CHAPTER 1.   INTRODUCTION

1.1 Background

Indonesia is a country that has a wide variety of tourism sectors. One of them is nature tourism. Mountains are one of the natural attractions that are the main attraction in Indonesia. Indonesia is a tropical country with a very large number of mountains, with a total of 129 active volcanoes [9]. This number does not include inactive mountains. Of the hundreds of active and inactive mountains in Indonesia, some of them have become popular tourist destinations for mountaineering activities. In Indonesia, mountaineering is very identical to the journey to the top of the mountain [10]. Mountaineering is usually referred to as the word Hiking, which is hiking a mountain by walking from sloping terrain to steep terrain.

The phenomenon of mountaineering activities has become a trend among the community. The number of visitors to mountaineering tours has also increased from year to year. Judging from the data on the number of visitors to Mount Gede Pangrango National Park before the implementation of the quota of mountaineers, the number of visitors to the Gunung Gede Pangrango National Park Center in 2012 was around 38,250 people, then in 2013 the visitors were around 82,577 people and in 2014 it increased to around 96,587 people. Mountaineering, which has become a trend nowadays, is often done by people who like activities and have a sensation, survival-adventure. In general, they come from various professional backgrounds, statuses, ages, and gender [12].

Currently mountaineering are not only in demand by professional mountaineers but also common people. Not only from domestic tourists but also foreign tourists. Ages also vary, ranging from old age, teenagers, to children. This phenomenon also affects starting to alarm inexperienced mountaineers. This is certainly the focus of this research. Not all mountaineers know the basics of alarm safety, for example in terms of knowledge in first aid and survival techniques. Likewise, with novice mountaineers. Mountaineering is unusual activity. Therefore, the mountaineers, both professionals, and beginners must have sufficient preparation and knowledge before carrying out mountaineering activities. Not a few of them have made active efforts to gather information regarding the mountains they

will visit. However, information about hiking and mountaineering in Indonesia is still incomplete and inaccurate.

It cannot be denied that mountaineering activities have many aspects that need attention. Safety is, of course, a very important thing in mountaineering activities. As it is well known that the main principle of hiking a mountain is to return home safely. But unfortunately, with the development of the phenomenon of mountaineering, the emergence of many beginner hikers has a big risk. Many prospective hikers lack knowledge of the basics and what to pay attention to when hiking a mountain. Some of them include mountaineering equipment, first aid kit, logistics, and mountain and terrain information that will be visited. Some other things that need to be prepared include hiking route maps and also how to preserve the surrounding environment. These things are often overlooked by mountaineers. The initial preparation for hiking is very important to do, for the safety of prospective mountaineers themselves.

Some cases of mountaineers who get accidents while hiking are often due to their lack of knowledge and preparation before starting the journey. Some cases such as lack of logistics, accidents, getting lost, and also hypothermia often occur. As with several cases quoted from BASARNAS data, 3 mountaineers were found lost on Mount Masurai on February 16, 2021. Then the mountaineers fell into a ravine on Mount Dempo[11]. The cause of these cases was none other than the lack of knowledge and preparation for hiking planning. Therefore, careful preparation is needed in carrying out climbing activities.

Another preparation that also needs to be considered by mountaineers is knowledge of the location of the mountain. In order to make the hike, mountaineers must decide which basecamp they will choose to start the hiking from. Basically to start mountaineering, the first location that mountaineers must go to is basecamp. This is important to do to registration in the basecamp office, before hike a mountain. The manager will record mountaineers data, to make it easier for managers to make observations of mountaineers. Hiking without going through basecamp can be said to be an illegal activity. In general, each mountain usually has several different basecamps. This is also due to the location of the mountain which often covers certain areas. For example, the west side of the mountain is in district A, and the east side is in district B. However, some problems arise from the

lack of information to get to the mountain basecamp. The location of the basecamp which is in a remote place and the lack of road markings to get to the basecamp usually gets into trouble for prospective mountaineers. Some mountaineers often have difficulty finding the intended basecamp location. This of course can be a problem, because the path to be followed will also be different.

Based on these problems, the authors made a final project entitled "Design and Implementation Mountaineering System Based On Android" which was developed to make it easier for prospective mountaineers and especially novice mountaineers to be able to access information about mountaineering guidelines to help prepare prospective mountaineers to hike. This application was also developed with features to provide information about mountains and mountaineering basecamps that are used to make it easier for mountaineers to increase knowledge about the mountains they will visit. To make it easier for mountaineers to find the location of the mountain and basecamp they will visit, this application adds a mountain map and basecamp map feature. In its development, this application was developed on the basis of the Android operating system. Using the Java programming language and implementing Firebase as a database manager in the application. Firebase is a Backend-as-a-Service technology developed to help developers manage the backend more easily. To implement the location map feature, this application uses the Google Maps API. with the implementation of the Google Maps API will allow applications to be able to display maps and use navigation features to certain locations. With all the technology and services used, it is hoped that this application can display various information such as general descriptions, pictures of paths, climbing routes, and maps of mountain and basecamp locations, making it easier for prospective mountain climbers to get important information. information they need in preparation for mountaineering.

1.2 Problem Identification

Based on the background that written, it can be identified the problems that are the material in this study are as follows:

1.   How to design and build a mountaineering system application in Indonesia?

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2. How to implement a mountaineering guidance application on the Android platform?

3. How to implement the location-based service in the application?

4. How to implement Google Maps in the application?

5. How can the application be easily understood by the user?

1.3 Purpose of the Study

The purpose of this study are as follows:

1. This application was developed to provide information related to the mountaineering preparation guide in Indonesia.

2. This application was developed to provide all forms of information about mountains in Indonesia.

3. This application was developed to make it easier for users to find mountain and mountain basecamps location.

1.4 Limitation

Based on the background of the problem that has described, some of the problem limits that used are as follows:

1. This application is only developed in English.

2. This application is limited to the android platform.

3. This application can only be used when the user has connected to the internet.

4. This application was difficult to use in China without using a VPN, because it uses Google Maps and Firebase that developed by Google.

1.5 Benefits of the Study

The benefits obtained from this research are as follows:

1. This application can increase the knowledge of prospective mountaineers in their preparation for mountaineering activities in Indonesia

2. This application can help prospective mountaineers to get complete information

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about mountains in Indonesia.

3. This application can display various information about mountaineering guides such as what tools are needed, first aid, tips and trick, and mountaineering techniques.

4. This application can display information about mountains in Indonesia such as mountain locations and basecamp, terrain conditions for hiking, hiking regulations, mountain heights, and mountain photos.

1.6   Related Works

In writing this thesis, the author conducts a literature review of several journals that have similarities with the system that will developed in this thesis. The author made observations on the several systems and conducted a review of several features that could be developed further

In 2014, Slamet Raharjo and Gendian developed an android-based mountaineering guide application. This application includes some information such as hiking equipment, first aid, and tips and trick. In 2018, Indah Raficha Dewi also developed an Android-based mountain hiking tutorial application, this application was developed using SDLC (System Development Life Cycle) method. This system includes a variety of hiking guides such as preparation, first aid, hiking techniques. This application also equipped with games, and interactive quizzes to test the knowledge of prospective hikers about their preparations for hiking. This application focuses on several mountains in Central Java, Indonesia. Then in 2017, Marsha Agung developed a mountaineering application that contains various mountaineering guidelines that focus on the Malang Raya area on an Android basis. Marsha made a mountaineering application that is equipped with complete information about the mountains in the research area which can be seen through GPS (Global Positioning System) point coordinates.

After observing several journals. Found several things that can be developed from applications that have been developed previously. Some applications still focus on specific areas. Then on several functions related to navigation and mountain location that

can be developed to be more optimal. This is the basis for the author's strength in developing a mountaineering guide application that is equipped with a location-based service that allows users to more easily find locations and hiking routes. In addition, this application will also be developed with a larger coverage area so that it is expected to contain more information.

1.7   Writings Structure

The systematics of writing in this study are as follows:

CHAPTER 1 INTRODUCTION

This chapter contains research background, problem formulation, problem boundaries, research objectives, research benefits and writing systematics and schedules.

CHAPTER 2 LITERATURE REVIEW

This chapter contains theoretical foundations related to this research, such as theories regarding location-based service, exposure to android and android studio, Firebase, Google Maps API and other theories related to this research.

CHAPTER 3 DESIGN AND ANALYSIS

This chapter contains the analysis and design of the system that will be developed in this study. This chapter discusses the design of system development and system workflows. Some of the things discussed in this chapter are data collection analysis, requirements analysis, application interface design, and database design.

CHAPTER 4 IMPLEMENTATION AND TESTING

This chapter discusses the results of developing a system that has been designed. This chapter contains reports such as the devices used in development, the software used, and also attaches the results of the application being developed along with the functions and programming codes that are important to attach. In addition, this section also contains the results of the application testing process.

CHAPTER 5 SUMMARY

This chapter contains conclusions, suggestions and also future development of applications that have been developed.

1.8 Schedule

Table 1.1 Schedule

No	Activities	Weeks									
		1	2	3	4	5	6	7	8	9	10
1	Planning	■									
2	Literature Review		■	■							
3	Design and Analysis			■	■	■					
4	Development						■	■	■	■	
5	Testing						■	■	■	■	
6	Documentation										■

The process of developing, designing and documenting this study took 10 weeks.