product_names,
                    'feedback': dismissed.feedback
                })

    return feedback_context
```

Continuous Improvement Cycle

The feedback system creates a continuous improvement loop:

1. **Generation**: AI produces promotion suggestions
2. **Presentation**: Suggestions are shown to users
3. **Feedback Collection**: Users provide feedback on suggestions they dismiss
4. **Integration**: Feedback is incorporated into context for future generations
5. **Improvement**: AI learns from feedback