**Software Requirement Specification (SRS)**

**1. Introduction**

**1.1 Purpose**  
This document defines the functional and non-functional requirements for the Automated Instagram Feed Posting system, developed using Python, HTML, CSS, Flask, and MongoDB. The system will automate the process of creating, reviewing, and scheduling Instagram posts, streamlining social media content management.

**1.2 Scope**  
The system will allow users to input content, generate captions, review and amend them, and schedule posts for automatic publishing on Instagram. It will include features like data collection, validation, and AI-assisted content generation.

**1.3 Definitions, Acronyms, and Abbreviations**

* **Flask:** A lightweight web framework for Python.
* **MongoDB:** A NoSQL database used for storing data.
* **HTML:** Hypertext Markup Language, used for creating web pages.
* **CSS:** Cascading Style Sheets, used for styling web pages.

**2. Overall Description**

**2.1 Product Perspective**  
The Automated Instagram Feed Posting system is a web application built on the Flask framework, with a MongoDB database backend. The frontend is developed using HTML and CSS, providing an intuitive interface for users to manage Instagram content.

**2.2 Product Features**

* **User Input Interface:** Allows users to input content, images, videos, and metadata through a web-based form.
* **Data Validation Module:** Validates input data for completeness, and consistency.
* **AI Content Generation:** Uses Python-based AI tools to generate or refine content.
* **Content Formatting Module:** Formats text and media for Instagram, ensuring compliance with platform requirements.
* **Review and Amendment Interface:** Provides a preview of the content for user review and amendments.
* **Scheduling Module:** Enables users to schedule posts for automated publishing.
* **Automated Posting:** Posts content to Instagram via Flask-based API integration at the scheduled time.

**2.3 User Characteristics**  
The users will typically be content managers, social media marketers, and individuals managing personal or business Instagram accounts. They should have basic knowledge of using web applications for content management.

**3. Functional Requirements**

**3.1 User Input Interface**

* The system shall provide a web-based form (built using HTML and CSS) for users to input text, images, videos, and metadata.
* The system shall store input data in a MongoDB database.

**3.2 Data Collection Module**

* The system shall fetch additional data, such as trending hashtags, using external APIs.
* The system shall store collected data in MongoDB.

**3.3 Data Validation Module**

* The system shall validate the completeness and correctness of all input data before storing it in MongoDB.
* The system shall ensure consistency between input data and metadata.

**3.4 AI Content Generation**

* The system shall use Python-based AI tools to generate or refine content.
* Generated content shall be stored in MongoDB and be available for user review.

**3.5 Content Formatting Module**

* The system shall format text and media according to Instagram's requirements.
* The system shall ensure all content meets size, resolution, and format requirements for Instagram.

**3.6 Review and Amendment Interface**

* The system shall provide a web-based preview of the post for user review.
* Users shall be able to amend content, which will then be revalidated and stored in MongoDB.

**3.7 Scheduling Module**

* The system shall allow users to schedule posts for future publishing via the Flask web interface.
* Scheduled posts and their metadata shall be stored in MongoDB.

**3.8 Automated Posting**

* The system shall use Flask to interface with Instagram’s API for automated posting at the scheduled time.

**4. Non-Functional Requirements**

**4.1 Usability Requirements**

* The user interface shall be intuitive and responsive, with clear navigation provided by HTML and CSS.
* The system shall provide tooltips and help documentation accessible from the Flask application.

**4.2 Reliability Requirements**

* MongoDB shall provide backups of all scheduled posts and related data.

**5. Other Requirements**

**5.1 Legal Requirements**

* The system shall adhere to Instagram's API usage policies.