SCHOOL OF COMPUTER SCIENCES, UNIVERSITI SAINS MALAYSIA 11800 USM, PENANG, MALAYSIA

CAT304 GROUP INNOVATION PROJECT AND STUDY FOR SUSTAINABILITY

INITIAL PROJECT PROPOSAL

JomCamp

GROUP NO.: 26

SUPERVISOR'S NAME: ASSOCIATE PROFESSOR MOHD AZAM OSMAN

NAME	MATRIC NO.	EMAIL ADDRESS
LEE TER QIN	159389	lee0909@student.usm.my
JEE ROU YI	159273	rouyeji@student.usm.my
EASON PENG	159767	easonpenggg@student.usm.my
FOO LING ZHEN	158799	carolfoo@student.usm.my

Abstract

Malaysia has been identified to be a nation with serious health issues, as seen by the high prevalence of heart disease and obesity. According to statistics, half of Malaysians suffer from problems associated with being overweight or obese. Furthermore, 25% of people do not regularly participate in physical activity, and only 5% of people are dedicated to eating healthily. In the country, one in three teenagers suffers from being overweight or obese. Alarmingly, 66% of them live sedentary lives, and 80% of them do not get enough exercise. Consequently, many of these youth are susceptible to health issues associated with low levels of physical activity and overeating, including problems related to mental and cognitive health. According to the Adolescent Health Survey 2022 by the Ministry of Health, 16.2% of teenagers have experienced feelings of loneliness, and 12.9% have faced sleepless nights because of anxiety. The prevalence of suicidal thoughts, plans, and attempts among adolescents stands at 13.1%, 10.0%, and 9.5%, respectively. Additionally, approximately 4.2% of young people reported not having any close friends. Hence, the proposed solution, JomCamp, which takes into account the current trend of outdoor activities, has been put forth to help solve this problem. JomCamp is an Android mobile-based application designed to promote outdoor activities to the public to ensure the level of their health and wellbeing. JomCamp is an all-in-one booking platform which incorporates Artificial Intelligence technology for campers to not only gather with like-minded individuals, but also peruse our directory of campsites and rent camping gear at a reduced cost, eliminating the laborious process of needing to buy pricey gear and looking for campsite locations from various locations. Additionally, this system also integrates an alarm system into its system, which can issue warnings or reminders to users during their booking period if their chosen campsite locations are experiencing adverse weather conditions. The outcome of this project is to provide a convenient one-stop platform to both novice and seasoned campers to promise them a seamless camping experience.

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1.0 Introduction
1.1 Project Background

A 2022 study by the Malaysian Journal of Public Health Medicine unveiled disturbing statistics: during social distancing, 49.1% of Malaysians reported low levels of physical activity. This lack of activity has led to prevalent mental health issues, with 49.3%-55.3% experiencing moderate to severe depression, 48.5%-50% encountering moderate to severe anxiety, and 46.5%-51.5% facing moderate to severe stress among adults [1].

Seeing this as an opportunity for intervention, we propose our project, JomCamp. JomCamp is a camping guide mobile application aimed at encouraging people to reconnect with nature through camping. With the camping equipment market projected to soar from USD 83.58 billion in 2023 to USD 133.05 billion by 2030 [2], the application intends to leverage the globally rising trend of camping as a form of tourism to encourage participation in physical activities. JomCamp aspires to transform the perception of camping into an accessible, affordable, and enriching experience despite its stereotype, facilitating a flourishing community of camping enthusiasts and promoting overall well-being.

1.2 Existing Solution/Similar Application

Existing Solutions/Similar Application			
	JomCamp	MalaysiaCamping.com	Park4Night.com
Availability in Malaysia	✓	✓	✓
Mobile Application	✓	✗	✓
Campsite Rental through System	✓	✗	✗
Equipment Rental through System	✓	✗	✗
Community Forum for Information Exchange	✓	✗	✓
Alarm System	✓	✗	✓

Table 1: Comparison between Proposed and Existing Solutions

1.2.1 MalaysiaCamping.com

MalaysiaCamping.com serves as a web-based platform tailored to connect campsite owners with outdoor enthusiasts. Owners are given the opportunity to comprehensively showcase their campsites by uploading detailed information, which is meticulously organized and made

readily accessible through various thoughtful categories on the website. Users can also get a view of FAQs and leave a review regarding their camping experience at the campsite.
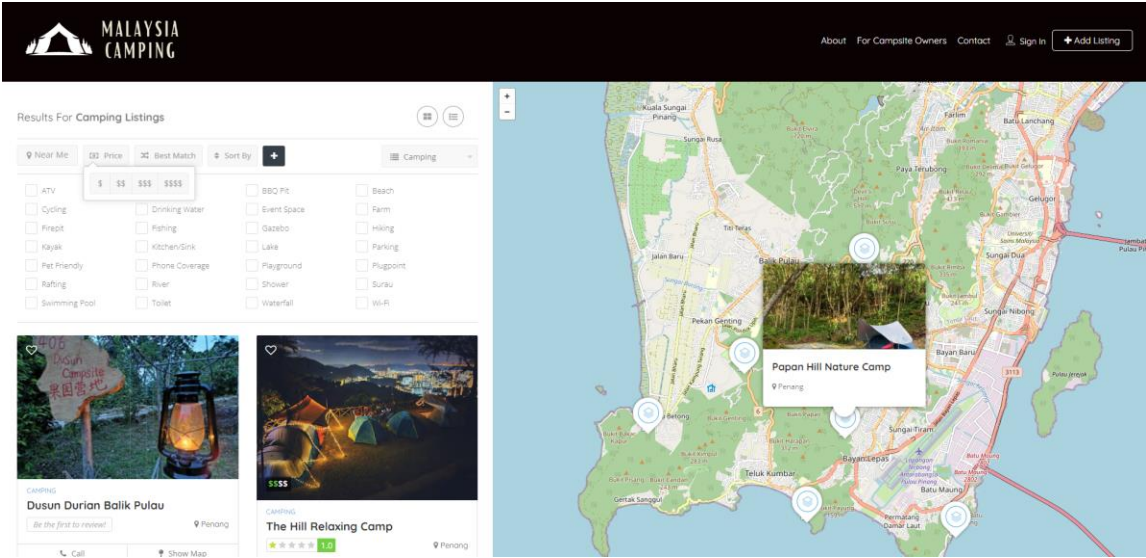

Figure 1: MalaysiaCamping.com Camping Listing Page

Features
This system allows users to: • Search and discover camping, glamping, car camping, RV and chalet spots around Malaysia.   • Be taken to the official camping website or Facebook page.   • List campsite as a campsite owner with comprehensive details, including contact details.   • Leave reviews on previously visited campsites and can check out reviews from other users.

Advantages	Disadvantages
• Campsite owners get a proper platform to promote their campsite for free. • Users get to have a centralized platform to view details of campsites around Malaysia. • Users can view FAQs left by owners and leave inquiries through Whatsapp.	• There is no portal for interaction between campsite owners and users directly through the web application. • Application has little exposure to the public, which can be seen from the fact that no reviews were left in most of the campsites. • Do not allow users to search campsite by keywords.

Table 2:Features of MalaysiaCamping.com

1.2.2 Park4night.com

Park4night.com is a community-driven mobile application that allows users to easily share their preferred locations, provide reviews, and effortlessly explore nearby spots using a user-friendly map interface.
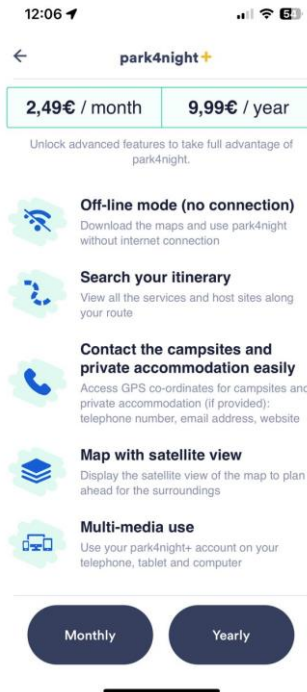

Figure 2: Park4night+ Version

Features
This system allows users to: • Search for spots by location, camping type, and amenities, ensuring users find a site that suits their needs and budget. Users can also refine their search based on criteria like shower, toilet, and electricity availability. • Engage with fellow campers, exchange advice and knowledge, and upload pictures and evaluations of their camping adventures. • Download the application for free but there is a Park4night+ version available as well, which unlocks extra features like offline mode, no advertisements, sophisticated filters, satellite view, and dire campsite contact.

Advantages	Disadvantages
• Provides offline mode for users who will be travelling. • Provides good insight for campers who do not use campsites to lodge.	• Difficult to use without a subscription to the application. • Users are unable to see the reviews on the locations directly on the map view.

Table 3: Features of Park4Night.com

2.0 Problem Statements

The first problem is that most campers encounter when they have their camping spots on slopes. It is a **pervasive issue of insufficient awareness regarding lousy weather conditions or impending heavy rain** [3]. This problem usually occurs when unfavorable weather starts at the top of the hill, and the campers are in the middle of the slope. During this situation, campers may remain oblivious that a heavy downpour is currently happening at the top of the hill and moving quickly down towards their campground. The campers are placing themselves in a perilous position due to the need for more awareness.

Next, **beginner campers lack knowledge about essential camping equipment and gear**. This knowledge deficit frequently results in a misguided purchasing decision, which will cause them to spend money on camping equipment that is ill-suited or unnecessary for their camping needs that causes heavy-packed equipment [4]. Also, disillusionment frequently sets in some beginner campers, realizing that camping is less exciting than they had envisioned. As a result, many inexperienced campers eventually give up on their equipment, raising questions about waste and its environmental effects. Camping equipment that is ignored or thrown out wastes people's money and highlights the more significant problem of sustainable and appropriate outdoor enjoyment.

Besides that, is that campers need help planning their camping adventures due to the **lack of a centralized platform that combines the campsite booking feature and a comprehensive and user-friendly camping directory**, including ratings and reviews from other users for the campsite. The absence of essential features with both booking and directory features makes them search, book, and ineffectively assess campsites. Users prefer a comprehensive and centralized platform that fulfills their needs for camping because it will be more convenient and save lots of time [5].

Lastly, is the **apparent lack of a networked and unified platform in the camping community** that can let them have meaningful communication, resources, and information sharing. Without camping experiences or knowledge from other campers, some campers faced challenges in selecting an appropriate campsite. A thorough evaluation and discussion among campers is vital because some of them don't have a good source to check and avert any complications before setting up their camp and meeting more friends who share the same interests can help them solve problems that may arise during camping adventures [6].

3.0 Project Objectives

1. To develop a comprehensive campsite directory that allows users to access detailed information about the campsites and record user review and rating details for display purposes.

2. To create a user-friendly platform that allows users to make campsite reservations and equipment rentals, simplifying the camping planning process.

3. To create a mobile app platform for the community to post the discussion forum where users can interact, share experiences, and offer advice.

4. To develop an alert system to notify users when the campsite is at risk of danger to ensure the campers' safety.

4.0 Motivation

Camping, an ancient communion between humans and nature, carries immense potential as a conduit for positive mental health, ecological sustainability, and community building [7] . It is a sanctuary of simplicity amidst the complexities of modern existence, offering a space for reflection, peace, and rejuvenation [8] .

In a society increasingly ensnared in the web of technological domination and urban disconnect, our initiative aims to revitalize the human-nature relationship through sustainable camping experiences. Empirical evidence robustly supports the therapeutic and restorative benefits of interacting with nature, demonstrating improvements in mental well-being, reduction in stress, and enhancement of cognitive functions [9] .

Our motivation transcends beyond the individual, aspiring to nurture a symbiotic relationship where both nature and people flourish. By cultivating an ethos of sustainability and respect, our application aims to ensure that the beauty and vitality of our natural environments are preserved and cherished for generations to come [10] .

In championing this vision, we aim to foster a community empowered with the knowledge and resources to embark on enriching camping experiences that resonate with the principles of sustainability. It is more than an app; it is a movement towards rekindling our intrinsic connection with nature, facilitating mental healing, and encouraging a collective responsibility for our planet's well-being.

5.0 Proposed Solution
5.1 Description of proposed project

Our proposed camping guide application, JomCamp, is a mobile application that seeks to address the issue of Sustainable Development Goal (SDG3) - Good Health and Wellbeing by providing the public with a good entry point into camping, ease of camping planning process and serving as a centralized platform for all camping enthusiasts. It comprises five main modules that comprise the application's essential features, including the camping location directory module, camping trip booking module, community discussion forum module, emergency alert module, and administration module.

i. **Camping Location Directory Module**

To provide the users with a comprehensive directory of campsites in Malaysia. It gives users access to detailed information about each location, including images, addresses, and relevant contacts of the person in charge. Besides that, this application will include additional features like a search bar that allows the user to look up any campsites and a filter system that can sort the campsites based on several factors, such as states, activity categories or difficulty level, to enhance the user experience. The users can also rate and review their experience at the campsites on this application to help others make better-informed trip-planning decisions.

ii. **Camping Trip Booking Module**

To provide the users with a smooth trip booking process by allowing them to select their preferred timeslot and date for their campsite visit. If the campsite required an entry fee, the users could make payment directly from the platform. Also, users can also rent camping equipment from the platform or from other users during the booking process. Details about the camping equipment, such as the images, brand, and size, will be shown to aid the users when choosing the equipment. The users are provided with the option to edit or cancel their booking if their plans have any changes.

iii. **Community Discussion Forum Module**

To provide a dedicated space where users can express their passion for camping and interact with other campers. Users can easily create a new discussion post to share their camping experiences and ask for advice from the community. Furthermore, users can also actively engage in other posts by commenting on them to provide suggestions and exchange their knowledge and insights.

iv.   Emergency Alert Module

To alert the users when there is an emergency at the campsite to ensure their safety. The application would automatically send a notification to evacuate the campers from that campsite whenever adverse weather conditions, such as heavy rain and thunderstorms, are detected to prevent accidents. This allows the users to go camping easily, knowing that the campsites are in safe condition.

v.   Administration Module

To enable the application administrators to manage the information in the directory efficiently. It allows the admin to add new campsites to the directory, modify existing information about the campsites, and remove any details when necessary. This ensures that all the details about the campsites are up-to-date and accurate.

Figure 3: Architecture Diagram of JomCamp [Refer to appendix]

Figure 4: Module Diagram of JomCamp [Refer to appendix]

5.2 Techniques/Methods/Algorithms

JomCamp is an Android mobile application developed with Flutter using the Dart programming language. In parallel, the administration module, designed for management, is a web application that will be developed using JavaScript, HTML, and CSS. The application utilizes several Application Programming Interface (API) to aid the implementation of its features. The camping location directory module will utilize Google Maps API to ease the user to quickly navigate to the exact location and look up the surrounding images of the campsites when planning their trips. After the user makes a booking, the application also implements PayPal API for payment transactions. Additionally, the emergency alert module will integrate weather forecast API such as OpenWeatherMap API to access the real-time weather forecast of the specific campsite. So, whenever an adverse condition is detected at the campsite, the system will automatically notify the user to warn them about the danger.

6.0 SDG Alignment

Our camping guide application, JomCamp, is consciously crafted to align with and contribute towards **achieving Sustainable Development Goal 3 (SDG 3): Good Health and Well-being, notably Target 3.4**. This target aims to reduce premature mortality from non-communicable diseases (NCDs) by one-third by 2030 through prevention and treatment, and it also seeks to promote mental health and well-being (The United States Organization). Physical inactivity, a notable risk factor, contributes significantly to premature mortality and various NCDs, accounting for 6%–10% of global cases, including conditions like coronary heart disease, type 2 diabetes, and certain cancers (NCD Alliance). JomCamp, through its promotion of camping and outdoor activities, emerges as a valuable tool in the fight against physical inactivity, facilitating experiences that enhance physical, mental, and emotional health. By making the enriching and revitalizing world of camping more accessible, JomCamp promotes a lifestyle of increased physical activity and fosters environments conducive to improved mental health, thus actively contributing to the realization of Target 3.4 of SDG 3.

7.0 Significance of Project

The proposed project is a cornerstone in promoting ecological mindfulness, mental well-being, and community solidarity, marking its significance in multifarious realms. Primarily, it **acts as a conduit to mental rejuvenation, facilitating interaction with nature's therapeutic ambience and fostering resilience against contemporary stressors**. The emphasis on sustainable practices propels a culture of environmental stewardship, where users are not mere visitors to nature but guardians of its sanctity. Educational components within the app incubate a deeper appreciation for biodiversity and the imperatives of conservation, nurturing a community of campers who are allies in global sustainability efforts. Economically, **the initiative bolsters local businesses and eco-tourism** while enabling optimized resource utilization through equipment rentals. This echoes a harmonized approach where economic activities are woven with sustainability principles and community support. A central pillar of the project is its capacity to **build and nurture community ties**. Through shared experiences, knowledge exchange, and a platform for collective engagement, the app fosters a supportive network that enhances the camping experience, promoting inclusivity and a sense of belonging. Its design, focusing on accessibility, seeks to democratize camping experiences, dismantling barriers such as financial constraints and lack of expertise making the outdoors more reachable to diverse groups. **Safety considerations stand paramount**, with the application being a guardian angel facilitating emergency preparedness and risk mitigation, instilling confidence in explorers to embrace outdoor adventures with assurance.

8.0 Uniqueness of Proposed Solution

Our camping guide application, JomCamp provides some unique functionality that revolutionizes the camping adventures of outdoor lovers. By **allowing users to evaluate and review campsites**, we provide a community-driven platform that enhances engagement of users and help them to make well-informed decisions when selecting the most ideal campsites. For most of the campers, they will have a few preferences when selecting the ideal campsites , therefore JomCamp is very suitable for them by comparing other users' reviews and selecting the perfect campsites. Other than that, JomCamp has a very important and unique feature which **is real-time alerts**. The real-time alerts can help them take necessary precautions to reduce dangerous risks . This takes campers' safety to the next level and guarantees their safety during camping activities.

Also, JomCamp provides campers with a convenient option by **allowing campers to rent their camping equipment**. Our application will show the renter near the user's location after the user's key in their address. This enables users to receive their equipment in a short duration of time. Lastly, our application provides interaction between campers by having a **community forum that allows them to publish posts related to camping** such as camping experience sharing or sending out invitations for camping. The community forum of JomCamp gathers and unites all camping lovers and it serves as an awesome means to establish social bonds and foster a sense of community in camping .

9.0 Expected Outcomes

The expected outcome of our Camping Guide Application, JomCamp is to deliver a well-rounded mobile application with a user-friendly interface that makes camping trips more convenient for everyone and fosters a community of camping enthusiasts. Each module serves as a crucial part of the application and must function well together to achieve the intended outcome.

1. Camping Location Directory
   - Able to access detailed information about the campsites.
   - Able to search for campsites using the search bar.
   - Able to sort the campsites based on the search filter.
   - Able to rate and review the campsites.

2. Camping Trip Booking
   - Able to make campsite bookings based on preferred time slot and date.
   - Able to rent camping equipment.
   - Able to make payment for entry fee.
   - Able to (edit/cancel) the booking.

3. Community Discussion Forum
   - Able to (create/delete/modify) posts.
   - Able to look at others' posts.
   - Able to comment on the posts.

4. Emergency Alert
   - Able to access the real-time weather forecast of the campsite.
   - Able to notify the user when the campsite is unsafe.

5. Administration
   - Able to add new campsites to the directory.
   - Able to modify existing campsite information.
   - Able to remove any unneeded information or campsites from the directory.

10.0 Status of the project

Our camping guide application, JomCamp is still in its early phase of development. Our team is committed to deliver a fully functional mobile application aligned with the concept as stated above.

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12.0 Appendix
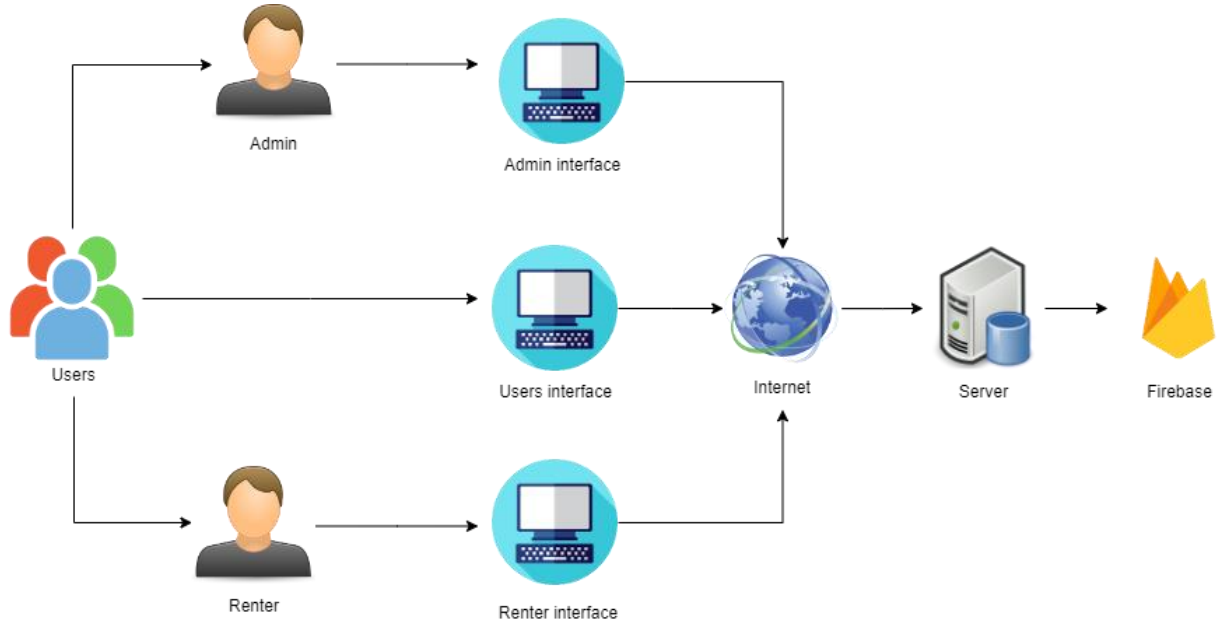
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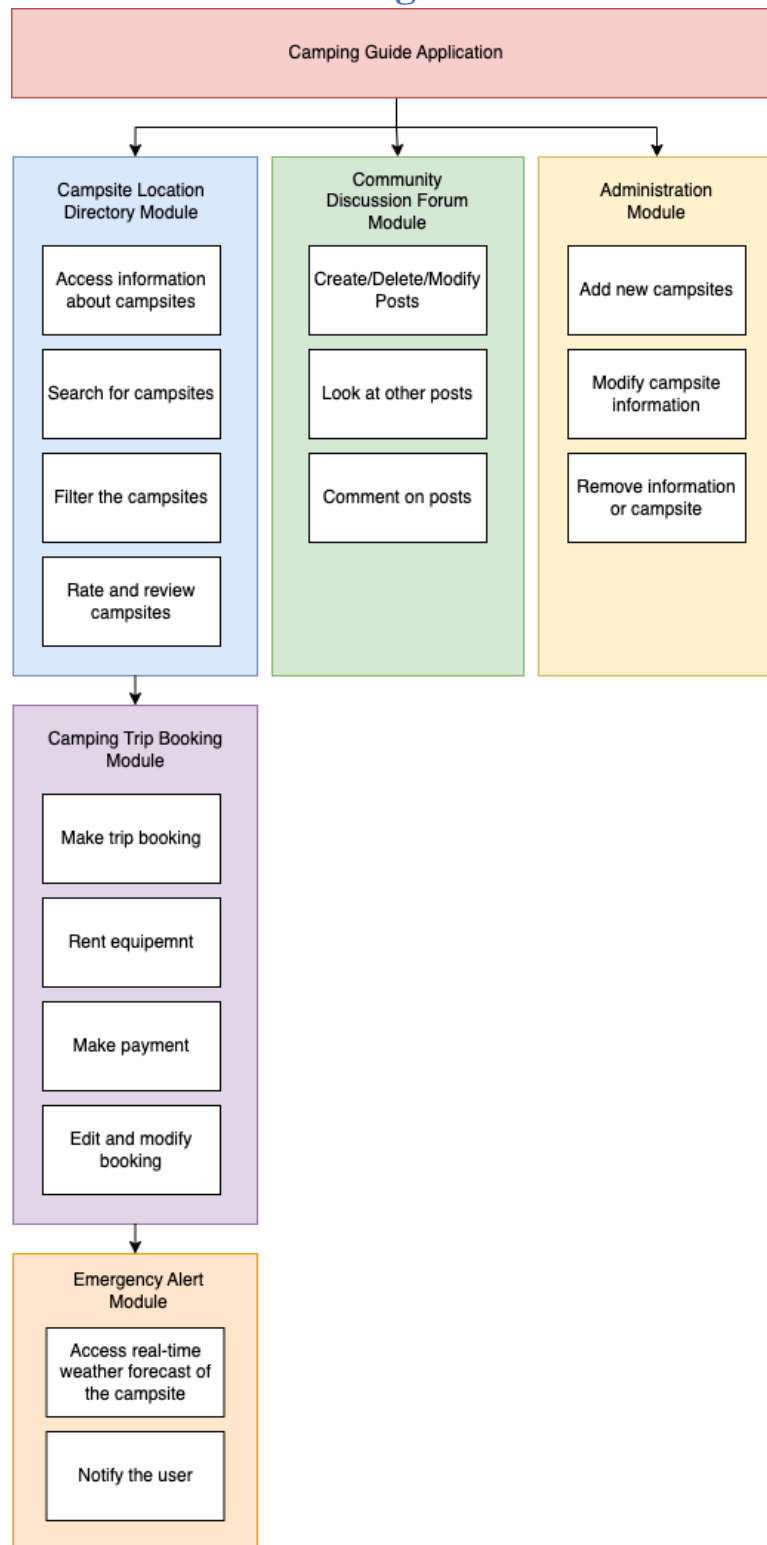

Figure 3: Architecture Diagram of JomCamp

12.2 Proposed overall modules diagram

Figure 4: Module Diagram of JomCamp