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Content Creator Searching Mobile-Based Web Application System for GreatWorks Ideas Sdn. Bhd.

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***Abstract**: In the marketing industry, public relation managers often struggle to find and manage potential content creators for their campaigns. The current process involves using various social media applications and investigating the content creator's suitability, thus making it time-consuming and challenging. To address these issues, a system that manages all content creators is proposed. The system allows public relation managers to easily search, evaluate, and manage them. The system includes a user-friendly interface and search functionality, allowing public relation managers to quickly find suitable content creators based on various criteria. Further, the system allows organizing and managing the content creators' portfolios and information. The approach is used and guided by basic SDLC methodology. The web application is developed with PHP, HTML, CSS, Javascript, MySQL and Flutter. It is believed that this system will increase the company's credibility and aid in standing out from competitors.*
***Keywords**: Search system, Content creator, Mobile-based web application*

1. Introduction

In today's day and age, digital marketing has become a new norm method to reach a larger audience and target prospects in the sales and purchase industry. Digital marketing operates online, in contrast to traditional approaches, and links businesses with potential clients online and through other digital communications channels. It may be broadly broken into eight major categories, with social media and content marketing being the focus of one of them for the project's stakeholders, GreatWorks Ideas Sdn. Bhd.. The company is a private subsidiary company of GreatWorks Group that is actively engaged in digital marketing in public relations (PR) and influencer or marketing.

There is no denying that PR and content creators are highly reliant on one another to draw awareness which in turn, results in lucrative business sales [1]. A content creator is someone who produces various forms of content, such as articles, blog posts, videos, social media posts, or podcasts, with the aim of capturing the attention and interest of their audience. These individuals possess expertise and creativity in crafting compelling and relevant content that resonates with their target audience. Content creators

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often have specific niches or areas of expertise where they excel, allowing them to create content that aligns with the interests and preferences of their audience.

The current system used by the stakeholders is not systematic, and where PR manager finds it difficult to find a potential content creator who can participate in a marketing campaign. In terms of methods in finding potential content creators, PR managers have to a lot of social media tools, performs research into the content creator's background, and then evaluate whether the content creator is suitable for the targeted audience and niche area of the marketed products. The current system resulted in a large amount of disorganized information, particularly relating to delivery details of soon-to-be-reviewed products. Lastly, the process of creating a portfolio for each of the content creators is less practical without any proper system in place.

With the existing system, several problems may arise including time consumption. The manual search for content creators typically takes a lot of time, requiring the PR manager to look for each person individually through trending topics or hashtags. Next, the existing system makes the PR manager drown in data. A campaign may not be completed if data analysis is done ineffectively since it is tough to decide which data to focus on when there is an abundance of information about the content creator. Another issue with the existing system is that the PR manager needed to additional effort to manually create a report of the content creator based on the information given to him or her before submitting it to the client (brand) for review of their profile.

In light of the aforementioned problems, the proposed system provides a search system that will help stakeholders get in front of the right content creator or influencers at the right time. The algorithm will hierarchically rank the relevant pages into a set of results. The search system used in this system helps the stakeholder to trim the fat and deliver the most relevant results for each type of search query about the registered content creator. In addition, the proposed system will therefore simplify the job of the PR manager by automatically generating and printing the content creator's profile report that must be given to the client for the review process. With that, everything from finding out the right content creator to the submission of the profile report will proceed smoothly.

2. Related Work

2.1 Search system

While the proposed system offers various information about the content creators including their profiles, contact addresses, rate cards, and social media information, it must also have a search system. Providing a search function system that can find the information using keywords and phrases, will offer a better approach for users to find related information they are looking for using keywords and phrases without needing to navigate through the structure of the websites. In this proposed system, the search system will be placed in the Discover module whereas that module will provide a search bar for each of the three categories displayed. Users may search by niche, such as lifestyle, beauty, sports, and others. The module on the other hand will allow the user to filter the search by also by niche and campaign type. With that, it is clear that the ability to search and recommend relevant content is essential for providing a good user experience, and that the use of such systems can significantly improve the effectiveness of applications [2].

2.2 Mobile-Based Web Application System

The mobile-based web application can be defined as an alternate version of a website. It is optimized for use on smartphones or similar mobile devices such as tablets [3]. By using a mobile-based web application, users are not required to install the application to access the system as it can be accessed through any web browser installed. The fact that a mobile-based web application is designed for a smaller handheld display and touch-screen interface makes it noticeably different from a standard website. Since the culture of the stakeholder involved is not accustomed to using the mobile application,

the mobile-based web application will become the ideal system for them to use as a practical first step in the mobile outreach strategy. This is because a mobile-based web application has several inherent advantages over mobile applications including broader accessibility and compatibility [4].

The fact that the company is in PR and influencer marketing will typically include ongoing changes due to the current trends. As a result, they will need a system that has a high upgradeability quality. In this case, a mobile-based web application is more dynamic compared to a mobile application in terms of flexibility to update content [5]. For example, if there are any changes to be made to the mobile-based web application, it can be done by simply publishing the edit once and the changes are immediately visible. Updating mobile applications on the other hand requires the update to be pushed to users, which then must be downloaded to update the application on each type of device.

2.2 Study of Existing Related Systems

In developing any new system, it is important to study the existing related systems. This may help to Identify potential problems or areas for improvement in the existing systems: By studying existing systems, you can gain a better understanding of their strengths and weaknesses, which can help you to identify potential problems or areas for improvement in the proposed system [6]. This section will discuss the three similar related systems with the proposed system. Table 1 provides a comparison of existing systems designed for content creators. These systems, namely Passionation, Partipost and HypeAuditor. The table highlights key features such as web application availability, registration and login options, campaign management, campaign discovery, review management, curated campaign suggestions, notifications, and dashboard access. This comprehensive comparison assists in understanding the similarities and differences between these systems as shown in **Table 1**. **Table 1** tabulates the differences between all the existing systems chosen.

Table 1: Comparison with existing systems

Modules	Passionation	Partipost	HypeAuditor	Content Creator Searching Web Application System
Web Application	X	X	X	√
Register and login	√	√	√	√
Manage campaign details	X	X	X	√
Discover campaign	√	√	√	√
Manage review	X	X	X	√
Curated campaign suggestion that aligns with the niche area	X	X	X	√
Notifications	√	√	X	√
Dashboard	√	√	√	√

Each system offers a web application interface for users to access their respective features. Users can register and log in to all four systems, enabling them to create and manage their accounts. When it comes to managing campaign details, only the Content Creator Searching Web Application System allows users to have control over campaign-related information. All four systems provide the essential functionality of discovering campaigns, enabling content creators to search and explore various opportunities. However, in terms of managing reviews, only the Content Creator Searching Web Application System provides this capability, allowing users to oversee and handle feedback and reviews associated with their content.

While Passionation [7] and Partipost [8] offer notifications to keep users informed about relevant updates and activities, HypeAuditor [9] lacks this feature. Notifications can be valuable for content creators to stay engaged and up to date with their campaigns. Furthermore, none of the systems mentioned in the table specifically mention offering curated campaign suggestions that align with the user's niche area. This feature could be highly beneficial for content creators, as it would provide personalized recommendations tailored to their specific interests and expertise.

3. Methodology/Framework

The basic software development lifecycle (SDLC) generally can be easily understood as a step-by-step process to follow as defining the development of software. It includes the overall process of developing, implementing, and retiring information systems that encompass the process from initiation(planning), analysis, design, implementation, and maintenance to disposal [10]. These processes are known as a Software Development Lifecycle Model. It is either a descriptive or prescriptive characterization of how software is or should be developed. Since the proposed project requires no maintenance, the basic SDLC model is chosen to conduct this project. Figure 1 contains the list of basic SDLC.

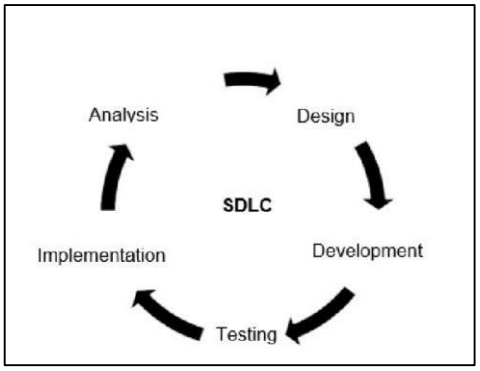

Figure 2: Basics Software Development Life Cycle (SDLC)

Table 2 presents a detailed overview of software development stages, from analysis to implementation. It lists the tasks involved in each phase, and the outputs generated, covering system proposal, design, prototype development, testing, and final system implementation.

Table 2: Software development activities and their task

Phase	Task	Output
Analysis	• Proposed the project • Determine the project schedule, activities, and output • Preparing the proposal • Interview the stakeholder • Study the existing system • Analyze hardware and software • requirements • Analyze system requirement Create a use case diagram, activity diagram, sequence diagram, and class diagram	• Literature review • As-is diagram • Hardware and • Software specification. Requirement definition. • Use case diagram, • Activity diagram, • Sequence diagram, and Class diagram

Design	• Design the interface of the developed system. • Design the database structure using • related diagrams or information	• The interface of the developed system • Database structure
Development	• Develop the prototype using related software	• System prototype
Testing	• System testing using User Testing (UAT)	• Test Cases report. • UAT results • Requirement • Traceability Matrix
Implementation	• Fix bugs and changes from user acceptance	• Complete system

3.1 Analysis

Table 3 outlines the functional requirements of various modules in a proposed system. These modules include the login/register process, campaign management, application management, profile management, notifications, review management, and campaign discovery. Each module has a set of functionalities, from user registration, campaign operations, application status updates, to campaign searching and filtering.

Table 3: Functional requirements

Module	Functionality
Register and login	• The system shall allow the new user to register for an account before login • The system shall display an error when a duplicate username is entered • The system shall display an option for the user to choose their account type either content creator or PR manager
Manage campaign	• The system shall allow PR manager to add, edit, delete, view campaign • The system shall allow content creator view campaigns posted • The system shall allow content creator apply campaign • The system shall hide button apply at campaign that has already applied
Manage application	• The system shall display all the content creator's application • The system shall allow PR manager to view and update the status • The system shall display updated campaign approval at content creator's notifications page
Manage profile	•The system shall allow content creator to view the profile information entered during registration •The system shall allow content creator to update profile, social media information and rate card • The system shall display curated suggested campaign that align with content creator's niche
Notifications	•The system shall display all campaigns applied by content creator along with the status "approved", "pending", "rejected"

Table 3: (cont.)

Manage review	• Allow PR manager update review for each content creator selected • The system shall display the updated review on content creator's profile page
Discover campaign	•The system shall allow content creator search and filter campaigns

While functional requirements describe what the system should do, non-functional requirements describe how well it should do it. From **Table 4**, there are six modules identified as the functional requirements in the system. All tabulated modules will be implemented in the web application of the system.

Table 4: Non-functional requirements of the system

Module	Functionality
Performance	The reasonable operation and response time of the operating system should be expected
Operational	The web application system can be used in both Google Chrome and Microsoft Edge web browser and android for mobile application
Usability	The general appearance and flow of using the system are easily understood by users
Security	The system only can be accessed with a username and password
Availability	The system is available to use at anytime

Figure 2 displays the use case diagram to represent the functionality of the system. The figure shows the interactions between the PR manager and content creators, as well as the actions that the system can perform in response to those interactions.

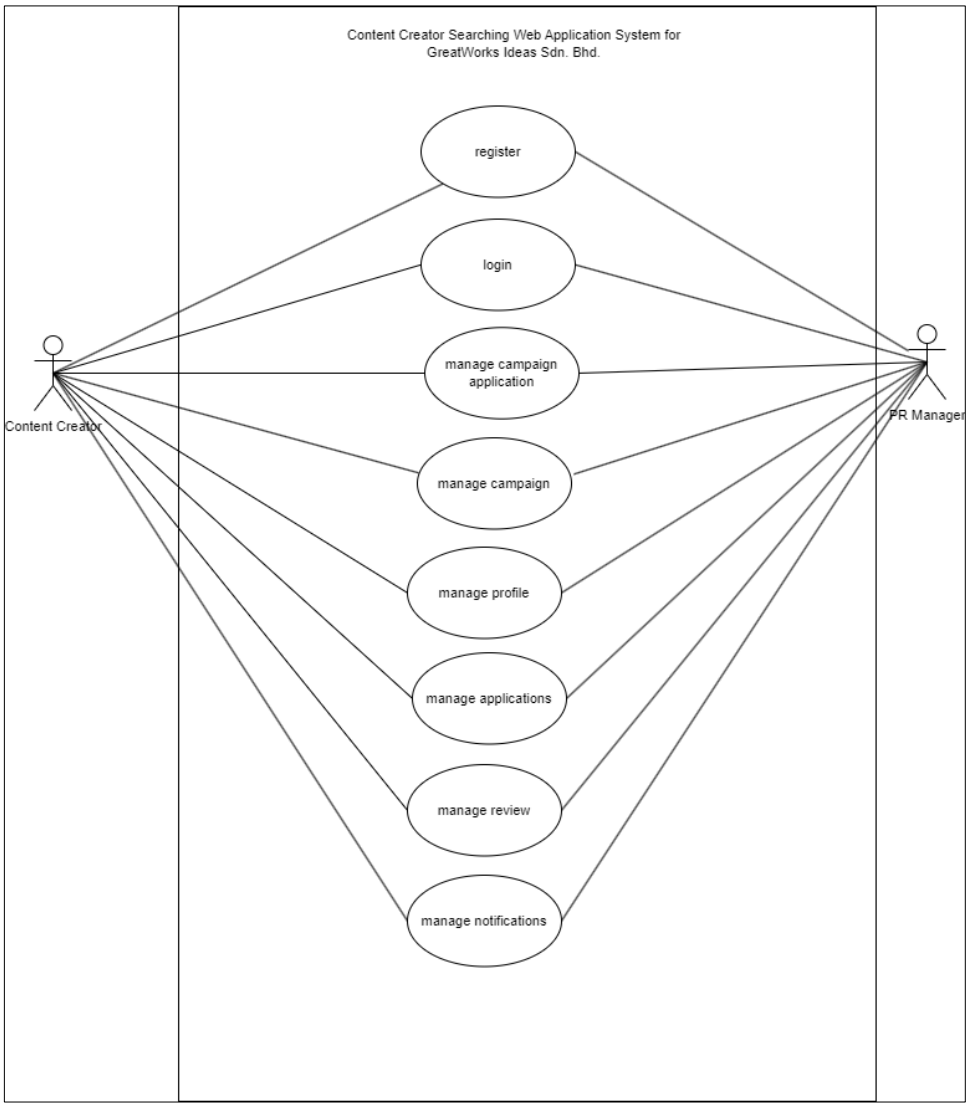

Figure 2: Use case diagram of Content Creator Searching Web Application System

The main actors in this scenario would be the PR manager and the content creators. The PR manager would be responsible for updating campaigns, approving or rejecting any requests for joining campaigns from content creators, and updating the ratings on their profiles. The content creator, on the other hand, would be responsible to update their profiles after successful login and send a request for joining the campaign at the dashboard page. However, both actors will allow the system to search the profile of content creators on the discover page and view notifications.

Figure 3 is the class diagram of the system. While the use case in **Figure 2** provides a high-level view of the system's functionality, the class diagram in Figure 3 provides a more detailed view of the system's structure and behavior.

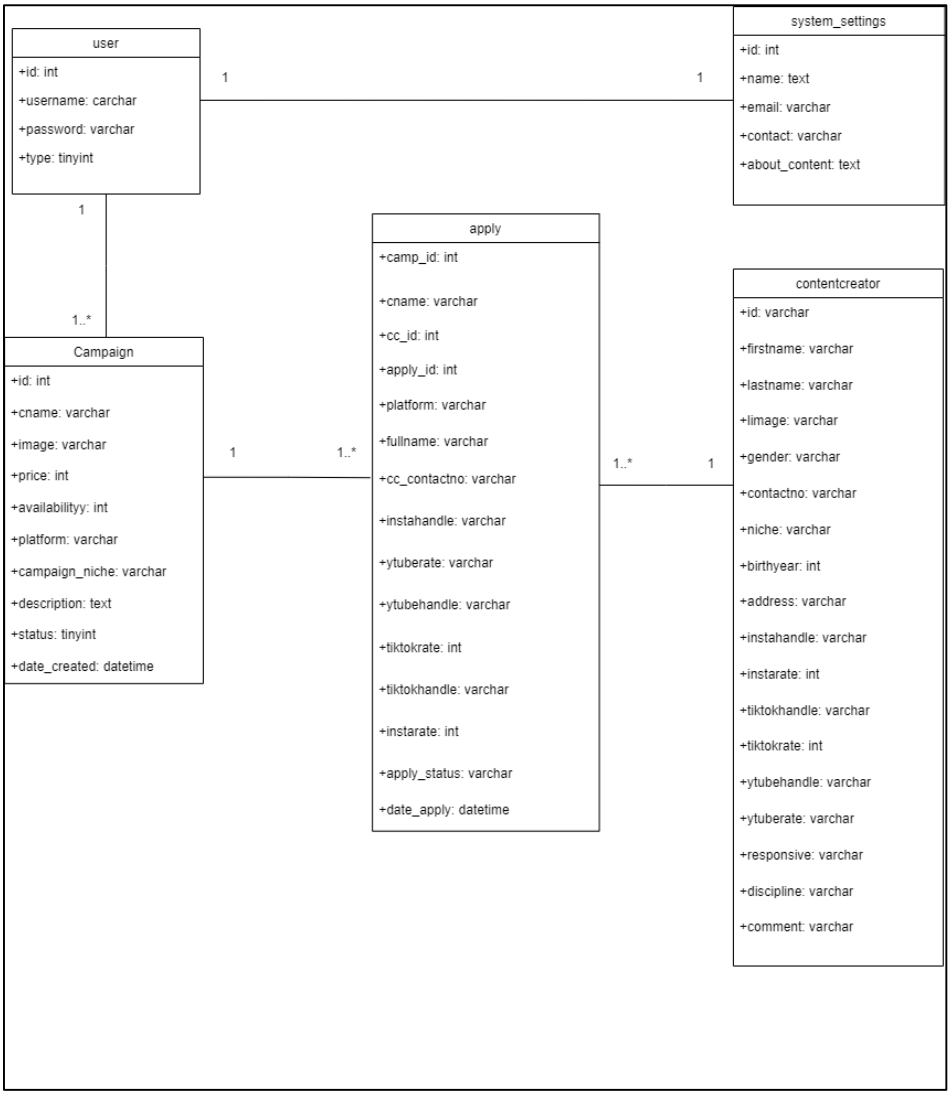

Figure 3: Class diagram of Content Creator Searching Web Application System

The class diagram consists of five classes. The first two classes represent the actors or end users of the system: PR manager and content creator, referred to as user and contentcreator respectively. The process begins when a PR manager posts a campaign, establishing a one-to-many relationship. Content Creators can register and log in to the system, and they have the ability to apply for available campaigns, establishing a many-to-many relationship.

The campaign information is stored in the Campaign table, while the Apply table holds data whenever a Content Creator clicks the "apply" button, which contains relevant information about the Content Creator. This design allows for efficient management and tracking of campaign applications within the system. For a comprehensive view of the system being developed, flowcharts are attached in Appendix A. It provides a better understanding of the control flow of the system.

3.2 Design

In the design phase, the initial steps are taken towards actual programming and implementation. The requirements obtained in the previous phase are divided into logical components, facilitating the implementation of the software development process. This stage involves identifying both the software and hardware components necessary for each unit. Subsequently, the designs are crafted in accordance with these determinations.

Relational schema for the system is listed in the following:

```
 i.   PR Manager (PR_id, PR_pass)
ii.   Content Creator (cc_id, cc_pass)
iii.  Profile (cc_profile, cc_FirstName, cc_LastName, cc_BirthYear, cc_city,
      cc_ContactNum,    cc_niche,    cc_ActivePlatform,    cc_InstaHandle,
      cc_InstaRate,   cc_TiktokHandle,   cc_TiktokRate,   cc_YTubeHandle,
      cc_YTubeRate,    cc_TwitHandle,    cc_TwitRate,    cc_LemonHandle,
      cc_LemonRate, cc_TotalFollow)
 iv.  Rating (cc_rating, cc_disc, cc_comm, cc_creative, cc_OverallRating,
      cc_review)
  v.  Campaign (camp_id, camp_desc, camp_date, camp_req, camp_status)
 vi.  Campaign Request (campReq_id, camp_id, camp_date, camp_req, cc_id)
```

3.3 Development

This stage involves coding and verification activities. It is during this phase that a software application is built based on the algorithms and design specifications developed in the preceding phases. The development phase begins with the composition of programming code for each component of the software.

3.4 Testing

The testing phase is a critical stage that focuses on ensuring the quality and functionality of the system. One of the testing methodologies employed is User Acceptance Testing (UAT), which aims to validate the software from the end-user's perspective. User Acceptance Testing involves involving real users or stakeholders in the testing process. These individuals represent the target audience for the software and provide valuable feedback based on their experiences. They perform tasks and interact with the software in a realistic environment, ensuring that it meets their requirements and expectations. This process involves providing users with predefined tasks or scenarios to complete within the software as discussed in section 4 result and discussion.

3.5 Implementation

Figure 4(a) and Figure 4(b) showcase the interface and code segment for the "Discover Campaign" feature. It enables content creators to search for campaigns and apply filters, helping them find relevant opportunities easily. The code segment powers the search and filtering functionality, allowing creators to explore campaigns based on their interests and goals.

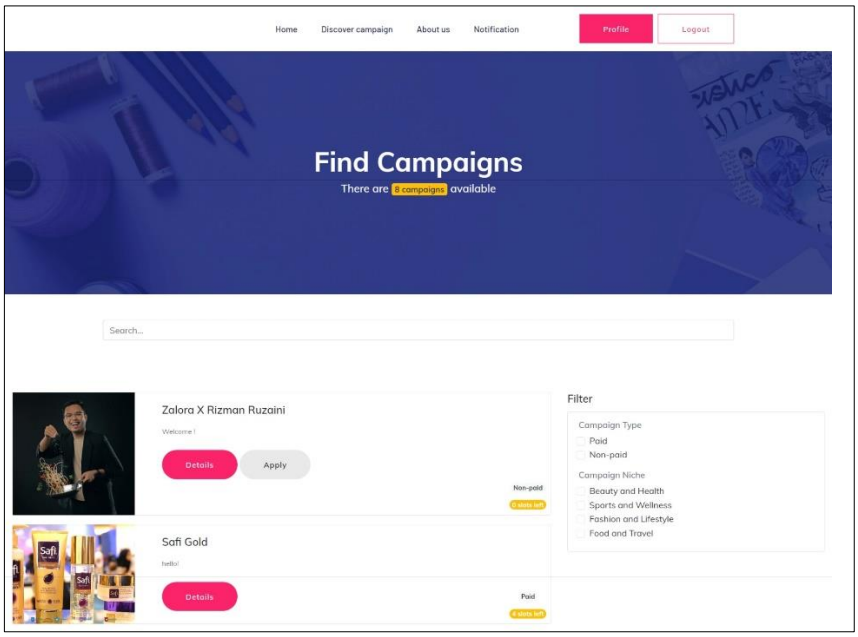

Figure 4(a): Interface for discover campaign

```
<section id="list">
    <div class="campaigns">
        <br><br>
        <div class="row">
            <!-- Campaign Cards Start -->
            <div class="col-md-8" style="padding-left: 30px;">
    <?php
        $result1 = mysqli_query($conn, "SELECT * FROM `campaign`") or die('query_failed');

        while($row = mysqli_fetch_assoc($result1)){
            $campaign_id=$row['id'];
            $campaign_image = '../admin/admin/admin/uploads/'.$row['image'];
            $campaign_name=$row['cname'];
            $campaign_available=$row['availabilityy'];
            $campaign_price=$row['price'];
            $campaign_niche=$row['campaign_niche'];
            $campaign_type=$row['status'];
            $campaign_platform=$row['platform'];
            $campaign_desc=$row['description'];

            $user_email = $_SESSION['email'];
            $result2 = mysqli_query($conn, "SELECT * FROM `contentcreator` WHERE email='$user_email'") or die('query_failed');
            $cc_row = mysqli_fetch_assoc($result2);
            $cc_id = $cc_row['id'];
            $cc_fname=$cc_row['firstname'];
            $cc_lname=$cc_row['lastname'];
            $cc_no=$cc_row['contactno'];
            $cc_ighandle=$cc_row['instahandle'];
            $cc_igrate=$cc_row['instarate'];
            $cc_tthandle=$cc_row['tiktokhandle'];
            $cc_ttrate=$cc_row['tiktokrate'];
            $cc_ythandle=$cc_row['ytubehandle'];
            $cc_ytrate=$cc_row['ytuberate'];

            // Check if the user has already applied for the campaign
            $hasAppliedQuery = mysqli_query($conn, "SELECT * FROM `tryapply` WHERE camp_id='$campaign_id' AND cc_id='$cc_id'") or die('query_failed');
            $hasApplied = mysqli_num_rows($hasAppliedQuery) > 0;
    ?>
<div class="card mb-3" >
    <div class="row g-0">
        <div class="col-md-3 position-relative">
            <img src="<?php echo $campaign_image; ?>" alt="Campaign Image" class="w-100" width="100%" height="100%" style="object-fit:cover">
        </div>
```

Figure 4(b): Code segment for discover campaign

Figure 5(a) and Figure 5(b) showcase the interface and code segment for the "Niche Tailored Suggested Campaign" feature. It offers personalized campaign recommendations based on the creator's niche or expertise.

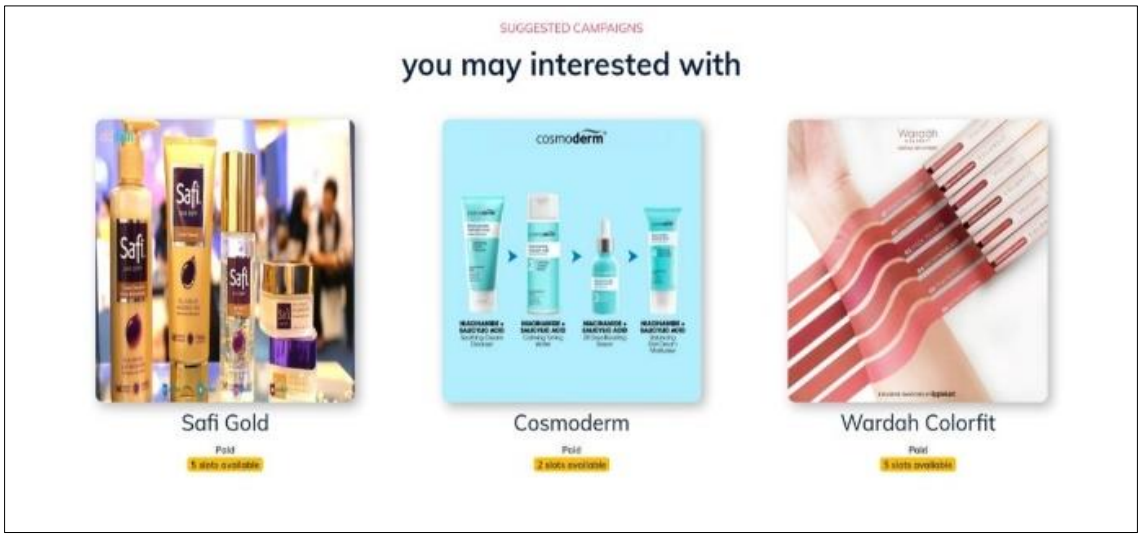

Figure 5(a): Interface for niche tailored suggested campaign

The interface presents in **Figure 5(a)** these tailored suggestions, while the code segment in **Figure 5(b)** powers the recommendation engine by analyzing the creator's profile and preferences. This feature helps content creators discover and engage in campaigns that align closely with their niche.

```
            </div>
            <div class="col-lg-12" style="margin-top:100px">
    <div class="section-tittle white-text text-center">
        <span>Suggested campaigns</span>
        <h1 style="margin-top: -20px; font-weight: bold; margin-bottom: 20px;"> you may interested with </h1>
        <br>
    </div>
    <?php if (!empty($campaigns)): ?>
    <div class="row justify-content-center">
        <?php foreach($campaigns as $campaign): ?>
            <div class="col-lg-4 d-flex justify-content-center flex-column align-items-center" >
                <img src="<?php echo '../admin/admin/admin/uploads/' . $campaign['image']; ?>"
                    class="img-fluid"
                    alt="Campaign Image"
                    style="height:80%; width: 80%; border-radius: 10px; box-shadow: 5px 5px 15px rgba(0, 0, 0, 0.3);">
                <h3 class="mt-2"><?php echo $campaign['cname']; ?></h3>
                <span class="badge rounded-pill bg-light text-dark"><?php echo $campaign['status'] == 1 ? 'Paid' : 'Non-paid'; ?></span>
                <span class="badge rounded-pill bg-warning"><?php echo $campaign['availabilityy']; ?> slots available</span>
            </div>
        <?php endforeach; ?>
    </div>
<?php else: ?>
    <p class="text-center">No campaign suggestions available at the moment.</p>
<?php endif; ?>
</div>
```

Figure 5(b): Code segment for niche tailored suggested campaign

4. Results and Discussion

This section delves into the findings from the User Acceptance Testing (UAT) conducted for the platform's end users, specifically content creators and the PR Manager. The UAT involved three content creators, one PR Manager, and a former admin, each of whom responded to a comprehensive set of questionnaires. These questionnaires were designed using the Perceived Usefulness and Ease of Use (PUEU) instrument [11], a tool that allows us to gauge how users perceive the system in terms of its practicality and ease of use. The questionnaires were divided into two main parts. The first part aimed to measure 'Perceived Usefulness,' focusing on the user's perception of the system's utility in their workflow, whether it significantly enhances their job performance, and if it adds tangible value to their daily operations. The second part of the questionnaire targeted 'Perceived Ease of Use.' This segment analyzed the users' experience with the system, from how straightforward it is to use, to whether the

user can use it without feeling the need for technical support. The findings from these questionnaires are presented and discussed in detail in **Figure 6, Figure 7, Figure 8, Figure 9**.

Figure 6 represents the results of a User Test Case questionnaire, focusing on 'Perceived Ease of Use' for content creators. The questionnaire assessed the system's variety of campaigns, user-friendly design, and overall ease of use. All content creators surveyed expressed agreement with each statement, indicating their satisfaction with the system's diversity of campaigns, intuitive design, and overall user-friendliness.

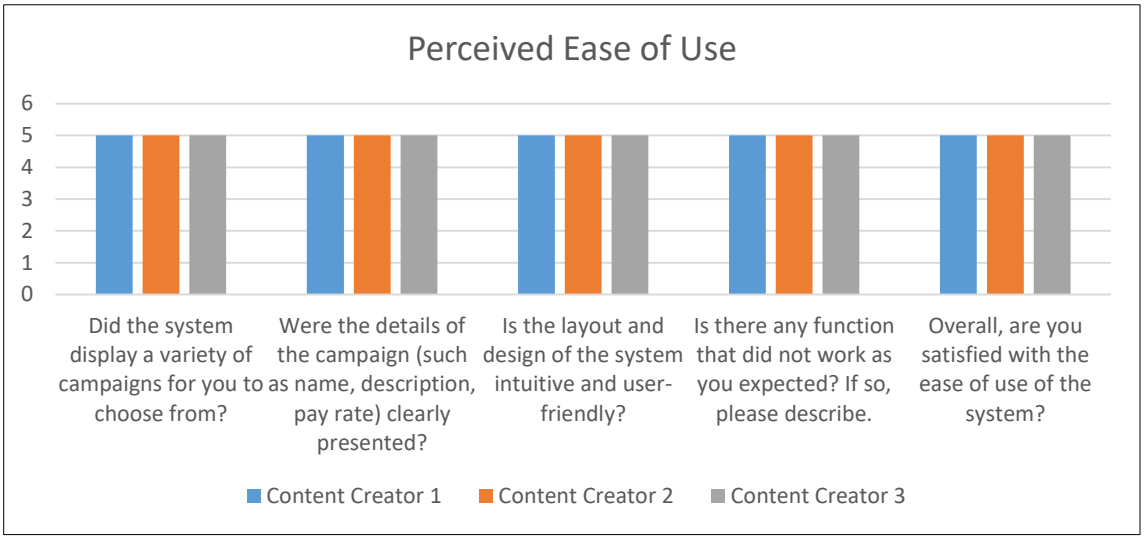

Figure 6: Perceived ease of use for content creator

Figure 7 displays results from a questionnaire measuring the 'Perceived Ease of Usefulness' for content creators. The questionnaire evaluated initial account setup, search capabilities, and the campaign application process. All content creators affirmed their positive experience with each of these aspects, signaling successful user interaction with the system.

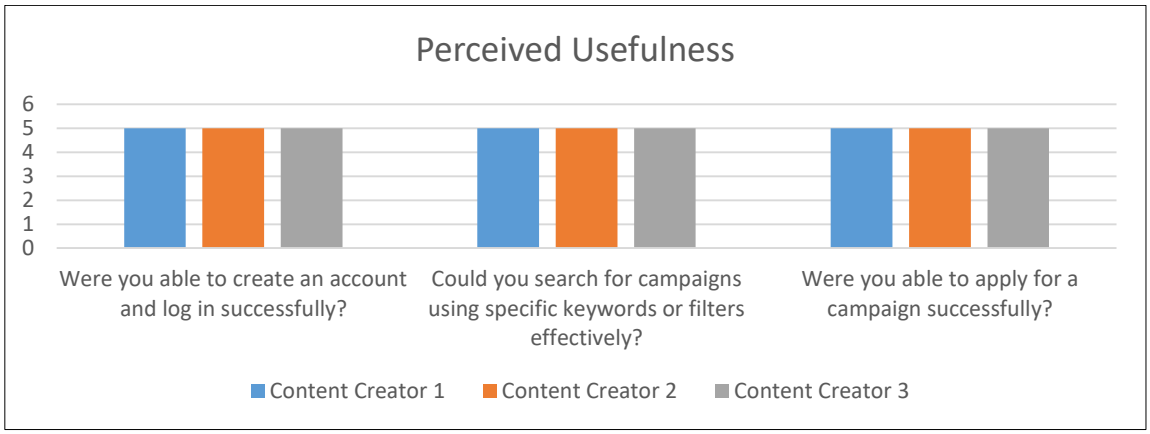

Figure 7: Perceived usefulness for content creator

Figure 8 presents results from a questionnaire evaluating the 'Perceived Ease of Use' for PR Manager Accounts. The chart examines the clarity of content creator information, ease of profile navigation, and simplicity of campaign deletion. Both the PR Manager and the former admin agreed on all points, indicating an overall positive user experience with the system.

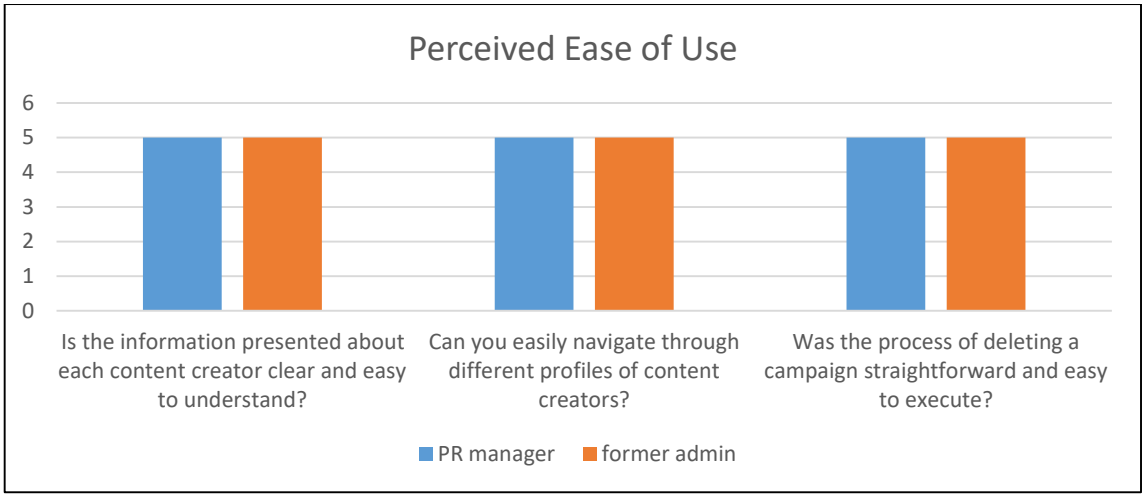

Figure 8: Perceived usefulness for PR manager

Figure 9 showcases results from a questionnaire probing the 'Perceived Usefulness' of a system for PR Manager Accounts. It assesses successful login capabilities, accuracy of search functions, and overall ease of use. Both the PR manager and former admin agreed on all points, implying a satisfactory evaluation of the system's utility from their perspective.

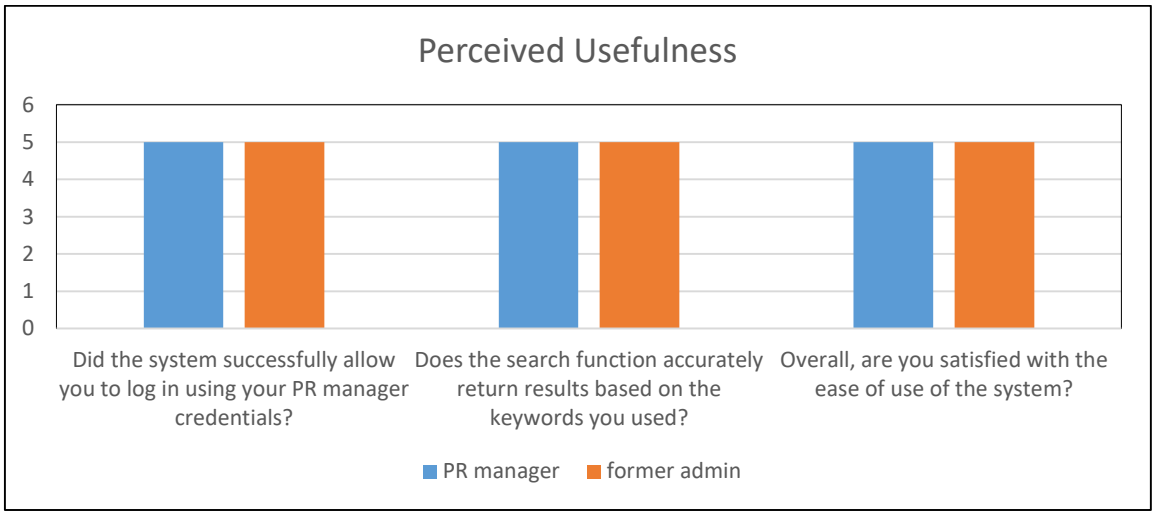

Figure 9: Perceived usefulness for PR manager

Overall, the figures indicate positive evaluations and satisfaction from both content creators and PR Managers regarding the system's usability and effectiveness.

5. Conclusion

In conclusion, this method was created for the content creator searching for GreatWorks Ideas Sdn. Bhd. Several modules are suggested and created as the solution to their concerns after analyzing the difficulties they had with content creator data management. Overall, the system aims to improve the efficiency and organization of the content creation process for PR managers in the marketing industry. By providing a user-friendly platform for finding and managing content creators, it is believed that the system will be a valuable resource for PR managers and content creators alike.

Acknowledgment

The authors would like to thank the Faculty of Computer Science and Information Technology, Universiti Tun Hussein Onn Malaysia for its support.

Appendix A

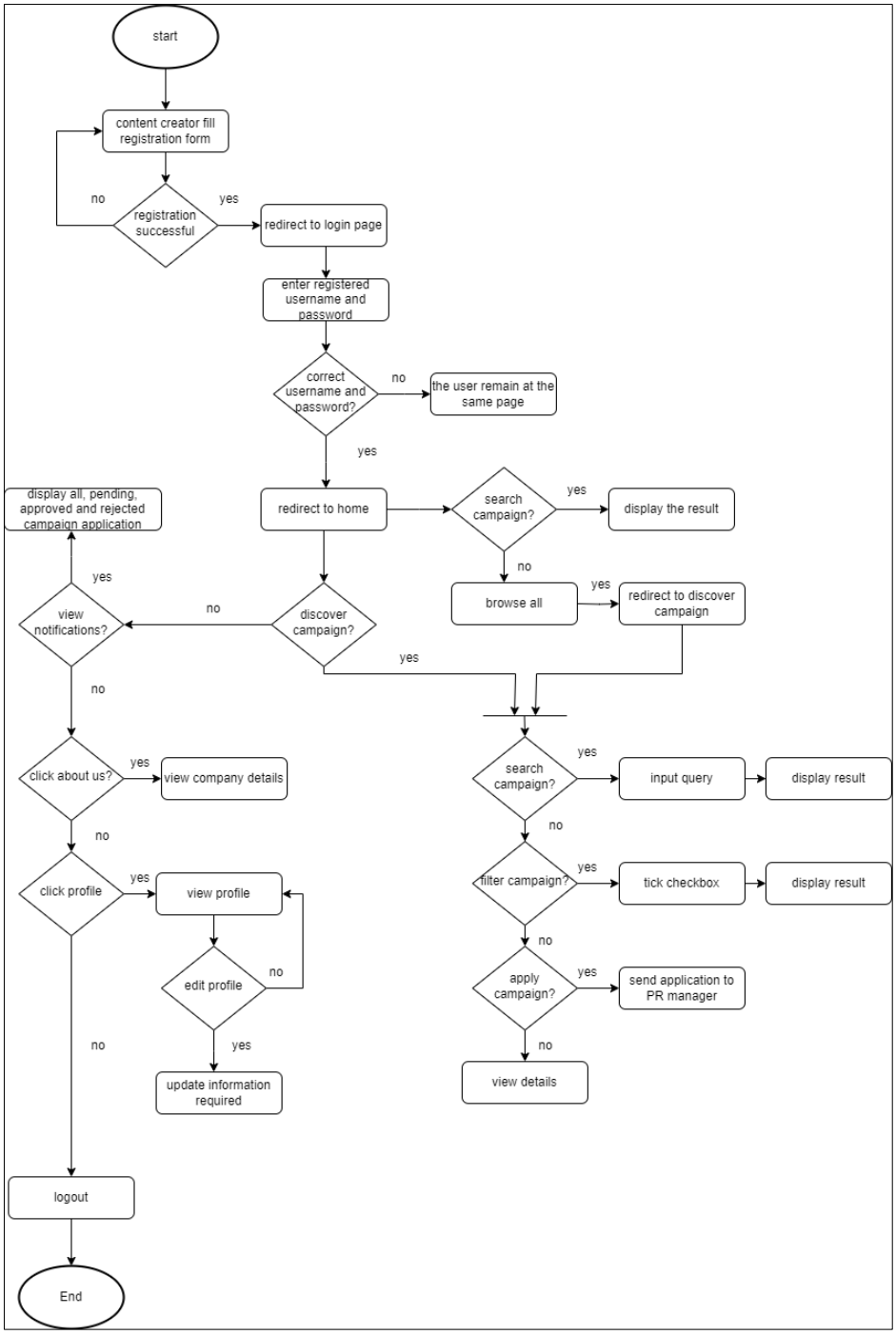

Figure 10: Flowchart diagram from content creator's perspective

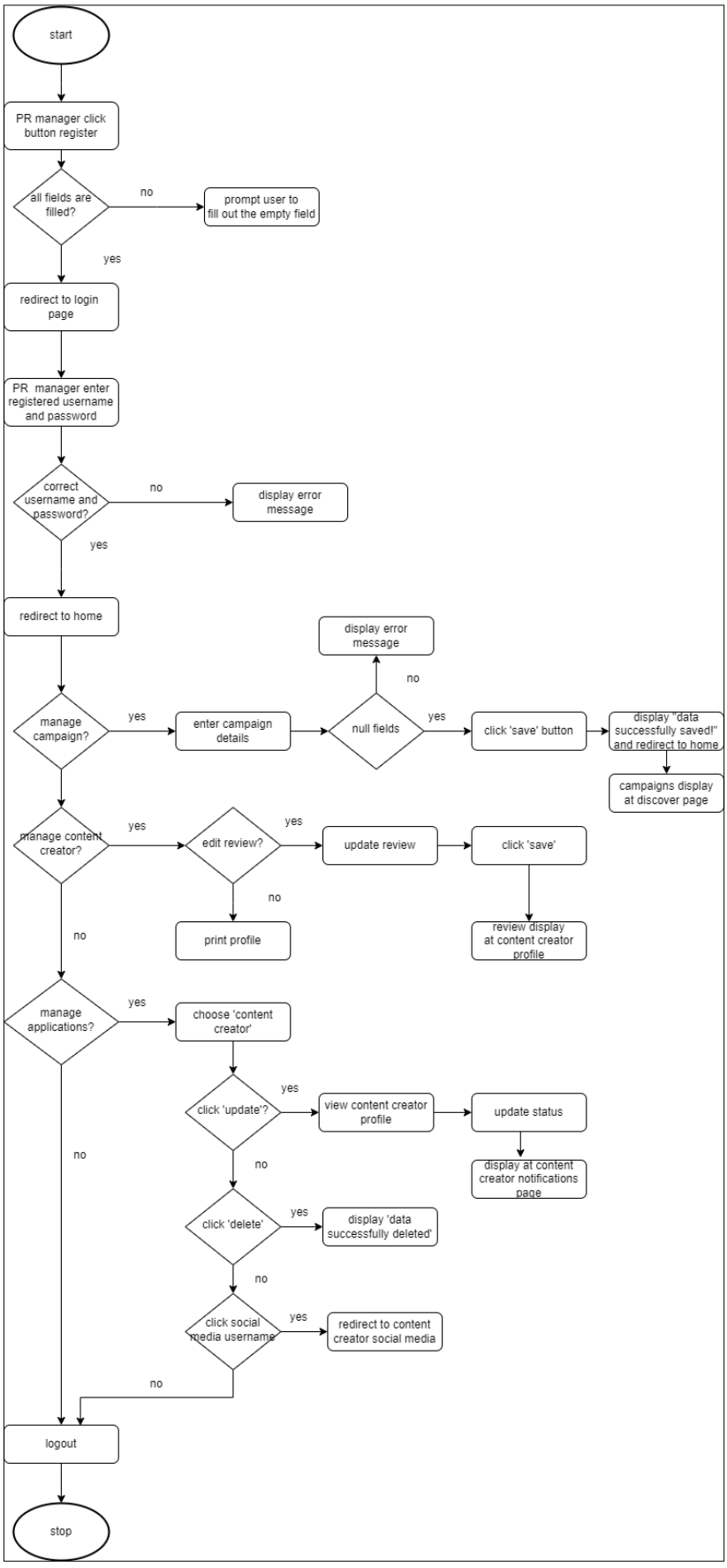

Figure 11: Flowchart diagram from PR manager's perspective

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