

## **FDE Take-Home Exercise: Creative Automation for Social Campaigns**

Please plan to spend **6-8 hours** on the overall assignment. **Complete deliverables described in all three tasks and be prepared to share what you have created in a 30-minute presentation.**

**Required:** Please record a quick demo of the exercise working to help the interviewers set up/run the app locally for review. You will be asked to send the presentation and recording to your Talent Partner the day before your scheduled interview.

### **Scenario: Creative Automation for Scalable Social Ad Campaigns**

**Client:** A global consumer goods company launching hundreds of localized social ad campaigns monthly.

#### **Business Goals:**

1. **Accelerate campaign velocity:** Rapidly ideate, produce, approve, and launch more campaigns per month to drive localized engagement and conversion.
2. **Ensure brand consistency:** Maintain global brand guidelines and voice across all markets and languages.
3. **Maximize relevance & personalization:** Adapt messaging, offers, and creative to resonate with local cultures, trends, and consumer preferences.
4. **Optimize marketing ROI:** Increase campaign efficiency by improving performance and top-line growth (CTR, conversions) versus cost and efficiencies (both time and spend).
5. **Gain actionable insights:** Track effectiveness at scale and learn what content/creative/localization drives the best business outcomes.

#### **Pain Points:**

1. **Manual content creation overload:** Creating and localizing variants for hundreds of campaigns per month is slow, expensive, and error-prone.
2. **Inconsistent quality & messaging:** Risk of off-brand or low-quality creative due to decentralized processes and agencies.
3. **Slow approval cycles:** Bottlenecks in review/approval with multiple stakeholders in each region and market.
4. **Difficulty analyzing performance at scale:** Siloed data and manual reporting hinder learning and optimization.

5. **Resource drain:** Skilled creative and marketing teams are overloaded with repetitive requests versus value-driving work.

**Objective:** Design a creative automation pipeline that enables the creative team to generate variations for campaign assets.

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## Data Sources

- **User inputs:** Campaign briefs and assets uploaded manually.
- **Storage:** Storage to save generated or transient assets (Can be Azure, AWS or Dropbox)
- **GenAI:** Best-fit APIs available for generating hero images, resized and localized variations.



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## Task 1: Create a High-Level Architecture Diagram and Roadmap

- **Architecture Diagram:** Detailed Architecture diagram for the overall content pipeline.
- **Roadmap:** High-level roadmap (1 slide) to show the overall delivery timelines and epics.
- **Stakeholders:**
  - Creative Lead
  - Ad Operations
  - IT
  - Legal/Compliance
- **System Architecture:**
  - Asset ingestion
  - Storage
  - GenAI-based asset generation
- **Task Deliverable**
  - High-Level Architecture Diagram
  - Roadmap (1 slide)

## Task 2: Build a Creative Automation Pipeline (Proof of Concept)

### Goal:

Demonstrate a working proof-of-concept that automates creative asset generation for social ad campaigns using GenAI. The implementation should show your technical approach, problem-solving, and ability to integrate creative technologies.

### Requirements (minimum)

- Accept a **campaign brief** (in JSON, YAML, or other reasonable format) with:

- Product(s) – at least **two different products**
  - Target region/market
  - Target audience
  - Campaign message
- Accept **input assets** (can be in a local folder or mock storage) and reuse them when available.
- When assets are missing, generate new ones using a GenAI image model
- Produce creatives for **at least three aspect ratios** (e.g., 1:1, 9:16, 16:9).
- Display **campaign message** on the final campaign posts (English at least, localized is a plus).
- Run **locally** (command-line tool or simple local app; your choice of language/framework).
- Save generated outputs to a folder, clearly organized by product and aspect ratio.
- Include basic documentation (README) explaining:
  - How to run it
  - Example input and output
  - Key design decisions
  - Any assumptions or limitations

#### **Nice to Have (optional for bonus points)**

- Brand compliance checks (e.g., presence of logo, use of brand colors)
- Simple legal content checks (e.g., flagging prohibited words)
- Logging or reporting of results

Please ensure that your solution reflects thoughtful design choices and demonstrates a clear understanding of the code. These aspects will be part of the evaluation.

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### **Task 3: Create an Agentic System Design & Stakeholder Communication**

Design an AI-driven agent to:

- Monitor incoming campaign briefs.
- Trigger automated generation tasks.
- Track the count and diversity of creative variants.
- Flag missing or insufficient assets (e.g., fewer than 3 variants).
- Alert and/or Logging mechanism

#### **Model Context Protocol:**

Define the information the LLM sees to draft human-readable alerts.

#### **Sample Stakeholder Communication:**

Compose an email to customer leadership explaining delays (e.g., due to GenAI API provisioning or licensing issues)

**Deliverables:** Please share with us the following deliverables for each of the tasks described above:

1. **Task 1: Prepare a 30-minute presentation in which you will share:**
  - A high-level Roadmap and Approach
  - A backend and data integration design
2. **Task 2: A public GitHub repository containing:**
  - The creative automation pipeline code
  - A comprehensive README file
3. **Task 3: Design an AI-Driven Agent and share:**
  - Agentic System Design
  - Email - Stakeholder Communication