📘 Technical Documentation

AI-Based SEO Blog Creation Tool (Streamlit-Based)

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1. Project Overview

The **AI-Based SEO Blog Creation Tool** is an end-to-end application that automates the creation of SEO-optimized blog posts for trending or best-selling products from e-commerce platforms such as **Amazon** and **eBay**.

The system combines:

- Product scraping
- Automated SEO keyword research
- AI-driven blog generation
- Interactive content review and publishing

A **Streamlit-based web interface** is used to provide a seamless, user-friendly experience for non-technical users.

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2. Objectives

- Scrape trending or searched products from e-commerce platforms
- Automatically generate SEO-focused keywords
- Generate **150–200 word SEO-optimized blog content**

- Allow users to preview, download, and publish blogs
- Provide a no-code UI using Streamlit
- Avoid dependency on paid LLM APIs

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3. Technology Stack

Backend & AI

- **Python 3**
- **BeautifulSoup** – web scraping
- **Requests** – HTTP communication
- **HuggingFace / Open-source LLMs** – AI blog generation
- **Custom SEO logic / LLM-assisted keyword research**

Frontend & UI

- **Streamlit** – interactive web application
- Custom CSS for enhanced UI/UX
- Session state management for workflow persistence

Publishing

- **WordPress REST API** (self-hosted)
- Local Markdown/Text file export

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4. System Architecture

High-Level Architecture

User (Browser)

Streamlit UI Layer

Product Scraper (Amazon / eBay)

SEO Keyword Generator

AI Blog Generator

Preview / Download / Publish

Diagram:

1 Enter Product Details

Product Title *

Wirelessbluetooth headphones

Price *

89

Rating (out of 5) *

4.2

Number of Reviews *

16345

Category *

Electronics

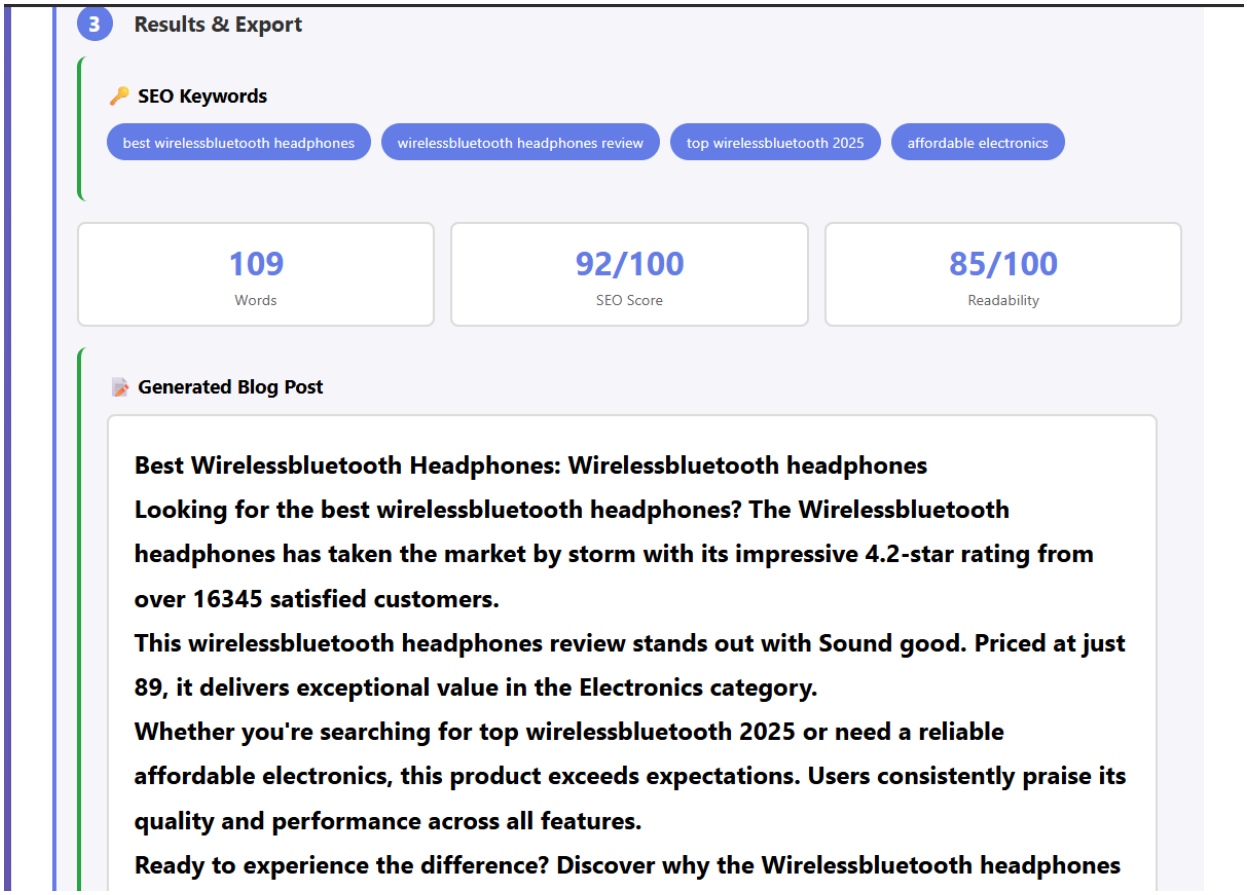
Product Description *

Sound good

💡 **Tip:** The more detailed your product information, the better the SEO blog post will be!

2 Generate Blog Post

🚀 Generate SEO Blog Post



5. Streamlit Application Architecture

Page Configuration & Styling

The application initializes using:

- `st.set_page_config()` **for layout control**
- **Custom CSS for product cards, buttons, and alerts**

This ensures a modern, dashboard-like UI experience.

Sidebar Configuration Module

Purpose: Control scraping source and quick actions

Features:

- **Platform selection: Amazon / eBay**
- **Quick "Get Top Bestsellers" action**
- **Sidebar-triggered scraping without manual search**

This allows users to instantly fetch trending products.

Session State Management

The application uses `st.session_state` to persist data across UI interactions:

State Variable	Purpose
results	Stores scraped product list
selected_prod	Stores user-selected product
blog_content	Stores generated blog
seo_data	Stores SEO keyword strategy

This ensures smooth multi-step workflows without page reload issues.

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6. Product Discovery & Scraping Module

Search-Based Scraping

Users can:

- **Enter a search keyword**
- **Trigger platform-specific scraping logic**
- **View products dynamically in a grid layout**

Bestseller Scraping

Using the sidebar quick action:

- **Fetches platform-specific bestsellers**
- **Bypasses manual search input**

Each product includes:

- **Title**
- **Price**
- **Image**
- **Source platform**
- **Product URL**

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7. Product Display & Selection

Products are rendered using:

- **Dynamic column grids (4 products per row)**
- **Custom product cards**
- **“Write Blog” CTA button**

When a product is selected:

- **The product is stored in session state**
- **Blog generation workflow is triggered**

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8. SEO Keyword Research Module

Purpose

Generate SEO-optimized keywords for the selected product.

Approach

- **Uses product title and scraped product details**
- **Generates:**
    - **Primary keywords**
    - **Secondary keywords**
- **Designed to simulate tools like Google Keyword Planner or Ubersuggest**

Design Note

The keyword generation logic is modular and can be replaced with:

- **Paid SEO APIs**
- **Search volume–based keyword tools**

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9. AI Blog Generation Module

Model Strategy

- **Uses open-source LLMs (e.g., LLaMA / FLAN-T5)**
- **Avoids OpenAI or paid APIs**
- **Instruction-based prompting**

Blog Generation Workflow

1. **Extract product details**
2. **Generate SEO keyword strategy**
3. **Generate a 150–200 word SEO blog post**
4. **Ensure:**
    - **Natural keyword placement**
    - **Informative tone**
    - **Clear call-to-action**

Output Format

- **Markdown-compatible content**
- **SEO-ready for publishing**

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10. Content Review & Editing

Once generated, the UI provides:

- **Preview Tab – rendered blog content**
- **Markdown Tab – raw markdown view**
- **Download option (`.md` file)**

This allows manual review before publishing.

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11. Publishing Module

WordPress Publishing

- **Uses WordPress REST API**
- **Authenticated using application passwords**
- **Supports:**
    - **Title**
    - **SEO tags**
    - **Source product URL**

Local Export

If publishing is skipped:

- **Blog can be downloaded**
- **Stored locally for manual upload**

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12. Error Handling & UX Feedback

- **Loading spinners during scraping and AI execution**
- **Status indicators for multi-step AI processes**
- **User-friendly warnings and error messages**
- **Safe fallbacks if AI generation fail**