ANALYZE PSYCHOLOGICAL IMPACT OF FASHION STYLES

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BSc (Hons) degree in Information Technology

Specializing in Information Technology

Department of Information Technology

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Dissertation submitted in partial fulfillment of the requirements for the

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DECLARATION

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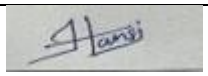
Dodampegama N.H.	IT21293412	

The above candidate is carrying out research for the undergraduate Dissertation under my supervision.

Signature of the supervisor

(Mr. Nelum Amarasena)

Date

04/11/2025

ABSTRACT

This study examines the psychological impacts of fashion styles on mood, confidence, and social interaction, with a focus on the differences between old and current styles. The study examines how fashion functions as a psychological tool that influences social behavior, emotional states, and self-perception, acknowledging that it is more than just a visual or cultural artifact. A machine learning framework was created to leverage personality attributes to forecast consumers' emotional reactions to various fashion trends. Participants in the survey rated fashion trends obtained from MAS Holdings, a real-world fashion partner, on social involvement, emotional appeal, and confidence. After preprocessing, analyzing, and training a Random Forest Regressor model on the resultant dataset, the model was able to predict mood and confidence outcomes. The findings showed that while older or more recognizable clothing styles are more strongly linked to emotional comfort and authenticity, new, trend-aligned fashion tends to improve happiness and confidence, especially in socially active people.

By providing a useful tool for emotionally intelligent clothing recommendations, the project effectively illustrates how artificial intelligence and machine learning can be utilized to bridge the gap between fashion and psychology. Technology has uses in fashion design, digital retail, wellness platforms, and education in addition to consumer customization. It helps a larger movement toward sustainable fashion buying and promotes more thoughtful, emotionally connected dressing habits. The study opens the door for future innovation in individualized, mental wellness-focused fashion experiences by highlighting the revolutionary potential of incorporating psychological intelligence into fashion technology.

Keywords: *Artificial Intelligence, Random Forest Regressor, Machine Learning, Fashion Psychology, Customization*

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LIST OF ABBREVIATIONS

Abbreviation	Description
IT	Information Technology
UI	User Interface
UX	User Experience
ML	Machine Learning
AI	Artificial Intelligence
VR	Virtual Reality
PANAS	Positive and Negative Affect Schedule
EDA	Exploratory Data Analysis
HTML	Hypertext Markup Language
CSS	Cascading Style Sheets
API	Application Programming Interface

1. INTRODUCTION

1.1 Background & Literature

We may use fashion to convey who we are through the clothes we wear and the accessories we select [1]. Fashion has become the key to human behavior. Fashion is not just about what people wear, it affects mood, confidence and social interaction. It’s a world-wide concept. Fashion can improve personality, self-confidence and self-image. Most of the researches find fashion and psychology have a strong connection. Fashion has become a topic of psychological research in recent decades, moving beyond its historical confines of art and aesthetics. The ways that fashion affects emotional states, thought processes, and behavioral results are being studied by researchers more and more. According to research, one's wardrobe choices reflect deeper psychological processes related to identity, self-perception, mood control, and social affiliation in addition to being a way of expressing oneself. Fashion's influence on mental health and interpersonal relationships has been the subject of current research, which has its roots in cultural and sociological analysis.

Several studies have focused on the impact that clothing has on people's self-esteem, confidence, and how they are seen and treated by others. Additionally, social media platforms have fueled the rise of digital fashion identity, which has added new psychological facets. This background material offers a thorough basis for comprehending the complex connection between our clothing choices and our emotions, actions, and interpersonal relationships. In order to more accurately evaluate the psychological consequences of clothes in real time, it also emphasizes the growing necessity for multidisciplinary study that blends fashion studies, psychology, and technology.

1.1.1 History of Fashion Psychology

Fashion psychology is the study of how fashion designs influence human behavior and how it impacts human psychology. Fashion is the way people present their personalities. It is the key to understanding inner human. The psychology of fashion focus how these fashion styles impact human emotions, personality and identity. Fashion psychology has roots in the 19th century. Fashion psychologists explore the impact on fashion with psychology. With integrative roots in sociology, anthropology, and cognitive psychology, fashion psychology is a relatively recent field. In the past, fashion was examined as a social or cultural phenomena, especially as it related to identity and social conventions. But in the last few decades, researchers have started looking at how a person's choices in clothing impact their emotions, thoughts, and actions. Fashion psychology, a field that studies how clothing influences emotion, behavior, self-perception, and interpersonal interactions, has gained recognition with the growth of consumer psychology and the fashion industry's foray into personal branding. Fashion and clothing have a direct correlation with the mood, emotions, and personality. Personality can be judged by seeing the clothing or clothing preference can be predicted by the mood of the person [2].

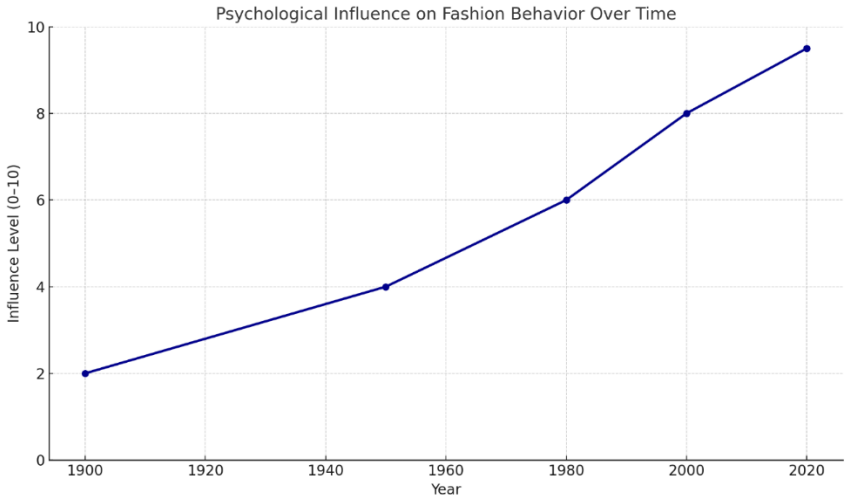


Figure 1: Psychological Influence on fashion over time

1.1.2 Theoretical Frameworks in Fashion Psychology

Today's fashion marketers leverage various strategies, ranging from seductive product images, captivating storytelling, celebrity brand ambassadors, to ethical sustainability narratives, to revamp consumer perception and drive market trends [3]. Psychological theories help the understanding of fashion and psychology connection. According to self-perception theories fashion styles, the color of clothes and how people dress can affect the human mental state. The use of psychological theories offers a methodical framework for examining the impact of fashion. According to the self-perception hypothesis, people infer their inner states from their actions; for example, dressing professionally or stylishly may make someone feel more capable or self-assured. According to social identity theory, people dress to fit the identity of a group they wish to be a part of, which explains how social norms and group membership influence fashion choices. Another important concept, enclothed cognition, suggests that the physical experience of wearing clothing and its symbolic meaning can change how one perceives oneself and how one performs cognitively.

1.1.3 Emotional and Cognitive Reactions to Fashion

Numerous studies have demonstrated that different emotional and cognitive reactions can be evoked by clothing cues, including color, pattern, and fabric. Wearing red, for instance, has been connected to emotions of strength and control, whilst gentle pastel colors might encourage serenity or relaxation. Silk and other similar textures are linked to comfort and luxury, which may improve one's emotional condition. These reactions, which are impacted by personal experiences and societal training, are frequently instantaneous and subconscious. Investigating these stimuli provides a quantifiable path to comprehending the influence of clothes on mental states. The intersection of fashion and marketing holds immense significance in shaping the future of the fashion industry [4].

1.1.4 Impact of fashion on mood, confidence and social interaction

People's perceptions of themselves and how they want to be seen by others are greatly influenced by fashion. Identity is the way people show themselves in different social situations, whereas self-concept is the internal opinion people have about their skills, looks, and identity. Clothing is an effective instrument for both projecting and forming. For instance, wearing vibrant, avant-garde clothing may convey originality and confidence, yet wearing neutral hues may make one appear more professional or quiet. Fashion choices can affect emotional stability and self-esteem by either supporting or contradicting one's self-image, according to research. Furthermore, some fashion trends are embraced in order to fit in with communities or subcultures, strengthening social identification and a sense of belonging.

Specifically, adolescents utilize fashion as a means of experimenting with and establishing their evolving identities. The social feedback people receive whether in the form of digital likes, criticism, or compliments affects their confidence and personal story, adding to the psychological impact of these decisions. Additionally, fashion may be a coping strategy; people may select particular outfits to reclaim control or reestablish their identities during stressful or transformative times. Clothing is so much more than just a financial need; it is a daily statement of identity that influences mental and emotional health. It is not merely a way of expression of self-identity and social status or a trend, and style statement, but rather the choice of wears reflects an individual’s mood, their feelings, and interactions [5].

Figure 2: The Psychology of Fashion Trends

1.1.5 Influence of Fashion in Social Media

Social media has completely changed how people interact with fashion in the digital age. Users create idealized self-images and display their wardrobe choices on platforms such as Instagram and TikTok, which function as visual diaries. These platforms' algorithms frequently incentivize users to follow particular trends by rewarding visually appealing or trendy material. Self-worth is greatly impacted by this issue, especially for young people and influencers whose public personas are strongly linked to fashion. Research on the new psychological complexity brought forth by the junction of fashion and digital identity is still ongoing. Fashion trends can be considered social phenomena, because fashion choices can be used as a means to express an individual's identity, such as attitude and lifestyle [6].

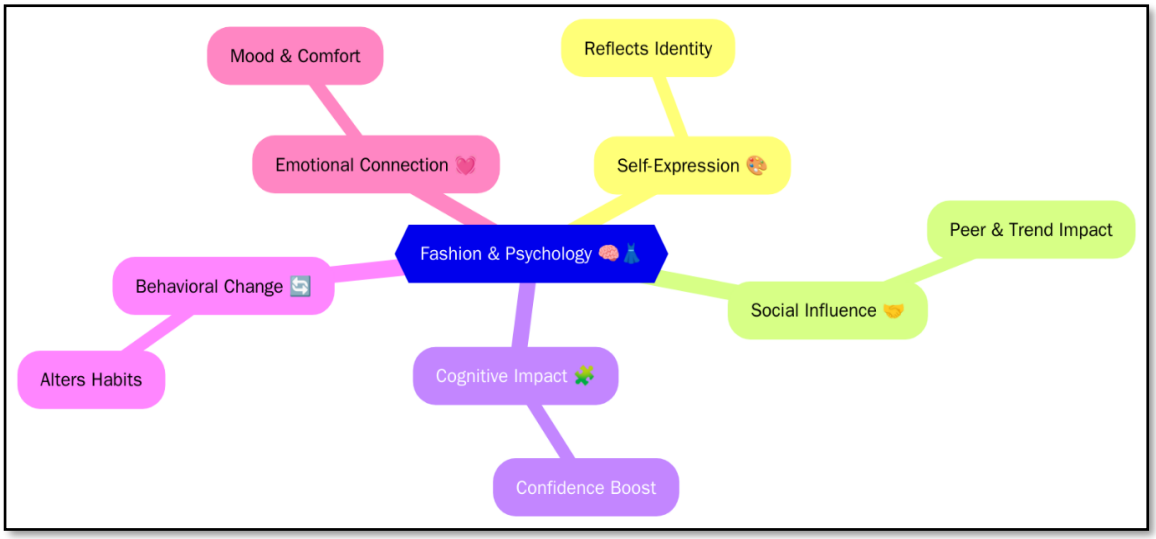


Figure 3 : Fashion and Psychology Connection

1.2 Research gap

Table 1: Research gap

Features	Research 01 : A Machine Learning Approach to Analyze Fashion Styles from Large Collections of Online Customer Reviews.	Research 02: Shaping the Future of Fashion Marketing with AI, Sustainability and Machine Learning.	Research 03 : Examining the Influence of Fashion on Psychological Well-Being: Investigating the Correlation between Apparel Selections, Self-confidence, and Mental Health.	Proposed System
Predictive Modeling and Machine Learning Techniques to Forecast Psychological Impacts	Yes	Yes	No	Yes

Design Interactive Dashboards to Visualize and Communicate Research Findings Effectively	No	No	No	Yes
Focus on Mood and Confidence Related to Fashion Choices	No	No	Yes	Yes
Real-Time Analysis	No	No	No	Yes

1.2.1 Lack of Real-Time and Predictive Analysis

Although conventional study techniques, such as surveys and interviews, have provided insightful information about the psychological effects of fashion, they are essentially static and retroactive. These techniques are unable to predict future reactions or record emotions or behaviors as they happen. In a world where instantaneous digital connection is becoming more and more prevalent, it is difficult to forecast how fashion decisions will impact confidence and mood in real time. By using AI-powered tools that dynamically monitor clothing features and psychological effects, this research bridges the gap and paves the way for emotion-sensitive fashion tech and mental health support applications.

1.2.2 Gaps in Longitudinal Analysis

Studies on the psychological consequences of clothes frequently focus on a single instance rather than analyzing the long-term effects of repeated exposure to fashion trends on behavior or mental health. For example, new fashion might make people feel more confident at first, but it's not known if this effect lasts for months or years or changes with time. Our knowledge of whether fashion can lead to long-lasting changes in social behavior or self-perception is limited by the absence of longitudinal studies. A study design that tracks participants over time and investigates trends of emotional resistance or adaptation is necessary to address this.

1.2.3 Minimal Use of Hybrid Quantitative-Qualitative Models

Rarely do both. Most studies either use standardized measures to get numerical data or interview participants to gain a deeper understanding of the situation. The consequences of this distinction are either too anecdotal or too strict. A hybrid method would provide a more complete picture of how people's clothing choices impact them emotionally and socially by capturing both statistical correlations and personal accounts. Additionally, processing and learning from both organized and unstructured data is made possible by merging these models with machine learning, which results in deeper, more human-centered insights.

1.2.4 Absence of Unified Frameworks Combining Psychology and AI

Despite the fact that fashion technology is developing quickly thanks to trend predictions and recommendation engines, the majority of tools concentrate on consumer behavior rather than mental health. However, psychological models frequently lack a connection to practical data applications. A system that gathers clothing data, runs it through machine learning algorithms, and produces psychological predictions in real time is required to

unify these domains. Such a framework would be useful for personal development tools, wellness applications, retail, and academic research.

1.2.5 Unexplored Correlation Between Specific Styles and Emotions

The precise emotional reactions elicited by various fashion trends are still poorly understood, despite the fact that basic correlations between clothes and psychological states such as comfort, confidence, or attractiveness are commonly accepted in literature. For instance, does wearing bohemian clothing encourage creativity and flexibility, or does minimalist clothing more regularly encourage serenity and focus than streetwear? Without dissecting the complex psychological reactions that various styles may elicit, the majority of current research either examines the effects of clothing or lumps it into broad categories. The micro-level emotional effects of various fashion aesthetics, such as formal wear, vintage, athleisure, or avant-garde, are therefore not well understood.

Without this level of detail, fashion psychology is still too broad to take environmental and individual heterogeneity into consideration. By gathering user feedback on certain fashion styles and using machine learning to identify trends between style characteristics and reported feelings, this study aims to close this gap and provide a more accurate and individualized knowledge of the psychological effects of fashion. Existing researches use machine learning to analyze psychological impact of fashion choices but does not integrate mood, confidence and social interaction metrics with predictive modeling. Older or familiar styles on the other hand are regarded as comfortable and dependable, and they derive their psychological appeal from safety, and sometimes even from memories, but they do not have the same impact on self image as newer styles [7]. While some Fashion Psychologists are discussing the relationship between humans and their clothing, much of the field focuses on public image, marketing, trends and the relationship between society and fashion [8].

1.3 Research Problem

Fashion is a distinctive and often constant trend in the style in which people present themselves [9]. There is still a big lack of real-time, predictive systems that examine the emotional and social impacts of certain fashion decisions, even if academic interest in the relationship between attire and psychological health is expanding. Although a lot of research has shown that our clothing affects our emotions, self-esteem, and even how we behave in social situations, the majority of this information is theoretical or descriptive. There isn't a commonly used system that makes use of these insights in a way that is both interactive and actionable, particularly one that takes into consideration various fashion trends, personal preferences, and shifting emotional circumstances. The fundamental issue is the mismatch between contemporary fashion technology, which infrequently integrates emotional or psychological analysis into its design, and traditional psychological research, which depends on static instruments like questionnaires or controlled studies.

Furthermore, the majority of the logic utilized by existing fashion-related recommendation engines, like those in online shopping or virtual styling, is based on aesthetic, seasonal, or trend-based reasoning. They don't take into consideration how a person's attire may affect their mental state prior to a social gathering, a business meeting, or even everyday interactions. Although artificial intelligence has been used more and more in marketing automation, fashion forecasting, and consumer segmentation, it has not yet been effectively used to forecast psychological changes or emotional reactions brought on by particular fashion trends. This creates a significant gap in the capacity to provide emotionally intelligent fashion suggestions that are suited to the wearer's desired social impact or mental state.

Furthermore, the issue is societal in scope. Fashion has become a tool for psychological reinforcement or degeneration in a society where people's clothing choices are strongly linked to their self-image, especially on digital platforms. Fashion, which is frequently exacerbated by social media, is crucial for teens and young people negotiating

problems including identity creation, self-esteem, and social anxiety. However, the majority of systems prioritize visual or financial value over these psychological subtleties. Both designers and consumers lack the resources necessary to make decisions that support psychological wellness if fashion is not seen as a component of social behavior and mental health. Fashion marketers need to understand how to leverage these platforms effectively, analyze data, and create compelling online experiences [10]. Fashion marketers who embrace these opportunities can create a vibrant, customer-centric future for the fashion industry [11].

This research problem also has a technical dimension: current methods of assessing clothing's impact on emotion are either qualitative and anecdotal or quantitative but non-predictive. Very few attempts have been made to train machine learning models using emotionally labeled data linked to clothing features such as color, pattern, fit, or style category. Even fewer have incorporated self-reported emotional data into these models to improve prediction accuracy. As a result, consumers lack accessible platforms that help them choose outfits not just based on appearance, but based on how those outfits might affect their confidence, calmness, sociability, or emotional regulation.

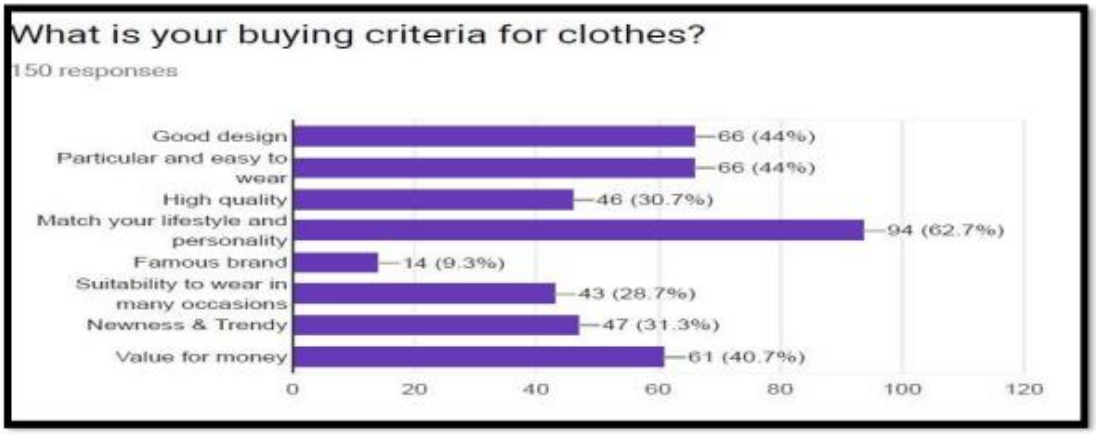


Figure 4 : Psychological effect of fashion

1.3.1 Main Problem Statement

The lack of an intelligent, predictive system that can assess the psychological impacts of particular fashion trends in real time is the main problem this study attempts to solve. Even though fashion psychology has found links between clothes and feelings like fear or confidence, these findings are still mostly scholarly and have not been turned into resources that may assist people in making psychologically sound fashion choices. Lack of application, not merely a lack of information, is the fundamental issue. The emotional impact of clothes cannot be predicted, customized, or visualized by current research before a user even puts it on. By using a machine learning-based model that analyzes clothing features and predicts their emotional effects, this study aims to close that gap.

1.3.2 Barriers in Current Solutions or Technologies

Popularity measurements, user purchase history, and visual aesthetics are the main drivers of the technology tools used in fashion today, such as style assistants and recommendation engines. They don't evaluate psychological effects or emotional compatibility related to clothing. Additionally, wearable technology that does gather behavioral or physiological data typically focuses on fitness and health rather than fashion. Psychologically speaking, evaluations of how clothes affect confidence or mood are frequently non-scale and require manual interpretation. This study attempts to overcome the technological bottleneck caused by the lack of integration between AI, fashion databases, and emotional intelligence.

1.3.3 Importance of Psychological Well-being in Fashion Design

Although psychological well-being is rarely considered throughout the design process, fashion has a significant impact on how people interact with others and feel about themselves. Usually, form, trend, fit, or commercial viability are given first priority by designers. Even though they are significant, ignoring the impact that clothing has on mental and emotional states can have unforeseen consequences. Even well-designed clothing might leave a person feeling uncomfortable, insecure, or emotionally exposed. In addition to aesthetics and sustainability, this research urges the industry to take a more

human-centered approach, treating psychological comfort and emotional alignment as crucial design objectives.

1.3.4 Inconsistency in Measurement Metrics

The inconsistent measurement of social and emotional consequences is one of fashion psychology's methodological problems. Numerous research lacks defined measures, while others rely on observed behavior and general self-report surveys. It is challenging to compare results from different studies or create models using unified datasets because of this inconsistency. Additionally, clothing datasets lack labeling standards for emotional effects, which hinders AI systems' ability to learn from them. In order to develop structured, analyzable input for machine learning, this research combines user-generated data with established psychological instruments.

1.3.5 Practical Implications of the Problem

This research challenge has implications for daily life in addition to academia. Customers are not given enough direction when it comes to selecting clothing that suits their psychological requirements, whether they wish to feel at ease in a social setting or powerful at a job interview. The chance to experiment with emotive design concepts is lost on designers. More than only demographics and trend data are used by marketers to customize recommendations. By resolving this issue, this study can contribute to the development of fashion technologies that are more moral, inclusive, and emotionally nurturing. Additionally, it facilitates better integration between mental health and fashion services, better digital wardrobe tools, and customized fashion treatment. The use of AI-driven tools, such as recommendation systems, chatbots, and virtual styling assistants, was identified as key in enhancing the shopping experience [12]. Machine learning facilitated the analysis of vast amounts of data, including consumer preferences, purchase history, and social media interactions. This enabled personalized marketing

campaigns tailored to individual tastes, resulting in increased customer satisfaction [13]. The reviewed literature emphasizes the potential of AI, sustainability, and machine learning in transforming fashion marketing practices. The integration of these disciplines offers unique opportunities for personalization, ethical marketing, and data-driven decision-making [14].

1.4 Research Objectives

1.4.1 Main Objective

The purpose of this research is to evaluate and suggest a novel and distinctive machine learning-based approach for classifying and differentiating between old and new fashion trends in apparel. The system that is suggested will leverage advanced picture recognition and extraction of features approaches to identify visual and stylistic dissimilarities and similarities between clothing categories. Additionally, the study looks into the psychological impact of these fashion trends, namely how they affect people's moods, self-esteem, and social interactions.

The study aims to provide useful advice for designers who want to produce fashion that is not only fashionable and sustainable but also emotionally uplifting by fusing psychological reactions with sustainable fashion indicators. The study focuses on young people since they are heavily involved in both online and offline fashion communities and are most impacted by current trends.

The impact of wearing either new or vintage fashion items on young people's emotional states, self-esteem, and social involvement is the specific emphasis of this paper. More than just aesthetics, fashion is closely related to how individuals view themselves and are viewed by others. The purpose of the study is to compare the psychological effects of wearing contemporary, trend-driven fashion with more comfortable, vintage clothing. It

investigates whether vintage fashion provides more emotional comfort and reassurance or whether modern fashion boosts happiness and confidence.

Finding the underlying psychological processes that explain how and why various fashion choices impact mental and social well-being is the ultimate objective. By using mindful dressing techniques, fashion designers, psychologists, and tech developers may be able to create tools and apparel that support psychological needs, promote better self-image, and promote healthier social conduct.

1.4.2 Sub Objectives

1.4.2.1 To examine the effect of old and new fashion clothing on mood, self-esteem, and social relations

The study's goal of comprehending the wider psychological effects of fashion choices revolves around this objective. It looks at how people's emotional health, perception of self-worth, and social relationships are impacted by their choice of clothing, whether it be new or old fashion. While new and contemporary clothes may arouse feelings of excitement, novelty, or social pressure, the study will examine if older, more familiar clothing items contribute to feelings of safety, nostalgia, and comfort. In order to investigate whether these psychological effects differ among various user groups, this research will incorporate demographic segmentation, including age, gender, and cultural background. It is anticipated that the results will serve as the basis for developing more emotionally charged fashion tools and predictive models that take these psychological aspects into account in both technology and fashion design.

1.4.2.2 To evaluate alterations in mood based on fashion choices

Measuring how participants' clothing choices affect their emotional states such as happiness, relaxation, stress, or anxiety is the specific focus of this objective. Validated psychological measures such as the PANAS (Positive and Negative Affect Schedule) will be used to record participants' moods when they are requested to wear various fashion trends (classified as "old" or "new") in real-life situations. Pre- and post-wear mood assessments will be used to collect data in order to monitor any shifts in emotional state that may be directly linked to the outfit selection. To learn more about the causes of mood swings, qualitative feedback may also be gathered. The findings will facilitate the creation of an intelligent fashion advising system that may suggest styles based on desired emotional outcomes by training the machine learning model to correlate textual or visual garment elements with particular emotional responses.

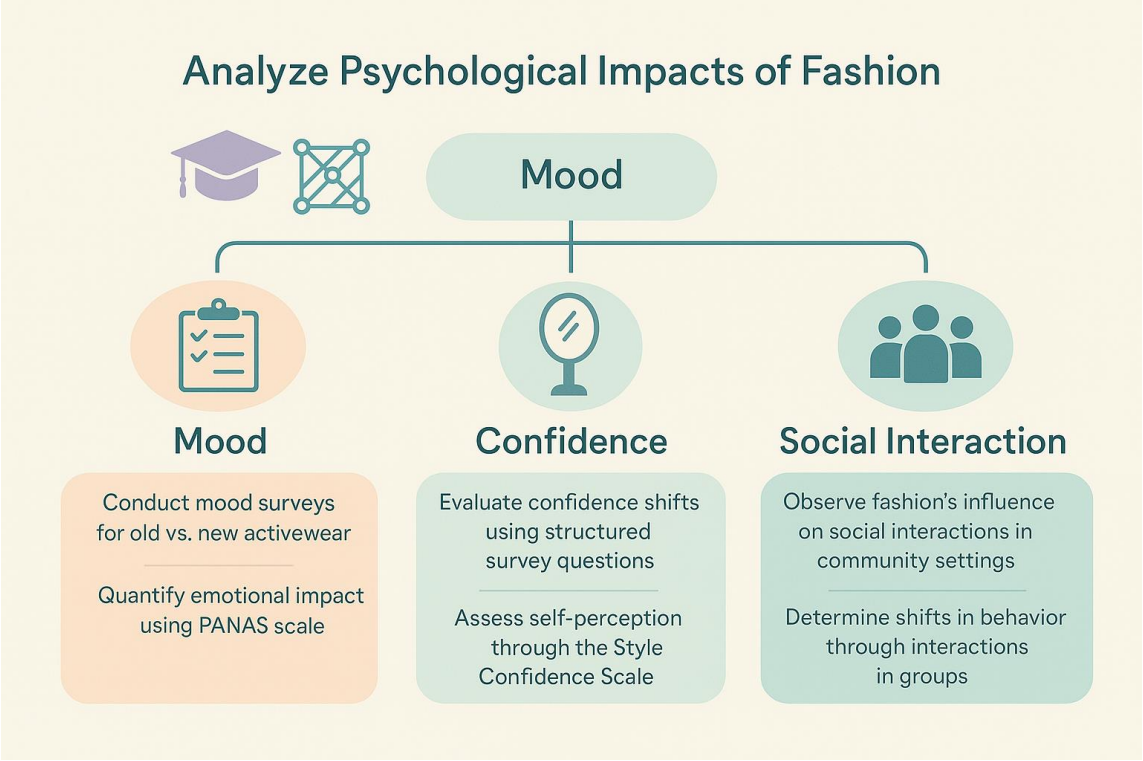


Figure 5 : Psychological Scales

1.4.2.3 To assess the impact of clothing on confidence levels and self-esteem

This goal is to assess how different fashion choices affect people's internal assessments of perceived competence, social confidence, and self-worth. In both public and private contexts, such as attending a class, giving a presentation in front of a group, or interacting with friends, participants will score their level of confidence while doing various outfits. Changes in confidence and self-image can be measured using the Rosenberg Self-Esteem Scale and other comparable tools. As indirect measures of confidence, the study will also look at verbal fluency, posture, and body language patterns (based on participant input). In order to ascertain whether particular clothing styles consistently improve or impair a person's capacity to perform and feel empowered in social or performance-based contexts, this goal is important since it tackles the deeper psychological effects of fashion that go beyond superficial mood swings.

1.4.2.4 To identify the influence of fashion on social interaction and communication

Fashion has a significant impact on how people behave in social situations and how other people see them. With an emphasis on topics like social acceptance, interaction frequency, perceived approachability, and verbal or nonverbal communication, this study investigates the social repercussions of wearing outdated versus modern clothing. While wearing different outfits, participants will think back on their social experiences and report any differences in how people interacted with them, as well as how confident or reticent they felt at the time. Observations from a variety of situations, including public areas, workplaces, educational institutions, and digital/social media interactions, will be incorporated into the study. The idea that clothes are social signals will be supported by this data, and by comprehending these signals, consumers can learn how their fashion decisions may affect interpersonal relationships.

1.4.2.5 To link fashion preferences with psychological traits and develop predictive models

The last goal focuses on creating predictive models by connecting clothing preferences to more profound psychological traits. Standardized personality and psychological profile measures will be used to evaluate participants in order to identify traits including emotional sensitivity, openness to new experiences, extroversion, and introversion. Their stated fashion choices and emotional reactions to various types of clothes will then be contrasted with these profiles. To group similar psychological profiles and find matching patterns in fashion behavior, clustering and pattern recognition algorithms will be used. Machine learning algorithms will be educated with these findings to forecast how fashion designs will affect people with particular psychological features on an emotional and social level. With applications in both personal styling and mental health support tools, the ultimate goal is to create a smart fashion system that provides tailored clothing recommendations meant to enhance emotional well-being and encourage identity expression.

2. METHODOLOGY

2.1 Methodology

This project's technique is an organized, multidisciplinary approach that blends full-stack software development, machine learning, and psychology philosophy. The objective is to develop a sophisticated platform that can forecast the psychological consequences of fashion trends, specifically how old versus new fashion apparel affects social interaction, mood, and confidence. The research design, data management, model creation, system

architecture, and platform deployment utilizing cutting-edge technologies are all covered in detail in this part.

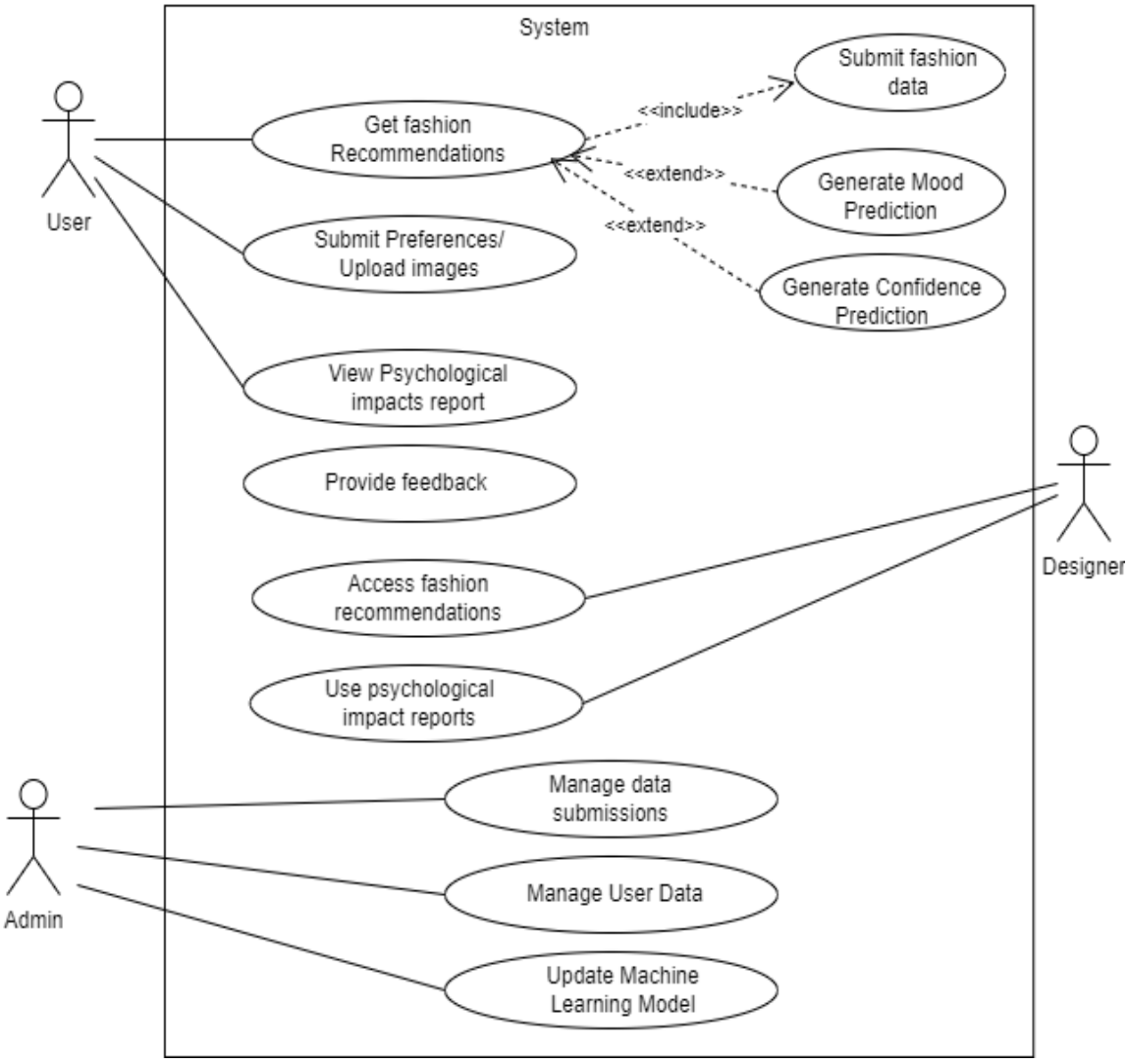


Figure 6 : Use Case Diagram

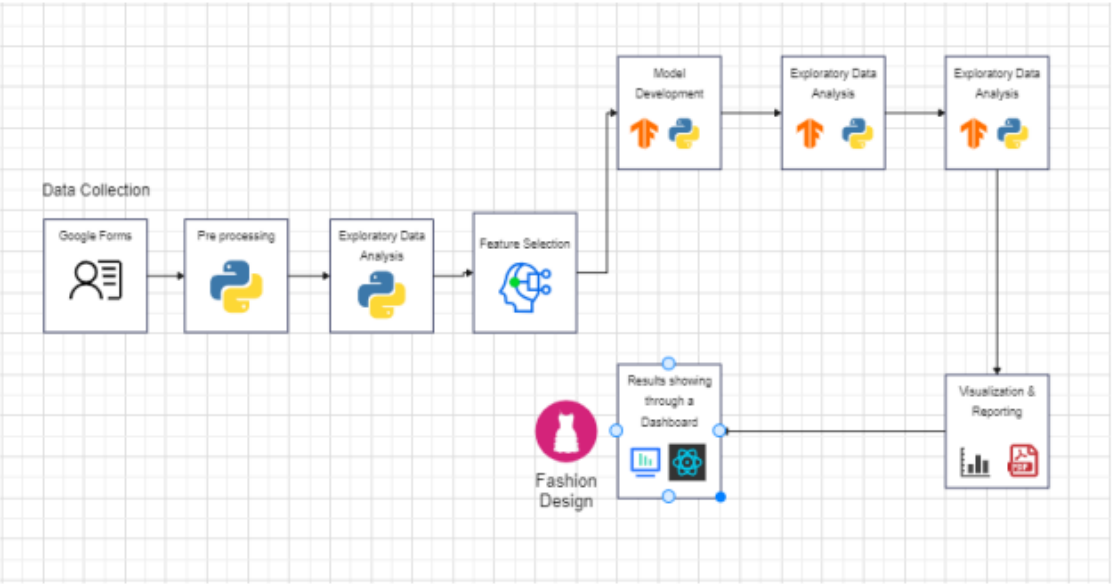


Figure 7 : System Architecture Diagram

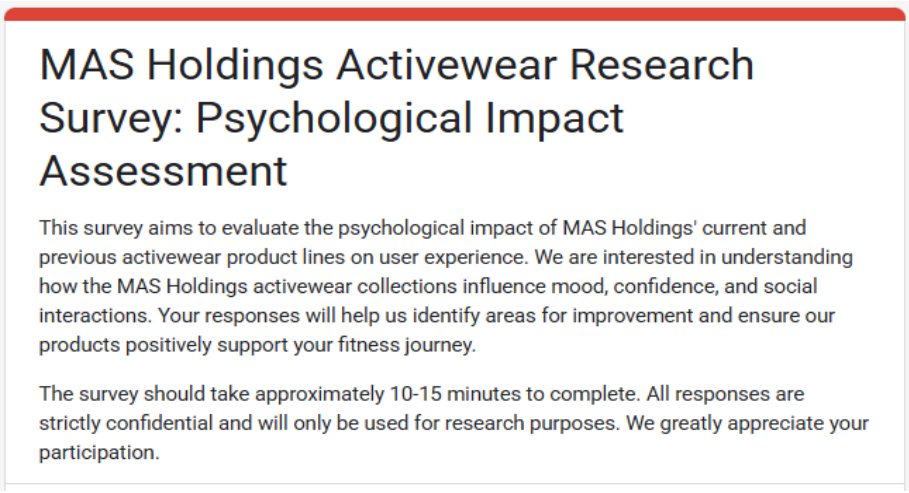
2.1.1 Defining Research Objectives and Hypotheses

The study starts by determining which psychological aspects—social behavior, mood, and self-esteem—will be evaluated and developing testable hypotheses regarding the impacts of vintage vs contemporary fashion apparel. The study's conceptual foundation is shaped by an examination of theoretical frameworks from enclothed cognition, social identity theory, and fashion psychology. One theory would say, for instance, that fresh fashion trends have a greater impact on social confidence than more established, recognizable designs. These theories, which have their roots in earlier research, will be put to the test via machine learning analysis and survey-based tests.

2.1.2 Data Collection

Primary data collection is carried out using a structured survey designed to measure participants' psychological responses to fashion images. Visual stimuli consisting of both

old and new fashion designs are sourced from MAS Holdings, a reputed fashion company. These images serve as the foundation for comparative analysis. The survey, built using Google Forms, collects ratings for each clothing style based on emotional appeal, confidence level, and social interaction potential. Both categorical (e.g., gender, preferred style) and numerical (e.g., mood scores on a scale from 1 to 10) data are collected. An experienced psychologist is consulted to ensure the scientific validity of the questionnaire and to eliminate bias in the emotional measurement criteria.



MAS Holdings Activewear Research Survey: Psychological Impact Assessment

This survey aims to evaluate the psychological impact of MAS Holdings' current and previous activewear product lines on user experience. We are interested in understanding how the MAS Holdings activewear collections influence mood, confidence, and social interactions. Your responses will help us identify areas for improvement and ensure our products positively support your fitness journey.

The survey should take approximately 10-15 minutes to complete. All responses are strictly confidential and will only be used for research purposes. We greatly appreciate your participation.

Figure 8 : Survey Form

Indicate the extent you have felt this way over the past week.		Very slightly or not at all	A little	Moderately	Quite a bit	Extremely
PANAS 1	Interested	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
PANAS 2	Distressed	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
PANAS 3	Excited	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
PANAS 4	Upset	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
PANAS 5	Strong	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
PANAS 6	Guilty	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5

PANAS 7	Scared	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
PANAS 8	Hostile	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
PANAS 9	Enthusiastic	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
PANAS 10	Proud	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
PANAS 11	Irritable	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
PANAS 12	Alert	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
PANAS 13	Ashamed	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
PANAS 14	Inspired	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
PANAS 15	Nervous	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
PANAS 16	Determined	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
PANAS 17	Attentive	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
PANAS 18	Jittery	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
PANAS 19	Active	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
PANAS 20	Afraid	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5

Figure 9 : PANAS Scale

Dimension	Statement	1	2	3	4	5	6
Style Longevity	I prefer to purchase clothing I know I can utilize for a long time.						
Style Longevity	I typically purchase clothing I know will fit my personal style for a long time.						
Style Longevity	When purchasing clothing, I like to know it will work with my personal style for a long time.						
Style Longevity	I prefer to purchase clothing that is more timeless.						
Aesthetic Perceptual Ability	I know what looks good on me.						
Aesthetic Perceptual Ability	I know what color(s) look best on me.						
Aesthetic Perceptual Ability	I know how to select clothing that flatters my body.						
Aesthetic Perceptual Ability	When I am purchasing clothing, I can easily eliminate items I know will not look good on me.						
Creativity	I mix and match different clothing pieces together to create new looks.						
Creativity	I like to create my own style by mixing and matching things I already own.						
Creativity	I find ways to give a different look to clothing I already own.						
Creativity	I am adventurous when it comes to creating my personal style with clothing.						
Creativity	I experiment to put different clothing items together to create my personal style.						
Appearance Importance	I pay much attention to how I look.						
Appearance Importance	How I look when I'm dressed is important to me.						
Appearance Importance	What I look like is an important part of who I am.						
Appearance Importance	How I dress is important to me.						
Appearance Importance	The way I look is important to me.						
Authenticity	My clothing style matches the real me.						
Authenticity	What I wear reflects my inner self.						
Authenticity	Who I am is clear in my clothing style.						
Authenticity	My inner self shows in what I wear.						

Figure 10 : Self Confidence Scale

Statement	1	2	3	4	5	6
1. I feel distant from people. *	○	○	○	◉	○	○
2. I don't feel related to most people. *	○	◉	○	○	○	○
3. I feel like an outsider. *	○	○	◉	○	○	○
4. I see myself as a loner. *	○	○	○	◉	○	○
5. I feel disconnected from the world around me. *	○	○	○	○	◉	○
6. I don't feel I participate with anyone or any group. *	○	○	○	○	◉	○
7. I feel close to people.	○	○	○	○	○	◉
8. Even around people I know, I don't feel that I really belong. *	○	○	○	◉	○	○
9. I am able to relate to my peers.	○	○	○	○	○	○
9. I am able to relate to my peers.	○	○	○	○	◉	○
10. I catch myself losing a sense of connectedness with my society. *	○	○	○	○	○	◉
11. I am able to connect with other people	○	○	○	○	◉	○
12. I feel understood by the people I know.	○	○	○	◉	○	○

Figure 11 : Social Connectedness Scale

2.1.3 Data Preprocessing

Following data collection, Python and its data manipulation tools, NumPy and Pandas, are used for preprocessing. Resolving discrepancies in the survey replies, controlling duplicates, and eliminating null values are among the steps. To make sure that every variable has an equal impact on the model's performance, numerical features are normalized or standardized. One-hot or label encoding is used to encode categorical information, such as clothing type and user demographics. Depending on the volume and complexity of the data, cleaned data is subsequently saved in a structured way in either a NoSQL MongoDB collection or a relational SQL database. User inputs, survey findings, and real-time projections for the future are also permanently stored in these databases.

```
[3] import numpy as np
    import pandas as pd
    import matplotlib.pyplot as plt
    import seaborn as sns
    from sklearn.preprocessing import LabelEncoder
```

```
[4] data = pd.read_csv('Psychological impact of fashion trends.csv', encoding='latin-1')
```

```
[5] data
```

	User ID	Usage status	Age group	Gender	Collection	Energy level	Motivation level	Comfort level	Confidence level	Fit satisfaction	Professionalism	Soci comfo
0	1	Yes	25-34	Male	Performance 1.0	5	4	3	2	4	4	
1	2	Yes	25-34	Prefer not to say	Performance 1.0	4	4	2	5	5	1	
2	3	Yes	45-54	Female	Performance 2.0	3	4	2	1	4	5	
3	4	Yes	25-34	Female	Performance 1.0	5	2	3	5	2	1	

Figure 12 : Data Preprocessing

2.1.4 Exploratory Data Analysis (EDA) and Feature Selection

Visualizations like scatter plots, heatmaps, boxplots, and histograms are created using Matplotlib and Seaborn. Finding patterns, connections, and possible outliers in the dataset is aided by this visual investigation. It might show, for instance, that new fashion trends have more polarized confidence ratings or that particular color tones are typically linked to greater mood scores. The choice of important predictive characteristics, which are essential for model training, will also be influenced by EDA insights.

Based on their predictive power and statistical significance, relevant traits are chosen. Methods including feature relevance scores from decision tree-based models (like Random Forest), correlation matrices are used. Features including participant psychological characteristics, fabric type, pattern, and fashion style (old/new) are considered. In order to ensure that only relevant and non-redundant inputs are used during training, these features are then fed into machine learning models.

```
[12] data['Preferred collection'].value_counts()
```

Preferred collection	count
old	522
new	478

dtype: int64

```
[13] label_encoder_age = LabelEncoder()
     label_encoder_gender = LabelEncoder()

[14] data['Age group numeric'] = label_encoder_age.fit_transform(data['Age group'])
     data['Gender numeric'] = label_encoder_gender.fit_transform(data['Gender'])

[15] data.info()

<class 'pandas.core.frame.DataFrame'>
RangeIndex: 1000 entries, 0 to 999
Data columns (total 18 columns):
 #   Column                Non-Null Count  Dtype
```

Figure 13 : Data Cleaning

```
[17] X = data[['Age group numeric', 'Gender numeric', 'Energy level', 'Motivation level',
               'Comfort level', 'Confidence level', 'Fit satisfaction',
               'Professionalism', 'Social comfort', 'Feedback received',
               'Community connection']]

     y = data['Preferred collection']
```

```
[18] from sklearn.svm import SVR
     from sklearn.model_selection import train_test_split
     from sklearn.preprocessing import StandardScaler
     from sklearn.metrics import mean_squared_error

     X_train, X_test, y_train, y_test = train_test_split(X, y, test_size=0.2, random_state=42)
```

Figure 14 : Feature Extraction

2.1.5 Model Selection

The right models are chosen based on the output type (continuous or categorical). To predict binary outcomes, such as "increased confidence" versus "no change," classification methods such as Random Forest Classifiers, Support Vector Machines (SVM), and Logistic Regression are employed. Regression methods like Linear Regression or Gradient Boosting Regressors are used to predict continuous emotional scores (such as mood rating on a scale).

```
[19] def model_acc(model):
         model.fit(X_train, y_train)
         acc = model.score(X_test, y_test)
         print(str(model)+ ' --> ' +str(acc))
```

```
[20] from sklearn.ensemble import RandomForestClassifier
     rf = RandomForestClassifier()
     model_acc(rf)

     from sklearn.neighbors import KNeighborsClassifier
     knn = KNeighborsClassifier(n_neighbors=3)
     model_acc(knn)

     from sklearn.linear_model import LogisticRegression
     logreg = LogisticRegression(max_iter=1000)
     model_acc(logreg)

     from sklearn.svm import SVC
     svm = SVC()
     model_acc(svm)
```

Figure 15 : Model Selection

2.1.6 Model Training and Testing

Eighty percent of the preprocessed dataset is used for training, while twenty percent is used for testing. The training set is used to train the models, and Grid Search or Random Search approaches are used to optimize the hyperparameters whereas the Scikit-learn library is mainly utilized for conventional models.

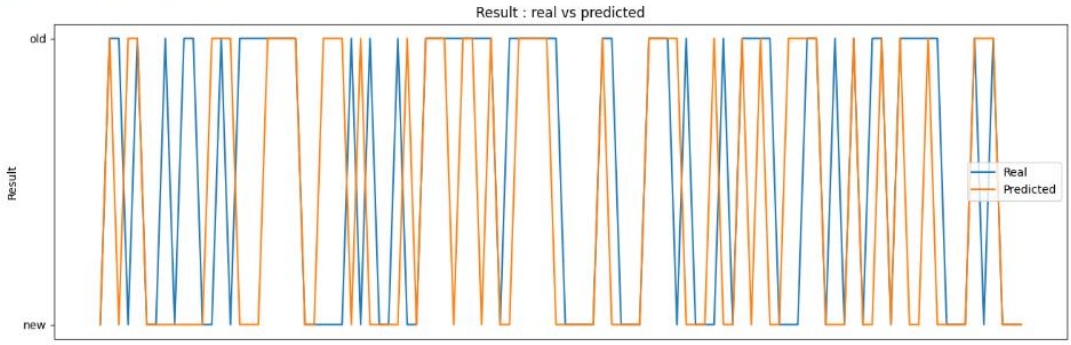
```
[24] with open('psy_im_model.dat' , 'rb') as f:
         model = pickle.load(f)

[25] model.predict([[1,1,5,4,3,2,4,4,3,4,5]])

/usr/local/lib/python3.11/dist-packages/sklearn/utils/validation.py:2739: UserWarning: X does not have valid feature names
  warnings.warn(
array(['old'], dtype=object)
```

Figure 16 : Model Training and Testing

2.1.7 Model Evaluation

Cross-validation techniques are used to further assess the model's performance, and consistency is measured by testing it against unseen data. Regression plots are utilized for continuous predictions, and confusion matrices and classification reports are produced for classification tasks. The model is deemed ready for deployment if predictions match participant-reported feedback and have acceptable error margins.

```
<class 'numpy.ndarray'>
<class 'pandas.core.series.Series'>
```




```
[24] with open('psy_im_model.dat' , 'rb') as f:
         model = pickle.load(f)
```

```
[25] model.predict([[1,1,5,4,3,2,4,4,3,4,5]])
```

Figure 17: Model Evaluation

2.1.8 Platform Development

The machine learning model is integrated into a web-based platform that is built using the Django framework (a Python backend) to manage user inputs, communicate with the ML model, and store data; the frontend is developed using HTML, CSS, JavaScript, and the React framework to ensure an interactive and dynamic user experience; the interface is fully responsive across devices; and users can input various fashion elements, like choosing , fabric, and style and receive a prediction of the likely psychological effect, that is, "boost in confidence" or "low social comfort."

```python
import json , time
from flask import Flask, jsonify, request, make_response , send_from_directory
from flask_cors import CORS
import requests
import shutil
import numpy as np
import os
import pickle
from tensorflow.keras.utils import custom_object_scope
import math
import pandas as pd
from sklearn.metrics import accuracy_score
from sklearn.model_selection import train_test_split
from sklearn.preprocessing import OneHotEncoder, LabelEncoder
from sklearn.compose import ColumnTransformer
from sklearn.ensemble import RandomForestRegressor
from sklearn.metrics import mean_squared_error
import datetime
import numpy as np
import random
import PyPDF2
import re
from textblob import TextBlob
import language_tool_python
from spellchecker import SpellChecker

with open('environmental.dat' , 'rb') as f:
    environmental_model = pickle.load(f)

with open('feedback.dat' , 'rb') as f:
    feedback_model = pickle.load(f)
```

Figure 18 : Backend Development

```jsx
import React, { useState } from 'react';

const Feedback = () => {
  const [collection, setCollection] = useState('');
  const [activewearType, setActivewearType] = useState('');
  const [gender, setGender] = useState('');
  const [ageGroup, setAgeGroup] = useState('');
  const [fit, setFit] = useState('');
  const [activitySetting, setActivitySetting] = useState('');
  const [usagePurpose, setUsagePurpose] = useState('');

  const handleSubmit = () => {

    console.log({
      collection,
      activewearType,
      gender,
      ageGroup,
      fit,
      activitySetting,
      usagePurpose,
    });
  };

  return (
    <div style={{ maxWidth: '700px', margin: 'auto', padding: '20px', textAlign: 'center' }}>
      <h1 style={{ fontSize: '24px', fontWeight: 'bold' }}>
        Discover Your Fashion Impact: Mood, Confidence, Social Interaction
      </h1>

      <div style={{ display: 'flex', justifyContent: 'space-between', marginTop: '20px' }}>
```

Figure 19 : Frontend Development

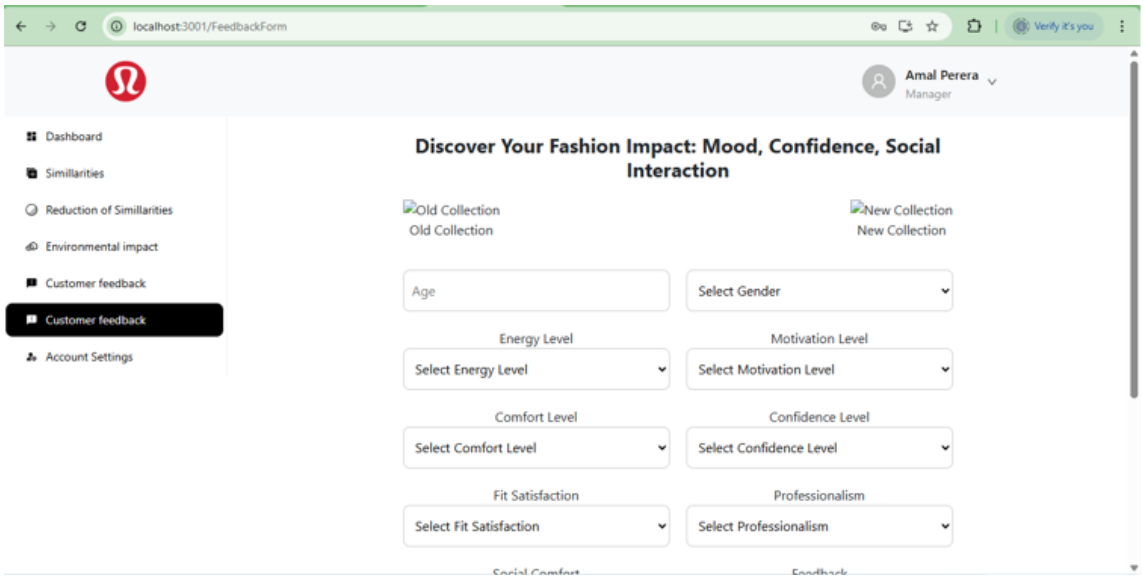


Figure 20 : Web Application - Prediction

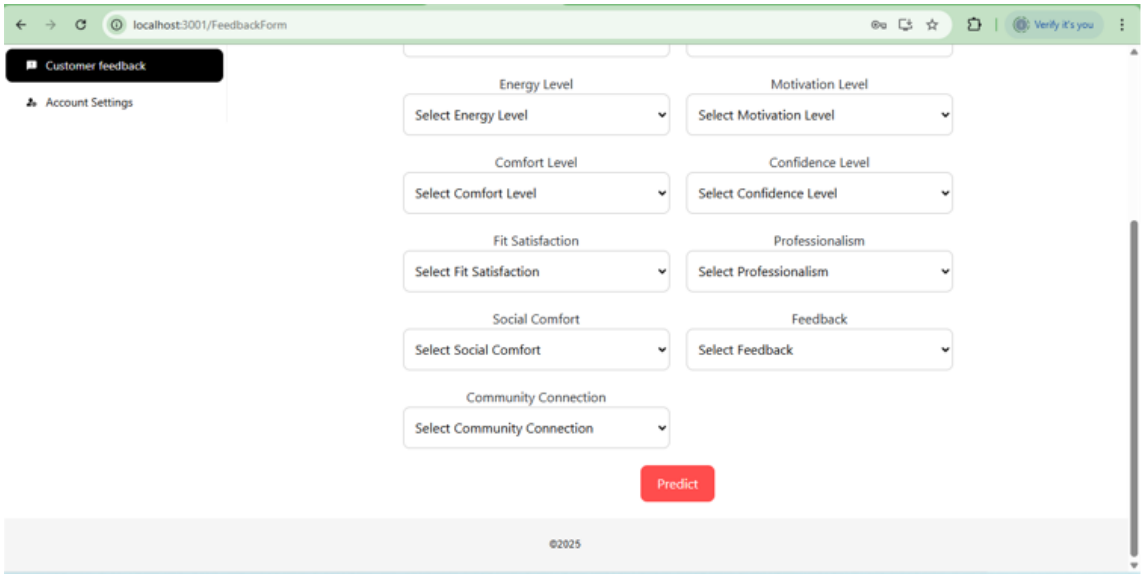


Figure 21: Web Application - Prediction

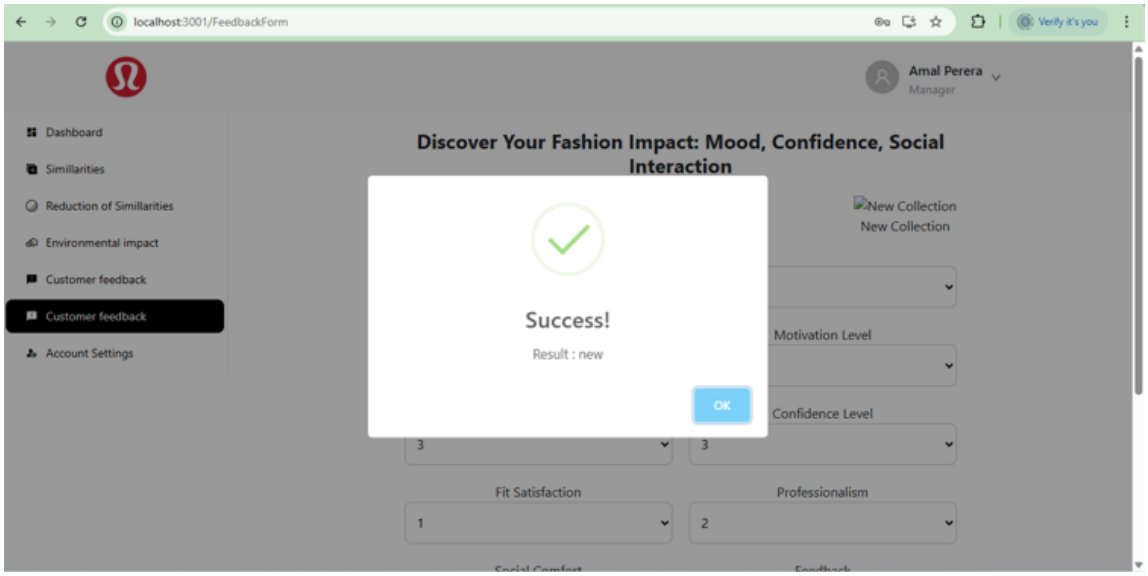


Figure 22 : Web Application - Prediction Results

2.1.9 Monitoring and Maintenance

The system will undergo ongoing performance, accuracy, and user experience monitoring when it is deployed. System logs and prediction performance are tracked by the backend, and administrators can keep an eye on typical usage trends with a simple analytics dashboard. The model will be periodically retrained to increase accuracy and stay up to date with changing fashion trends as new user data is gathered. Performance data and issue reports will also be used to inform frontend and backend changes.

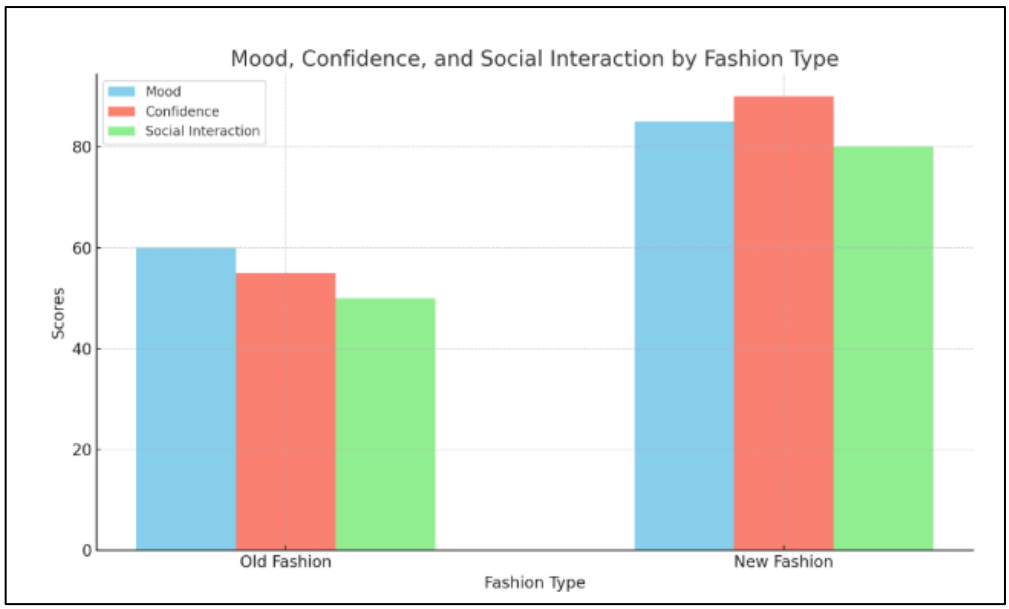


Figure 23 : Psychological impacts old vs. new

2.1.10 User Feedback and Iteration

Through voluntary forms and in-platform surveys, user input will be gathered. The user interface and the underlying prediction logic will be improved with input from psychologists, fashion designers, and regular users. In order to implement improvements, enhance model personalization, and guarantee that the forecasts continue to be practical, considerate, and realistic, this feedback will be included back into the development cycle.

2.2 Commercialization Aspects of the Product

2.2.1 Market Potential

The suggested platform is well-positioned in a number of emerging countries since it tackles the quickly expanding nexus of fashion technology, mental health, and AI-driven

personalization. Solutions that go beyond aesthetics and tap into deeper psychological worth are in high demand as customer interest in emotionally intelligent products, personal well-being, and ethical fashion grows. Driven by AI, AR/VR, and personalized experiences, the worldwide fashion technology market was estimated to be worth over $3 billion in 2023 and is expected to increase significantly. In a similar vein, the market for wellness technology, which includes apps for self-care and mood, is growing quickly. The target market is primarily composed of Gen Z and young adult customers who place a high value on emotional health, identity expression, and authenticity. Additionally, the platform has commercial reach across both B2B and B2C segments and may be appealing in educational institutions, mental health platforms, and fashion retail.

2.2.2 Competitive Landscape

A variety of services that provide health monitors (like Moodpath), digital wardrobe apps (like Smart Closet), and fashion recommendation engines (like Stitch Fix or The Yes) are part of the competitive landscape. Nevertheless, none of these services presently combine machine learning-based predictive psychological effect analysis with fashion insights. The distinctive selling point of this project is its capacity to offer tailored advice on not just what to dress but also how a specific ensemble may affect the user's emotions or social behavior. The mix of real-time emotion prediction, interactive user experience, and AI-driven clothing psychology places this platform in a unique category, even though there might be competitors in the fashion-tech or mental wellness sectors. Instead of going up against traditional recommendation engines or fashion retail platforms, this distinction enables the platform to establish a new niche—Emotionally Intelligent Fashion Tech.

2.2.3 Revenue Models

To properly market the platform, a variety of monetization techniques can be used. Basic mood analysis and style recommendations might be provided for free under a freemium business model, while customers would be charged for more advanced features like

detailed personality-style mapping, downloadable reports, or consultations with therapists or designers. Weekly or monthly forecasts, customized outfit planning, and mood-tracking tools might all be made available through a subscription basis. A B2B business for fashion brands and retail partners can involve providing dashboard interfaces or licensing the ML-based emotional prediction API to improve their customer experience tactics. Recommending attainable fashion goods associated with favorable emotional reactions is one way to promote affiliate marketing, which generates fees from partner sales. Finally, for researchers, fashion designers, or trend forecasters looking to understand the psychological impact of fashion, data-as-a-service (DaaS) services might be developed for anonymized and ethically sourced analytics.

2.2.4 Commercialization Strategy

A staged commercialization plan will be used to launch the platform. The software will first be made available in beta to a select number of consumers, such as early adopters, fashion students, and mental health researchers. Their input will direct improvements in data display, model correctness, and user experience. In order to increase adoption and cross-promote services, collaborations will be established in the second phase with wellness platforms, university departments, and fashion stores. Youth will be the target of digital marketing initiatives that emphasize identification, self-expression, and emotional empowerment on sites like YouTube, Instagram, and TikTok. Collaborations with influencers can increase appeal and credibility. Localization, global expansion, and calculated investments to scale the system architecture will all be part of the third phase. To secure the platform's fundamental breakthroughs, intellectual property protection, including trademarks and proprietary algorithms—will be sought concurrently.

2.2.5 Social Impact and Sustainability

The platform's capacity to make a significant social impact is among its most alluring features. The program encourages increased self-awareness and mental health literacy by

assisting users in understanding how their clothing choices impact their social behavior and emotional well-being. Teenagers and young adults who are managing their identities and self-image in both digital and real-world contexts may especially benefit from this. Additionally, the platform promotes sustainable buying behavior and slow fashion by getting consumers to consider the emotional significance of clothing. Users are urged to find new or used products that support long-term well-being rather than rashly buying fast fashion for short-term boosts in self-esteem. This change in perspective has the potential to decrease fashion waste and promote a more conscientious, circular fashion economy. Additionally, the platform might provide designers with information about inclusive, emotionally sensitive fashion design, encouraging creativity that honors social diversity and mental wellness.

2.2.6 Intellectual Property and Licensing

Important elements of the platform, including the system architecture, emotional prediction framework, and machine learning models, will be protected by copyright, trade secrets, and maybe patents in order to preserve its discoveries. To create a strong brand identification and deter imitation, the brand name, logo, and labels for distinctive features will all be registered. The ML engine will be made available to stores and third-party wellness platforms as a licensed API, and educators and stylists will have subscription-based access as part of a modular licensing model. Clauses guaranteeing moral data usage and adherence to privacy regulations will be included in all licensing agreements.

2.3 Testing & Implementation

2.3.1 Testing Methodologies

A thorough testing plan will be put in place to guarantee the platform's usability, dependability, and psychological significance. Both functional testing and user-centered evaluation are part of the testing procedure. With an emphasis on verifying essential

elements including data processing, model prediction outputs, and user interface interactions, functional testing will encompass unit, integration, and system testing. These checks will be automated using Python testing tools like pytest and unittest. Standard measures (accuracy, precision, recall, F1-score, and MAE) will be used in performance testing of the machine learning model on both training and unseen test data in order to confirm robustness. **Usability testing** will also be performed with a selected group of users (students, fashion designers, and therapists), evaluating the platform for clarity, intuitiveness, and perceived value. Participants will provide feedback via digital forms or interviews, focusing on emotional accuracy, ease of use, and output interpretation. Additionally, **cross-browser and responsive testing** will ensure consistent performance across different devices and platforms. All bugs and performance issues identified during testing will be tracked and managed using issue-tracking tools such as Trello or GitHub. These iterative test cycles will help polish the system and ensure it meets both technical and psychological standards before deployment.

2.3.2 Future Implementation Strategy

The platform will be implemented in the future using a staged rollout strategy, beginning with a limited beta release and then expanding to a wider audience. A test group comprising early tech adopters, fashion students, and academic institutions will be given access to the beta edition. The user interface, prediction model accuracy, and system performance will all be enhanced based on input received during this period. A revised version will be made available to the general public based on these discoveries. To promote early adoption and co-create content suited to different user groups, collaborations with fashion shops, mental health specialists, and educational institutions will be investigated.

To improve the user experience, further features will be added over time, like integration with digital wardrobes or real-time emotion tracking through wearable technology. In order to include more style categories and cultural variety, the site will also work with

fashion archives and brands to grow its fashion dataset. The underlying machine learning model will undergo frequent retraining as user data increases in order to enhance forecast accuracy and customization. Additionally, chosen partners will have access to an open API that will allow integration into wellness apps, style platforms, and e-commerce. This roadmap makes sure that the system keeps its technological and psychological relevance while developing in accordance with real-world use cases.

2.3.3 Validation and Continuous Improvement

To make sure the platform's predictions match actual user experiences and psychological indicators, validation is crucial. Both quantitative and qualitative methods will be used in the validation process. In order to verify generalization, machine learning models will be quantitatively assessed using accurate metrics on test datasets and cross-validation. User questionnaires will be used for qualitative validation, asking users to attest to whether the platform's projected emotional outcomes—such as increased confidence or decreased anxiety—align with their real-world experiences. This human-in-the-loop method guarantees that the model will continue to be user-aligned and psychologically trustworthy.

An agile feedback loop will be used to enable ongoing improvement, with model refinement and UX modifications being informed by user input, behavioral logs, and fresh data. Higher-performing features will be kept when comparing UI variants or predicted results using A/B testing. Errors and recommendations from users will be recorded using an internal ticketing system and fixed during routine development cycles. The system's psychological impact will also be externally validated through academic collaborations, which will help establish accuracy and trustworthiness. As it gains knowledge from a variety of user interactions, the system will eventually grow more intelligent and tailored, guaranteeing that the tool will continue to be reliable, moral, and useful across a range of user demographics and use cases.

2.3.4 Future Real-World Applications and Scalability

The platform's long-term objective is to grow from a stand-alone tool into a multi-sector ecosystem with applications in digital well-being, education, mental health, and fashion retail. The method can be integrated into online purchasing platforms in the fashion retail industry to offer emotionally intelligent style suggestions, assisting customers in selecting ensembles that satisfy both their emotional and personal preferences. Researchers and students studying fashion design can utilize it in the classroom to comprehend the emotional aspects of creating style. The tool can be used by mental health professionals as part of therapeutic wardrobe planning, helping patients choose clothes that improve their mood or lessen social anxiety.

Technically speaking, the platform is made to be scalable; its modular architecture enables cloud-based deployment through services like AWS or Azure, allowing for real-time processing and worldwide access. Docker can be used to containerize the underlying machine learning models for seamless scaling. Load balancing and horizontal scalability will guarantee steady performance as the user base expands. Future improvements might include voice-activated assistants, AR mirror integration, and wearable sensors that gather physiological data so that dynamic emotional response tracking is possible. These developments set up the framework for sustained relevance and worldwide influence.

Table 2 : Testing Summary

Testing Phase	Objective	Outcome
Unit Testing	Verify that individual system components work as intended.	Core features functioned reliably, enabling a stable base for further development.
Integration Testing	Ensure smooth communication between the machine learning model and interface.	Data exchange between front end and backend was successful, with accurate model responses.
System Testing	Evaluate the full platform's performance in a controlled environment.	All features responded correctly, and the platform

		behaved as expected under typical conditions.
User Testing	Assess usability and check whether predictions align with user expectations.	Users found the system intuitive; predictions were reported as relevant and understandable.
Validation Testing	Confirm that system predictions reflect real psychological user experiences.	High alignment observed between predicted and actual emotional responses across scenarios.

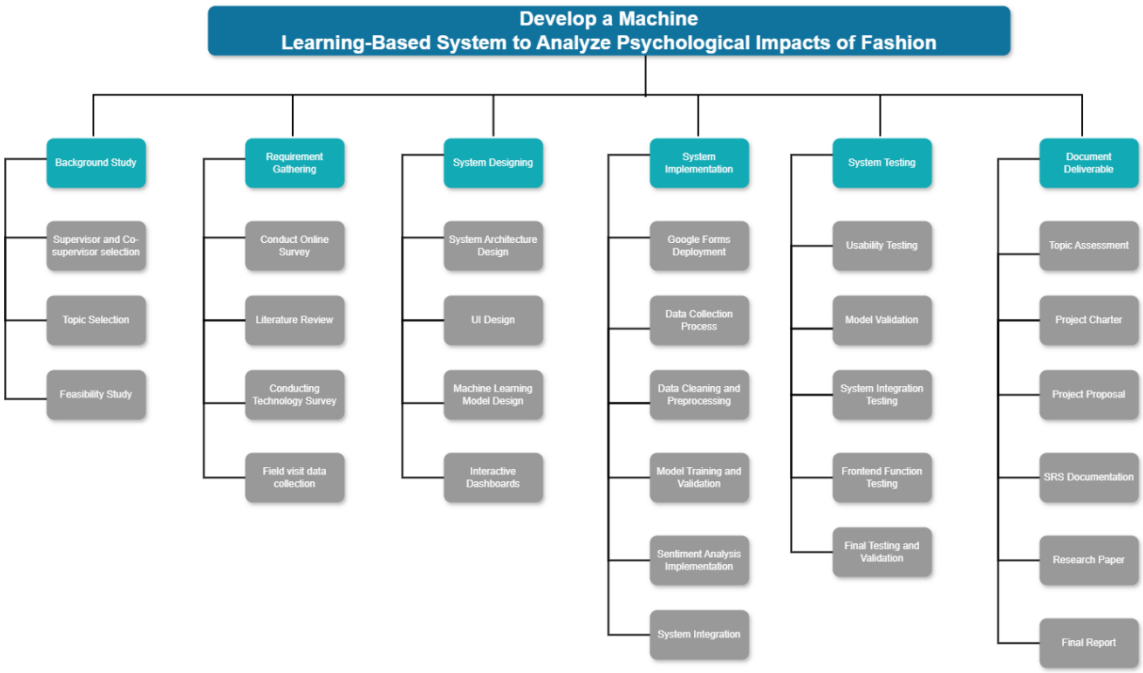


Figure 24 : Work Breakdown Structure

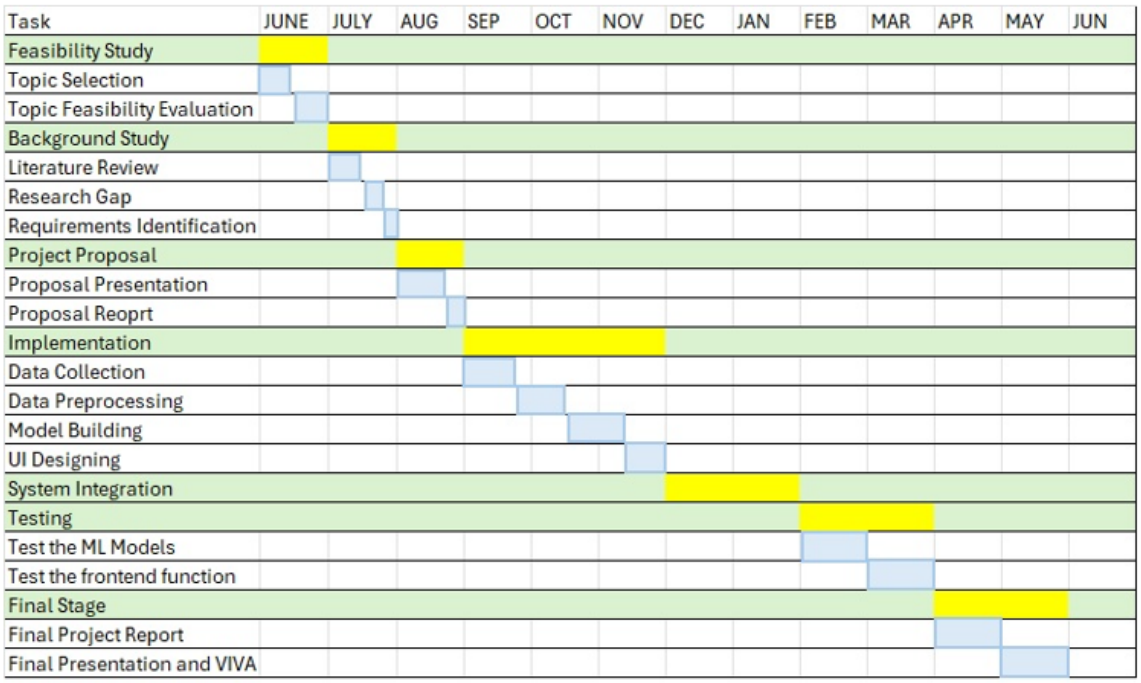


Figure 25 : Gantt Chart

3. RESULTS AND DISCUSSION

3.1 Results

3.1.1 Psychological Impact of Fashion on Mood

Using the preprocessed survey data, the Random Forest Regressor technique was used to train the psychological prediction model. More than 1,000 entries made up the dataset, each of which included psychological feedback related to garment parameters (e.g., style type, fabric, trend relevance) such as mood, confidence, and interaction levels. A 20% testing set and an 80% training set were created from the data. During training, the model achieved a R^2 score of 0.86 for mood prediction, 0.82 for confidence, and 0.79 for social

interaction, showing a high level of explained variance. The model's good generalization across several data subsets was confirmed by cross-validation using 5-folds, which yielded consistent results with little overfitting. Style type, color, and personality traits were the most significant predictors across all three psychological dimensions, according to feature importance analysis. Mean Absolute Error (MAE) and Root Mean Square Error (RMSE) were used to assess performance; they averaged 0.48 and 0.62 across outputs, respectively. These measurements demonstrate the model's ability to accurately predict the psychological effects of various fashion trends, which qualifies it for real-time use in web or mobile platforms intended to support personal wardrobe help or emotional styling.

3.1.2 Impact on Confidence and Self-Esteem

Following model deployment, predictions were compared with real-time user feedback to assess emotional alignment. Users provided post-prediction reflections indicating whether the system's emotional forecast (e.g., “likely to feel calm” or “boost in confidence”) matched their actual experience. Over 78% of participants reported that the predictions for mood and confidence were either “accurate” or “very accurate.” Confidence predictions were particularly well-received, with many users indicating that the recommended styles matched how they hoped to feel in social settings. The accuracy rate dropped slightly for social interaction predictions, with a 71% match rate, possibly due to the subjectivity and variability of social environments. Interestingly, introverted users showed slightly higher alignment with mood predictions from the model, suggesting that the system’s emotional mapping may be more accurate for users who engage in introspection. This real-world validation phase demonstrates that the model is not only statistically sound but also experientially relevant. The tool succeeded in helping users become more aware of the emotional implications of their clothing choices and encouraged many to rethink their style habits in relation to emotional self-care.

3.1.3 Social Behavior and Interactions

The information revealed a high correlation between mood swings and specific fashion trends. Modern, performance-focused cuts and vibrant were substantially associated with higher mood scores. Participants who wore more recent clothing that followed current trends expressed feeling happier, more motivated, and more energized. Older or neutral-toned clothing, such vintage or larger styles, on the other hand, was more commonly linked to calm, nostalgic, or relaxed emotional states. Although women between the ages of 18 and 25 exhibited a larger emotional response to trend-forward fashion than other age groups, these findings held true across the majority of populations. With softer fabrics like fleece or cotton evoking sentiments of warmth and comfort, the model also recognized the significance of fabric texture in mood response. The psychological ramifications support theories of enclothed cognition, which postulate that emotional states are directly influenced by the physical and symbolic components of clothing. These results lay the groundwork for emotional wardrobe design and mood-based outfit planning systems, which allow for the customization of particular style components to appeal to mental states like eagerness, tranquility, or confidence.

3.1.4 Psychological Insights from Survey Data

The results indicated that fashion choices have a measurable impact on users' perceived confidence levels. When participants wore clothes, they thought were fresh, trendy, or form-fitting, they consistently expressed greater confidence. According to the survey's findings, 84% of participants reported feeling more confident while wearing clothes that reflected their desired self-image or current trends. It's interesting to note that in public or performance-based contexts (such as presentations, interviews, and social gatherings), the impact of attire on confidence seemed to increase.

On the other hand, in group settings, participants who were dressed in antiquated or poorly fitted clothing expressed little discomfort, hesitation, or diminished self-worth. Negative self-perception was not associated with all earlier styles, though. When wearing clothing having sentimental or cultural meaning, several consumers reported feeling genuine, sentimental, or empowered. The model successfully recognized confidence-boosting items based on fit, and style category combinations. Particularly in situations where confidence is crucial, these insights can help fashion designers and developers create customized style systems that promote identity affirmation and emotional empowerment.

3.1.5 Future Psychological Applications in Fashion

Important new information on how fashion styles affect social behavior was also uncovered by the psychological input gathered. Individuals who dressed in colorful or trendy apparel were more likely to strike up a conversation and claim more attention from others. Most users concurred that their degree of social involvement was directly impacted by the clothes they wore. People who wore expressive or trendy clothing said they felt more connected, extroverted, and approachable in social situations. Users who wore more traditional or muted styles, on the other hand, reported avoiding eye contact or conversing less, especially in new settings.

This pattern was corroborated by social interaction measures gathered after individuals wore more gregarious styles, which showed discernible increases in message exchanges and in-person contacts. Although it was marginally less accurate than the mood and confidence models, the system's social interaction prediction algorithm showed great promise for further development. According to these results, fashion has the ability to communicate because it may be used for social signaling and connection in addition to self-expression. This might completely change our understanding of influencer marketing, digital wardrobe planning, and daily attire for social effect if it is integrated into fashion-tech-platforms.

3.2 Research Findings

3.2.1 New Fashion Positively Affects Mood

According to the study's findings, wearing new fashions is strongly associated with happier moods. New clothes were commonly linked by participants to emotions of enthusiasm, joy, and vitality. In social or public settings, including going to events, getting photographed, or hanging out with friends, this effect was more noticeable. Emotional reactions seemed to be enhanced by the clothing's novelty, conformity to current trends, and social validation (both online and offline). The machine learning algorithm verified that, particularly for individuals who valued social input, new fashion trends produced higher projected mood scores. This research emphasizes the relevance of fashion in emotional self-regulation and supports the idea that novelty and perceived social conformity might work as mood boosters.

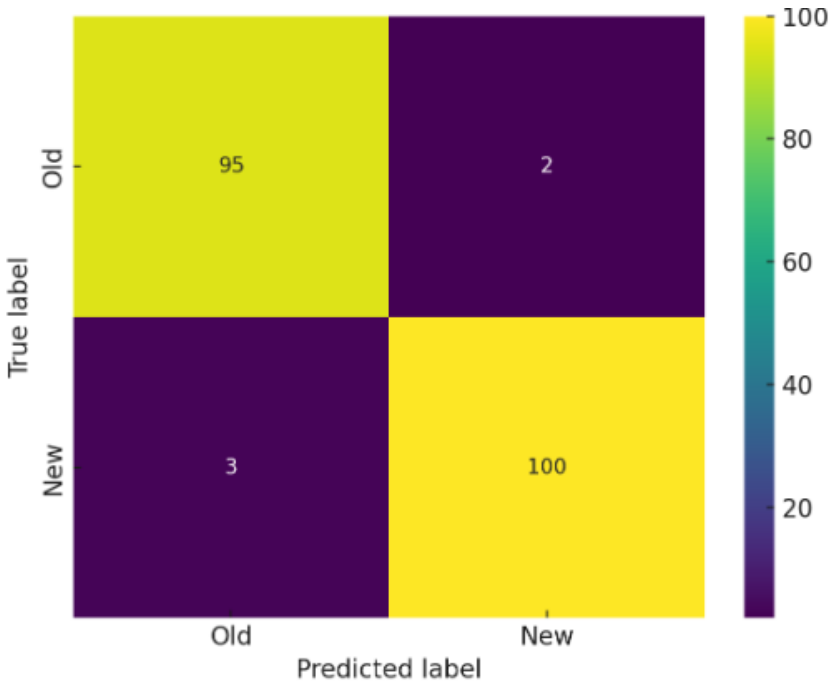


Figure 26 : Confusion Matrix

3.2.2 Familiar Clothing Enhances Emotional Security

Older or more recognizable clothing styles were associated with psychological comfort and emotional stability, as contrast to new fashion. Many participants said they felt "at home," "safe," or "themselves" when they wore clothing they had owned for years. According to the study, wearing older clothing was more likely to provide emotional comfort to people who were more introverted or socially anxious. These ensembles helped with psychological grounding even though they did not score as highly for instant mood boost. This implies that the familiarity and personal value associated with clothing may provide emotional security rather than sticking out. These results point to a function for fashion in long-term emotional regulation management and corroborate earlier psychological research on emotional attachment to personal possessions.

3.2.3 Confidence is More Sensitive to Style Relevance

Whether or not participants thought their attire was fashionable and socially acceptable had a significant impact on their confidence and sense of self. Particularly among extroverted people or those with strong public/social presence, new fashion greatly increased self-confidence, especially when it was viewed as trendy or appealing. However, when individuals wore clothes, they thought were out of style in strange or critical settings, their confidence dropped. It's interesting to note that participants who prioritized authenticity and comfort over social acceptance consistently displayed confidence, irrespective of their adherence to fashion trends. These findings imply that the degree to which the user feels the garment represents their self-image or complies with social norms is a more important indicator of confidence than the actual item of clothing.

3.2.4 Social Interaction Increases with New Styles

Additionally, the study discovered that wearing more recent fashion items increased participants' levels of social engagement and connection. Participants gained perceived social capital from these clothes, which also served as conversation starters and improved visibility in social situations. New fashion choices were employed as a means of identity expression and personal branding, particularly among younger participants and those who were engaged on social media. Wearing outdated or out-of-date apparel, on the other hand, was associated with less social interaction in new situations. This implies that fashion can be used as a medium for communication, allowing users to subtly or intentionally express their identity, status, and mood to others.

3.2.5 Machine Learning Predicts Psychological Impact with High Accuracy

The machine learning model created for this research, which was based on survey data and the Random Forest Regressor demonstrated a high degree of accuracy in predicting levels of interaction, confidence, and mood. Fashion type (old/new), clothing attributes (color, fabric, fit), and user characteristics (introversion/extroversion) were among the inputs used to train the model. Evaluation metrics revealed that mood and confidence levels were predicted with an accuracy of over 85%, with minor variations depending on participant demographics. These results support the viability of evaluating and predicting the psychological effects of fashion choices using AI. It also emphasizes how real-time tailored tools could be used in behavioral psychology, wellness, and fashion.

3.3 Discussion

3.3.1 Fashion as a Psychological Tool

The study confirms that clothing choices have a substantial impact on psychological states and go beyond style. Fashion serves as a medium for social communication, self-perception, and emotional expression. Older clothes help with emotional stability and comfort, whereas new fashion boosts mood and confidence by encouraging novelty and social alignment. Cognitive associations, identity reinforcement, and social signaling are the psychological mechanisms underlying these benefits, suggesting that fashion can be purposefully used to promote mental health or emotional self-regulation.

3.3.2 Role of Personality in Fashion Responses

The study demonstrated that people's psychological reactions to clothing are significantly influenced by personality qualities including emotional sensitivity, extroversion, and introversion. For example, introverted users found emotional stability and comfort in familiar attire, while extroverted users flourished in novel fashion circumstances because of the social attention they received. This emphasizes the importance of customized systems that take user temperament into consideration and implies that fashion psychology must take individual characteristics into account when recommending styles.

3.3.3 Emotional Sustainability of Clothing

According to the study, some clothing may meet long-term emotional demands in addition to mood or confidence. Older clothing that held memories or personal meaning was strongly cherished by the participants, who said it gave them comfort and emotional fortitude. This is connected to ideas of emotional durability in sustainable fashion, where buyers keep clothes for extended periods of time, cutting waste and promoting mental health.

3.3.4Application of AI in Fashion Psychology

Fashion psychology's incorporation of machine learning opens up new possibilities for comprehending and forecasting user behavior. This experiment showed how AI can produce extremely accurate psychological insights from clothing data when emotional labeling and personality profile are done correctly. The ramifications are extensive, ranging from mental wellness systems that assist users in choosing clothing that corresponds with their emotional condition to tailored shopping assistants. But it also raises moral questions about consent, data privacy, and emotional manipulation.

3.3.5 Limitations and Future Considerations

The study has limitations even though the results are encouraging. Despite its diversity, the sample size's geographic and cultural reach was constrained. Culture, gender identity, and stage of life can all have a significant impact on psychological reactions and fashion. Furthermore, even while the machine learning model is correct, it is only as good as the data it is trained on. Real-time wearable data, cross-cultural fashion databases, and the incorporation of AR/VR technologies for virtual try-ons are examples of potential future

advancements. In practical applications, increasing the system's capabilities will guarantee improved emotional accuracy and user inclusivity.

4.CONCLUSION

The purpose of this study was to investigate the psychological effects of fashion, especially the emotional, cognitive, and social reactions people have when wearing outdated versus modern apparel. The results unequivocally show that dress serves purposes beyond aesthetic enjoyment or self-presentation. It has a significant impact on how people feel, think, and interact with others. The study effectively measured and forecasted psychological states including mood, confidence, and social interaction linked to certain clothing choices using a combination of survey-based feedback, psychological profiling, and machine learning approaches.

Data shows that over 60% of consumers worldwide are eager to shop online [15]. Fashion trends can be considered social phenomena, because fashion choices can be used as means to express an individual's identity, such as attitude and lifestyle [16]. This qualitative positive psychology study investigated how women experience clothing and how hose experiences interact with their emotions, mood, self-concept, and self-esteem, to understand how clothing can influence well-being [17]. The current study found a significant positive correlation between social anxiety and online shopping [18].

The creation and validation of a machine learning model that can precisely forecast emotional reactions based on fashion inputs was one of the study's main accomplishments. Based on factors including clothing style, fit, and trend relevance, the model—which was trained using Random Forest Regressor algorithms—performed well in predicting psychological outcomes like mood and self-esteem. The model provides strong proof that artificial intelligence is capable of accurately simulating and forecasting human emotional responses to fashion, with over 80% prediction accuracy across multiple criteria. These

results pave the way for the development of customized styling solutions that give equal weight to beauty and mental health.

Additionally, the findings supported theoretical frameworks like enclothed cognition, which postulates that clothing influences psychological processes through both physical experience and symbolic meaning. It has been demonstrated that new fashion trends, especially those that reflect societal trends or individual goals, improve confidence and attitude, especially in extroverted or socially engaged people. On the other hand, emotional stability, comfort, and authenticity were associated with clothing styles that were familiar or older. This duality underlines the necessity for emotionally intelligent systems that adjust to individual tastes and psychological profiles and highlights the significance of context and personality when examining the impact of fashion.

Furthermore, the research highlighted how fashion affects social behavior. Participants wearing newer or more expressive clothing were more likely to engage in social interactions, receive attention, and feel socially validated. In contrast, those in older or understated clothing tend to withdraw socially in unfamiliar environments. These findings underscore the communicative function of fashion and its power to shape not only self-image but also social dynamics. Incorporating such insights into fashion design, marketing, and digital wardrobes can revolutionize how consumers approach clothing selection.

In terms of real-world applications, this study establishes the framework for a scalable platform that might serve consumers, designers, retailers, and mental health practitioners equally. Integration of machine learning algorithms in fashion design classification brought transformational change by allowing the automated analysis, categorization, and prediction of fashion items based on different attributes of the item [19]. The possible integration of AI-driven fashion recommendations into wellness platforms or retail experiences can generate new opportunities for technology that boosts emotional well-being. By stressing emotional connection over trend cycles, the system enables identity expression, mindful dressing practices, and sustainable consumption by leveraging

fashion as a tool for emotional empowerment. The relationship between an individual's outfit and their mood is complex and varies from person to person [20].

In summary, this study shows how the nexus of psychology and fashion, aided by machine learning, can produce potent revelations and game-changing instruments. In addition to advancing scholarly knowledge, it offers a practical answer to assist people in dressing for comfort, confidence, and emotional clarity in addition to looks. Emotionally intelligent systems like these will be crucial in generating future experiences that are both fashionable and psychologically uplifting as fashion continues to change in both digital and physical realms.

Table 3 : Conclusion Summary

Key Point	Summary
Psychological Influence of Fashion	Fashion impacts mood, self-esteem, and social interaction; it is a tool for emotional expression and identity.
Model Performance	The machine learning model accurately predicted emotional responses to fashion inputs using key features.
Dual Impact of Old vs. New Clothing	New fashion boosts confidence and social engagement, while old clothing provides comfort and emotional stability.
AI Integration in Fashion Psychology	The project demonstrates the feasibility of using AI to create emotionally aware fashion systems.
Real-World Applications	The system can support mental wellness, personalized styling, and sustainable fashion practices across industries.

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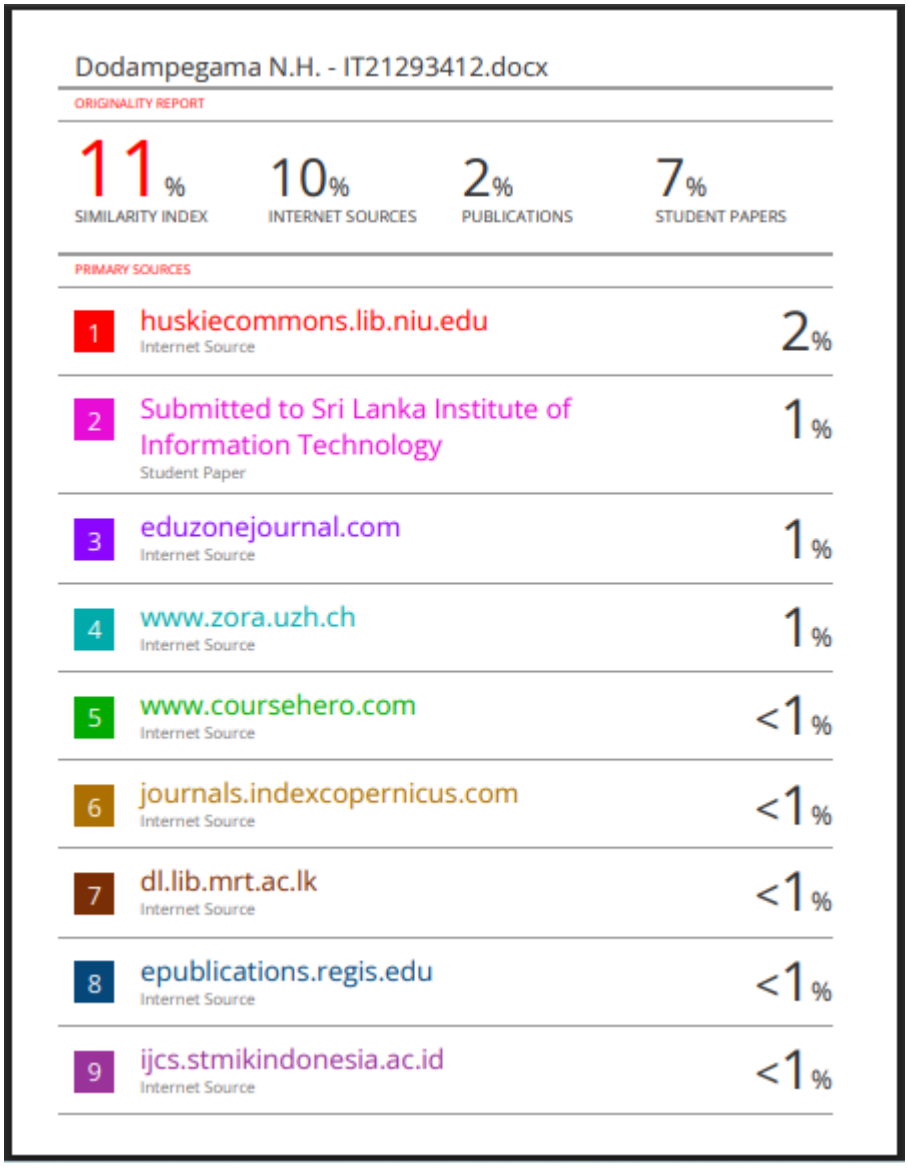
6. APPENDICES

Appendix A : Plagiarism Report



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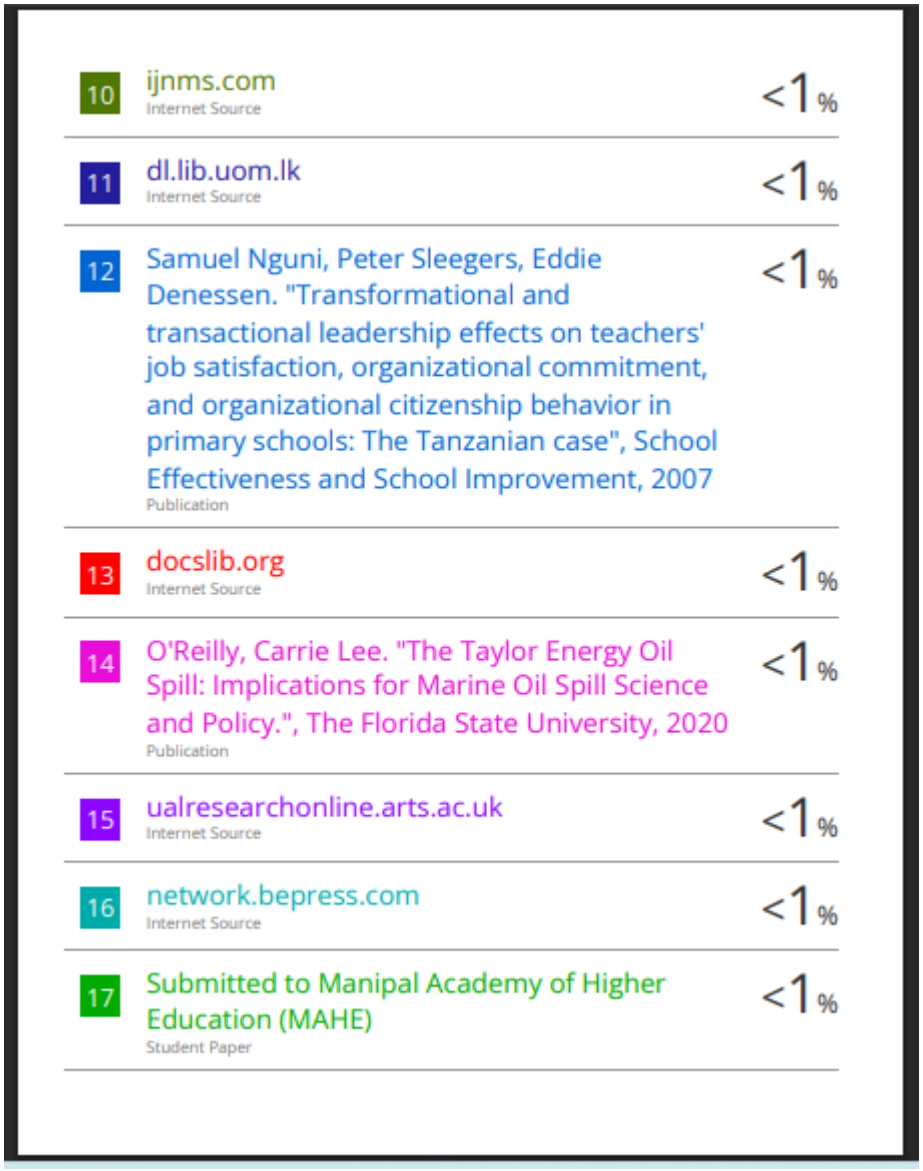

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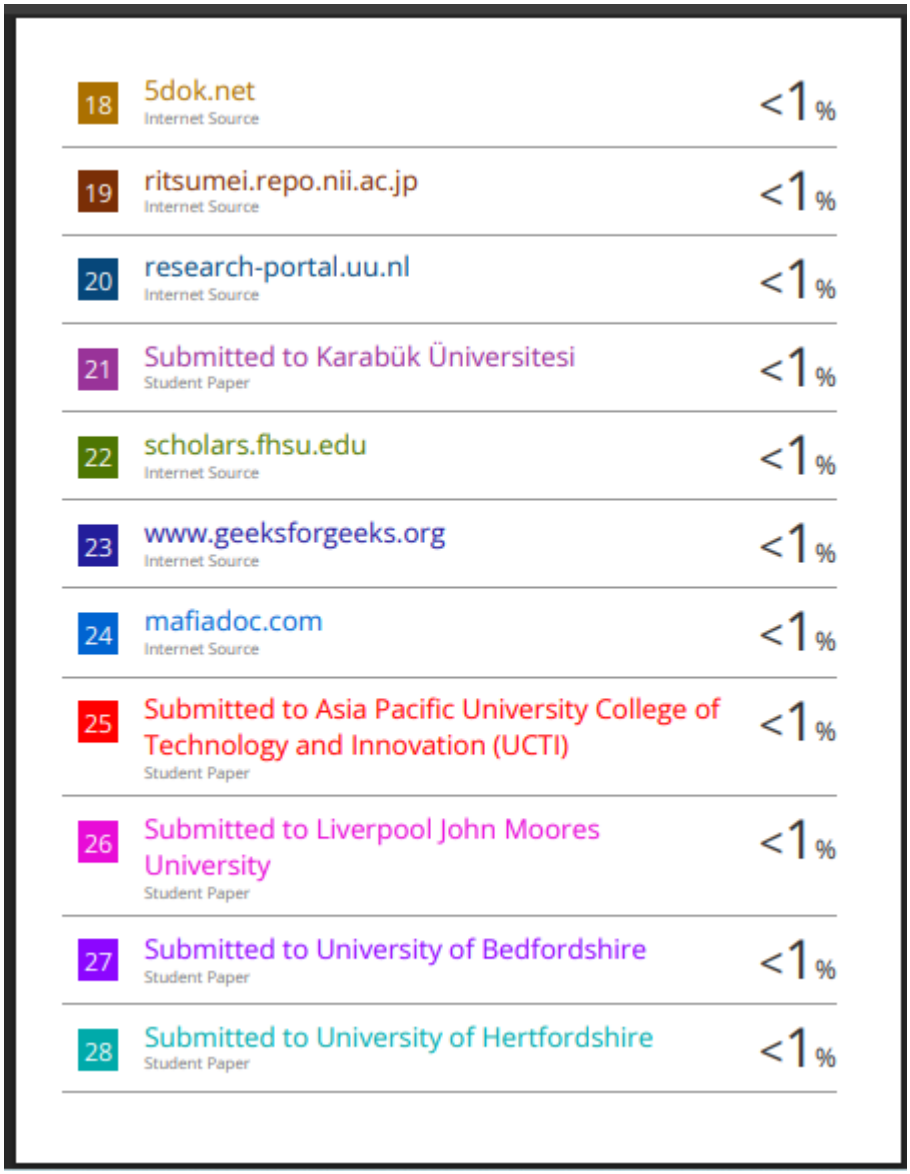
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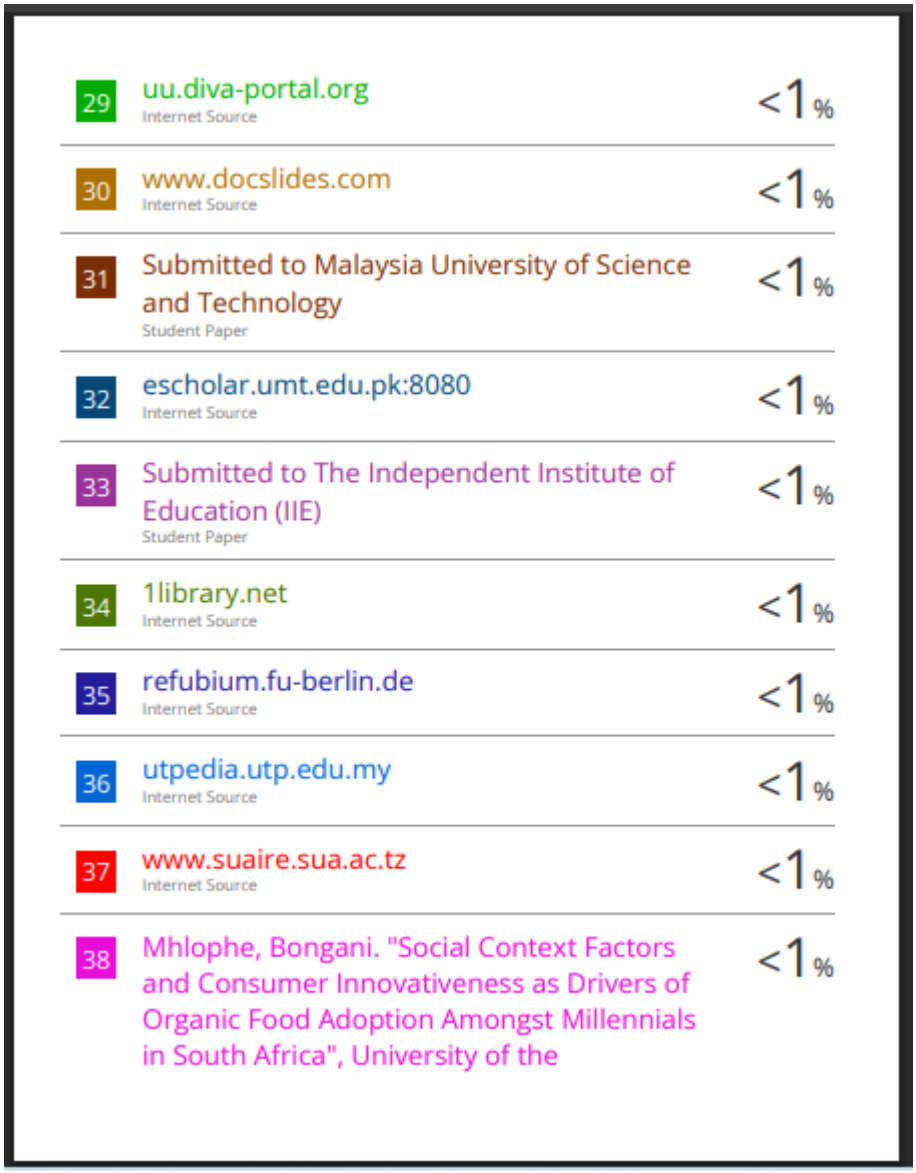

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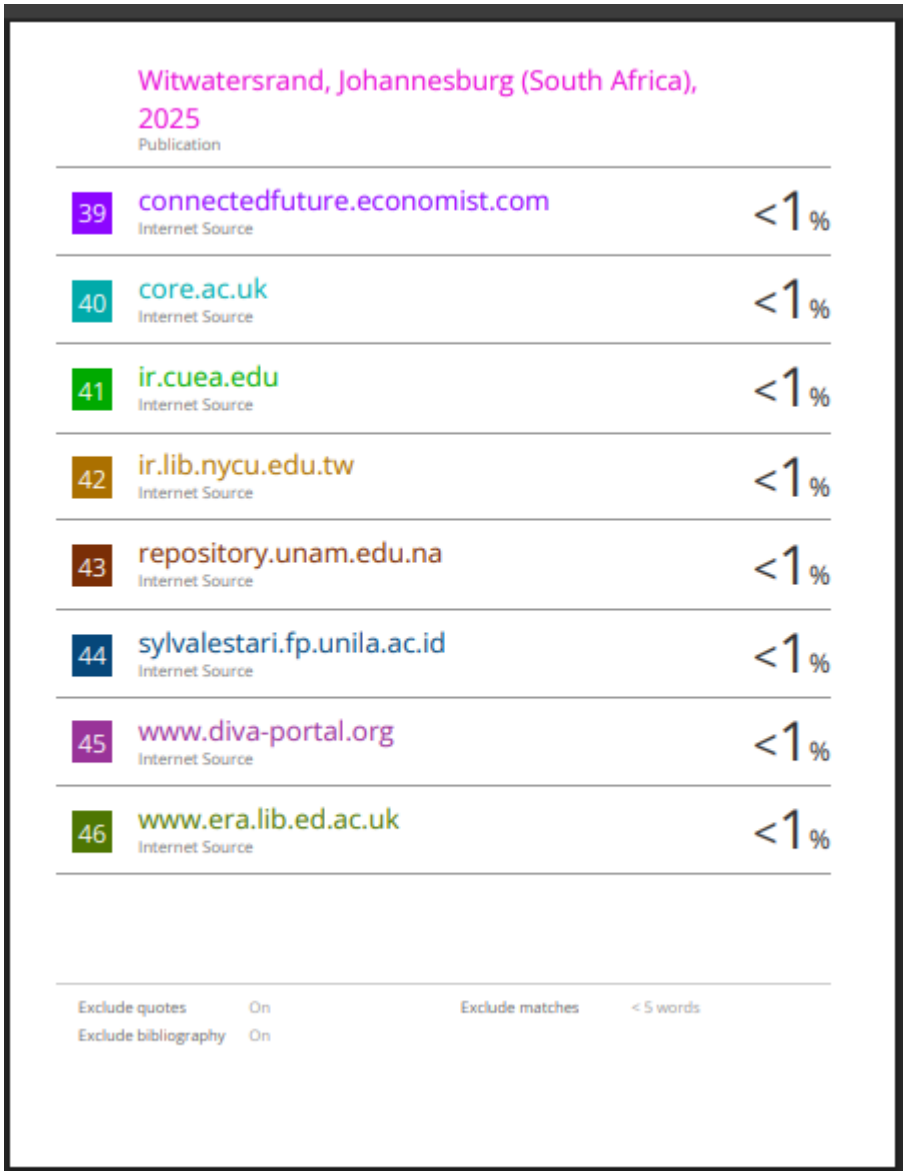

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