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**TAG CLOUDS ALGORITHM WITH THE INCLUSION OF  
PERSONALITY TRAITS**

**AHMAD AFFANDI SUPLI**



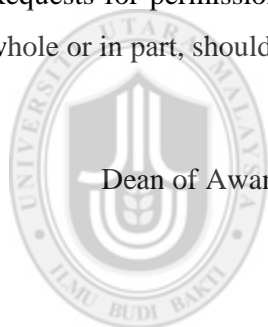
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## Abstrak

Tag awan telah muncul sebagai teknik terkini dalam visualisasi maklumat yang menggunakan kaedah analisis teks dalam pelbagai situasi untuk mentafsir jenis data yang tidak berstruktur. Tinjauan literatur menekankan bahawa pembangunan teknik visualisasi maklumat harus merangkumi personaliti manusia untuk memberikan maklumat yang berkesan dan bermakna. Walau bagaimanapun, dalam bidang tag awan, tiada kajian yang dibuat untuk meneliti peranan personaliti dalam membangunkan reka bentuk visualisasi tag awan. Tambahan pula, algoritma untuk menjana tag awan visualisasi berdasarkan personaliti belum diterokai. Oleh itu, objektif utama kajian ini adalah untuk membangunkan satu algoritma yang boleh menyesuaikan ciri visual tag awan gaya susun atur berdasarkan personaliti pengguna. Kajian ini memberi tumpuan kepada dua ciri visual yang berkaitan dengan personaliti, iaitu warna dan bentuk. Untuk mencapai matlamat kajian ini, metodologi Sains Design digunakan melalui tiga fasa utama: pengenalan masalah, reka bentuk penyelesaian, dan penilaian. Algoritma ini dibangunkan berdasarkan kepada tiga teori personaliti, iaitu Myers-Briggs Type Indicator (MBTI), Bentuk, dan Kecerdasan Pelbagai (MI). Algoritma itu kemudiannya diuji melalui ujian kotak hitam. Di samping itu, prototaip telah dibangunkan untuk menilai algoritma yang dicadangkan. Kemudian, kepuasan pengguna telah dijalankan untuk menilai prototaip ini menggunakan instrumen Q-SAFI. Penemuan ketara mencadangkan bahawa pengguna amat berpuas hati dengan warna dan bentuk tag awan serta tag awan gaya susun atur keseluruhan. Sumbangan utama kajian ini adalah tag awan gaya susun atur algoritma, yang menggabungkan konsep personaliti dan ciri-ciri warna dan bentuk. Algoritma ini adalah bermanfaat dalam pembuatan keputusan dengan penggunaan visualisasi maklumat di mana ia mengambil kira personaliti pengguna. Selain itu, instrumen kepuasan pengguna tag awan, Q-SAFI, menyediakan ukuran untuk menilai visualisasi tag awan.

**Kata kunci:** Tag awan, Teknik visualisasi, Sifat personaliti

## Abstract

Tag clouds have emerged as the latest technique in information visualization using text analysis methods in a variety of situations to interpret unstructured data types. Literature review emphasizes that information visualization development techniques should include the personality traits of humans to provide effective and meaningful information. However, in the field of tag clouds, no published studies have investigated the role of personality traits to guide the design of tag cloud visualization. Furthermore, the algorithm to generate tag cloud visualization based on personality traits has not been explored. Therefore, the main objective of this study is to develop an algorithm that can adapt visual features of tag cloud layout styles based on personality traits of the user. This study focuses on two visual features associated with personality traits, which are colors and shapes. To achieve the aim of this study, Design Science methodology was used through three main phases: problem identification, design of solution, and evaluation. The algorithm was developed based on three theories of personality traits, namely Myers-Briggs Type Indicator (MBTI), Shape, and Multiple Intelligence (MI). The algorithm was then tested through a black box testing. In addition, a prototype was developed to evaluate the proposed algorithm. Then, user satisfaction was conducted in order to evaluate this prototype using Q-SAFI instruments. Notable findings suggest that users are highly satisfied with colors and shapes of tag cloud as well as the overall tag cloud layout styles. The main contribution of this research is the tag cloud layout styles algorithm, which combines the concept of personality traits and characteristics of colors and shapes. This algorithm is beneficial for decision making using information visualization in which personality traits of the user are heavily inclined. Moreover, the tag cloud user's satisfaction instrument, Q-SAFI, provides measurements for evaluating tag cloud visualization.

**Keywords:** Tag cloud, Visualization technique, Personality traits

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# CHAPTER ONE

## INTRODUCTION

### 1.1 Background

In recent years, tag cloud has shown up as the most popular method of an emerging field known as "information visualization". Tag clouds portray the emergences of interest variables (such as popularity) in the visual appearance of the keywords themselves using text properties such as font size, weight, or color. Tag clouds are essentially used to represent the frequency of tags, which can be words within the content or descriptions of the content, created by users from social bookmarking websites (Hassan-Montero & Herrero-Solana, 2006) and social software (Rivadeneira, Gruen, Muller, & Millen, 2007). Tag clouds are visual representations that illustrate the word usage frequency within textual content, which typically consist of articles, websites, speeches or databases. The frequency of each word or "tag" is displayed in the tag cloud by escalating the color saturation and font size of that word.

Tag clouds have existed together with the growth of collaborative tagging, which is nowadays used in social software sites for photo sharing (e.g., Flickr), as bookmark sharing (e.g., del.icio.us), and as blog searching (e.g., Technorati). For these kind of websites, the keywords called tags are displayed to classify the information on the site (such as bookmarks or photos). Mostly, tags are hyperlinks, and by clicking on a tag will guide users to the source of the social website that has been signed to the tag. These clouds have been represented to help people in order to get a high-level understanding of the data, and to help people in exploration (Rivadeneira et al., 2007).



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