

# AI-Powered Business Idea Generator

## AI-Powered Business Idea Generator - Overview

The **AI-Powered Business Idea Generator** is a tool designed to help users generate **unique startup ideas** based on their **interests** and a selected **business category**. It uses **Ollama’s DeepSeek AI models** to propose viable business concepts and even includes a **feasibility checker** to analyze the market and competition. The user simply selects a category (e.g., Technology, Healthcare, Finance) and describes their **interests**. The AI then **suggests an idea** and evaluates its **potential** using predefined business criteria.

## Project Files & Their Roles

File	Purpose
<code>main.py</code>	<b>Gradio UI</b> - Allows users to input preferences and receive business ideas.
<code>idea_generator.py</code>	<b>Core AI Processing</b> - Calls Ollama’s DeepSeek model to generate ideas.
<code>validation_checker.py</code>	<b>Feasibility Analysis</b> - Assesses the business idea based on market size and competition.
<code>utils.py</code>	<b>Formatting &amp; Keyword Analysis</b> - Cleans text and extracts keywords for validation.
<code>config.py</code>	<b>Business Categories &amp; Model Defaults</b> - Defines available business sectors and validation rules.

## Explanation of Each File & Key Functions

### `main.py` - The Gradio UI

This file sets up the **user interface** using **Gradio**, allowing users to:

- **Select a business category** (e.g., Technology, Finance, Environment).
- **Enter their interests** (e.g., AI, sustainability, automation).
- **Generate an idea** using **DeepSeek AI**.
- **Validate feasibility** using a market-checking logic.

◆ **Key Functions:**

- `get_available_models()` → Retrieves available Ollama models.
- `generate_idea_interface(category, interests, model)` → Calls AI to generate a business idea.
- `validate_idea_interface(idea_text, category)` → Calls the feasibility checker.

### Code Snippet (UI Integration with Gradio)

```
generate_button.click(
    fn=generate_idea_interface,
    inputs=[category_input, interests_input, model_selector],
    outputs=idea_output
)

validate_button.click(
    fn=validate_idea_interface,
    inputs=[idea_output, category_input],
    outputs=feasibility_output
)
```

## 2 `idea_generator.py` - Generating Business Ideas

This file contains the **core AI logic** that interacts with **Ollama's DeepSeek model**. The AI is prompted to suggest **business ideas** based on user interests.

### ◆ Key Functions:

- `run_deepseek_prompt(prompt, model)` → Calls DeepSeek AI using `subprocess.run()`.
- `generate_business_idea(category, interests, model)` → Generates a business idea tailored to the user.

### Code Snippet (Generating Business Ideas with DeepSeek AI)

```
def generate_business_idea(category: str, interests: str, model: str) → str:
    prompt = (
        f"You are an AI assistant specialized in startup ideation.\n\n"
        f"User is interested in: {interests}\n"
        f"Preferred business category: {category}\n\n"
        "Generate a creative, unique startup or business idea that aligns with the user's interests and the chosen category."
```

```
)  
return run_deepseek_prompt(prompt, model)
```

### 3 `validation_checker.py` - Business Feasibility Check

This file evaluates the **business idea's feasibility** based on **market size and competition level**.

#### ◆ Key Functions:

- `check_feasibility(idea_text, category)` → Assesses the business idea based on predefined validation rules.
- Uses `analyze_keywords(text)` from `utils.py` to check if key terms (e.g., "sustainable", "green") are present.

#### 📌 Code Snippet (Feasibility Analysis)

```
def check_feasibility(idea_text: str, category: str) → str:  
    market_info = VALIDATION_CRITERIA["market_size"].get(category, "Unknown")  
    competition_info = VALIDATION_CRITERIA["competition_level"].get(category, "Unknown")  
  
    feasibility_notes = [  
        f"Market size is {market_info.lower()}.",  
        f"Competition level is {competition_info.lower()}."  
    ]  
  
    if "sustainable" in analyze_keywords(idea_text):  
        feasibility_notes.append("Eco-friendly angle could be a differentiator.")  
  
    return "Feasibility Assessment:\n" + " ".join(feasibility_notes)
```

### 4 `utils.py` - Formatting & Keyword Analysis

This file provides **helper functions** for text formatting and keyword extraction.

#### ◆ Key Functions:

- `format_idea(idea_text)` → Cleans and structures the AI-generated business idea.

- `analyze_keywords(text)` → Extracts key terms to help assess feasibility.

#### Code Snippet (Keyword Analysis for Feasibility)

```
def analyze_keywords(text: str) → list:
    words = re.findall(r"\b\w+\b", text.lower())
    return list(set(words))
```

### **5 config.py - Business Categories & Validation Rules**

This file defines **preconfigured categories** and **market analysis rules**.

#### ◆ **Key Data:**

- `BUSINESS_CATEGORIES` → List of startup categories available in the UI.
- `VALIDATION_CRITERIA` → Market size and competition level for each category.

#### Code Snippet (Market Size & Competition Levels)

```
VALIDATION_CRITERIA = {
    "market_size": {
        "Technology": "Large",
        "Healthcare": "Growing",
        "Finance": "Established"
    },
    "competition_level": {
        "Technology": "High",
        "Healthcare": "Medium",
        "Finance": "High"
    }
}
```

## **Summary of How Everything Works Together**

- 1** User selects a business category and enters interests.
- 2** AI generates a startup idea using DeepSeek AI.
- 3** The idea is formatted before display.
- 4** User can check feasibility based on market size & competition.

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- 5 The UI presents insights to help refine business ideas.
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## How to Run the Project

- 1 Install dependencies:

```
pip install gradio
```

- 2 Run the application:

```
python main.py
```




- 3 Open the Gradio UI in a browser.


- 4

Select a category, enter interests, and generate a business idea!

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## Future Improvements

-  **AI-Powered Market Research** → Connect the feasibility checker to **real-world data**.
  -  **Business Model Generation** → Expand AI prompts to suggest **monetization strategies**.
  -  **Idea Storage & Retrieval** → Allow users to save and refine multiple ideas.
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This **detailed breakdown** covers **everything you need** for **your presentation or documentation!**  Let me know if you need refinements. 