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Formulating Research Ethics & AI: Mandate Vade Mecum

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ABSTRACT

Research in contemporary times is undergoing a paradigm shift, paving the way for Interdisciplinary and Multidisciplinary approaches. Re-presenting is the need of the hour, and re-searching it in contemporary Research. Reading has become an ever-ending as the world progresses by leaps and bounds. Research has become an everyday phenomenon in academic pursuits and blurs personal and political lines. Fabrication or Manipulation of data is against research ethics, and the most painful thing is that academia in contemporary times is flooded with data fabrication through AI. The usage of AI is becoming an impeccable phenomenon in academic discourses, even though it has pros and cons. However, regarding Research, the original output needs to be validated. Making the unknown known is the prime aim of Empirical Research, but the saddest truth is that after the advent of AI, academia is making the unknown known, which the researcher does not know. This research article mainly dwells on the nuances of AI applications, how they affect research integrity and their impact on Research and development.

Keywords: Paradigm Shift, Re-presenting, Re-searching, Manipulation, Data, Academia

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1. Introduction

Research has become a mandate phenomenon in the academic spectrum. Faculties in contemporary times are expected to have sound knowledge not only in their teaching pursuits but also in their research endeavours. The modern teaching fraternity faces many leaps and bounds owing to pivotal changes. These transformations help faculty members strengthen their profiles and the Institution's profiles. In a country like India, every academic Institution devotes time for the faculty members to pursue their research so that the Institute gains momentum through them. Every Institution is expected to have a separate cell for Research, and that cell monitors the faculty's publications and the quality of the journals in which the faculties have published. It is so disheartening to state that the majority of the faculty members in India have become prey for dubious/cloned/predatory publications. The impact of AI has created a vivid knowledge in making the unknown things known and known as unknown.

Research should be original, and it is a Eureka moment, and it can be felt by the researchers who dwell in it. Owing to the pressures, which are internal and external, the faculty members must publish research articles in journals of repute, which are supposed to be in UGC Care List Group –I and in UGC Care List Group II (Scopus & WOS). The disheartening truth is that most faculty members publish their articles at the last moment without knowing the credibility of the journals. Predatory/dubious/cloned journals do not undergo a rigorous peer review and will accept the articles within 48 hours. The articles received by those journals' maximum are unethical in terms of Research, and after the advent of so many AI tools, predatory journals and academicians who want to publish their articles at the last moment have thrived on give-and-take. Thus begins the problem of Research Ethics, which constructs and deconstructs so many ambiguities that are said to be the curse of Research and academia.

1.1 Research Objectives

- To blur the line between predatory publication and AI usage in drafting an article.
- To emphasize the quality of Research, and
- To eradicate the unwanted AI tools that act as a threat to Research Ethics.

1.2 Significance of the Research

In contemporary times, each academic Institute expects faculty members to publish their research articles in a genuine journal, which will be of fame to the concerned faculty and the Institute. Faculty members do not follow any etiquette in drafting an article, and the most painful truth is that most of them are PhD Holders, and some are into Research. However, they trust AI tools more than their research capabilities. Research Articles generated using AI tools are found to be more numerous in the current scenario. Plagiarism software, namely Turnitin, which has a database of millions and trillions of articles, has also started to detect AI usage. Standard journals use i Thenticate plagiarism software, and standard journal editors can quickly identify the use of AI tools in a particular manuscript/article.

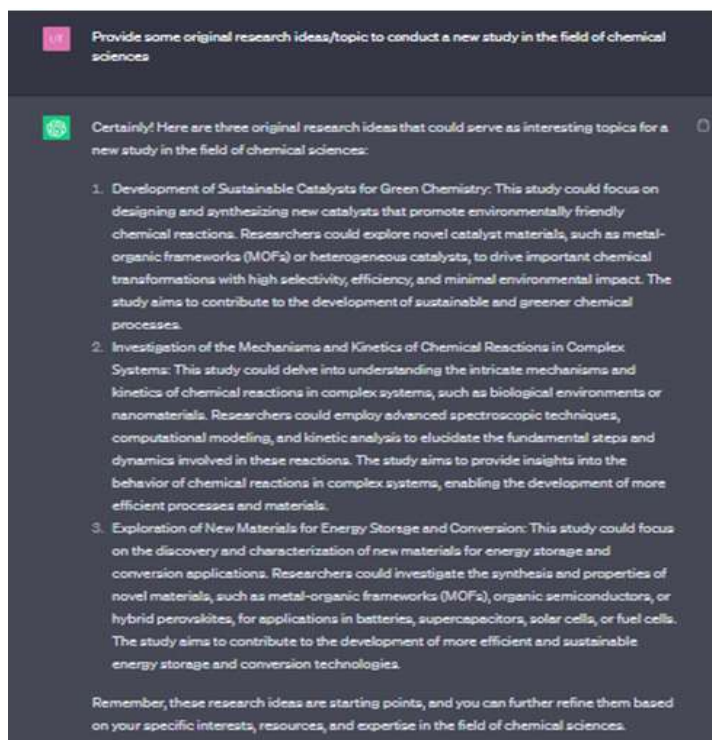
2. Research Methodology

Research ethics cannot be compromised on any moral grounds, and its emphasis is on quality indicators so that the research framework and the research indicators of every Institute gain momentum owing to the impeccable

contribution of the faculty members. Researchers of this Article traverse the unexplored chartered terrains of the research paradigms so that the integrity of the researcher and the prominence of quality research and publications are maintained.

2.1 Research Discussion

Today's world is being digitalized, and most importantly, the integration of ICT tools in Education has reached greater heights. It would be apt to say that a bus without steering cannot survive on the road, like a faculty member without incorporating ICT tools in their pedagogy cannot survive in the teaching profession. Technological aids are for empowerment, and at the same time, they foreground the uniqueness in conveying the content. The usage of AI tools in contemporary times has become predominant, and there is no harm in using them. Researchers must remember one thing: using tools like Grammarly and Plagiarism Software is the need of the hour to shape the research project/ article. The use of tools that are exclusively for paraphrasing and also the tools that generate research articles and unwanted repositories act as obstacles to research integrity and plagiarism. Software, namely Turnitin, has started to detect AI usage so that the Research and researcher quality are in check.



The usage of Chat GPT has become a standard norm in academia. Initially, it was a norm, and it later became a mode. The saddest truth is that through Chat GPT, researchers create manipulated data and submit the articles to excellent reputed journals, knowingly and unknowingly. These predatory/cloned/dubious journals publish it as their only aim is to mint money. Researchers here emphasize that Chat GPT is a repository where people can gather information. At the same time, they cannot retract the information Chat GPT provided and exemplify it in their research as if it were their findings. The augmented reality is that usage of these articles has made people indulge in misappropriation and break the research parameters. Research in contemporary times is of great validation. However, the reality is that it has become invalid owing to the facts and information, but they have been showcased as valid due to unmeaningful deliberations. The academic bodies insist that institutes give a meaningful space for Research, and the Institutes strive for it. The faculty members have a strong misconception

that publication in renowned journals will provide them with a good hike. However, they need to understand that their profile will get a new recognition in the academic spectre. It is disheartening to state that Research is a professional reward for faculty members. In contemporary times, faculty members consider the reward to be marvellous only in finance.

Research Ethics and Professionalism are reconcilable binaries, whereas contemporary faculties consider both irreconcilable binaries. Research is essential in shaping the faculty profile and creating a meaningful repository for future generations. Faculty members might have sound knowledge of their subject but need more knowledge regarding publication endeavours. A Faculty who claims himself/ herself to be the researcher is expected to have a strong and vivid understanding of the etiquette and nuances involved in publication. Articles generated by AI tools do not have any meaningful impact, and it should be noted that the data generated through those AI tools is the biggest crime in the field of Research.

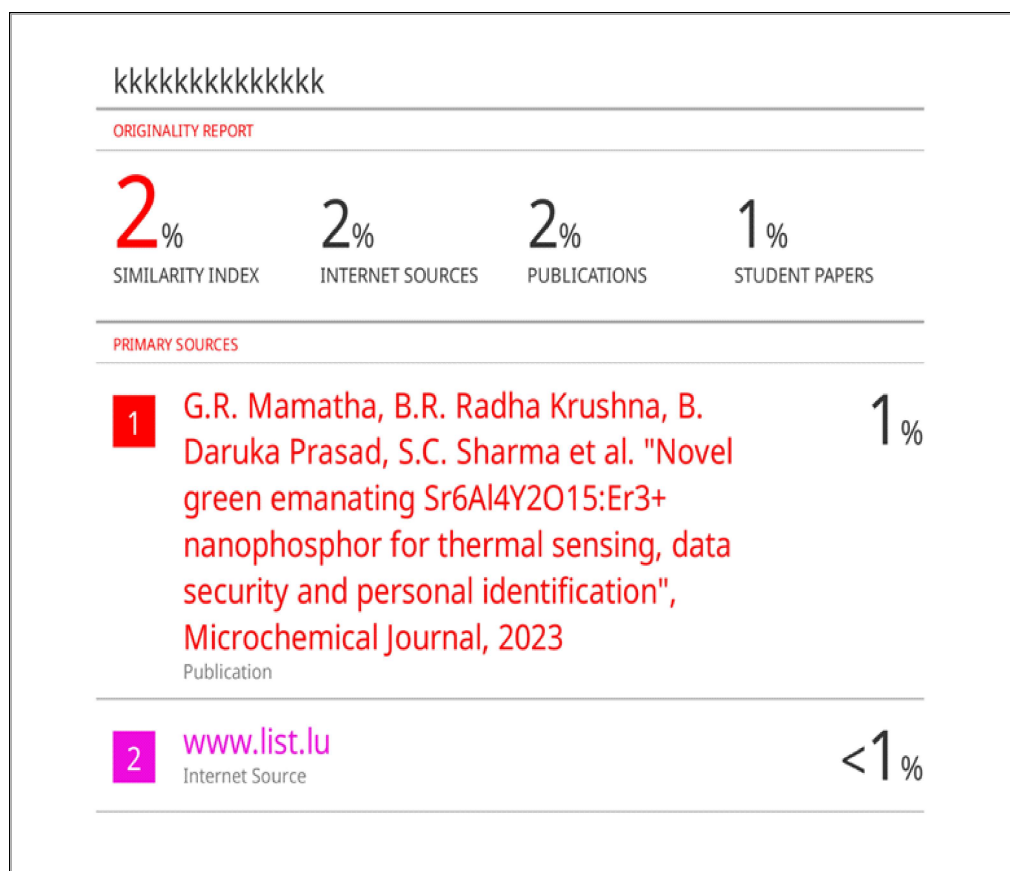


Figure 1.1. Turnitin Plagiarism Report (Basic Version)

The above figure foregrounds the plagiarism report that Turnitin Software generated. Researchers have written an article using AI tools, and most of the article's portions are generated by AI, which the basic version of Turnitin Software fails to detect. Recent updates in the Turnitin Software have become an eye-opener to journal editors and the people who uphold the quality of Research. The below images will depict the reality of the present research misconduct.

Abstract

Objectives: This study is to investigate the mental health difficulties teens encounter throughout the shift from childhood to adulthood, a time often characterized by emotions of despair, anxiety, and future uncertainty. Despite these challenges, people are often deterred from publicly seeking treatment due to the stigma associated with mental health. This project's main goal is to use the AutoGen architecture and the LLAMA 2 framework to create an AI model for an AI companion. The AI Companion is intended to provide teens with discrete, individualized, and caring care for mental health issues. To address academic and educational concerns, an Education Agent will also be included, resulting in a full platform that offers support for both mental health and education. **Method:** Several crucial stages were taken in the development of the AI Companion. First, a dataset of almost 100,000 real talks between people who needed mental health services and those who could give them was assembled. To guarantee quality and relevance, this dataset underwent thorough screening, both manually and automatically. The AI model was then trained using this carefully chosen dataset. After that, two separate agents were trained: the Education Agent and the Mental Health Agent. Training in context awareness, sensitivity, and comprehension of mental health issues was provided to the Mental Health Agent. On the other hand, the Education Agent was educated to help with questions about academics and education, offering advice on how to study, get ready for tests, and plan a career. After receiving training, the Text Analyzer Agent was able to comprehend user input, collect pertinent data, and improve the AI Companion's answers. The curated dataset was used to train the Mental Health Agent and the Education Agent, guaranteeing the precision and applicability of the data they provide. The LLAMA 2 model's underlying knowledge was applied to the mental health and educational domains via the use of transfer learning methodologies. Following their separate training, the AutoGen architecture was used to merge these agents into a multi-agent system. As a result, the Text Analyzer Agent could decipher user input and provide the Mental Health Agent and the Education Agent with improved data. In addition to academic and educational difficulties, users may request help on mental health issues, and they would get sympathetic and individualized solutions based on the relevant area. **Novelty:** By providing a customized response to the difficulties encountered by teens making the transition to maturity, this study advances the fields of AI-driven mental health and educational assistance. A complete platform for resolving issues related to mental health and academics is made possible by the merging of the Education Agent and the Mental Health Agent. A strong foundation for developing an all-encompassing and compassionate AI model is ensured by the utilization of the AutoGen architecture and the LLAMA 2 framework. This creative strategy seeks to lessen the stigma attached to asking for assistance by enabling young people to seek discreet and easily accessible treatment for both mental health and academic concerns.

Keywords: Artificial Intelligence (AI), Mental Health, Adolescents, Transition to Adulthood, LLAMA-2 Framework, AutoGen Architecture, Text Analyzer Agent, Mental Health Agent, Education Agent, Empathy, Context Awareness, Personalized Responses, Multi-Agent System, Training Dataset, Transfer Learning, User Interaction, Empowerment, Support

1. INTRODUCTION

The crucial period that separates adolescent from adulthood is marked by significant changes in social, emotional, and physical domains. During this time, a lot of young people struggle with mental health issues including depression, anxiety, and future uncertainty. Unfortunately, teens often aren't able to get the public help they need because of the stigma attached to these illnesses. It's becoming more and more clear in the internet age that artificial intelligence (AI) has the ability to provide teens with a secure and useful forum for asking questions and seeking help. This project's main objective is to provide young people facing mental health issues a helpful and educational atmosphere. It examines the relationship between AI technology and adolescent mental health. **Page 2 / 9** an emphasis on creating and improving an AI model that is fine-tuning LLAMA 2, it is important to include mitigating factors to avoid creating hallucinogenic material, particularly when mental health services are being rendered.

Assessment of Retrieval Systems: This study's main objective is to evaluate retrieval systems, which may help us comprehend how LLAMA 2 collects and displays data for users. For LLAMA 2 to be able to provide mental health counseling and assistance, the retrieval techniques must be accurate and reliable.

Raise a Child Using the Large Language Model: Achieving Transferable and Practical Fine-Tuning. The study of language model optimization for certain tasks is crucial to the adaption of LLAMA 2 for teenage mental health assistance. Learning about efficient fine-tuning techniques might improve LLAMA 2's ability to respond to individual requests. Hammerling (2012) looked at medical errors and current trends in laboratory diagnostics. This research on medical mistakes emphasizes the need of accuracy in healthcare settings, even if it has nothing to do with LLAMA 2. Because LLAMA 2 must include mental health information, it must concentrate on reducing mistakes and inconsistencies in its replies.

GPT-4's advantages, restrictions, and risks as an AI chatbot for medicine (Lee et al., 2023): This study addresses the advantages, restrictions, and dangers of AI chatbots in the medical field, which may provide light on LLAMA 2's future uses. It is essential to comprehend the possible drawbacks and hazards of AI models such as LLAMA 2 in order to employ them responsibly in delicate settings.

LLAMA 2 was created to provide young people entering adulthood mental health help by using findings from these investigations. These papers provide insight into the possible on training approaches, assessment criteria, possible hazards, and the significance of accuracy and consistency

interactions, identity formation, and academic expectations. During this period, hormonal changes may also be a factor in a variety of mental health problems. Research shows that anxiety and depression among teenagers are on the increase, yet many of them are not getting the help they need. Getting mental health treatment is sometimes hampered by fear of stigma or condemnation. Teens often experience anxiety when talking candidly about their struggles with family, friends, or mental health specialists. This resistance may cause them to suffer for an extended period of time and impede their growth during this critical period.

B. AI's Impact on the Mental Health of Adolescents

Using AI technology to close gaps in mental health treatment has gained traction in recent years, especially for younger generations. AI models using advanced natural language processing (NLP) algorithms may be able to Language tool was also used to correct any grammatical mistakes in the dataset.

B. Establishing an External Information Base

Realizing the need of trustworthy information for mental health and education, we created a large body of external knowledge. This knowledge base covers a broad variety of subjects, such as career planning guidance, study methods, test preparation tactics, symptoms, and problems related to mental health.

Reputable mental health organizations, academic journals, and trustworthy educational sources were the sources from which our knowledge base was assembled. This offline resource supports users' mental health and educational requirements by offering accurate and current information, serving as a fundamental tool for our AI Companion. To guarantee relevance and dependability, it may be tailored for certain subjects and is updated often.

C. Training Agents in Education, Mental Health, and Text Analysis

We trained three different agents—the Text Analyzer Agent, the Mental Health Agent, and the instruction Agent—to maximize the effectiveness of our AI Companion in providing mental health assistance and instruction.

1) Mental Health Agent Training

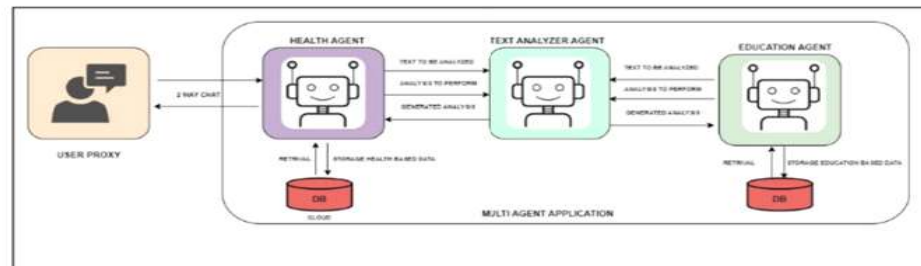
A unique dataset of discussions between patients and mental health specialists was used to train the Mental Health Agent. The agent's comprehension and sensitivity were guaranteed by the wide range of mental health conditions and difficulties included in this dataset. The Mental Health Agent had received intensive training, enabling her to respond to inquiries about anxiety, depression, and other mental health issues in a sympathetic and knowledgeable manner.

The fundamental knowledge of the LLAMA-2

Figure 1.2. How Turnitin Basic Versions fail to detect the usage of AI content in the Article

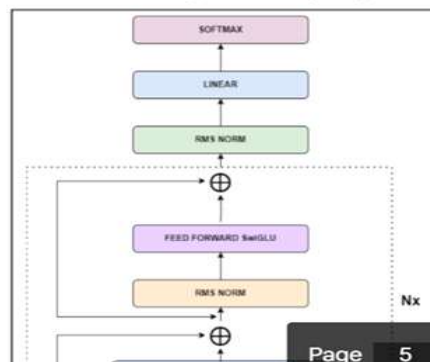
seeking academic assistance with relevant and useful replies by using a dataset that concentrated on study tactics, exam preparation strategies, career planning guidance, and other educational issues.

and then they were all smoothly combined utilizing the AutoGen architecture into a multi-agent application. The agents were able to improve each other's functionality and work together more successfully because to this connection.



4) Multi-Agent Application Based on AutoGen Architecture

The Mental Health Agent, Text Analyzer Agent, and



The Text Analyzer Agent served as the first filter in this AutoGen-powered setup, examining user input and extracting important characteristics. With this improved data, the Mental Health Agent and Education Agent were then able to provide the user with individualized, sympathetic replies that were catered to their mental health and educational requirements.

Our multi-agent application is built on the AutoGen architecture, which allows users and the AI Companion to engage in dynamic interactions. Users may seek advice on educational issues, have meaningful discussions, and obtain individualized mental health help. The replies from the AI Companion are not only precise and educational, but also sympathetic and catered to the various requirements of users in terms of education and mental health.

IV. LLAMA 2 FOR FINE-TUNING

A versatile architecture that may be tailored for different applications is provided



Health Agent, Education Agent, and Text Analyzer Agent



into a multi-agent AI Companion. After extensive testing, the AI Companion proved to have a deep comprehension of questions related to education and mental health, offering personalized, sympathetic, and instructional answers. During their contacts with the AI system, users reported feeling heard and supported, suggesting an improvement in the user experience.

VI. CONCLUSION

Finally, our findings show how successfully the AutoGen architecture can be used to develop an AI companion that helps with both mental health and learning objectives. We have created a thorough and caring system by effectively training and integrating three agents: an Education Agent, a Mental Health Agent, and a Text Analyzer Agent. This was accomplished via the use of a multi-agent technique.

To generate a representative training sample, the procedure involves gathering a broad dataset of interviews with mental health experts from different healthcare platforms. The LLAMA 2 model was then trained with this dataset to improve its comprehension of mental health and educational queries and answers.

Users were successfully given personalized and contextually relevant replies via the AutoGen architecture's integration of the Mental Health Agent, Education Agent, and Text Analyzer Agent. While the Education Agent enhanced the AI Companion's capabilities by offering educational advice on study strategies, exam preparation, and career planning, the Mental Health Agent provided individualized help and showed a comprehensive grasp of mental health concerns.

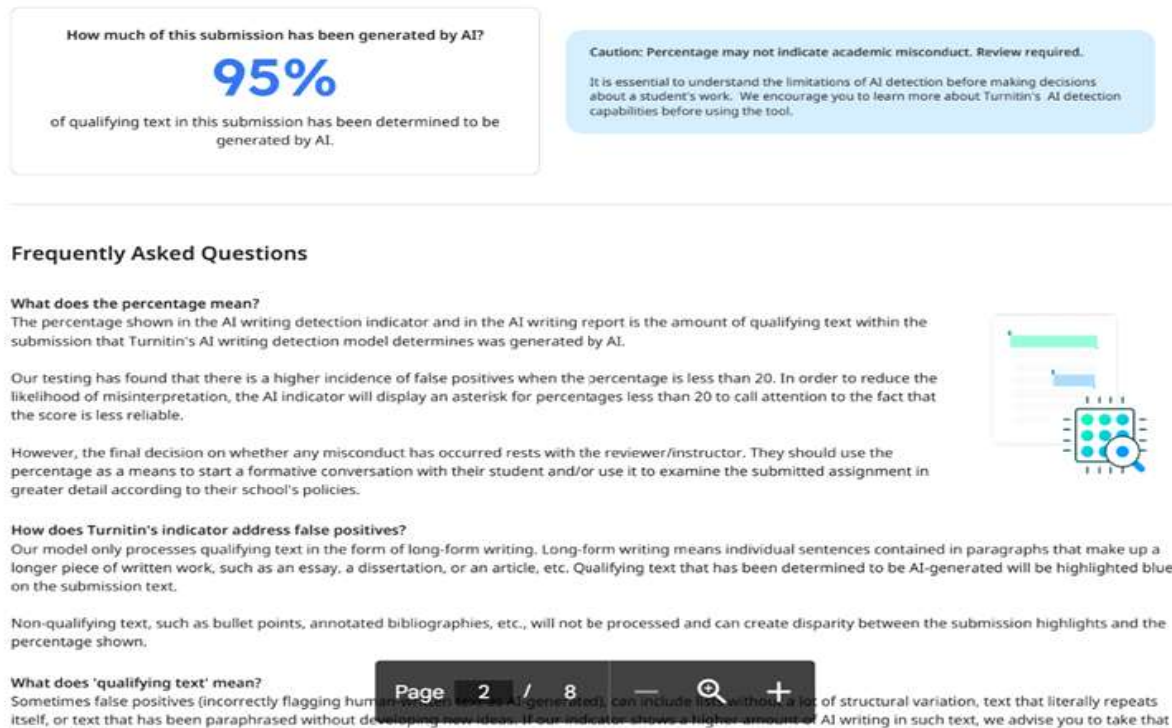
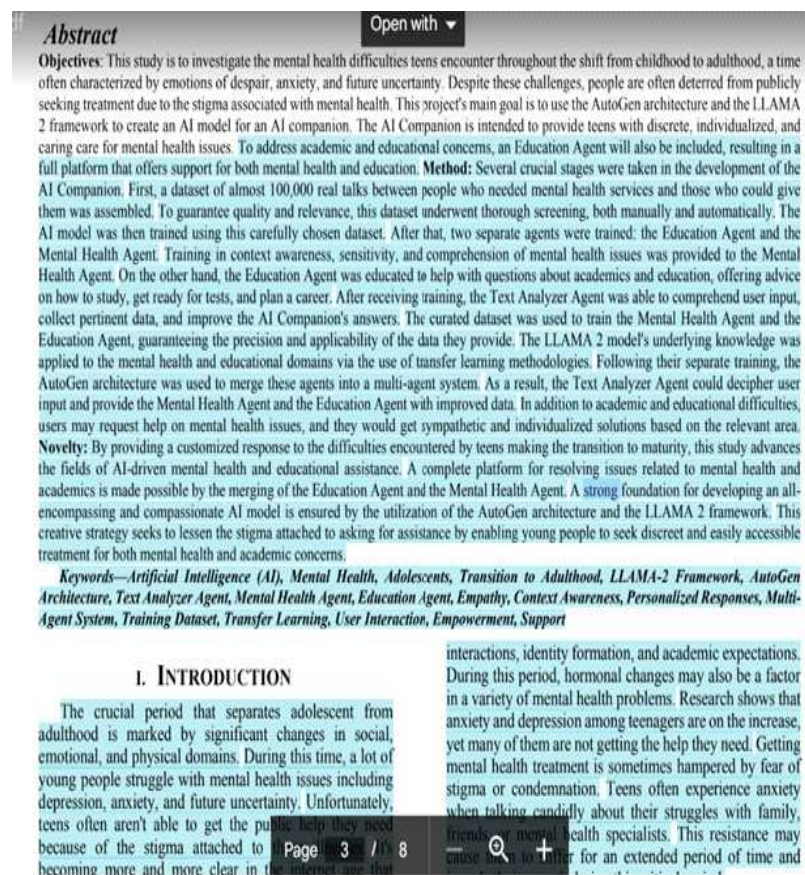


Figure 2.1. illustrates the AI Report of Turnitin Plagiarism Software



II. LITERATURE STUDY

Within the quickly developing field of AI-powered mental health care, LLAMA 2 is a prospective idea designed to assist teenagers in managing the adolescent changes. This comprehensive overview of the literature looks at important research that have influenced and informed the creation of LLAMA 2, including opinions on assessment criteria and training approaches, as well as sophisticated conversational systems like AutoGen. Comprehending these constituents amplifies LLAMA 2's capacity to provide intricate psychological assistance and underscores the significance of precision and dependability in artificial intelligence-driven medicinal uses.

Wu et al. present AutoGen: Enabling Next-Gen LLM Applications by Multi-Agent Conversation (2023). The result of this work is AutoGen, a multi-agent conversation architecture designed to improve the functionality of Language Model (LLM) applications in the future. AutoGen establishes the foundation for more complex conversational AI via the use of several agents, which might be useful for models such as LLAMA 2, which seek to provide enhanced mental health therapy.

Touvron et al. (2023) give LLAMA, or Open and Efficient Foundation Language Models. LLAMA, a foundational language model that puts efficiency and openness first, is presented by Touvron et al. For models like LLAMA 2, the architecture is essential since it offers a strong basis for applications such as mental health care. Comprehending the design concepts of LLAMA is crucial in order to maximize the potential of LLAMA 2.

Human Contribution to Teaching Language Models to Follow Directions: The goal of this research is to train language models to follow human instructions more accurately.

Techniques and Semantic Web Technologies. MEANS is an answering system that combines Semantic Web technology with Natural Language Processing (NLP) approaches. Although this study has little bearing on mental health, it does demonstrate the potential of AI-driven question answering systems. These systems might serve as models for LLAMA 2's comparable features, which provide consumers accurate and dependable information.

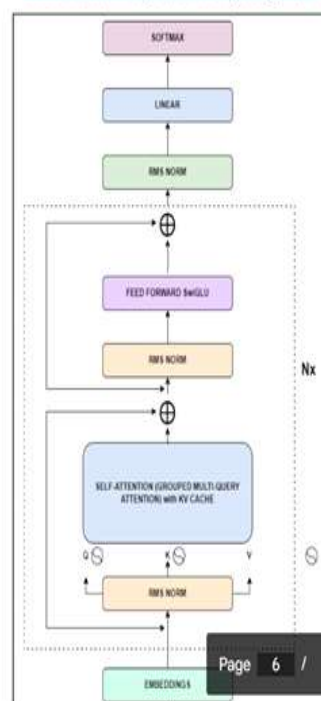
Stanford Alpaca: An LLAMA Model with Instructions: This research presents Stanford Alpaca, a second LLAMA-based model with an intent-following architecture. The study's findings will help LLAMA 2 grow since offering individualized mental health therapy requires that LLAMA 2 be able to comprehend and follow directions. Bertscore: Assessing Text Generation using BERT: Bertscore provides a means of assessing text creation quality, which is critical to LLAMA 2's ability to provide meaningful and beneficial responses to inquiries about mental health. For customers, LLAMA 2 may be more dependable and trustworthy since it guarantees high Bertscores.

[Gessain et al., 2022] monkeypox. This research on monkeypox emphasizes the need of precise and trustworthy information sharing in the medical industry, even if it has nothing to do with LLAMA 2. The need of accurate and devoid of disinformation replies is emphasized in LLAMA 2, which provides information on mental health. Salvagno et al.'s study on artificial intelligence hallucinations from 2023 clarifies the dangers of language models like LLAMA 2. To keep users' trust—especially in mental health contexts—LLAMA 2 replies must be devoid of deceptive or hallucinogenic information.

GPT-4o Under LSD: A Human Illusion? In 2023 (Becker et al.) Similar to the last research, this one

4) Multi-Agent Application Based on AutoGen Architecture

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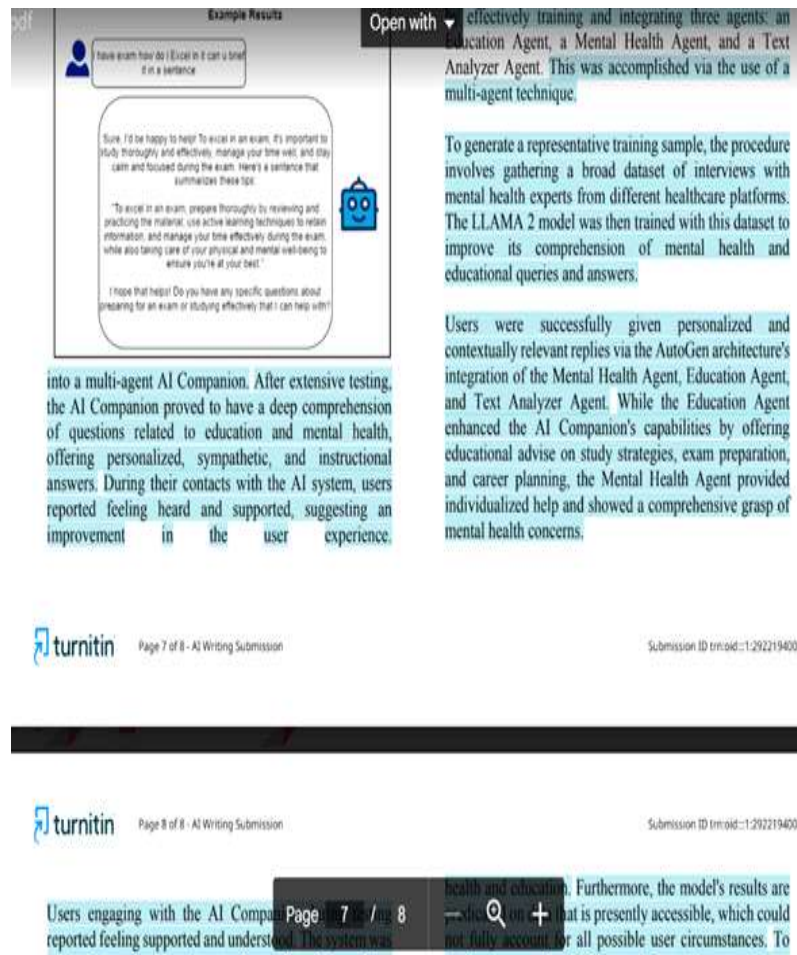


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IV. LLAMA 2 FOR FINE-TUNING

A versatile architecture that may be tailored for different natural language processing (NLP) applications is provided by the LLAMA 2 framework. In order to better meet the mental health and educational requirements of young people entering adulthood, this project aims to alter the LLAMA 2 model. The AutoGen architecture is used to build an initial model that may subsequently be adjusted especially for this need. The Text Analyzer Agent and the Mental Health Agent are the two primary parts of the AutoGen architecture. The Text Analyzer Agent is in charge of examining the input language and ascertaining the user's purpose, while the Mental Health Agent



The above images illustrate how AI usage is creating a rampant discourse in contemporary times that is against research ethics.

3. Conclusion

AI tools in contemporary times are creating a strong, unhealthy discourse in academia, and researchers and faculty members are being preyed on, which is quite shocking. Researchers emphasize that Research Integrity and Professional Endeavors are the mandates for faculty members, and these things should not be compromised.

Scope for Further Research

◆ Research Ethics is undergoing many multitudes as the emergence of AI tools has rampantly increased. As AI upgrades, unethical practices through AI are also happening. Researchers of the future generations have avenues for Artificial Intelligence and Research Ethics.

◆ Research Integrity and AI usage, including specific tools goes hand in hand, but at the same time, specific tools must be explored so that research ethics cannot be compromised at any cost. (Making the unknown known through AI Gadgets).

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