

# Product Requirements and Specification Document

## Project Name

MediaPulse - Trending Content Analyzer

## Description

MediaPulse is a beginner-friendly data analytics tool for identifying trending topics in media content. Users input keywords or hashtags to view interactive charts displaying their popularity over time. The tool leverages Python and pandas, with a futuristic UI theme.

## 1. Objectives

Objective ID	Description
OBJ-1	Enable users to analyze media trends via keywords/hashtags
OBJ-2	Visualize popularity trends over time with charts
OBJ-3	Provide an intuitive, futuristic-themed interface
OBJ-4	Introduce basic data fetching, processing, and analytics

## 2. Core Features

Feature ID	Name	Description
F-1	Keyword Input	Users enter keywords or hashtags to analyze
F-2	Data Fetching	Fetch sample media trend data (mocked or from public APIs)
F-3	Data Processing	Use pandas to clean, aggregate, and prepare data
F-4	Trend Visualization	Display line/bar charts of keyword popularity over time
F-5	Analytics Summary	Show basic stats (peak, average, trend direction)
F-6	Futuristic UI Theme	Apply a modern, futuristic visual style

## 3. User Stories

ID	As a...	I want to...	So that...
US-1	User	Input a keyword or hashtag	I can analyze its media trend
US-2	User	View a chart of popularity over time	I can see how interest changes
US-3	User	See a summary of trend analytics	I understand key insights at a glance
US-4	User	Experience a futuristic interface	The tool feels modern and engaging

4. Functional Requirements

Req ID	Requirement
FR-1	The system shall accept user input for keywords or hashtags
FR-2	The system shall fetch or generate time-series trend data for the input
FR-3	The system shall process data using pandas for aggregation and cleaning
FR-4	The system shall display interactive charts (line/bar) of trends
FR-5	The system shall present basic analytics (peak, average, trend direction)
FR-6	The UI shall use a futuristic color palette and design elements

5. Non-Functional Requirements

Req ID	Requirement
NFR-1	Easy to set up and run locally (Python only)
NFR-2	Responsive and intuitive user interface
NFR-3	Codebase is beginner-friendly and documented
NFR-4	Handles small datasets efficiently

6. Technical Specifications

Area	Specification
Language	Python 3.x
Libraries	pandas, matplotlib or plotly, Flask/Streamlit (UI)
Data Source	Mocked CSV/JSON or public API (e.g., Twitter demo)
UI Theme	Futuristic (dark mode, neon accents)
Platform	Desktop (web app or local app)

7. Data Flow Overview

```
flowchart LR
  A[User Input] --> B[Data Fetching]
  B --> C[Data Processing (pandas)]
  C --> D[Trend Visualization (Chart)]
  C --> E[Analytics Summary]
  D & E --> F[UI Display]
```

8. Sample Data Structure

```
# Example data format
[
  {"date": "2024-06-01", "keyword": "AI", "count": 120},
  {"date": "2024-06-02", "keyword": "AI", "count": 150},
  ...
]
```

9. UI Mockup (Textual)

```
+-----+
| MediaPulse - Trending Content Analyzer |
+-----+
| [ Futuristic Logo ] |
| |
| Enter keyword/hashtag: [_____] [Analyze] |
| |
| [ Trend Chart ] |
| |
| Analytics: Peak: 150 | Avg: 120 | Trend: ↑ |
+-----+
```

10. Acceptance Criteria

ID	Criteria
AC-1	User can input a keyword/hashtag and receive a trend chart
AC-2	Chart accurately reflects sample data over time
AC-3	Analytics summary is correct and visible
AC-4	UI uses a clear futuristic theme
AC-5	App runs locally with minimal setup

11. Out of Scope

- Real-time data fetching from paid APIs
- Advanced analytics (e.g., sentiment analysis)
- User authentication or profiles

12. Milestones

Milestone	Description	Target Date
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M1	Data fetching & processing	Week 1
M2	Charting & analytics summary	Week 2
M3	Futuristic UI implementation	Week 3
M4	Testing & documentation	Week 4

13. Glossary

Term	Definition
Trend	Change in keyword popularity over time
Analytics	Basic stats: peak, average, trend direction
pandas	Python data analysis library

End of Document