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Stray Care: A Platform for Managing Issues of Stray Animals

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Stray Care: A platform for managing issues of stray animals

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This project is submitted in partial fulfilment of the
requirements for the degree of Bachelor of
Computer Science with Honors

Faculty of Computer Science and information Technology
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Stray Care: Platform untuk Mengurus Isu Haiwan Jalanan

Haziqah Nazurah binti Zawawi

Projek ini diserahkan sebagai pemenuhan
sebahagian keperluan bagi Ijazah Sarjana Sains
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ABSTRACT

Animals can be humans' best friends as they become pets. It is assumed that their welfare including food, shelter and health are being taken care of by their owners. However, we cannot assume the same for the stray animals on the street. Stray animals may continue to breed and populate as they are unneutered. Furthermore, they may also carry dangerous diseases such as rabies which is known in Sarawak. In addition, we cannot rely solely on animal shelters to accommodate all stray animals because shelters are meant to provide room for more desperate animals. Moreover, some pet owners abandoned their pets because of the financial struggle to support their pets' welfare after the Movement Control Order (MCO). These animals would have accidental death, illness and so on because they lack basic survival skills. Thus, the number of stray animals is increasing due to these issues. To mitigate this problem, an online platform to manage issues of stray animals called Stray Care is proposed. The expected outcome of this project is to facilitate the public to rescue and save stray animals. The users of this platform will be able to add, view and share the information of stray animals such as location and health. As a result, users will be able to adopt the animals, give them a second chance for a better life and reduce the number of stray animals. The survey results from 10 testers indicate that the majority agree that Stray Care is capable of storing and retrieving records on stray animals and their adoption status, as well as providing effective education modules for users to acquire knowledge about animals. Additionally, the survey respondents found the application to be useful to help in searching and adopting stray animals.

ABSTRAK

Haiwan boleh menjadi kawan baik manusia kerana mereka menjadi haiwan peliharaan. Kita boleh menganggap bahawa kesejahteraan mereka termasuk makanan, tempat perlindungan dan kesihatan diambil berat oleh pemilik mereka. Namun, kita tidak boleh menganggap sama untuk haiwan terbiar di jalanan. Haiwan terbiar boleh terus beranak pinak dan menjadi ramai kerana mereka tidak dimandulkan. Selain itu, mereka juga boleh membawa penyakit berbahaya seperti rabies yang dikenali di Sarawak. Selain itu, kita tidak boleh bergantung sepenuhnya kepada tempat perlindungan haiwan untuk menampung semua haiwan terbiar kerana tempat perlindungan itu ditujukan untuk memberi ruang kepada haiwan yang lebih memerlukan. Malah, sesetengah pemilik haiwan peliharaan meninggalkan haiwan mereka kerana kesukaran kewangan untuk haiwan mereka selepas Perintah Kawalan Pergerakan (PKP). Haiwan ini akan mungkin akan mati, berpenyakit dan sebagainya kerana mereka kekurangan kemahiran untuk hidup berdikari. Oleh itu, bilangan haiwan terbiar semakin meningkat kerana masalah ini. Untuk mengatasi masalah ini, satu platform dalam talian untuk mengurus masalah haiwan terbiar yang dipanggil Stray Care dibentuk. Hasil yang diharapkan dari projek ini adalah untuk memudahkan orang awam untuk menyelamatkan haiwan terbiar. Pengguna platform ini akan dapat menambah, melihat dan berkongsi maklumat haiwan terbiar seperti lokasi dan kesihatan. Hasilnya, pengguna akan dapat mengambil haiwan tersebut, memberi mereka peluang kedua untuk kehidupan yang lebih baik dan mengurangkan bilangan haiwan terbiar. Hasil tinjauan daripada 10 penguji menunjukkan bahawa majoriti sangat bersetuju bahawa Stray Care mampu menyimpan dan mendapatkan semula rekod mengenai haiwan terbiar dan status pengambilannya, serta menyediakan modul pendidikan yang berkesan untuk pengguna memperoleh pengetahuan tentang haiwan. Selain itu, responden tinjauan mendapati aplikasi itu berguna untuk membantu mencari dan mengambil haiwan terbiar.

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LIST OF ABBREVIATIONS

COVID-19	Coronavirus disease
MCO	Movement Control Order
SARA	Street Animal Rescuers Association
UCD	Use Case Diagram
UI	User Interface
WHO	World Health Organization

CHAPTER 1: INTRODUCTION

1.1 Background

Naturally, most human beings need companions in their life. We have families, friends, neighbours, and colleagues. Some people personally prefer more furry friends or pets. Even though animals do not speak our language, they give us the comfort and love which we do not deserve. There are several animals or exotic animals that can be kept as pets such as cats, dogs, rabbits, hamsters, birds, fish, tarantulas, geckos, snakes and so on.

A pet ownership survey conducted by Rakuten Insight in January 2022 shows that 53% of Malaysian respondents indicated that they own pets. On the other hand, 36% of the respondents do not own pets. Moreover, according to the Department of Statistics Malaysia, about 69.7% of Malaysia's working population between 15 to 64 years old have adopted mostly dogs and cats (Petotum, 2020).

There are many reasons why people have pets such as to find companionship, to have more security, to be more physically active, in need of emotional support, to improve mood, and to gain happiness in life. A study that was conducted in 2021 suggests that people with pets have better mental well-being and experienced more positive emotions during the Covid-19 lockdown because of the human-animal interaction compared to people with no pets (Grajfoner et al., 2020). As a result, this study shows that pets can bring positive impacts to our lives.

It is easy to assume that pets who are taken care of by their owners are in a good condition, but we cannot assume the same for the strays outside. Stray animals are often seen on the street and are a big concern to society. In our country, there are currently five million cats and six million dogs. Unfortunately, there are only 658,000 and 398,000 cats and dogs respectively that have ownership in 2019 (PetFair-Sea, n.d.). Unneutered stray animals may breed uncontrollably and continue to populate, hence increasing the total number of strays. In addition, they are unvaccinated and may spread diseases such as rabies.



Figure 1.1: Stray dog with puppies (Strand, 2011)

The Figure 1.1 above shows a stray dog with its puppies. To stay safe and healthy, the puppies and their mother require a comfortable shelter, healthy food, fresh water and so on.

This is only one of the numerous reasons why people should assist and care for stray animals. There are many ways to help stray animals such as to raise awareness, donate, run a shelter, or to rescue them. Rescuing animals reduces the number of wild rabies carriers. This decreases the possibility of infected animals injuring others. Other than that, adopting animals improves their welfare and saves lives. By adopting more animals, the number of euthanized animals in shelters can be decreased as well (The Humane Society of the United States, 2022). Therefore, stray animals should be rescued for the benefit of society. If we are responsible enough to care for a pet, we may aid animals in need by adopting them and providing them with a new home.

Currently, social media platforms like Facebook and Instagram are commonly used to adopt stray animals. However, these platforms are not optimized for animal adoption and can be inconvenient for users. Scrolling through social media platforms like Facebook and Instagram to find posts about animal adoption can be inconvenient and time-consuming for users. As an instance, Figures 1.2 shows a posting of animal adoption from a Facebook page. Users may have to navigate through a large amount of content before finding a post that is relevant to their interests, which can lead to frustration and a decrease in adoption rates.

Therefore, a more efficient system that specifically caters to animal adoption, like the proposed platform Stray Care, can greatly improve the process for potential adopters. By incorporating features such as browse specific animal categories options and record storage, Stray Care aims to enhance pet adoption platforms by providing a more efficient and faster system than social

media platforms, making it easier for users to quickly view and adopt animals. In Stray Care, more people can easily identify and give homes to the desperate animals in need when they are ready.



Figure 1.2: Animal adoption post on Facebook

1.2 Problem Statement

It is not sufficient to simply adopt the animals without taking into account the needs, enrichments and costs connected with the animal's ongoing treatment and well-being during its whole life. According to Veterinary Practice News (2022), many pet owners misunderstand the lifetime expense of pet care. Synchrony polled 1,200 pet owners as well as 100 veterinarians. Almost half of pet owners underestimated the lifetime expense of caring for their pet. In addition, there are still owners who mistreat their pets by providing them with junk food, excessive amounts of food, dirty living conditions, and so on. The large majority of people are not aware of the responsibilities that come with keeping pets, particularly when they take in strays. Identifying a pet's requirements is crucial to ensuring its long-term contentment. Seeing as we can't communicate with animals verbally, we have to learn the ways to meet their needs.

Other than that, stray animals can pose danger to the general public. It is common to see stray animals on the streets foraging or begging for food. It is also natural to feel sympathy and sorry

for their condition and welfare. At the same time, some street animals are wild and aggressive such as dogs and cats. For instance, stray dogs are scary and intimidating because dog attacks incidents make them look violent (Juliah, 2021). In fact, dogs rarely bite unless provoked, sick, or hurt. Furthermore, dogs may not favour physical interaction according to a Psychology Today study by the American College of Veterinary Behaviorists (2014). Thus, they can be difficult to help if they bite or attack when approached. Street animals may also carry diseases such as rabies. Dogs are the most common carrier of rabies in many other nations, and dog bites are the leading risk factor for death from rabies among humans worldwide (Centers for Disease Control and Prevention, 2022).

According to a report by Sarawak Disaster Information (2021), 67 cases of rabies outbreak were declared in 12 districts across Sarawak (Sarawak State Health Department and Sarawak Veterinary Services Department, 2021). The average number of dog bites per day is 26, and two people have died because of a positive rabies test after a dog bite. In this case, it may be challenging to directly help, approach and adopt stray animals. Checking the animal's health condition first or calling for professionals to deal with the situation might be important before taking the animal in.

Besides, some people prefer to purchase animals from pet stores and breeders rather than adopting stray animals. They are unaware of the animals' desperate need for a home. Not only that, but they are unaware of how much they will benefit society if they choose to adopt stray animals. According to research conducted by Debbra et al., (2019), a cross-sectional survey was used to analyse pet ownership in Putrajaya. 594 eligible respondents took part in the survey. About 61% of pet owners claimed that their animals were found as strays nearby, 24% were gifts, and 15% were purchased. Figure 1.3 below shows a pie chart of how owners obtained their pets in percentage. Even though the percentage of people in Putrajaya who took part in the survey who shop for animals is low, the issue of shopping rather than adopting animals remains.

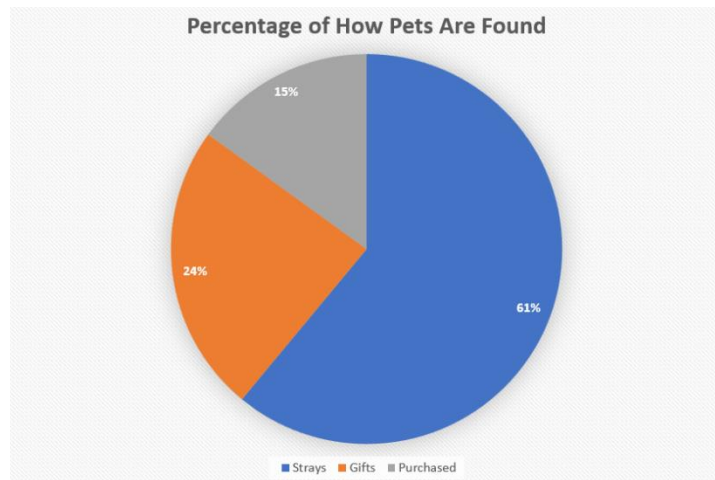


Figure 1.3: Percentage of How Pets Are Found

Pet shops and breeders are not reputable places to acquire an animal. Purchasing an animal ensures that brutal breeding facilities can continue to produce more pets in its place (Emily, 2017). It's a vicious loop that never seems to end. Spending money at pet stores or breeders means greater misery for animals. Animals sold in pet stores are to make money. The majority of animals offered in pet stores were grown in large-scale breeding factories in cramped, filthy cages or bins.

According to Laura (2021), it is impossible to determine the precise statistics, but it is estimated that there are approximately 10,000 puppy mills operating in the United States currently, legally and illegally. The animals in these mills are made in large numbers as if they were merchandise, and their basic needs are often ignored. Many are sent to pet stores in small, crowded containers, where they arrive hungry, sick, or hurt.

Lastly, the numbers of unwanted cats and dogs are growing. While abandoned animals have been an issue for a long time, pet welfare groups in Malaysia report that the number has increased dramatically since the current economic slowdown began due to the epidemic (VOA, 2020). This can be depicted when the pandemic Covid-19 was announced by the World Health Organization (WHO). The pandemic has had severe effects on health systems and economic stability around the world, but it has also affected animal welfare. During Movement Control Order (MCO), some people choose to let go of their pets because it costs extra money to financially support a pet's needs such as food, litter, veterinary costs and so on.

On the other hand, there are pet owners who also let go of their pets when MCO ends. When the normal life returns after MCO, the people return to office and the children go back to school.

President of Malaysia Animal Association, Arie Dwi Andika mentioned this as a worrying unhealthy culture. Abandoning pets when they are no longer useful should not exist in Malaysia, where people are generally educated and caring towards animals (The Malaysian Reserve, 2020). He emphasised that pets who are abandoned and then left on the street have a very low chance of survival since they lack basic survival skills. As a result, these creatures would often die from starvation, illness, predators, or accidental death. Therefore, this causes an increasing number of strays.

1.3 Objectives

The main objective of this project is to design and develop an online platform to manage stray animals and adoption.

Other objectives include:

- 1) To provide method for record storage and retrieval on stray animals and adoption
- 2) To create an education module program on caring for stray animals and share information on stray animals in need of public assistance

1.4 Brief Methodology

In this project, agile approach was selected as the system development methodology. When adding new functionality, agile development methodology is used to minimise risk such as bugs, cost overruns, and changing requirements (Synopsys, 2017). Agile methodology has five phases as shown in Figure 1.4. The phases are requirements, design, develop, test and deploy.

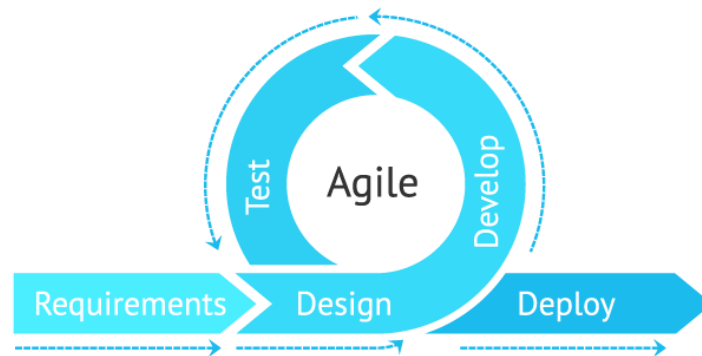


Figure 1.4: Agile model (Vilchynska & Hazevytch, 2020)

In agile methods, software is developed in iterations containing increments of new functionality. Each subsequent iteration achieves a product version that is more functional (Visual Paradigm, 2020). This is done over and over until the product works the way it should. As a result of the fact that agile methodology enables software to be released in iterations, it improves productivity by identifying and fixing mistakes early on and aligning expectations. Through frequent iterative improvements too, software users may realise software benefits sooner.

Agile methodology complies to the Agile Manifesto for Software Development's values and principles (Vilchynska & Hazevytch, 2020). According to this principle, requirements, plans, and results are continuously evaluated, and teams have a natural mechanism for responding quickly to change. Agile software development uses short, regular, controllable iterations called Sprints. Full development is accomplished in one Sprint (2-4 weeks). It includes requirements, design, develop, test and deploy. Each Sprint ends with a working software release. Every Sprint brings developers closer to a final version of the working software.

1.5 Scope

The proposed project involves creating a platform where the public can publish information about stray animals. This platform would enable users to view the details of the animals and request for their adoption. The system would store relevant information about the animals, such as their location and health condition, which would be useful for those looking to assist or adopt them.

1.6 Significance of Project

The significance of this project is to improve existing pet adoption platforms and the social media methods of adopting animals. The proposed system, Stray Care, aims to enhance pet adoption platforms by providing a more efficient and faster system than social media platforms like Facebook and Instagram. It is designed to enable users to quickly view and adopt animals, which is not as convenient on social media platforms. Stray Care is optimized for the specific task of animal adoption and provides features such as search animal category options to make it easier for users to find the animals they are interested in, unlike Facebook or Instagram pages that might require users to scroll through a large amount of content.

The proposed platform will gather information on stray animals, which will be made available to the public. By providing a method for record storage and retrieval on stray animals and adoption, the project aims to streamline the process of adopting stray animals and increase the chances of finding them a permanent home. Thus, the platform may help reduce the number of stray animals and improve their quality of life. It may also help prevent strays from being euthanized due to the overpopulation problem in shelters. Through this platform, the public can gain awareness of the value and importance of adopting animals instead of purchasing them from pet stores.

1.7 Project Schedule

Please refer to Appendix A.

1.8 Expected Outcome

The expected outcome of this project is to develop an online platform to manage the issues of stray animals. This platform will have the ability to publish, view, and share information about stray animals, such as the categories of animals, the location where they were found, their current health condition, and so on.