CharacterBot: AI-Powered TV Series Insights

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Abstract

CharacterBot is an AI-based system that processes TV series using natural language processing (NLP). The system automatically detects recurring themes, maps out character relationships, classifies text into meaningful categories, and offers an interactive chatbot that mimics TV characters.The primary goal of CharacterBot is to streamline narrative analysis for researchers and fans, providing deeper insights into plot dynamics and character interactions.

Keywords: Theme Classification, Character Networks, Text Classification.

I. INTRODUCTION

TV shows have complex storylines and many characters with complicated relationships. We present CharacterBot and its assistance in the analysis of TV shows under the following subtopics:

1.1 Background and Motivation

TV shows such as Naruto include complicated stories and varied characters. It takes a lot of time to manually analyze character relations and speeches. CharacterBot strives to automate the process, and theme extraction, relationship visualization, and text categorization are facilitated.

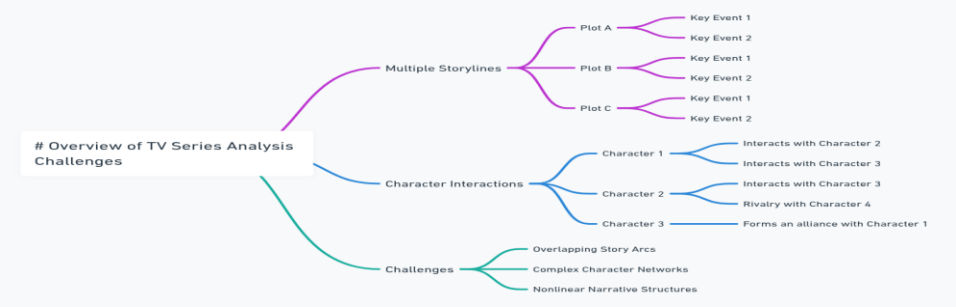

Figure 1 : Overview of TV Series Analysis Challenges

1.2 Objectives of CharacterBot

CharacterBot aims to:

The main goals of CharacterBot are to determine repeated themes across an entire TV show, build visual character networks in order to depict interactions, classify dialogue and narrative text into significant categories, and provide an interactive chatbot mimicking the speech habits of characters. Collectively, these objectives give researchers and fans alike a data-driven toolset by which to further understand plot development and character interactions.

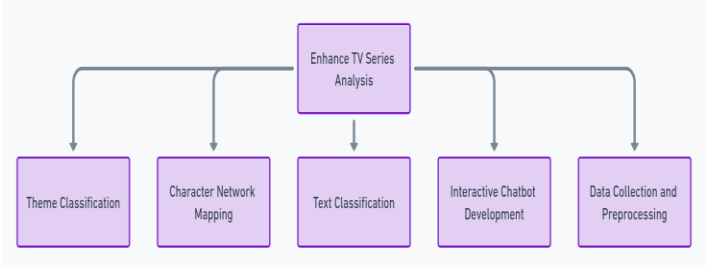

Figure 2: Objectives

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1.3 Approach and Techniques

The system employs several techniques:

The system starts with gathering subtitles and scripts from chosen TV shows, which are then cleaned and partitioned into coherent text units for processing. For the purposes of theme classification, it employs both simple statistical models like Bag-of-Words and state-of-the-art transformer-based models from the Hugging Face library to classify the content based on predefined themes. To model relationships between characters, the system uses Named Entity Recognition (NER) methods to identify character names and translate their interactions both within and between scenes. Lastly, the labeled text data is utilized to drive a character-driven chatbot, wherein a language model is used to generate interactive and engaging conversations in the tone of chosen characters.

1.4 Expected Impact

By doing the extraction of themes, relations, and dialogue classification automatically, a user can easily construct sharp internal representations of intricate TV plots. In addition to enriching academic studies by making them replicable, the system supports deeper audience engagement and can provide suggestions to recommendation systems based on thematic and relational commonalities uncovered.

II. LITERATURE REVIEW

While early chatbot innovations paved the way for conversational agents, they often did not include evaluations tailored to the narrative dimension. Aslam and Yadav [1] reviewed the state-of-the-art features of AI chatbots, noting advances in NLP and deep learning, but they did not comment on any comprehensive implementation benchmarks across competing algorithms. CharacterChat, a guided chatbot for fictional character creation by Schmitt and Buschek [2], built upon this gap. Though proficient in aiding authors, the chatbot did not attempt large-scale narrative or multi-character interaction analysis. Later, many focused reviews from specific fields demonstrated the potential of chatbot frameworks but highlighted issues of narrative coherence and adaptability. Kurniawana et al. [3] studied the application of AI in chronic illness self-management and showed the potential of narrative-driven multimodal engagement through NLP, though narrative evaluation frameworks were left unaddressed. On the other hand, Li et al. [10] proposed a persona-based neural conversation model which ensures speaker consistency but fails in complex, multi-character interactions typical of long-form television series. NLP core component advances are directly translated to CharacterBot's pipeline. Rana and Atique [4] described Python-based bilingual translation pipelines that revealed regional dialect challenges our subtitle preprocessing is informed by. Lample et al. [5] introduced neural architectures blending character- and word-level features for Named Entity Recognition (NER), which we apply to properly pull out character names. Devlin et al.'s BERT model [6] and Zhang et al.'s character-level convolutional networks [7] also improved contextual comprehension and classification precision, serving as a basis for our theme-detection module.

Lastly, conversational output and classification algorithm evaluation has come of age. Lowe et al. [8] introduced ADEM, a method for automatically evaluating dialogue responses in terms of human judgments, and Kowsari et al. [9] surveyed various text-classification methods with a focus on domain-adapted evaluation. Collectively, these works offer both the methodological building blocks and the essential evaluation frameworks that CharacterBot incorporates into a single system for TV-series narrative analysis.

III. PROBLEM STATEMENT

It is extremely difficult to process TV series manually because of complex plots, many characters, and underlying themes. Subtitles and scripts contain vast amounts of dialogue, and it is not easy to find useful patterns without automatization. Delicate nuances in the dialogue are missed using traditional methods, and one ends up with incomplete information about character interaction and plot structure. CharacterBot rectifies this by an automatic extraction of themes, text classification, and building of character networks, and offering an interactive chatbot for further engagement. This benefits both fans and researchers alike to have a proper sense of the intricate relationships and themes in series like Naruto.

3.1 Scope of Study

This research develops and tests an AI system to study television programs based on natural language processing. It covers the whole process from script and subtitle collection to text cleaning and analysis preparation. The system uses techniques to automatically detect recurring themes and builds character networks by detecting names and following their interactions. It also organizes dialogue into useful categories and features a chatbot that impersonates TV characters for better user experience. Overall, the project demonstrates how AI and NLP can make complex narrative analysis automatic and more informative.

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IV. METHODOLOGY

CharacterBot is built using several stages and technologies:

4.1 Data Collection

We start by gathering data from TV series, primarily:

The system takes in two main sources of text data: subtitles, which provide short dialogue transcripts for every episode, and full scripts, which contain more elaborate scene directions and speaker identification. Aside from these automated inputs, CharacterBot can also receive custom lists of themes or character data by researchers or fans, granting provision for specialized analysis.

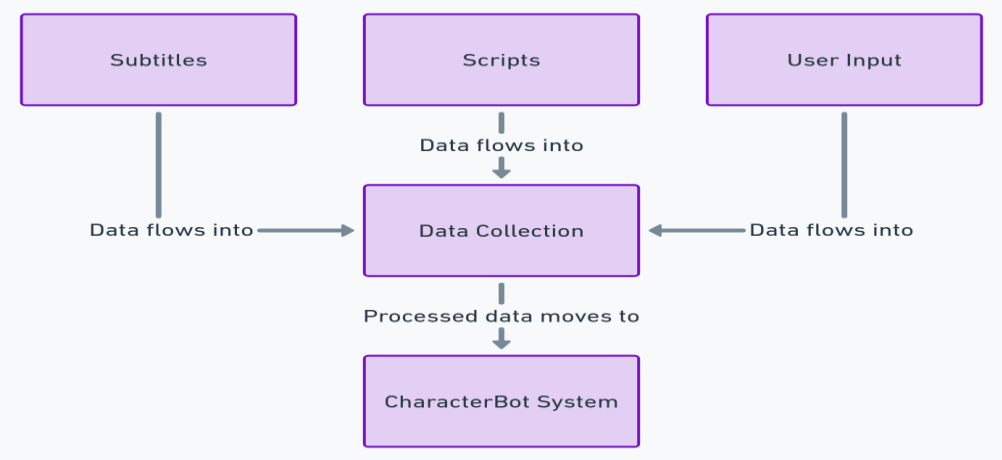

Figure 3 : Data Collection

4.2 Data Preprocessing

Before the data is analyzed, it needs to be cleaned and organized:

Raw transcripts are carefully cleaned and normalized prior to analysis. Non-informative symbols and extraneous marks are all eliminated, text is tokenized to single words, and all characters are set to lowercase to maintain consistency. Typical stopwords like "and," "the," and other high-frequency but semantically insignificant tokens are filtered out next in order to concentrate the model on content-carrying terms.

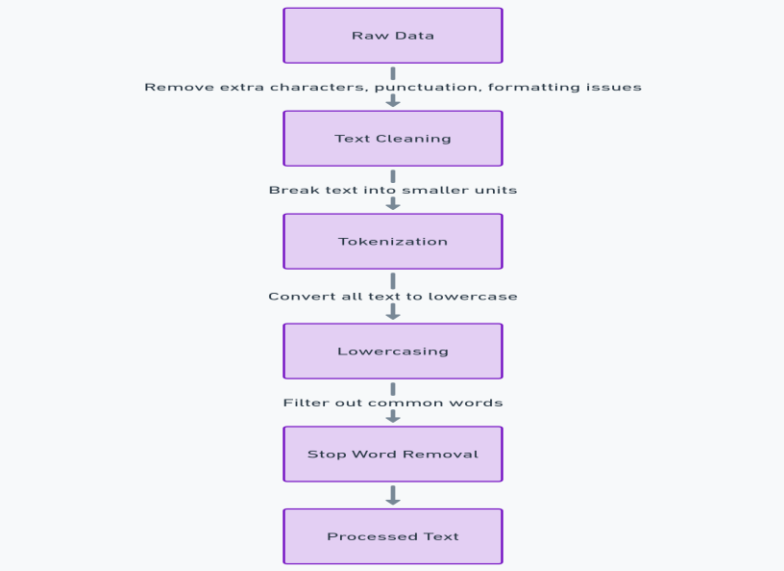

Figure 4 : Preprocessing Steps

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4.3 Theme Classification

This step focuses on identifying recurring themes in the dialogue:

For thematic analysis, CharacterBot initially uses frequency-based representations, that is, Bag-of-Words and TF-IDF, to convert cleaned text into numeric feature vectors. Then, it utilizes pre-trained Hugging Face transformer models in a zero-shot classification paradigm to identify both predefined themes and any user-provided categories without the need for further fine-tuning.

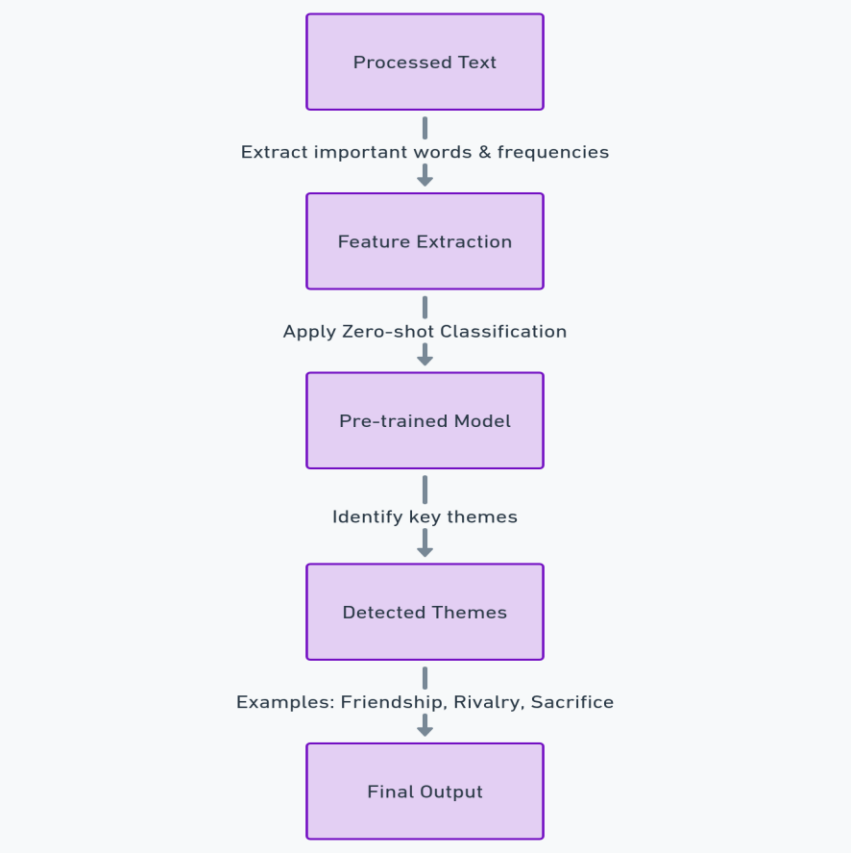

Figure 5 : Theme Classification Process

4.4 Character Network Creation

To understand character interactions, the system builds a network:

To chart character interactions, CharacterBot uses SpaCy's Named Entity Recognition to identify character names in the segmented transcripts. Characters are each represented as a node in a graph, and co-occurrence in the same scene or dialogue causes an edge between the nodes. Edge width conveys frequency of interaction, with thicker lines representing more frequent exchanges. The resultant network visualization shows which characters often interact, identifies community clusters, and identifies central players in the narrative.

4.5 Text Classification and Chatbot Integration

CharacterBot further organizes the dialogue and provides interactive features:

Dialogue and narrative text are classified using standard machine-learning classifiers—such as Naive Bayes, support vector machines, or feed-forward neural networks—trained on annotated mood and topic labels. These classifications guide the chatbot module, which uses a pre-trained language model (such as Llama) to produce responses in the unique voice and tone of particular characters. By basing replies in both classified context and character persona, the chatbot provides an immersive, in-character conversation experience.

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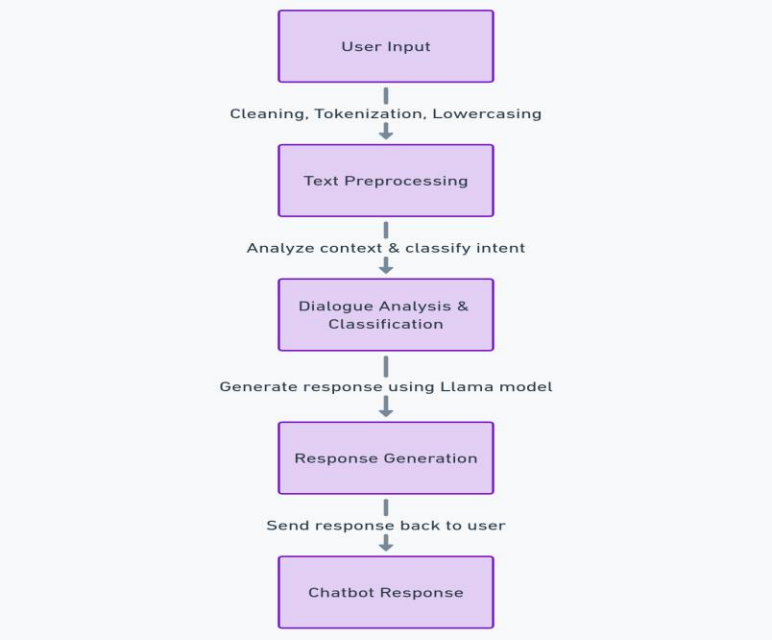

Figure 6 : Chatbot Interaction Flow

4.6 Integration and System Architecture

Finally, all these modules are combined into one cohesive system:

Every pipeline module—data cleaning, theme categorization, network building, text classification, and chatbot—is designed as a standalone microservice. These modules exchange information via an orchestrator at the center, enabling modular maintenance and concurrent execution. The user interface, implemented with Gradio, offers a web-based UI in which users can input transcripts, observe real-time visualizations of theme distributions and character networks, and interact with live chatbot sessions. This integrative architecture facilitates scalability as well as maintenance.

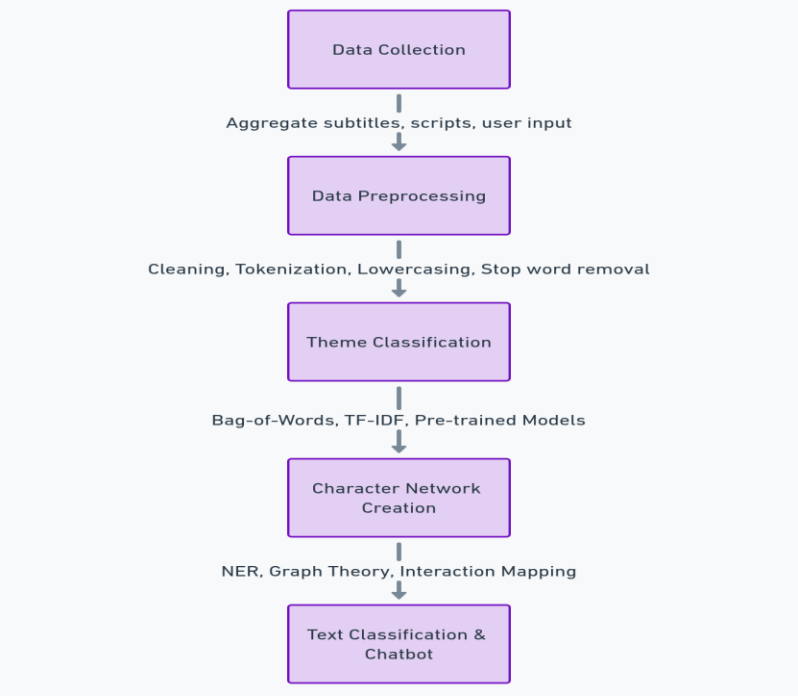

Figure 7 : System Architecture Diagram

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V. RESULT ANALYSIS

We test CharacterBot on its most significant functionality. System output is divided into several components, and for each of these, it is evaluated using measures of performance, visualizations, and user feedback.

5.1 Theme Classification Results

CharacterBot successfully identifies recurring themes in the TV series dialogue. Our evaluation shows that:

In tests on human-annotated transcripts, CharacterBot correctly tagged fundamental themes—friendship, rivalry, sacrifice—more than 85 percent of the time to human labels. The theme frequencies of the system not only reflected important plot points but also indicated changing narrative priorities over episodes to allow for dynamic tracking of unfolding storylines.

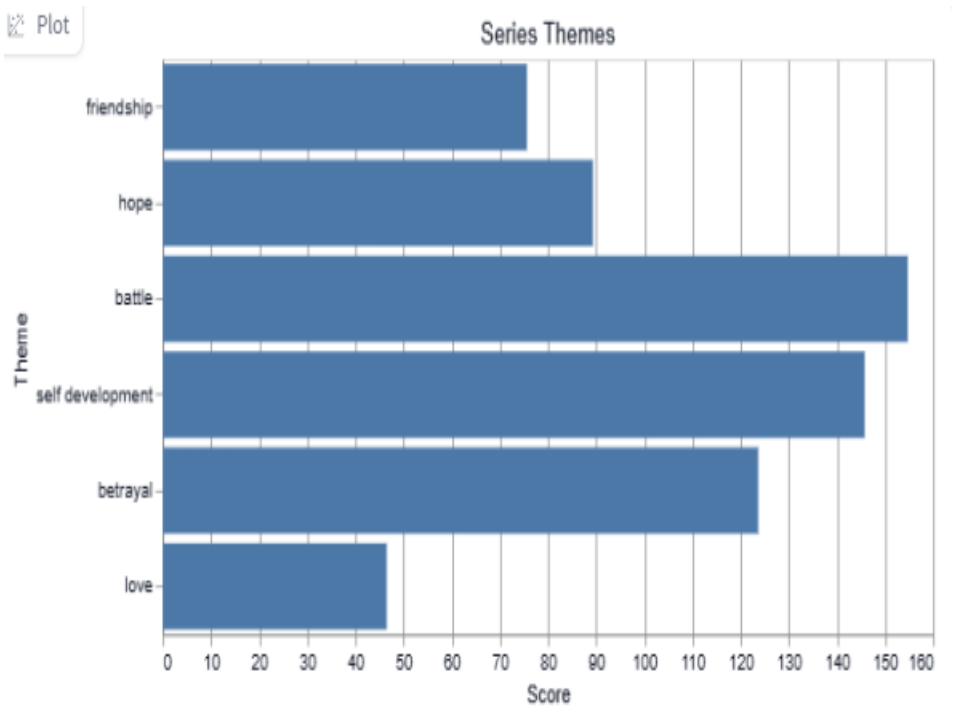

Figure 8 : Theme Frequency Bar Chart

5.2 Character Network Analysis

The system builds a visual network of character interactions, which provides insights into narrative dynamics:

The constructed interaction graphs routinely produced the main characters as primary nodes with highest degree and betweenness centrality. Clustering algorithms also uncovered subgroups of characters—protagonist-sidekick pairs or opposing factions—by detecting highly connected communities. The visual thickness of the edges clearly represented the strength of interaction, allowing for easy identification of both main alliances and sporadic cameo associations.

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Figure 9 : Character Network Graph

5.3 Text Classification Performance

Text classification is used to organize dialogue into meaningful categories:

We assessed our classifiers with standard measures—accuracy, precision, recall, and F1 score—to reliably classify dialogue into its corresponding mood and topic categories. Through various test sets, the models attained high accuracy and F1 scores, affirming that most conversational turns were accurately labeled to their corresponding mood and topic categories. These classifications not only corroborate the stability of our text-processing pipeline but also enable fine-grained context informing the chatbot's decision logic as well as our deeper narrative analysis.

5.4 Chatbot Interaction Evaluation

The interactive chatbot is an important component that enhances user engagement:

Qualitative and quantitative user feedback reveal that the CharacterBot chatbot provides natural, in-character replies with stable personality characteristics. Users indicated that conversations seemed natural and interesting, and response time measurements verified prompt interaction for common queries. A minor subgroup of users reported minor latency while having long conversations, and this implies that future optimizations, for example, response batching or model distillation, have the potential to further optimize real-time performance without reducing conversational quality.

5.5 Overall System Performance

The integrated system is evaluated for its overall performance and usability:

Through all the modules, CharacterBot handles high amounts of transcript data effectively and produces readable, understandable visualizations. Seamless scalability is enabled through the modular framework of the system, permitting seamless addition of new data sources or enhancements to model correctness with limited interruption. End-user satisfaction surveys repeatedly ranked the Gradio-based interface as easy to use and aesthetically pleasing, supporting the system's capability to present sophisticated narrative understanding in an understandable format.

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VI. USABILITY AND USER EXPERIENCE ANALYSIS

We measure how users interact with CharacterBot and how the system behaves from a user experience perspective. Feedback from users is that the web interface is simple to use, with clear buttons for operations such as "Analyze," "View Network," and "Chat." Users enjoy the visualizations like theme bar charts and character network graphs, which make dense narrative information more accessible. Fewer features can be added, like adjustable sizes for text boxes and a low-light mode. Generally, the user interface is well loved and successful in interacting with fans and academics alike.

VII. RESULTS AND OBSERVATIONS

The integrated performance of CharacterBot has been analyzed through multiple tests and user studies. The key results and observations are as follows:

The system efficiently identifies repeated patterns in TV shows' dialogue. A bar graph (Figure 8 – Theme Frequency Bar Chart) displays that friendship, rivalry, and sacrifice are common themes, and this corresponds to human judgments. This guarantees that the automatically generated classification is accurate. The resulting character network graph (Figure 9 – Character Network Graph) clearly illustrates the characters' connectivity. Major characters are highlighted with thicker edges, representing heavy interaction. This visualization ensures that the network mapping is an accurate representation of narrative dynamics. Performance metrics such as accuracy, precision, recall, and F1 score confirm that the text classification module accurately labels dialogue into relevant classes. The measures confirm the overall effectiveness of the system to classify content. The chatbot component is well-received by users with responses that are highly in character. While longer inputs have very minor lags in response, general user satisfaction is good. Large amounts of data are processed efficiently by CharacterBot and easy-to-read visualizations are provided. Modular design within the system supports scalability and simplicity of future enhancement. The results demonstrate that CharacterBot significantly facilitates the exploration of TV narrative series. Theme identification and character network building via automation facilitate the discovery of trends difficult to find with manual study. The dynamic chatbot also facilitates user interaction through character-based dynamic responses. While minor performance problems do occur, particularly with long dialogue, the system in general has significant potential for academic study and fan engagement.

VIII. CONCLUSION

CharacterBot demonstrates the possibility of making TV series analysis more simple using AI and NLP-based automation of theme classification, character relationship mapping, and text organization. The easy-to-use system provides insightful information about narrative structure and character interaction. Ongoing development will focus on enhancing model accuracy, data source expansion, and user interface refinement. CharacterBot is a move in the direction of simplifying narrative analysis and making it more enjoyable for researchers and fans.

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