

## Features for the Marketing Automation Agent

Feature Name	Description
Prompt Understanding	Accept natural-language input like "Create a 7-email + 2-SMS flow for a skincare brand."
Campaign Type Detection	Understand whether it's a cart abandonment, welcome series, post-purchase, win-back, etc.
Brand Context Extraction	Read brand info from website or brief, extract tone, product type, audience.
Flow Planner (Step Breakdown)	Decide how many emails/SMS, what each message's goal is, and the sequence.
Message Type Classification	Classify messages as Reminder, Urgency, Social Proof, Offer, Education, etc.
Email Copy Generator	Generate subject line, body, CTA, tone-matched copy for each email.
SMS Copy Generator	Short, action-oriented SMS messages for reminders, urgency, coupons.
Visual Generator ( <i>optional</i> )	Generate image prompts or actual visuals for headers, banners, etc.
Dynamic Flow Logic Generator	Create JSON campaign logic: step order, delays, triggers, and conditions.
Tone Matching / Personalization	Ensure all messages follow brand tone, audience language, and emotional hooks.
Preview Campaign	Render HTML/email preview or JSON campaign schema for review.
One-click Edit & Feedback	Accept prompts like "Make Email 3 more urgent" or "Add a coupon to the last SMS."
Export for Klaviyo / Zapier	Export structured JSON or CSV that can be uploaded to automation tools.
Modular for Any Brand	Adapt to different industries or clients without hardcoded flows.
Reusable Campaign Templates	Mix-and-match flow types like cart + win-back + promo, auto-selected.
Multi-brand Support	Easily re-run for a different brand by switching context.
Optional Memory Storage	Save previously generated flows per brand or campaign for reuse.
Feedback Loop (via LangGraph)	Allow self-correction, retries, follow-up edits without restarting.

Feature Name	Description
Human-in-the-loop Trigger	Don't auto-deploy, but prepare everything so it can go live with one click.
Open-Source Tool Integration	Uses only free tools: HuggingFace LLMs, LangGraph, stable-diffusion, etc.

### Optional Add-ons (Future Features)

Feature	Description
A/B Variant Generator	Automatically create two versions of key emails for A/B testing
Performance Simulation	Predict how a flow might perform based on best practices
Upload CSV of Products	Auto-generate product-based emails from sheet
Integration API Layer	Push directly to Klaviyo, Mailchimp, or Zapier via API
Flow Recommendation Engine	Recommend campaign types based on user stage, e.g., "win-back" for churned users

### GOAL of the Agent

To take a prompt like:

"Create a 7-email + 2-SMS cart abandonment sequence for this skincare brand"

And automatically output:

- Email & SMS copy (tone-matched)
- Visuals (headers, banners)
- Campaign logic (timing, flow, conditions)
- Ready-to-export flow (JSON, CSV, or direct to Klaviyo)

### FULL TOOL STACK for Marketing Automation Agent

Layer	Tool/Stack	Purpose
LLM	LLaMA 3 / Mixtral (via Groq or Ollama) or HuggingFace mistralai/Mistral-7B-Instruct-v0.1	Used for generating email copy, SMS, tone-matching
Agent Framework	LangGraph	Orchestrates prompt → planning → execution steps
Parser & Planner	Custom planner (LLM or rules-based)	Decomposes high-level prompt into steps (flow type, message count, segments)
Copy Generation	Hugging Face LLM + Prompt Templates	For subject lines, body copy, CTA (in tone/style of brand)

Layer	Tool/Stack	Purpose
Visual Generator	stable-diffusion or dalle-mini (via Hugging face)	Header/banner images for emails, social previews
Flow Builder	JSON schema generator	Formats flow logic (delays, triggers, conditions) for automation export
Export Layer	export_manager.py (custom)	Prepares .csv, .json, or HTML preview for Klaviyo-like platforms
Optional	Klaviyo API (or fake exporter)	To simulate campaign push into live systems
Memory	JSON file, ChromaDB, or in-memory	Stores brand-specific tone, goals, message history
UI (optional)	Streamlit	For testing, reviewing output, editing before launch

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## Breakdown of Functional Modules (Tools You Need to Build)

### 1. Prompt Planner (LLM or Logic)

input: "7-email + 2-SMS cart abandonment sequence"

```
output: {
  "flow_type": "cart_abandonment",
  "email_count": 7,
  "sms_count": 2,
  "steps": [
    {"type": "email", "purpose": "Reminder"},
    {"type": "sms", "purpose": "Urgency"},
    ...
  ]
}
```

Can be built using a simple LangChain chain or hardcoded rules.

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### 2. Email/SMS Copy Generator (LLM Tool)

Inputs:

- Purpose: "Reminder"
- Brand tone: Friendly, professional
- Offer: 10% off

```
{
  "subject": "Still thinking it over?",
  "body": "We noticed you left something behind. Here's 10% off to make it yours.",
  "cta": "Complete Your Order"
}
```

Wrap this in a LangGraph tool node calling Hugging Face LLM with a prompt template.

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### 3. Visual Generator (Optional Tool Node)

Inputs:

- Prompt: "Skincare cart reminder banner for Gen Z women"
- Style: Clean, minimalist
- Output: .png or base64 image

Tools:

- stable-diffusion-v1-5 (via HuggingFace inference endpoint or Colab/Ollama)
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### 4. Flow Logic Generator

Generate JSON structure like:

```
{
  "flow": [
    {"step": 1, "type": "email", "delay": "1 hour"},
    {"step": 2, "type": "sms", "delay": "6 hours"},
    ...
  ]
}
```

This becomes your exportable structure to use in Klaviyo, Make.com, Zapier, etc.

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### 5. Export Manager

Already exists in your repo (export\_manager.py) — extend it to:

- Export. json, .csv, or
  - Package .zip of:
    - All emails
    - SMS
    - Visuals
    - Flow logic
    - HTML preview
- 

### Summary: Tool Stack Overview

Layer	Tool/Lib	Example Use
LLM	mistralai/Mistral-7B-Instruct-v0.1 or LLaMA	Email & SMS
Visual AI	stable-diffusion	Email banners
Flow Builder	Custom JSON builder	Automation tree
Planner	LangChain or rule-based	Task splitter
Workflow	LangGraph	Orchestrate agent
Exporter	Your export_manager.py	Packaged outputs
Frontend (opt)	Streamlit	User preview