
Peer to Peer Pet Boarding Service -Animal Nest-



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Backlog

1. Business Requirements

1.1. Background

All pet owners desire to take holidays with their pets, but hospitality research paper in Australia has shown dog owners are tired to carry their dogs while they are taking a trip (Carr, Neil., & Cohen, Scott, 2009, pp 290-304). In the U.S.A, around 59% dog owners said they have never stayed in a hotel with their dogs due to lack of dog-friendly hotels. Also, 37% of dog owners have skipped their travel since traveling with their dogs is difficult (Bedford, N.H, June 04, 2019). Over the half of pet owners has encountered difficulty of traveling with pets.

The 51% of Americans have averagely used 8.9 days for travel in 2018. Especially, 63% of young millennials who were born between 1980 and 1995 spend 8.3 days for travel (National Plan For Vacation Day, 2020). Such data are showing pet owners carry their pets or use pet boarding services during 8 days. Averagely, pet boarding cost is started from twenty five dollars to fifty dollars per night (Allen, Meredith. Aug 07, 2020). According to the sum of collected data, pet owners spend between two hundred and four hundred fifty dollars on pet boarding services during eight nights. This cost range is burden for general people living in the U.S.A

The U.S pet expenditures has increased around 20 billion dollars from 2010 to 2017, and number of pet owners are increasing more and more every year (Springer, Julie, 2018). As number of pet owners are increasing, pet industries are getting bigger and more various, but pet boarding or sitting service is limited to cats and dogs only and has no popular platform because of expensive fare. Currently, pet owners are requiring cheaper cost for pet boarding services. Also, pet boarding service taking care reptile, birds or other species except dog and cat is rare. Convenient and various pet boarding services are demanded in pet culture.

1.2. Business Opportunity

Table 1. Comparison between existing pet sitting service & P2P pet sitting services

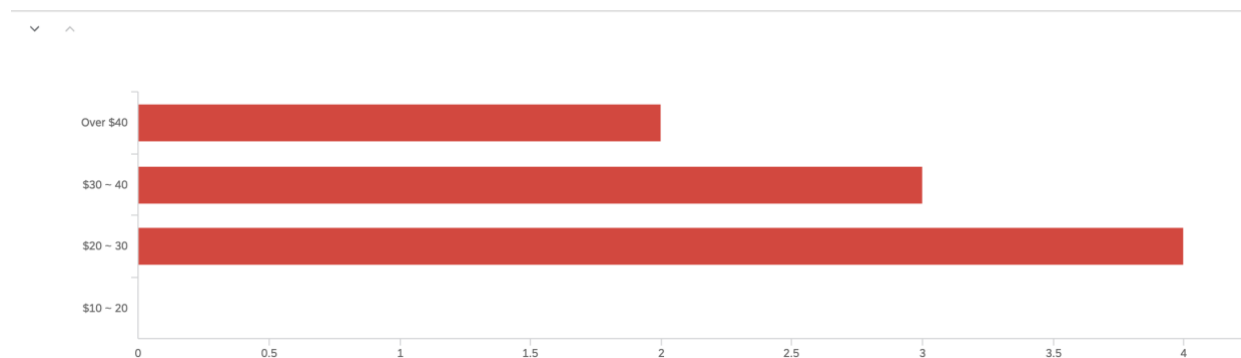
	Existing pet boarding service /day	P2P Pet boarding service (Animal Nest)	Merit of P2P pet boarding
Cost	\$35 ~ \$50	\$20 ~ \$30	Cheaper cost
Allowable pet kinds	Cats and Dogs Only	Fishes, birds, Cats, Dogs(Always available) Reptiles, Giant insects (Sometimes allowable)	Allowable pet kinds are various
Platform	Web site	Web app based on mobile application	User friendly platform
Order process	Requiring multiple steps	Requiring few steps to customer	Easy and simple processes
Potential business		Pet rent business	Expanded business to make profits more
Location	5 ~ 10 services in one city	A lot of neighbor pet sitters	

Pet rent business : some people need to borrow specific animals for their business or education. Researchers, zoo industries or animal tamers sometimes need to take some specific animals to develop their business. Also, exotic animal owners are sometimes tired to domesticate their animals due to the cost of feeds or facilities. Consequently, exotic animal owners can earn money by renting their animals, and animal renters can fulfill their purpose. Besides, peer to peer pet boarding systems is appropriate for providing animals or renting animals. Moreover, some people would like to raise pets for emotional education of their kids. In the research paper titled The Value of Animals in Children's Live, animal-assisted intervention research has provided evidence of positive outcomes for children with autism spectrum disorder (ASD), conduct disorder, and attention-deficit hyperactivity disorder (Rachel L, Severson, 2014). This research paper has shown there are a lot of benefits for EQ of children, so some people who have kids would like to raise pets for their kids during short period. As a result, the peer to peer pet boarding service with pet rent business can earn high profits.

1.3. Business Objectives and Success Criteria

Q10 - Which cost range is it enough to use pet boarding or pet sitting service?

Page 01

**Figure 1.** From sjsu Qualtrics participants: 9

In this survey, most people think pet sitting cost should be \$20 ~\$30 per day. Thus, around \$25 is proper as service price. The service fee will impose \$7 in order to get optimized profits.

This business would be started in California firstly because California has the most populations and is pet friendly, so analyzed value is based on pet populations in California.

Table 2. Expected number of uses and profits

The total number of pets in California in 2011 :	Around 51% of people take travels	Average days Americans traveled in a year	Total potential profits a year
6,871,680	3,504,557 = 0.51 * 6,871,680	8.9 days	\$ 2,183,399 = \$7 * 3,504,557 * 8.9

Table 3. Expenditure to manage this business

Purpose	Cost
Salary for UI,UX designer - 1	\$107,798
Mobile developers - 2	\$262,000
Back-end developers - 2	\$257,000
React developer - 1	\$107,881
Marketing data coordinator - 1	\$63,477
Tech Project manager(CEO) - 1	\$120,000
Office leasing fee	\$22800 = \$1,900 * 12
Utility service fee + domain fee -1	\$1800 = \$150 *12
Firebase Server fee	\$2,976 = \$248*12 (This cost could be changed by number of users)
Software yearly service fee	\$4800 = \$400 *12
Total fee a year	\$693,532

Total net revenue applied the total potential profits : \$1,489,867 = \$2,183,399 - 693,532

This total net revenue could be less or more than estimated profits by unexpected situations

To make net revenue of \$15000 every month, we need to earn \$873532 for a year.

Total estimated days pets use for a year : 124790 days.

Required minimum number of customers to get profits for a year : $14021 = 124790 / 8.9\text{days(average travel days)}$

1.4. Customer or Market Needs

Table 4. Minimum requirements for software and hardware

iPhone (IOS: 11.0 and above version)	Ipad & Ipad (Minimum requirement IOS: 11.0)	Computer (Window) Internet explorer 10 and above version	Mac(Safari) Safari 9 and above version	Android (Android 6.0)
iPhone X iPhone 8 iPhone 8 Plus iPhone 7 iPhone 7 Plus iPhone 6s iPhone 6s Plus iPhone 6 iPhone 6 Plus iPhone SE iPhone 5S	12.9-inch iPad Pro (2nd generation) 12.9-inch iPad Pro (1st generation) iPad Pro (10.5-inch) iPad Pro (9.7-inch) iPad Air 2 iPad Air iPad (6th generation) iPad (5th generation) iPad mini 4,3, 2 iPod touch (6th generation)	RAM of 2GB or larger.	RAM of 2GB or larger.	RAM of 2GB or larger. A minimum of 4.7 inch or 60.9 cm ² screen dimensions

Table 5. Competitors vs Animal Nest(P2p Pet sitting services)

Competitors	Merits of Competitors	Disadvantages of Competitors	Animal Nest
Pets Welcome	Pet owners and their pets can use hotel services together.	<ul style="list-style-type: none"> Expensive cost for customers. Expensive cleaning cost to keep this business. Fewer number of services 	This business don't guarantee high quality services, but more customers will find our service because of cheap cost.
All Star Pet Resort	They are offering multiple services to pets.	<ul style="list-style-type: none"> Allowing two kinds pets only. Closed Sat & Sun 	Animal Nest can take care of diverse pet kinds. This service always open to pet owners as many as pet sitters work.
Other pet hotels	They have great facilities for pets	<ul style="list-style-type: none"> Reservation system is not existed in the web. 	Animal Nest's platform will be published as web and app. This service will be easy to make reservations for pet sitting services

1.5. Business Risks

Table 6. *Business risk in p2p pet sitting services*

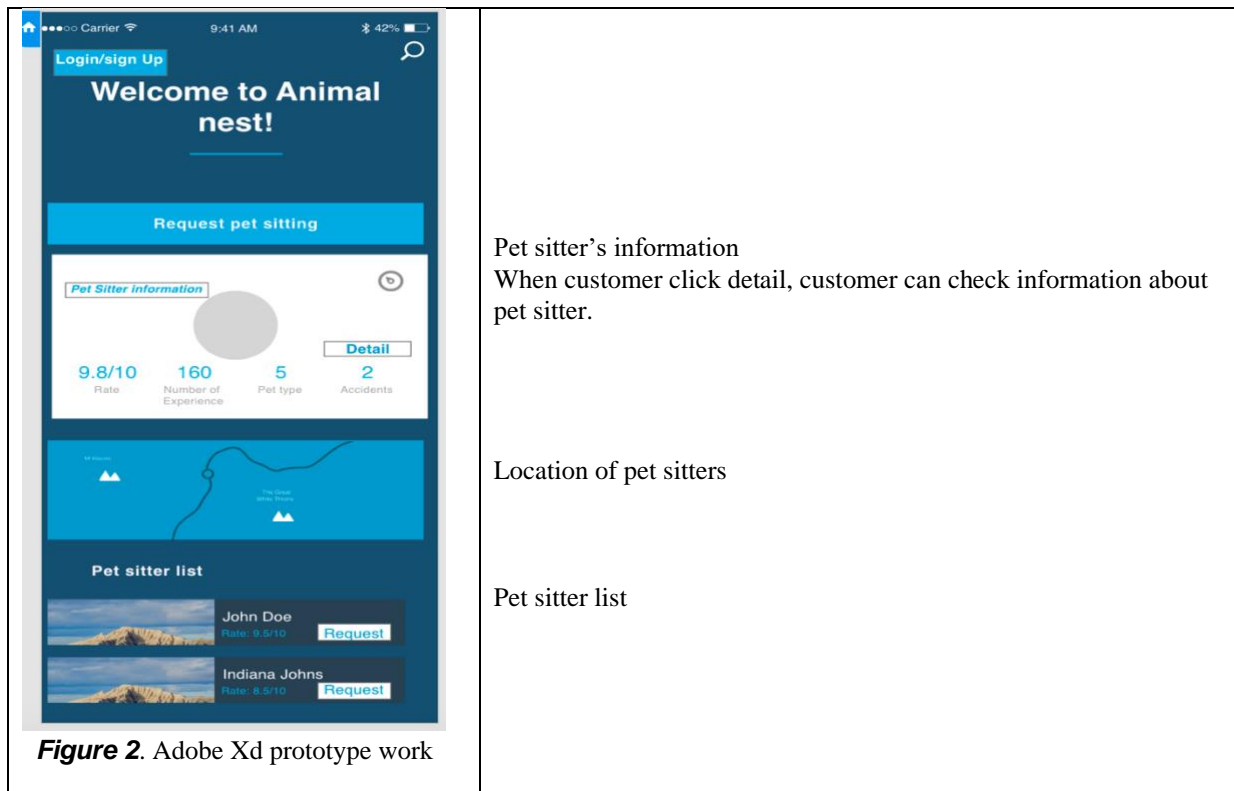
Name of Risk	Expected loss	Possibility level	Risk level	Resolution	Role(s) Responsible
Peers' claims for compensation	Claimed compensations are usually over \$10000	High	Med	Making elaborated consents will prevent this risks.	Animal Law firm services
Lack of pet sitters	Lack of pet sitters can lose all invested funds.	Low	Med	Increasing amount of pet sitting service fee will reduce this risks.	Marketers & Project Manager
Unfixable bugs	Unfixable bugs will delay our projects for few days.	High	Low	We can hire external professional freelancer developers temporarily.(\$90 ~100/hr)	Software Engineers & Stakeholders
Lack of customers by off seasons	Usually off season period is 3months, for 3months, making profits could be hard.	High	Low	Off seasons always exist in business fields. Minimizing expenditures for company is the most important key.	Marketers
Unstable connect systems	This brand may lose trustworthiness from customer.	Med	High	To get trustworthiness from customer, brand should hold events.	Software Engineers & Project Managers
Spreading rumors about this business	This brand may lose trustworthiness from customers or sponsors.	Low	Med	Advertising the business and using journals will solve this problems in one month	Marketers

2. Vision of the Solution

2.1. Vision Statement

This business is pet sitting service based on P2P system. Pet hotel system is inconvenient and expensive, but if pet system is made in P2P system, this business can offer pet sitting service with cheap cost. We set this cost as \$20 ~ \$30 per one pet in one day. Our service take \$7 service fee from pet sitter. If customers are late on checkout time, our service will impose \$14 late fee.

Below the image is easier to understand this system.



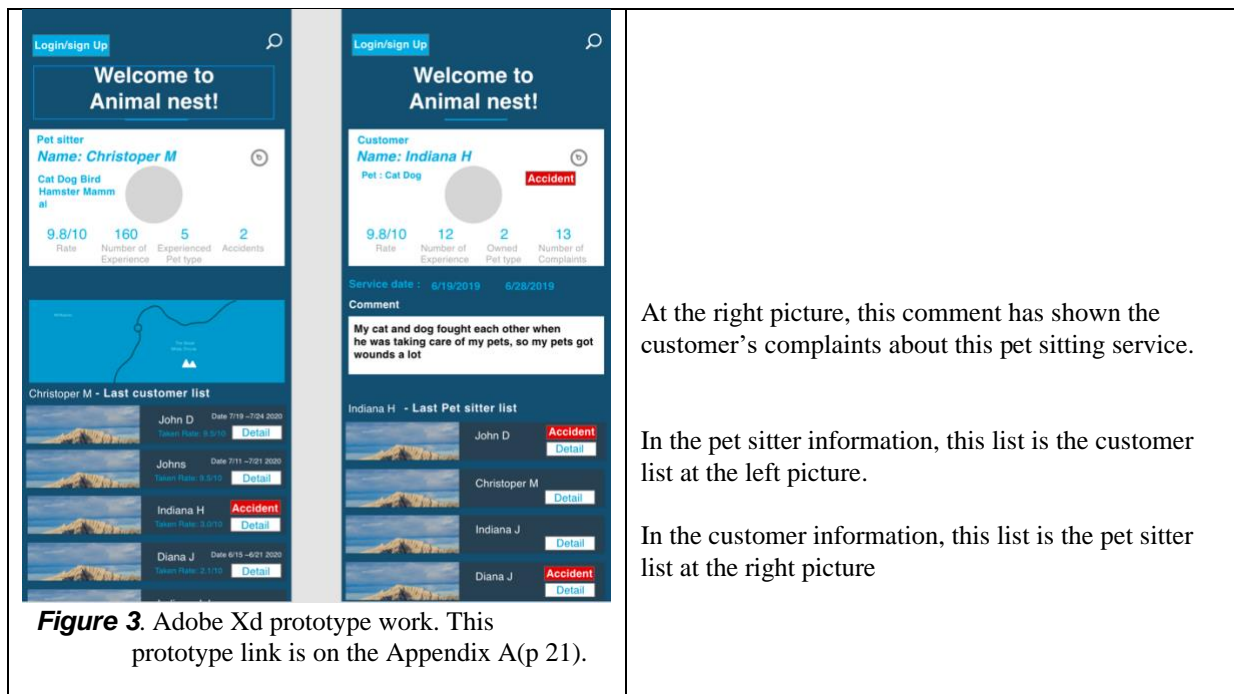
Pet sitter's information

When customer click detail, customer can check information about pet sitter.

Location of pet sitters

Pet sitter list

This prototype is basic system to request pet sitting service, and you can see pet sitters on the list. Also, you can check the pet sitter's location around you through the GPS system.



At the right picture, this comment has shown the customer's complaints about this pet sitting service.

In the pet sitter information, this list is the customer list at the left picture.

In the customer information, this list is the pet sitter list at the right picture

Customer can check the pet sitter's history, and the pet sitter's history shows what pet sitter is.

This business will bring new pet sitting cultures to us. If this systems are settled down around our communities, we don't have to spend a lot of money and time to find pet sitters. We need to settle down new pet cultures.

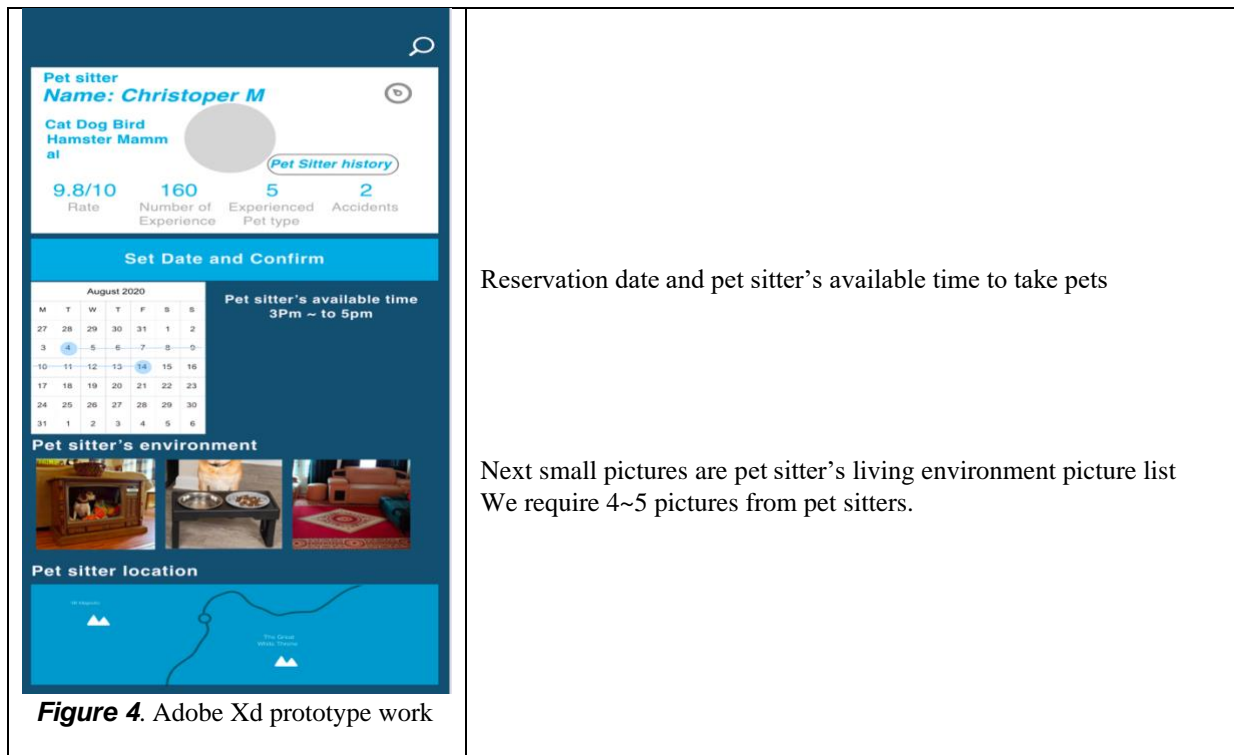
Table 7. *Old pet cultures vs New pet cultures*

Old pet cultures	New pet cultures	Effects of Animal Nest
Pet items or services are getting more expensive	Cheap and simple pet cultures will be settled down on our communities.	Animal Nest will provide simple systems with cheap cost.
People are not opened to various pets	This business will bring new kinds of pets to people	Animal Nest provide exotic pets through pet rent business.
Average number of travelers are reduced due to their pets.	Number of travelers will be increased	People will use pet sitting service without any burden.
Small number of workers in pet industries	Expanded number of workers in pet industries	Animal Nest will give pet sitter jobs to a lot of people

2.2. Major Features

Table 8. *Major feature list*

Feature	Detail	Target user
Cheap cost for pet sitting service	This cost is around one-third of pet hotel service fee	Pet sitter and pet owners who are taking trips
Allowable variation of pet kinds	Various people will use Animal Nest, so we can take care of various pet kinds	Pet owners who own reptiles, insects, big pets, small pets, fish and so on
Pet rent business	Pet rent business will provided exotic pets to renters	People who would like to borrow exotic pets like cow, horse, big cats, trained dogs and so on



Some customer worry the individual pet sitter can provide guaranteed services for their pets. Our service demands living environment pictures before approving pet sitter's application. Also, customers can check pet sitter's environment with 4~5 pictures. We are requiring pictures for feeding bowl, pet residence, pet sitter's house, pet feeds and extra one.

2.3. Assumptions and Dependencies

Table 9. Dependencies

Major dependencies	Function or tools for dependencies	Limitation or disadvantages of this dependencies
User who applied for pet sitters of Animal nest	Craigslists or community web sites	We need individual pet sitters always, but we can't control them
Online advertising system	Facebook Advertising systems Google Advertising systems	Service cost is required
Advertisement	Local advertisement in plazas or Banner on building	Service cost is required
Animal law firm service	law firm service	Service cost is required
Server service	Google Firebase	Service cost is required

3. Scope and Limitations

3.1. Scope of Initial Release

Animal Nest is using P2P system. P2P system is managed with peers. Sometimes, conflicts between peers could happen, so we require some pet information from customers and pet sitters to prevent accidents. Before using this service, customers and pet sitters need to fill in specific pet information.

Table 9. Features of requirements for Initial release (pet owners)

Feature	Reasons for feature
Allow user to register an account with pet type information and login their own account	To solve complaints by pet sitters and classify pet types
Allow user to enter pet size	Pet size is required by pet sitters
Allow user to enter location	Customer's location help to find pet sitters who are close to customer
Allow user to enter pet's habits or personality	Pet's habits and personality are important to take care of pets effectively
Allow user to enter medical history of pets	Pet's medical problem may cause accident, so pet sitters need to know this information
Allow user to agree consents from Animal Nest	This contents prevents legal problems
Allow user to enter payment information	Payment information is used for transaction

Table 10. Features of requirements for Initial release (pet sitter)

Feature	Reasons for feature
Allow user to register an account with pet experience information	Experience for pet kinds shows what pet sitter is
Allow user to enter location	Location information has shown to pet owners
Allow user to enter environment photo (Refer 2.2)	Photo for pet sitter's environment is showing pet owners
Licenses for specific animals	License is required to take care of specific animals
Allow user to enter payment information	Payment information is used for transaction

3.2. Scope of Subsequent Releases

When Animal Nest is release initially, they can't start pet rent business immediately since some exotic animals are protected under animal law, but if some pet sitters who has licenses for exotic animals or business man can raise exotic animals. Of course, some exotic pets doesn't require licenses for taking care of these pets. General rare pets also could be part of pet rent business. (Refer 1.2)

- Data table system will add one more data table type for pet renters.
- Our system will ban people who use endangered species for renting business.
- Our team will strictly inspect animal information from people who own expensive exotic pets or is borrowing exotic pets.
- Service fee will be increased depending on value of pets
- By relying on Animal law service, animal rent business will be kept

3.3. Limitations and Exclusions

Table 11. *Limitations or Exclusions*

Limitations or Exclusions	Reason
Animal Nest is not working without internet services	They should check pet sitter and pet owners in real time since pet owners should decide time to hand out his pet to pet sitters
Animal Nest doesn't guarantee high quality pet sitting services	Pet sitting service is managed by individual, so this cost of pet sitting service is cheap
Allow any pets as we have pet sitters	P2P systems have various people who have diverse experience
Animal Nest can provide pet rent	P2P system can have a lot of people, so demand rate and providing rate are also high for this business

4. Business Context

4.1. Stakeholder Profiles

General stake holders

- Web developer (React engineer)
 - Requirements
 - Bachelor's degree in Software engineer or Computer science, or similar experience preferred
 - Portfolio for React web
 - 1year experience with company or half year project.
 - Responsibilities
 - Finish project on time
 - Open to learn new skills
 - Be interactive to discuss IOS engineers or back-end engineers
 - Hourly wages : \$45 ~ \$50 Average Salary/year : \$107,800
(This wages would be less than estimated wages)
- Android mobile app developer
 - Requirements
 - Bachelor's degree in Software engineer or Computer science, or similar experience preferred
 - Portfolio for Android App
 - 1year experience with company or half year project.
 - Responsibilities
 - Finish project on time
 - Open to learn new skills
 - Be interactive to discuss Android app engineers or back-end engineers
 - Hourly wages : \$50 ~ \$55 Average Salary/year : \$131,000
(This wages would be less than estimated wages)
- IOS mobile app developer
 - Requirements
 - Bachelor's degree in Software engineer or Computer science, or similar experience preferred
 - Portfolio for IOS App
 - 1year experience with company or half year project.
 - Responsibilities
 - Finish project on time
 - Open to learn new skills
 - Be interactive to discuss IOS engineers or back-end engineers
 - Hourly wages : \$50 ~ \$55 Average Salary/year : \$131,000
(This wages would be less than estimated wages)
- Back-end online transaction engineer with web
 - Requirements
 - Bachelor's degree in Software engineer or Computer science, or similar experience preferred
 - 1 year experience in start-up company or 2 year experience in software company

- Experience developing online transaction part
 - Responsibilities
 - Finish project on time
 - Open to learn new skills
 - Be interactive to discuss software engineers
 - Hourly wages : \$50 ~ \$55 Average Salary/year : 128,500
(This wages would be less than estimated wages)
- Formal back-end engineer with web
 - Requirements
 - Bachelor's degree in Software engineer or Computer science, or similar experience preferred
 - 1 year experience in start-up company or 2 year experience in software company
 - Experience about Firebase or Server system
 - Responsibilities
 - Finish project on time
 - Open to learn new skills
 - Be interactive to discuss software engineers
 - Hourly wages : \$50 ~ \$55 Average Salary/year : 128,500
(This wages would be less than estimated wages)
- UI/UX designer
 - Requirements
 - Bachelor's degree in Graphic design or Art, or similar experience preferred
 - Experience with UI UX design with engineer (Adobe Xd, Adobe Spark or Adobe Illustration)
 - Portfolio for UI UX design
 - Responsibilities
 - Finish project on time
 - Open to learn new skills
 - Be interactive to discuss engineers
 - Hourly wages : \$40 ~ \$45. Average Salary/year : 107,881
(This wages would be less than estimated wages)
- Data marketing coordinator
 - Requirements
 - Bachelor's degree in business or marketing, or similar experience preferred
 - Experience with online advertising system (Google Ad, Facebook AD or any others)
 - Experience with data analyzing
 - Preference for experience working in technical and engineering markets.
 - Strong marketing skills with analyzing tools
 - Responsibilities
 - Report result of market data analysis
 - Control online advertising service fee not to over \$600
 - Open to learn new skills
 - Work experience with project managers
 - Be interactive to discuss market strategies
 - Hourly wages : \$25 ~ \$35. Average Salary/year : \$63,477

Table 12. Investors as big stake holders

	Requirements
Basic requirements	Who is ready to expand this business for new possibilities.
Participation times	Once a month for meeting
Supportable funds a year	Over \$711,932 = \$693,532+marketing fee \$7,200 + unexpected managing fee \$1200 + law firm services \$10000
Business network	We need stakeholder who can connect us to various business network.
Activities for invested funds	We require stakeholders who check their invested funds every month and can discuss unexpected cost at once.
Activities as stakeholder	Active response and reaction for this business. Also we need veteran business man who can introduce us business information

4.2. Project Priorities

Table 13. Priority of project

Part of project	Priority Rank	Required roles	Schedule	Budget
UI/UX sample design for App and Web	9	UI/UX designer, 2 Mobile App developer 1 react web developer	Sep.01~Oct.01.2020 1 month	Total monthly consumption: \$270 ~ \$290 Hourly wages : \$190 ~ \$210 Monthly software service & design plugin service fee : \$80
Design for data table with research	6	2 Mobile App developer 1 React web developer	Sep.01~Oct.01.2020 1 month	Total monthly consumption : \$375 ~ \$400 Hourly wages : \$335 ~ \$360 Monthly software service & design plugin service fee : \$40
Design for algorithm & UML with research	5	2 Back-end engineer 1 Project manager 1 Data marketing coordinator		
Complete front End design for App and Web	1	UI/UX designer, 2 Mobile App developer	Oct.01 ~Feb.01.2020 3 month	Total monthly consumption : \$220 ~ \$235 Hourly wages : \$140 ~ \$155 Monthly software service & design plugin service fee : \$80
Complete internal function for calculation	3		Jan.01 ~Feb.01.2020 1 month	
Developing back-end design for transferring user data	2	Formal Back-end engineer, 2 Mobile App developer	Oct.01 ~ Feb.01.2021 4 month	Total monthly consumption : \$232 ~ \$247 Hourly wages : \$150 ~ \$165 Monthly software servicefee : \$92
Developing back-end System for account information and transaction	4	Online transaction back-end engineer, React web developer	Nov.01 ~ Feb.01.2021 3 month	Total monthly consumption : \$148 ~ \$158 Hourly wages : \$100 ~ \$110 Monthly software servicefee : \$48
Alpha version	8	1 UI/UX designer 2 Mobile App developer 1 React web developer 2 Back-end engineer	Oct.01 ~ April.01.2021 4 month	Total monthly consumption : \$735 ~ \$760 Hourly wages : \$585 ~ \$610

		1 Project manager 1 Data marketing coordinator		Total software service fee : \$150
Planning consent for animal law	7	Law firm service	Feb .01 ~ Apr. 01.2021	Total Service fee : \$10000~\$20000
Marketing strategies	11	Project manager, Data Marketing Coordinator	March.01 ~ May.01.2021 2 month	Total monthly consumption : \$83 ~ \$88 Hourly wages : \$35 ~\$40 Tool Service fee : \$48
Online Advertising	10	Project manager, Data Marketing Coordinator	June. 01 ~ August. 01.2021	Total monthly consumption : \$635 ~ \$645 Hourly wages : \$35 ~\$40 Online advertising fee : \$600 (Facebook Ad, Google Ad)
Fixing or inspecting errors and bugs	12	All workers	Feb. 01 ~ June.01.2021	

Title	Priority Rank	Description
Mobile App developer	1	Our service should be handy and convenient for user-approach. Only mobile app developers can develop this service in mobile platform.
Back-end engineer	2	P2P system consist of complicated systems for transferring user data, so back-end engineer is important role in order to realize this service.
React Web developer	3	Web developer develop web page platform for this service. Of course, we have mobile app developer, but web page is easier to spread this service to potential users.
Project manager	4	Project manager plans effective services and application for users. Also, this role leads all roles effectively. Without this role, publishing this service takes long time.
Data Marketing Coordinator	5	Data marketing coordinator spread this services to potential users effectively with their marketing skills. Their work is maximizing profits in this service.
UI UX Designer	6	UI UX designer designs user-friendly interfaces. This role provides this service to users with simple designs.

4.3. Operating Environment

This business is started from California since animal law is different depending on states

Table 14. Target user environment

Features of users	Target user location	Distance between peers	Time zone	Expected time range of user activities	Individual pet sitter requirements
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Own their pets or experience about pets	California, U.S.A	3 ~ 5miles (Estimated distance could be changed by number of users)	Pacific Day Light Time	Am 8:00 ~ Pm8:00 Mon~Sun	Proper residence for pets
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Table 15. Development environment for each roles

	Mobile platform environment	Web service	UI UX design	Data marketing	Project planning
Software Program	<ul style="list-style-type: none"> Android Studio Xcode (swift) 	<ul style="list-style-type: none"> WebStorm (React) MySQL work bench Visual Paradigm 	<ul style="list-style-type: none"> AdobeXD Adobe Spark Adobe Illustration 	IntelliJ IDEA MS office	<ul style="list-style-type: none"> IntelliJ IDEA Visual Paradigm
Computer language	Java, Java Script, Objective- C	Node.js, React, SQL	Html,CSS	Python	
Required computer	Over \$500 price of computer with intel processor ver. i5 or above	Over \$500 price of computer with intel processor ver. i5 or above	Over \$500 price of computer with intel processor ver. i5 or above	Over \$500 price of computer with intel processor ver. i5 or above	Over \$500 price of computer with intel processor ver. i5 or above
Required web service	Github Slack	https://www.domain.com/domains/ (To get domain address) Slack	Extra design web sources Slack	MixPanel Firebase	Slack

Data server : Google Firebase is used as data server since Firebase is easier to analyze data. General server can't get result of analyzed data. Analyzing data is important to make marketing strategies. This amount of data usage is planned for 20,000 customers and 20,000 pet sitters. At the start of business, we don't use big amount of data.

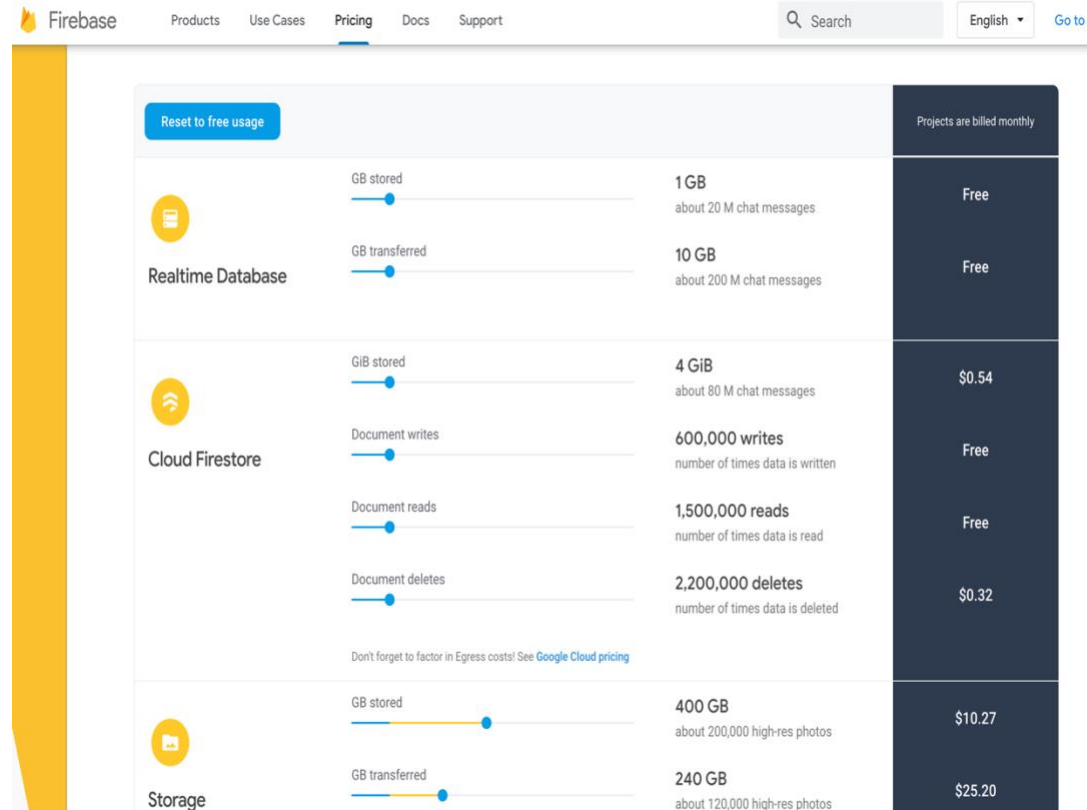


Figure 5. Google firebase

Expected number of users: 40,000

Table 16. server fee tables

Real time Database	GB stored chat message	$4M = 40000 * \text{at least 100 messages stored for one person}$
	GB transferred chat message	$120,000 = 40000 * 30 * 1 \text{ message is transferred}$
Cloud Firestore	GiB stored for stored chat message	$40M = 40000 * 1000$ 1000 messages stored per a person.
	Document writes	$60,000 = 40000 * 3 * 5 \text{ times a month}$ 3documents written per a person
	Document reads	$1M 200,000 = 40000 * 3 * 10 \text{ times a month}$ 3documents read per a person
	Document deletes	$1M800,000 = 40000 * 3 \text{ documents deleted} * 15 \text{ times}$
Storage	GB stored	$20,000 = 40000 * 5$ 5photo stored per one person
	GB transferred	$120,000 = 40000 * 3$ 3photo messages transferred per one person

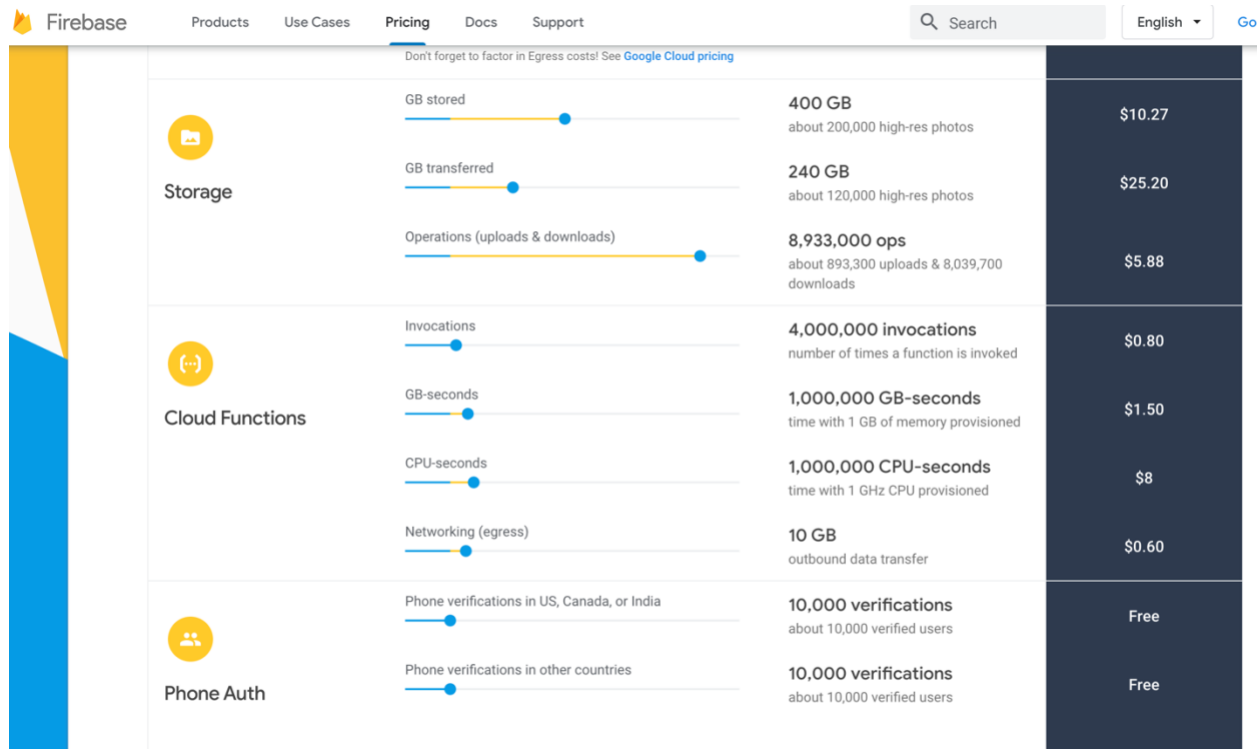
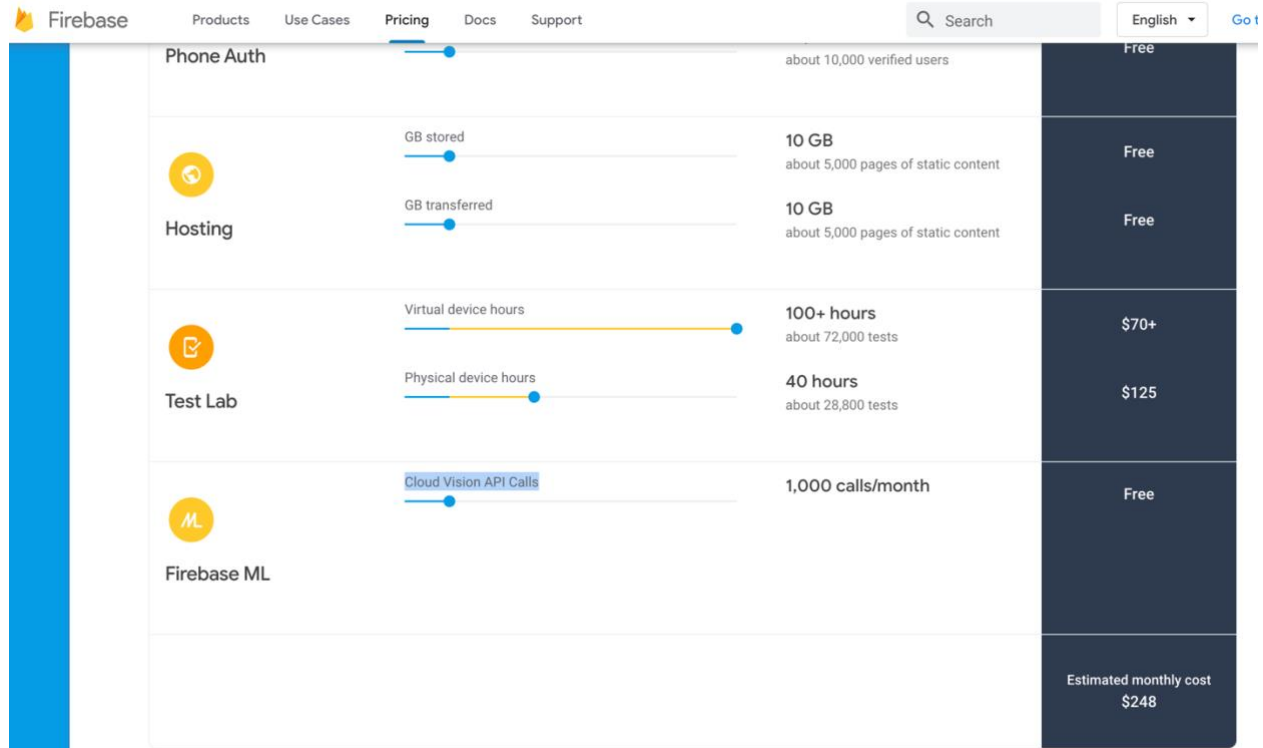


Figure 6. Google firebase

Table 17. server fee tables

Storage	Operations(uploads & downloads)	8M = 40000 * 20 * 10 times action per a user 15 photo could be uploaded per a person 5 photo could be downloaded per a person in one action
Cloud Functions	Invocation	2,400,000 = 40000 * 2 * 30 1 processed order from a customer + 1 taken order per a person
	Network system	Network data speed would be estimated again after inspecting average number of connectors
Phone auth	Verifications doesn't require a lot at once, so 10,000 is enough.	



Service	Usage	Limit	Cost
Phone Auth	about 10,000 verified users		Free
Hosting	GB stored	10 GB about 5,000 pages of static content	Free
	GB transferred	10 GB about 5,000 pages of static content	Free
Test Lab	Virtual device hours	100+ hours about 72,000 tests	\$70+
	Physical device hours	40 hours about 28,800 tests	\$125
Firebase ML	Cloud Vision API Calls	1,000 calls/month	Free
Estimated monthly cost			\$248

Figure 7. Google firebase

Our team is trying to develop perfect system, and we will analyze this systems a lot at the earlier of alpha-test. Therefore, assigned virtual and physical device hours is maximum.

Estimated monthly cost for server service : \$248

In the future, this estimated cost for data server could be changed.

Appendix A: Prototype

Below the link has shown prototype design for this service.



https://xd.adobe.com/view/8920f14f-5228-4cc0-59ae-c8fa9f25564d-ff11/#access_token=eyJ4NXUiOiJpbXNfbmExLWtleS0xLmNlciIsImFsZyI6IlJTMjU2In0.eyJpZCI6IjE1OTc5NTU4MzYyODNfNzA0Y2Q2YmMtMmE2Mi00ODZmLW15MDQOTU3NGY0OWQ2OTllX3V3MiIsImNsaWVudF9pZCI6IkNvbWV0V2ViMSIsInVzZzXJfaWQiOiIwQjZBOEFDOTU5RjAxQThDMEE0OTVDQUFAQWRvYmVJRCIInR5cGUOiJhY2Nlc3NfdG9rZW4iLCJhcyI6Imltcy1uYTEiLCJmZyI6IlVXTzZTQkVZWFBNNUIQV0hDTUIMWVBBQUdBPT09PT09Iiwic2lkIjoiMTU5NjUyODM5OTcwNI9iMmJmJmZlZiYi1kYjNiLTQ0N2QTYmRlZiOzOGI3ZThmZjg2MzRfdWUxliwibW9pIjoiZDhhMTlhZDUiLCJlIjoiS0VoMkgxV2ZuUmQwNVduU3BscmVrUT09Iiwic2l0IjoiZXhwaXJlc19pbiI6Ijg2NDAwMDAwIiwic2NvcGUOiOiIiLCJmZjcmVhdGVkX2F0IjoiMTU5Nzk1NTgzNjI4MjY5OjE0Y0aHG401FqVWTosYIHAcmTxPo4Ego3rL5N07HKBj8A4eRgRKyUjvQmtGoKtdy2yhU6BqUoAagdf7B3mEq8SNqoIGTqpDPsqPCXsqyivFygufd6FsMPtexz0y3rSCQYKZPe4sIAzGWWNB5P_2xylEXYIgVa7xAlRjQ7XMPGKLfnuLeSHM_I_nseCGHltYbU8w69KVjVJVyfvLXQUv9xtusFxswn_UPDMJz9558_I6g_sZ7yt0_z_E1TQsRirABj4QYigCuHgW_F-7AhMxAciaLWpecdMaJJ6umxVROl3_NN8PEfQEPfTYaeGq4hQtInbKzj85iAgOFE-Ym7j5OIjg&token_type=bearer&expires_in=86399997

Layout Appendix B: Works

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Cited Appendix C: Gantt

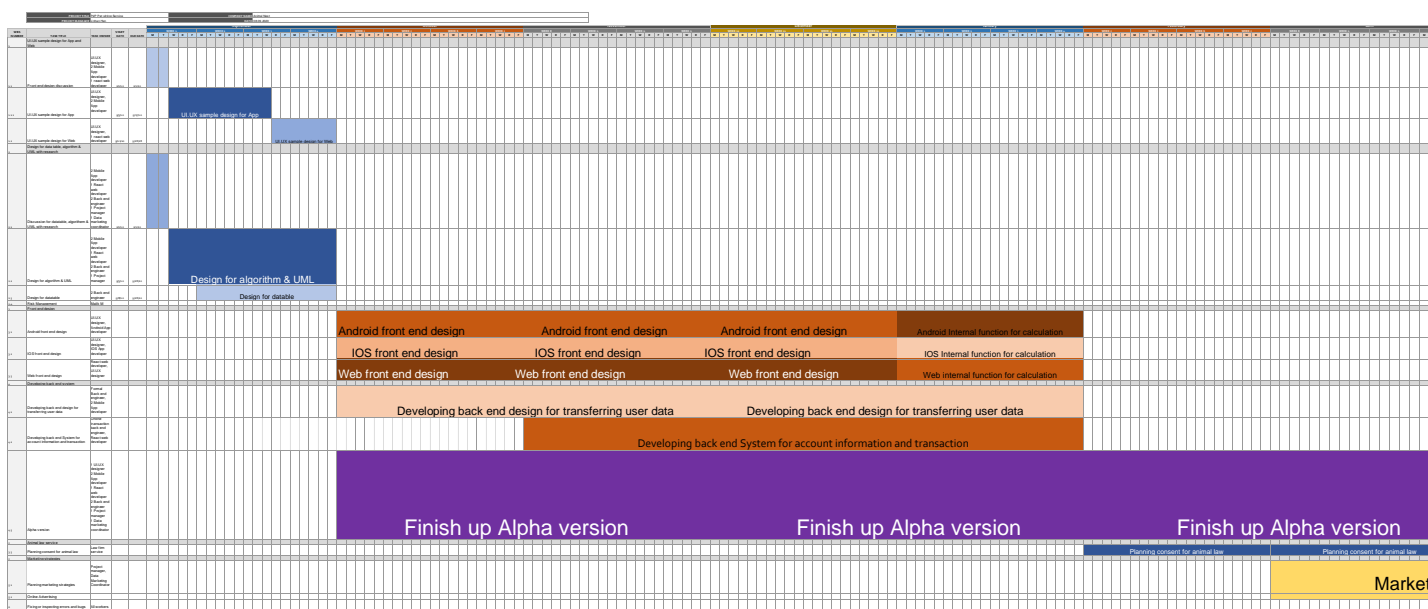


Chart Appendix D: Raw

Q1	Q2	Q3	Q4	Q5	Q6
How many times do you take a trip in a year before spreading COVID 19?	If you have an opportunity to earn money by pet sitting in your home, will you accept this offer as a second job??	Do you think Pet hotel cost \$35 ~ \$50 per night is expensive ?	If you have an opportunity to adopt pets or exotic pets(reptile, parrot, rare pets and so on) for several days, Would you like to borrow them?	Which cost range is it enough to use pet boarding or pet sitting service?	What is your age?
2		Definitely yes	Definitely yes	\$20 ~ 30	31
3	Probably yes	Probably yes	Definitely yes	\$30 ~ 40	33
Over 4	Definitely yes	Definitely yes	Probably yes	\$20 ~ 30	28
1	Probably yes	Probably not	Might or might not	Over \$40	26
1	Probably no	Probably not	Definitely not	\$30 ~ 40	33
2	Definitely yes	Probably yes	Definitely yes	\$30 ~ 40	30
Over 4	Might or might not	Probably yes	Might or might not	\$20 ~ 30	27
1	Probably no	Probably not	Definitely not	\$20 ~ 30	30
Over 4	Probably no	Probably not	Definitely not	Over \$40	29

From SJSU Qualtrics

Data Appendix E: Project Backlog

SMART Goal Worksheet

Jinhan Han	
S.M.A.R.T.	Questions...
Specific	Does your goal clearly and specifically state what you are trying to achieve? <i>If your goal is particularly large in scope, try breaking it down into smaller, specific SMART goals.</i>
Measurable	How will you (and others) know if progress is being made on achieving your goal? Can you quantify or put numbers to your outcome?
Attainable	Is achieving your goal dependent on anyone or anything else? Is it possible to reframe your goal so it only depends on you and not others? What factors may prevent you from accomplishing your goal?
Relevant	Why is achieving this goal important to you (problem you want to solve)? What values in your life and profession does this goal reflect? What effect will achieving your goal have on your life or on others?
Time-bound	When will you reach your goal? <i>Again, if your goal is particularly large, try breaking it down into smaller goals with appropriate incremental deadlines.</i>

Today's Date: 6/29/2020

Date by which you plan to achieve your goal: 2/29/2021

What is your goal in one sentence? (What's the bottom line?)

My goal is providing pet boarding services based on peer to peer system to pet owners and pet sitters with cheap prices.

The benefits of achieving this goal will be...

High profits, pet friendly cultures and advanced pet boarding services for pet owners and pet sitters.

Verify that your goal is S.M.A.R.T.

Specific: What exactly will you accomplish?

I will accomplish to develop a web app service which provides pet boarding services to pet owners and pet sitting jobs to pet sitters.

Additionally, this web app system will provide pet rent business to customers.

Measurable: How will you (and others) know when you have reached your goal?

Net revenue is important criterion to measure this goal achieving. I set the net revenue should be over thirty thousand dollars at least for stake holder and CEO.

For consumption of a month, The total sales for a month should be \$121,946 = \$30,000 for stakeholders and CEO + \$1,060,156 for salaries +

\$3,600 for maintenance of company. Estimated Sales have \$7 per one use for one days. Thus, this business should get over 17,420 number of uses to make a goal.

Attainable: *Is attaining this goal realistic with effort and commitment? Do you have the resources to achieve this goal? If not, how will you get them?*

This goal is enough possible to be attained since peer to peer systems is very popular for everyone. Therefore, most people think this platform is attractive to use.

When it comes to tech problems, developing popular systems like peer to peer systems is not too difficult because a lot of source codes of popular systems already have been opened to all.

As regards regulation of animal law, animal law firm can treat this problems. Analyzed market researches have also shown pet owners is demanding cheaper pet boarding services.

Relevant: *Why is this goal important to you? Hone in on why it matters.*

This goal is important to spread better pet services and pet cultures in our communities. Pet culture is not my business, but developing new culture is important for us because civilized world is looking forward to evolved techs or cultures.

Time-bound: *When will you achieve this goal?*

This project require almost seven months to develop alpha version of platform. Additionally, 4 ~ 5months are demanded to develop the sustainable service platform.

ACTION PLAN		
What specific steps must you take to achieve your goal?		
<i>This action plan may just get you started. Feel free to create a more detailed step-by-step plan.</i>		
Task / to-do item	Expected completion date	Date actually completed
Planning basic draft for this services	1month	Oct.01.2020
Front end design for web and app	4months	Feb.01.2020
Developing Back end systems for transferring user data	3months	Feb.01.2021
Fixing error and bugs on systems	2months	April.01.2021
Making rules or Law consents for user	3months	April.01.2021
Planning marketing strategies with data	2months	May.01.2021
Alpha version of project	6months	March.01.2021
Developing Back end system for transaction and account information	3months	Feb.01.2021
Law services for animal	3months	Feb.01.2021

OBSTACLES / CHALLENGES	
What obstacles stand in the way of you achieving your goal?	
Obstacle	How will you address the challenges if/when they arise?
Legal problems about animals	I will use professional law services.
Unexpected errors in the system	If employed developers can't solve this problem, I will hire high experienced developers temporarily.
Complaints of alpha-testers or stakeholders (Unexpected demands or consumption)	I will solve this problems through meeting with team members.
Deliberate small claims by clients	I will make elaborated legal consents through law services in order to avoid claims.

Below the table supplements the above sources

UI.UX sample design for App and Web	UI.UX designer, 2 Mobile App developer 1 react web developer	Sep.01~Oct.01.2020 1 month	Total monthly consumption: \$270 ~ \$290 Hourly wages : \$190 ~ \$210 Monthly software service & design plugin service fee : \$80
Design for data table with research	2 Mobile App developer 1 React web developer	Sep.01~Oct.01.2020 1 month	Total monthly consumption : \$375 ~ \$400 Hourly wages : \$335 ~ \$360 Monthly software service & design plugin service fee : \$40
Design for algorithm & UML with research	2 Back-end engineer 1 Project manager 1 Data marketing coordinator		
Complete front End design for App and Web	UI.UX designer, 2 Mobile App developer	Oct.01 ~Feb.01.2020 3 month	Total monthly consumption : \$220 ~ \$235 Hourly wages : \$140 ~ \$155 Monthly software service & design plugin service fee : \$80
Complete internal function for calculation		Jan.01 ~Feb.01.2020 1 month	
Developing back-end design for transferring user data	Formal Back-end engineer, 2 Mobile App developer	Oct.01 ~ Feb.01.2021 4 month	Total monthly consumption : \$232 ~ \$247 Hourly wages : \$150 ~ \$165 Monthly software servicefee : \$92
Developing back-end System for account information and transaction	Online transaction back-end engineer, React web developer	Nov.01 ~ Feb.01.2021 3 month	Total monthly consumption : \$148 ~ \$158 Hourly wages : \$100 ~ \$110 Monthly software servicefee : \$48
Alpha version	1 UI.UX designer 2 Mobile App developer 1 React web developer 2 Back-end engineer 1 Project manager 1 Data marketing coordinator	Oct.01 ~ April.01.2021 4 month	Total monthly consumption : \$735 ~ \$760 Hourly wages : \$585 ~ \$610 Total software service fee : \$150
Planning consent for animal law	Law firm service	Feb .01 ~ Apr. 01.2021	Total Service fee : \$10000~\$20000
Marketing strategies	Project manager, Data Marketing Coordinator	March.01 ~ May.01.2021 2 month	Total monthly consumption : \$83 ~ \$88 Hourly wages : \$35 ~\$40 Tool Service fee : \$48
Online Advertising	Project manager, Data Marketing Coordinator	June. 01 ~ August. 01.2021	Total monthly consumption : \$635 ~ \$645 Hourly wages : \$35 ~\$40 Online advertising fee : \$600 (Facebook Ad, Google Ad)
Fixing or inspecting errors and bugs	All workers	Feb. 01 ~ June.01.2021	