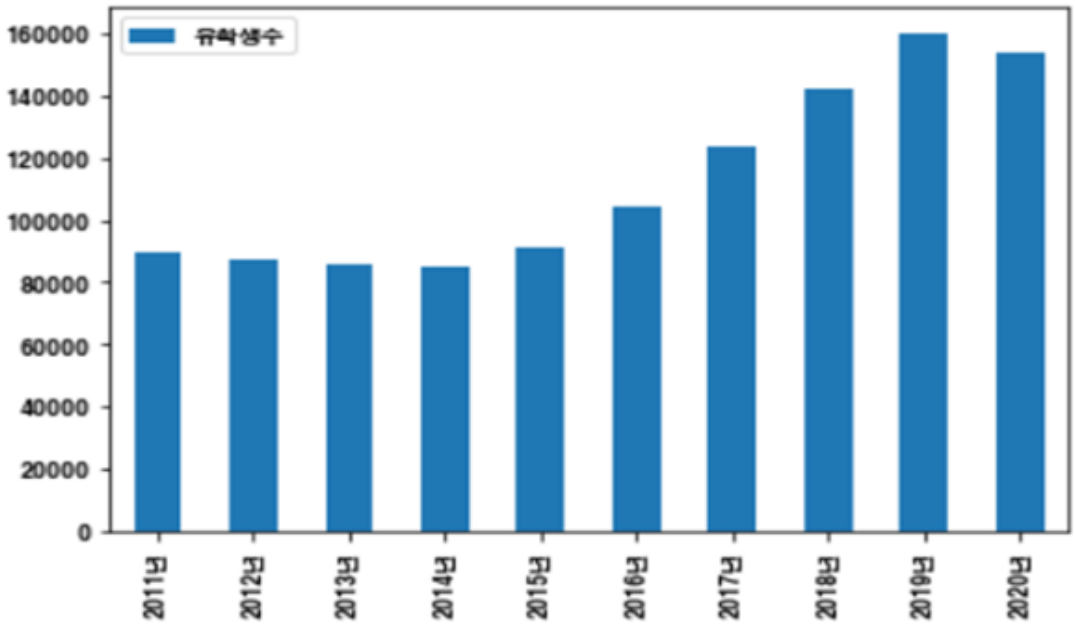
1. Introduction

Even in the unprecedented Corona period, international exchanges in each country have not been delayed. Not only K-pop, which has traditionally been strong but also media such as parasites and squid games have gained worldwide popularity, increasing the number of foreigners entering Korea. In particular, the most sensitive and progressive generation(People in their 20s) shows the most movements, and the simplest thing to feel is the increase in the number of foreign students, which is well shown in the graph below.



Accordingly, domestic universities are also taking measures tailored to this movement. In 2020, during the Corona period, it seems to have slowed down for a while, but overall, it seems to be increasing. This increase in the number of international students naturally increases the need for international dormitories, where our topic can be obtained.

Perhaps the best way to solve these problems is to refer to precedents. Similar problems were encountered in France and Japan, and problems were solved by applying their respective problem-solving methods. France established the CITE International University of Paris by devising accommodation facilities outside each university. Their solution produced good results and was able to attract the largest number of foreign students in Europe. Japan also performed well. The Tokyo International Exchange Center was established to provide space for foreign students. Their secret to success is simple. It is said that it was designed for 'user convenience'. The size of the room was designed differently according to the needs of each person, and the location was decided in consideration of the surrounding amenities and transportation facilities. Cultural facilities were installed inside so that students could experience the cultural life of the country.

- Then, what is the most problematic thing when building an international students dormitory in Seoul?

First of all, we can think of the location problem first. In order to quell complaints from people with their own interests, where should the dome be built? It is necessary to take a neutral position on the number of students in the region and decide the most central position, and for this, specific measures and standards should be prepared and decided based on this. In addition, if you build it in such a remote place that you cannot enjoy convenience facilities, let alone cultural life, you will never satisfy foreign students. Since they also have a goal of enjoying the Korean culture, not only academic achievement, we will have to choose a location in consideration of convenience facilities and cultural systems to satisfy them. Next is financial part. In a way, it is the most important part and the basis of the project. A budget is basically required to build a dormitory, and it is important to come up with measures for these budgets. In addition, items such as concerns about the investment ratio of universities and local governments, rent and dormitory amount determination will also occupy a large part of problem solving. The economic part also has a great influence on persuading major audiences. In order to obtain permission for international dormitories and draw up a budget, the mayor of Seoul and the presidents of each university must be persuaded, and a reasonable reason must be prepared for this.

In addition, there will be numerous problems. Building a dormitory is not as easy as one might think. It will take a lot of effort to satisfy vast interests and not to fail manuals executed by persuasion. In this project, we will find various ways to actually embody the contents mentioned, and a simple plan for this will be described below.

1. Literature review

We organized the literatures in the order that we are going to refer to when solving each question.

2.1. Convincing the presidents of the universities

By bibliography about economic effects of international students, we can persuade presidents of universities and the city of Seoul saying that international students can give them economic benefits. According to the bibliography [1], the economic income from attracting international students reaches about 800 billion won. The university’s economic income of attracting one international student is three times of attracting one graduate student. This paper simply 'estimates' the economic advantages of foreign students. In other words, it may be inaccurate because it is a value estimated by prediction rather than an accurate number. In addition, since standards are arbitrarily set when estimating economic benefits, objective judgment may be questioned.

The article [2] deals with the rate of increase in the number of foreign students and fixed debt rates in domestic universities. Universities in Korea cited easing financial health as the reason for increasing the number of foreign students and presented evidence by comparing

this with the increase in the fixed debt ratio. The reason was that the rate of selecting foreign students increased whenever the fixed debt ratio rose, that is, whenever the university's finances deteriorated. This article defines the relationship between the increase in the number of foreign students and the financial difficulties of universities. It is an opinion that the financial difficulties of universities cause an increase in the number of foreign students, which can be controversial in many ways. There is no argument to prove that it is only financial difficulty that causes an increase in the number of international students, and it is unclear exactly why or whether there are other factors.

2.2. Choosing the location

There are many things to take into consideration when choosing the location of the international accommodation campus. We have tried to find the main factors that comes into play on that matter with the bibliographic study and EDA parts of the project.

In [3], we learnt that two of the most important elements when it comes to attracting foreign students are the South Korean culture and the country's safety. Indeed, it is said the culture's attractivity was developed in majority by South Korean TV dramas, movies, as well as singers, which increased the consideration of the country by students and parents in the matter of choosing a university to study abroad. For the safety aspect, The contribution of university accommodation to international student security, [4] explains that students feel safer when living in a university provided accommodation, which also means security is important to them. From that, we conclude that the accommodation must be placed in a safe and culturally rich neighborhood.

Furthermore, in [5], we also saw that it was harder for students to house themselves than other people in South Korea, but it is also true for foreign students. Therefore, we also determined rent as being a feature to take into consideration, when choosing the accommodation's location.

Moreover, we needed to consider the financial aspect of the project: how the accommodation might be funded. A part of it will come from the district we will choose to build in so it seems like a good criterion to evaluate in order to get the most funding we can. That is why we added district budget magnitude as a feature to consider.

Finally, the proximity with different universities is also important as it will increase the accommodation's popularity by making student's daily commutes easier and will also help the contact between students.

Nevertheless, to determine the location, we had to find studies and papers that researched the important criteria necessary to have a good accommodation. A lot of the studies we found were based on surveys, generally done locally, which means there could be a question of representative sample: if all the persons who answered the survey come from the same place and have similar life experiences and values, it is more likely they will answer the same things. In our project proposal, we chose some of the recurrent important criteria for the location of the accommodation campus when reading different articles. But the final choice of the features may leave out equally important elements that we have not read about or may appear in the future. Furthermore, we also decided to make some features weigh more than others in the calculation of the district suitability index. This choice was also motivated by what we found to be most important when doing the bibliography and may not be relevant for everyone as some may rank the criterion differently than we did.

2.3. Justify the financial investment between the city of Seoul and the universities

One of the questions we had while doing the project was ‘How can we calculate the total cost of building the accommodation?’. According to [7], when they were calculating the total cost of building accommodation, they considered land price and construction price. We calculated the total cost following this bibliography, but we thought that this might not exactly calculate the real total price because this bibliography didn’t think about tax. However, we didn’t have deepened knowledge about architecture and construction, so we just decided to follow the bibliography.

We should justify the financial investment between the City of Seoul and universities of Seoul, so we got basic understanding of the budgets in Seoul by [8] and [9]. Seoul City is using the budget by ‘Participation budget (참여예산)’ policy, so we have to submit business proposal to get the budget. There are 3 types of proposal (wide area unit proposal, regional unit proposal, deliberation type) that we can submit, and between those we should choose ‘wide area unit proposal’ because it fits our conditions. If the citizens feel need for our business and if our proposal gets through all the proper procedures, we can get 4 billion won in maximum. [9] was made by Seoul City, so we thought that it was the most accurate information that we can get about the investment of Seoul City.

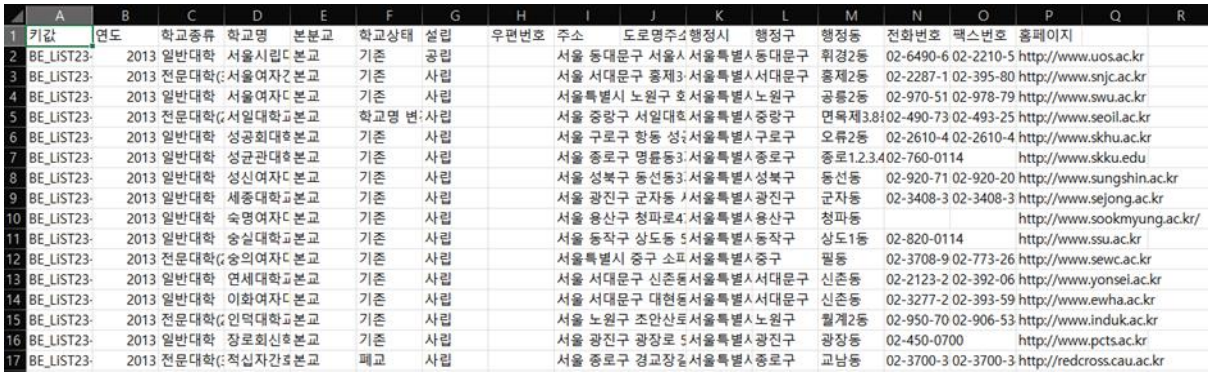
1. Data description

3.1. 2021 Status of foreign students in higher education institutions

	A	B	C	D	E	F	G	H	I	J	K	L
1	* 단위: 명											
2												
3	연도	학제	학교명	학교상태	본분교	시도	시군구	설립	대륙	국가명	동포여부	총계
4												
5	2021	대학교	강릉원주대학교	기존	본교	강원	강원 강릉시	국립	북아메리카	미국		1
6	2021	대학교	강릉원주대학교	기존	본교	강원	강원 강릉시	국립	아시아	네팔		7
7	2021	대학교	강릉원주대학교	기존	본교	강원	강원 강릉시	국립	아시아	라오스		2
8	2021	대학교	강릉원주대학교	기존	본교	강원	강원 강릉시	국립	아시아	몽골		7
9	2021	대학교	강릉원주대학교	기존	본교	강원	강원 강릉시	국립	아시아	베트남		143
10	2021	대학교	강릉원주대학교	기존	본교	강원	강원 강릉시	국립	아시아	우즈베키스탄		3
11	2021	대학교	강릉원주대학교	기존	본교	강원	강원 강릉시	국립	아시아	인도네시아		5
12	2021	대학교	강릉원주대학교	기존	본교	강원	강원 강릉시	국립	아시아	일본		1
13	2021	대학교	강릉원주대학교	기존	본교	강원	강원 강릉시	국립	아시아	중국		35
14	2021	대학교	강릉원주대학교	기존	본교	강원	강원 강릉시	국립	아시아	태국		1
15	2021	대학교	강릉원주대학교	기존	본교	강원	강원 강릉시	국립	아프리카	남아프리카공화국		1
16	2021	대학교	강릉원주대학교	기존	본교	강원	강원 강릉시	국립	유럽	러시아		1
17	2021	대학교	강릉원주대학교	기존	본교	강원	강원 강릉시	국립	유럽	프랑스		1
18	2021	대학교	강릉원주대학교	기존	제2캠퍼스	강원	강원 원주시	국립	아시아	베트남		1
19	2021	대학교	강릉원주대학교	기존	제2캠퍼스	강원	강원 원주시	국립	아시아	우즈베키스탄		2

This data showed number of international students and nationality of international students for each university. The features are year, school system, name of university, university status, location of the university, whether the school is national or private, which continent the international student is from, nationality of international student, whether the student is compatriot or not, and the number of students for each university, and student’s major.

3.2. DB information for universities and colleges in Seoul



	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
1	키값	연도	학교종류	학교명	본분교	학교상태	설립	우편번호	주소	도로명주소	행정시	행정구	행정동	전화번호	팩스번호	홈페이지		
2	BE_LIST23-	2013	일반대학	서울시립대	본교	기존	공립		서울 동대문구	서울시	서울특별시	동대문구	휘경2동	02-6490-6	02-2210-5	http://www.uos.ac.kr		
3	BE_LIST23-	2013	전문대학(:	서울여자대	본교	기존	사립		서울 서대문구	홍제3	서울특별시	서대문구	홍제2동	02-2287-1	02-395-80	http://www.snjc.ac.kr		
4	BE_LIST23-	2013	일반대학	서울여자대	본교	기존	사립		서울특별시	노원구 호	서울특별시	노원구	공릉2동	02-970-51	02-978-79	http://www.swu.ac.kr		
5	BE_LIST23-	2013	전문대학(2	서일대학교	본교	기존	사립		서울 중랑구	서일대호	서울특별시	중랑구	면목제3.8	02-490-73	02-493-25	http://www.seoil.ac.kr		
6	BE_LIST23-	2013	일반대학	성공회대학	본교	기존	사립		서울 구로구	항동 성	서울특별시	구로구	오류2동	02-2610-4	02-2610-4	http://www.skhu.ac.kr		
7	BE_LIST23-	2013	일반대학	성균관대학	본교	기존	사립		서울 종로구	명륜동3	서울특별시	종로구	종로1.2.3.4	02-760-0114		http://www.skku.edu		
8	BE_LIST23-	2013	일반대학	성신여자대	본교	기존	사립		서울 성북구	동선동3	서울특별시	성북구	동선동	02-920-71	02-920-20	http://www.sungshin.ac.kr		
9	BE_LIST23-	2013	일반대학	세종대학교	본교	기존	사립		서울 광진구	군자동 ;	서울특별시	광진구	군자동	02-3408-3	02-3408-3	http://www.sejong.ac.kr		
10	BE_LIST23-	2013	일반대학	숙명여자대	본교	기존	사립		서울 용산구	청파로4	서울특별시	용산구	청파동			http://www.sookmyung.ac.kr/		
11	BE_LIST23-	2013	일반대학	숭실대학교	본교	기존	사립		서울 동작구	상도동 5	서울특별시	동작구	상도1동	02-820-0114		http://www.ssu.ac.kr		
12	BE_LIST23-	2013	전문대학(2	숭의여자대	본교	기존	사립		서울특별시	중구 소파	서울특별시	중구	필동	02-3708-9	02-773-26	http://www.sewc.ac.kr		
13	BE_LIST23-	2013	일반대학	연세대학교	본교	기존	사립		서울 서대문구	신촌동	서울특별시	서대문구	신촌동	02-2123-2	02-392-06	http://www.yonsei.ac.kr		
14	BE_LIST23-	2013	일반대학	이화여자대	본교	기존	사립		서울 서대문구	대현동	서울특별시	서대문구	신촌동	02-3277-2	02-393-59	http://www.ewha.ac.kr		
15	BE_LIST23-	2013	전문대학(2	인덕대학교	본교	기존	사립		서울 노원구	조안산로	서울특별시	노원구	월계2동	02-950-70	02-906-53	http://www.induk.ac.kr		
16	BE_LIST23-	2013	일반대학	장로회신학	본교	기존	사립		서울 광진구	광장로 5	서울특별시	광진구	광장동	02-450-0700		http://www.pcts.ac.kr		
17	BE_LIST23-	2013	전문대학(:	적십자간호	본교	폐교	사립		서울 종로구	경교장2	서울특별시	종로구	교남동	02-3700-3	02-3700-3	http://redcross.cau.ac.kr		

This data shows the location, phone number, and homepage of each university. The features are year, type of university, name of the university, whether it is branch school or not, university status, whether the school is national or private, address of the university, phone number, fax number and website address.

3.3. 2021 Budget size for each Gu

	A	B
1	자치구	예산
2	종로구	478192
3	중구	532170
4	용산구	502568
5	성동구	601066
6	광진구	610063
7	동대문구	685669
8	중랑구	807000
9	성북구	807074
10	강북구	739078
11	도봉구	669862
12	노원구	1031570

This data shows the budget of each Gu. The features are name of the Gu and the budget of each Gu.

3.4. seoul – SeoulRealEstate (Real estate prices in Seoul)

	A	B	C	D	E	F	G	H	I	J	K
1	id	lat	lng	householc	buildDate	score	m2	p	min_sales	max_sales	avg_sales
2	2766	37.6816	127.0566	492	200006	4.3	139	42	60100	62000	61000
3	5860	37.67929	127.057	468	200105	4.1	105	32	48600	52200	51000
4	15564	37.67688	127.0581	57	200502	4.8	86	26	36000	46000	40500
5	3700	37.67528	127.06	216	199509	4.8	102	31	34000	34800	34500
6	6204	37.67638	127.0584	165	200306	4.8	91	28	27900	50300	40000
7	3697	37.67735	127.0573	299	200004	4.4	84	25	29200	39000	34500
8	19203	37.67659	127.0571	45	200905	4	126	38	36500	64600	63000
9	3699	37.67384	127.0601	290	199704	3.9	84	25	24300	40400	31000

This data shows the detailed information of real estate in Seoul. The features are id-primary key for a specific apartment, latitude and longitude of apartment, number of households in residence, build date, the score the apartment (maximum 5 stars), the area of a house, number of floors, and descriptive statics of sales price.

3.5. Crime rates in Seoul

범죄율 순위	구	범죄건수	인구	10만명당 범죄율	아파트값 순위
1	종로구	228	163,822	139	10
2	중구	182	134,329	135	9
3	서초구	410	451,258	91	2
4	용산구	213	247,909	86	4
5	강남구	483	581,760	83	1
6	마포구	316	398,351	79	8
7	영등포구	331	417,811	79	12
8	동작구	299	412,774	72	13

To complete the data found during the EDA process, we were looking for datasets relating to the crime rates in each district as it was the only missing feature in our opinion to conduct a complete analysis of the suitability of each district. The dataset was found on the website "http://realty.chosun.com/site/data/html_dir/2017/09/03/2017090301591.html", and contained the number of crimes, the population, and the crime rates for 100 000 people in each Gu of Seoul. The rate allowed us to truly see which Gu is the safest and which one is the most dangerous as it is normal that districts with higher populations count more crimes. The only problem is that the data is in an image format in three parts, which made us input the data by hand in the Excel worksheet.

3.6. Cultural facilities in Seoul

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	메인 키	분류1	분류2	분류3	분류4	검색어	명칭	지번 주소	도로명 주소	행정 시	행정 구	행정 동	
2	BE_LIST36	교육/예술/	문화시설	미술관		인사아트센	인사아트센터			서울특별시	종로구	종로1.2.3.4가동	
3	BE_LIST36	교육/예술/	문화시설	미술관		일랑미술관	일랑미술관			서울특별시	종로구	평창동	
4	BE_LIST36	교육/예술/	문화시설	미술관		일오삼갤러	일오삼갤러리			서울특별시	서초구	반포4동	
5	BE_LIST36	교육/예술/	문화시설	미술관		자하미술관	자하미술관			서울특별시	종로구	부암동	
6	BE_LIST36	교육/예술/	문화시설	미술관		장은선갤러	장은선갤러리			서울특별시	종로구	종로1.2.3.4가동	
7	BE_LIST36	교육/예술/	문화시설	미술관		정표구화랑	정표구화랑			서울특별시	중구	청구동	
8	BE_LIST36	교육/예술/	문화시설	미술관		조갤러리	조갤러리			서울특별시	종로구	가회동	
9	BE_LIST36	교육/예술/	문화시설	미술관		조선화랑	조선화랑			서울특별시	강남구	삼성1동	
10	BE_LIST36	교육/예술/	문화시설	미술관		진선갤러리	진선갤러리			서울특별시	종로구	삼청동	
11	BE_LIST36	교육/예술/	문화시설	미술관		진화랑	진화랑			서울특별시	종로구	사직동	
12	BE_LIST36	교육/예술/	문화시설	미술관		청작화랑	청작화랑			서울특별시	강남구	신사동	
13	BE_LIST36	교육/예술/	문화시설	미술관		청화랑	청화랑			서울특별시	강남구	청담동	
14	BE_LIST36	교육/예술/	문화시설	미술관		초대화랑	초대화랑			서울특별시	종로구	종로1.2.3.4가동	

For the data about the number of cultural facilities, we used the Seoul data governmental website (“https://data.seoul.go.kr”), which gave us a list of recorded cultural facilities in Seoul as well as their district of location. We were then able to count the number of cultural facilities per district to obtain the list of districts in Seoul and the number of cultural facilities in each of them that we are going to use in the analysis.

3.7. Financial soundness indicators of universities

	A	B	C	D	E	F	G	H	I	J	K
1	지역별	2020년	2019년	2018년	2017년	2016년	2015년	2014년	2013년	2012년	2011년
2	대구·경북	1.0474	1.0157	1.0092	1.0025	0.9918	0.9868	0.9816	0.9881	0.9915	0.9887
3	부산·울산	1.0449	1.0207	1.0143	1.0043	0.9964	0.9853	0.9787	0.9845	0.986	0.9887
4	수도권	1.0376	1.0037	1.0085	1.0151	1.0064	0.9888	0.9758	0.987	0.9893	0.9907
5	전라·제주	1.0367	1.0149	1.0092	1.0084	0.9972	0.9818	0.9778	0.9956	0.9979	0.9833
6	충청권	1.0446	1.0152	1.008	1.0074	0.9972	0.9829	0.979	0.9812	0.9918	0.996
7	총합계	1.0447	1.0146	1.011	1.0095	0.9992	0.9849	0.9771	0.9864	0.9921	0.9841

This dataset is data on the financial soundness of domestic universities. In the institution investigating this data, indicators of whether each university's finances are stable were shown through the 'University Risk Index by Region'. They calculated this as 175/{(new student enrollment rate index*1.5) + enrollment number index+tuition income index} and converted it into a standard score, and judged that the university's financial status was dangerous if this index exceeded 1.

3.8. Statistics on the number of international students in Korea

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
1	연도	2003년	2004년	2005년	2006년	2007년	2008년	2009년	2010년	2011년	2012년	2013년	2014년	2015년	2016년	2017년	2018년	2019년	2020년
2	유학생수	12314	16832	22526	32557	49270	63952	75850	83842	89537	86878	85923	84891	91332	104262	123858	142205	160165	153695

The above data simply shows the number of foreign students by year. Except for the recent year when COVID-19 broke out, the number of foreign students is steadily increasing, and although it has slowed down, it can be seen that a very large number of international students have visited Korea compared to the early year.

3.9. Lease price

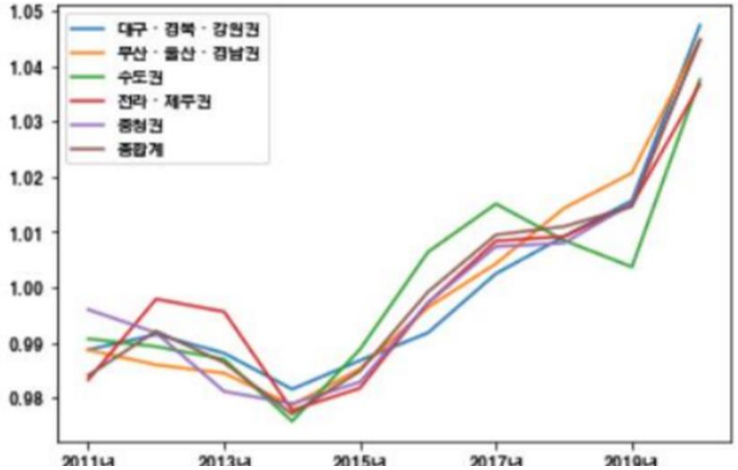
	A	B	C
1	자치구	종합	아파트
2	자치구		
3	서울시	103.6	105
4	종로구	104.8	106.1
5	중구	103.4	105
6	용산구	102.5	103.6
7	성동구	105.1	106.1
8	광진구	103.7	105.1
9	동대문구	102.5	103.5
10	중랑구	102.9	104.1
11	성북구	105.1	106.4
12	강북구	102.8	106.4
13	도봉구	101.4	101.6
14	노원구	103.4	103.9
15	은평구	103.7	103.3
16	서대문구	102	102.6
17	마포구	106.3	108.4
18	양천구	104.8	107.4
19	강서구	104.2	107.5
20	구로구	103	104.6
21	금천구	103.8	106
22	영등포구	104.6	105.4
23	동작구	104.7	107.2
24	관악구	103.3	106.6
25	서초구	104.2	105.3
26	강남구	103.9	105.4
27	송파구	104.3	106.1
28	강동구	99.4	99.4

The table above is data indicating what the rent of the building is for each 'gu' in Seoul. Each figure is relative, not absolute, and the figures allow us to know which areas in Seoul are subject to the highest rent/land tax.

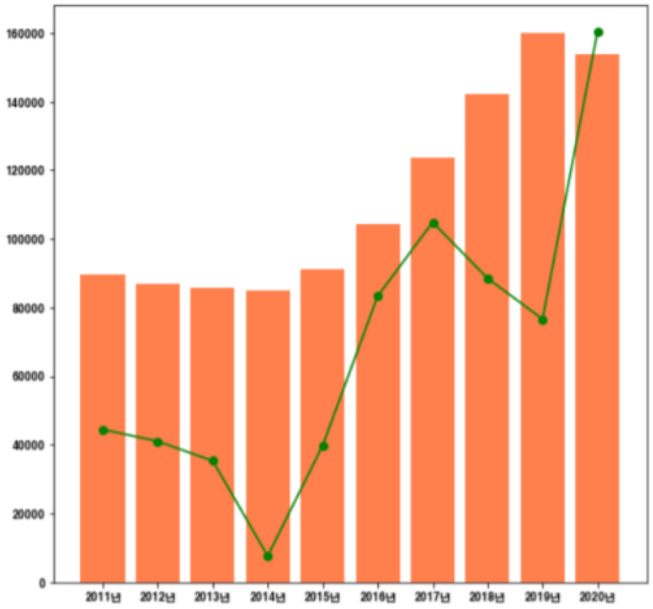
1. Data analysis

4.1. [EDA1] Correlation between the financial soundness of domestic universities and the number of foreign students.

In order to persuade the present of universities and the mayor of Seoul, we had to explain that our projects have economic advantages. Therefore, for the specific content, we tried to justify the contents of the project by grasping the relationship between the university's finances and the number of foreign students.


대구 · 경북 · 강원권
부산 · 울산 · 경남권
수도권
전라 · 제주권
충청권
종합계
1.05
1.04
1.03
1.02
1.01
1.00
0.99
0.98

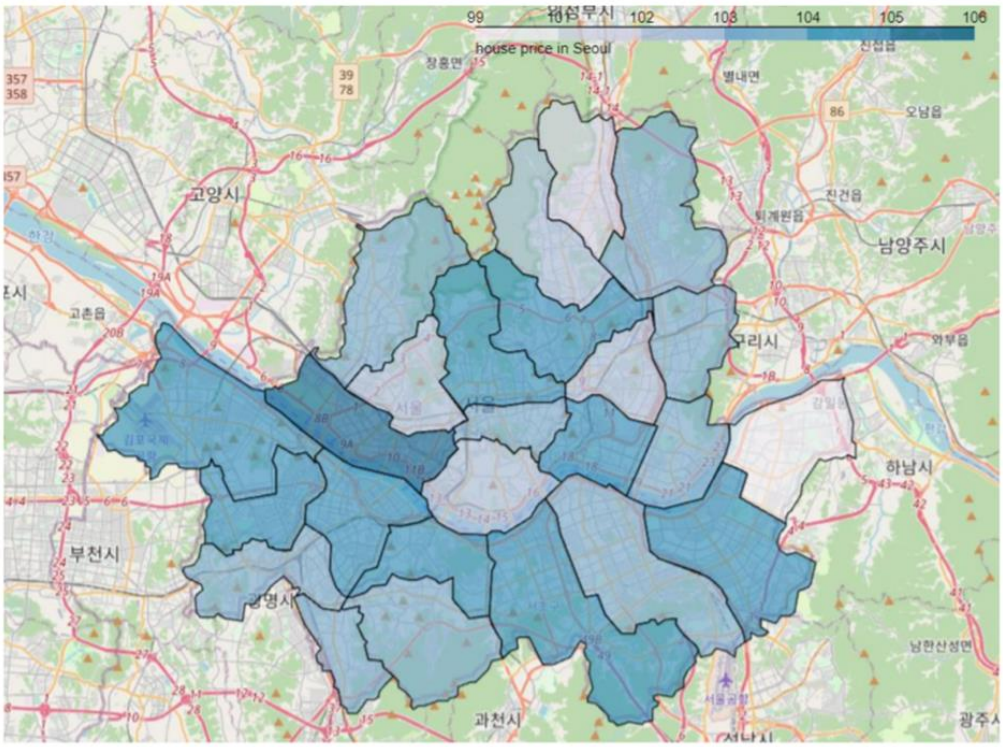

유학생수
160000
140000
120000
100000
80000
60000
40000
20000
0
2011년
2012년
2013년
2014년
2015년
2016년
2017년
2018년
2019년
2020년


160000
140000
120000
100000
80000
60000
40000
20000
0
2011년
2012년
2013년
2014년
2015년
2016년
2017년
2018년
2019년
2020년

EDA1 used two datasets.{dataset 3.7/3.8} We tried to rearrange [dataset 3.7] by region and show it as a curve graph, and as a result, we were able to obtain an upward right graph that increases financial risk as the year increases. Data from 2011 to 2020 were used, and this year's data has not yet been compiled because the agency investigating it conducts the survey every December. This data set was displayed in a bar graph to express the trend of increasing international students over the year at a glance, through which we were able to express that the number of international students increased over the year. (graph2) One thing that stands out is the fact that the steadily increasing trend of international students slowed down by 2020. Rather, it did not increase but decreased, which can be said to be the most reasonable possibility to see as an outlier due to COVID-19. This visualization plays a role in supporting the article that appears in financial part 6 in our biography process. The more the financial soundness of each university decreases, the more foreign college students are recruited, which can be seen as a positive correlation between the graphs. (graph3) One question raised in this process, however, is that despite attracting as many foreign students as they have, the university's finances are still bad, and rather worse. If interpreted differently, it can lead to the opposite of the results we expect. However, this is a difficult part to judge hastily, and there is also a point where it is difficult to judge because the financial soundness of universities is not a factor related only to foreign students. You can also find an article saying that COVID-19 exists as a representative external factor and that the Korean University Association, which judged that it was actually threatened by this factor, asked the government for help. (https://www.yna.co.kr/view/AKR20210701075100530) Therefore, it is difficult to see this unconditionally as having a negative correlation, and as mentioned above, I think it is the most likely interpretation to think of it as a material that supports the particle of financial part 6.

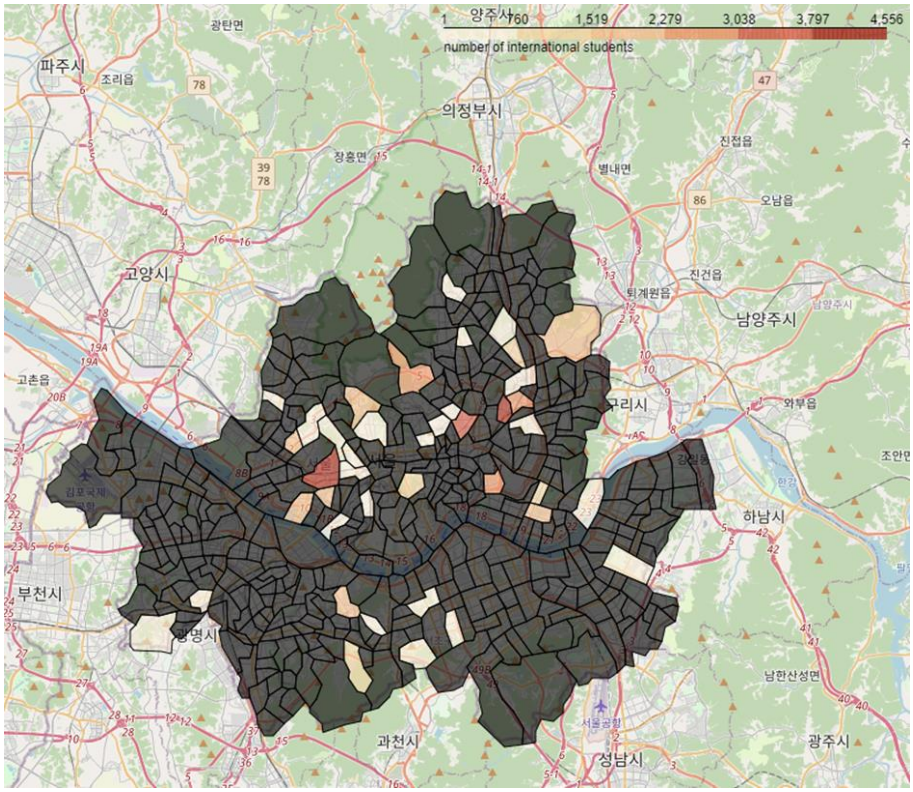
4.2. [EDA2] Visualization of the average lease price in each [-gu] of Seoul

	자치구	종합	아파트		자치구	종합	아파트
1	서울시	103.6	105.0	14	서대문구	102.0	102.6
2	종로구	104.8	106.1	15	마포구	106.3	108.4
3	중구	103.4	105.0	16	양천구	104.8	107.4
4	용산구	102.5	103.6	17	강서구	104.2	107.5
5	성동구	105.1	106.1	18	구로구	103.0	104.6
6	광진구	103.7	105.1	19	금천구	103.8	106.0
7	동대문구	102.5	103.5	20	영등포구	104.6	105.4
8	중랑구	102.9	104.1	21	동작구	104.7	107.2
9	성북구	105.1	106.4	22	관악구	103.3	106.6
10	강북구	102.8	106.4	23	서초구	104.2	105.3
11	도봉구	101.4	101.6	24	강남구	103.9	105.4
12	노원구	103.4	103.9	25	송파구	104.3	106.1
13	은평구	103.7	103.3	26	강동구	99.4	99.4



We were able to find a lease price dataset of the autonomous district of the Republic of Korea(table), that is, a dataset for the overall distribution of housing prices. Using these datasets, we will be able to help determine the location of the dormitory, and in terms of cost, we will be able to create a means of persuading the mayor of Seoul and university presidents. First, the comprehensive lease price data of each autonomous district were rearranged and displayed, and this was intended to be displayed on the map using the folium module. Like EDA3, which represents the number of foreign students in Seoul, colors are differentiated and painted according to the house price, and the darker the color, the higher the house price. As commonly known, the Gangnam area in Seoul shows a distinctly dark color, the area with a large number of international students also shows a distinctly dark color(We can know this in the previous EDA process.). One thing to note is that Cheongdam-dong, Daechi-dong, and Samseong-dong, which are known to be the most expensive housing prices in the country, show surprisingly light colors (outliers). Since these areas are areas where very high-income people live, it can be hypothesized that the number of samples in the lease model itself is small, and even a small number of samples are samples belonging to the lower classes. By mapping this lease dataset, we were able to simply represent housing prices in Seoul (map data). Two regrets are that it is difficult to know the exact data because it shows housing prices for a large area based on the autonomous district of Seoul, and it is somewhat unreasonable to look at a wide area and determine the location. To compensate for this, we looked for a new dataset for administrative {-Dong}, but failed to find them. Next, since the data does not directly represent the data of the land price in building construction, it is difficult to accurately convey facts in terms of cost. This can also be said to be a problem caused by the inability to find a data set that directly investigated the land price.

4.3. [EDA3] Number of international students for each location



<'Dong' map of international students>

Using data 3.1. and data 3.2., we merged two data sets and made a new data set including the university's address and number of international students. We made assumption that the international students in each university will be living in somewhere in the same 'Dong' as the university. So using the folium library, we decided to make a map about the number of international students in each 'Dong'.

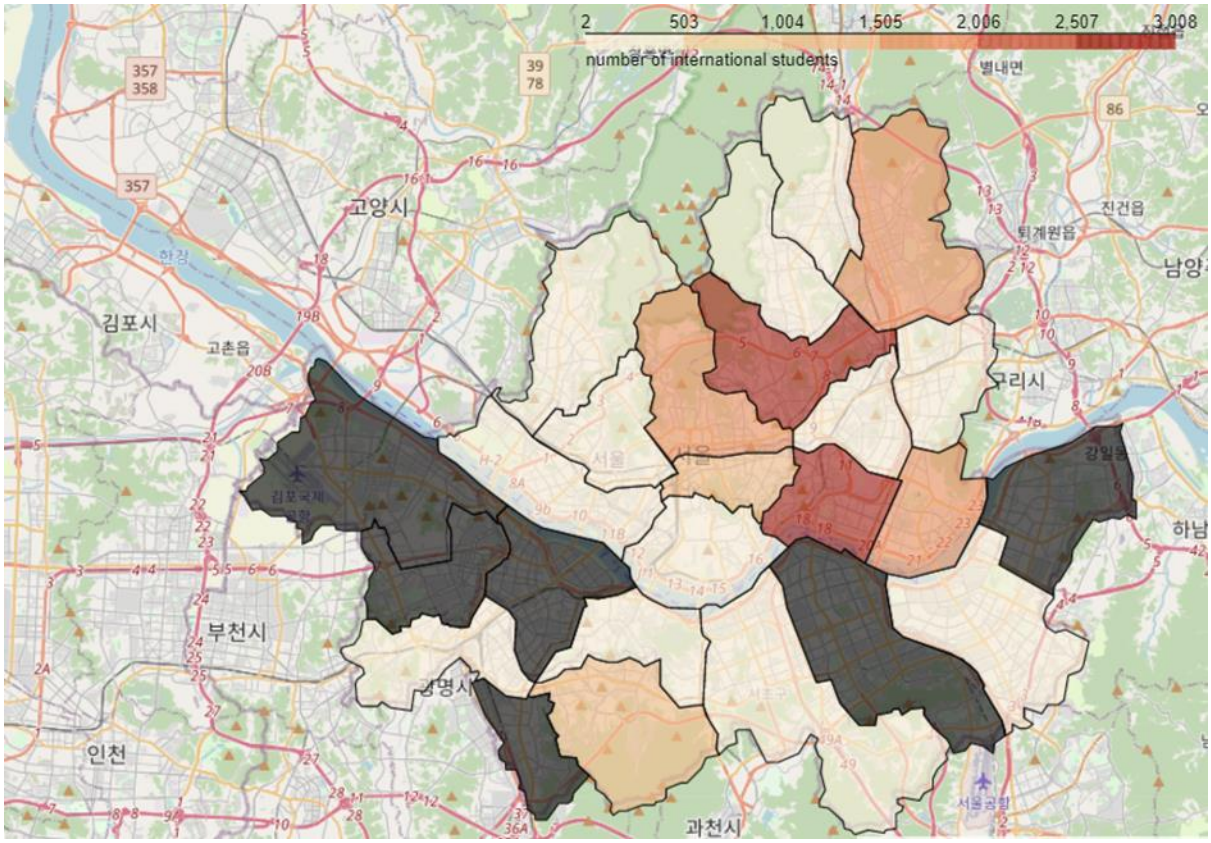
	학교명	주소	행정구	행정동	Unnamed: 2	Unnamed: 8	sum
0	서울시립대학교	서울 동대문구 서울시립대로 163 (전농동 90번지)	동대문구	휘경2동	서울시립대학교	456	460
1	서울여자대학교	서울특별시 노원구 화랑로 621 서울여자대학교	노원구	공릉2동	서울여자대학교	199	1882
2	서일대학교	서울 중랑구 서일대학길 22(면목동 49-3) 서일대학교	중랑구	면목제3.8동	서일대학교	13	13
3	성공회대학교	서울 구로구 항동 성공회대학교	구로구	오류2동	성공회대학교	133	133
4	성균관대학교	서울 종로구 명륜동3가 성균관대학교	종로구	종로1.2.3.4가동	성균관대학교	3376	3376

<merged dataset including university's address and number of international students>

This map helps us to roughly see where the international students are living in Seoul. Also if we zoom the map, we can see where the university is locating specifically. It was interesting to find out that the universities are concentrated in the center of Seoul. Also, the 'Dong's that many students were living in was '신촌동(Sinchon-dong)', '회기동(Hoegi-dong)', '종로 1.2.3.4 가동(Jongro1.2.3.4-dong), and '안암동(Anam-dong)', which are pretty close to the center of Seoul. So when thinking of the distribution of international students, for their convenience, we think it is better to build accommodation near the center of Seoul rather than the areas far from the center of Seoul. If we build accommodation in '강서구 (Gangseo-gu)', '양서구(Yangseo-gu)', 송파구(Songpa-gu)', '강남구(Gangnam-gu)', 강동구(Gangdong-gu)', especially near '경기도(Gyeonggi-do)', students will have difficulty commuting to school.

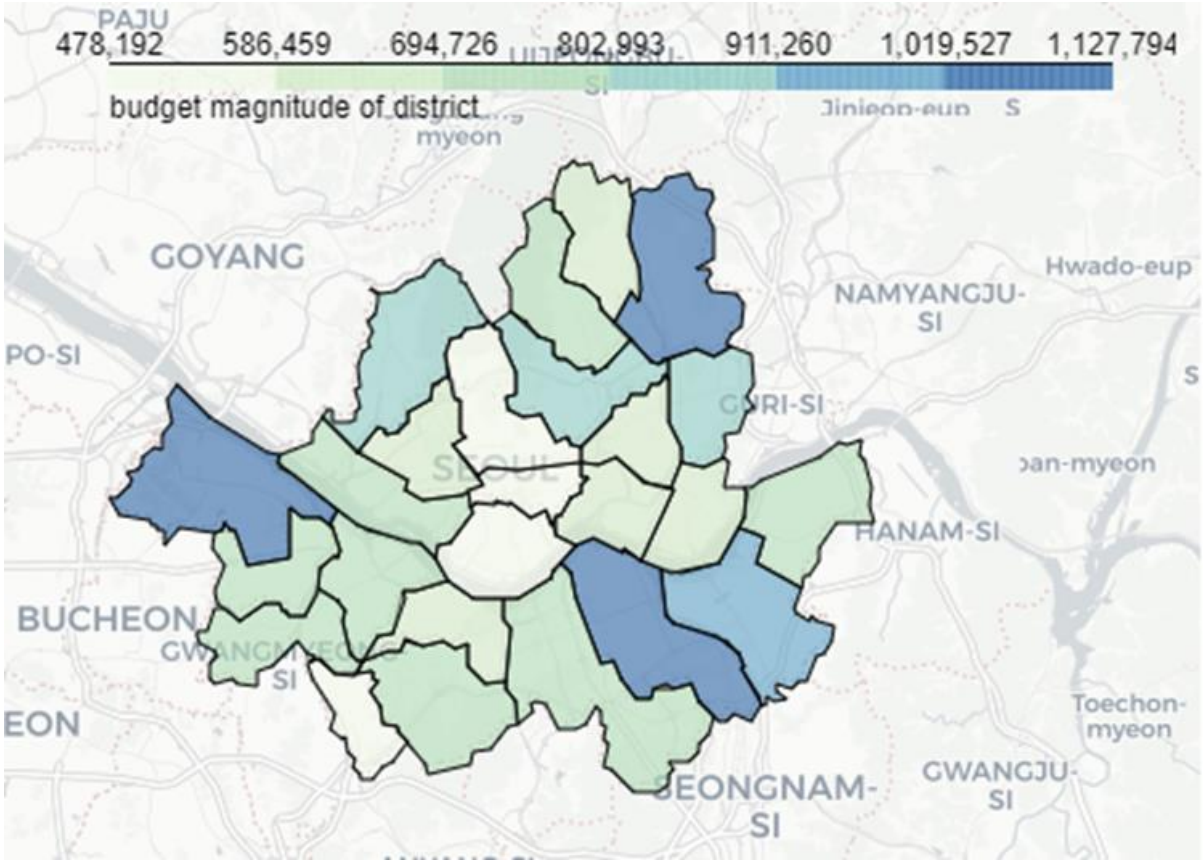
There are two weakness in this EDA: 1) There were two datasets at first, one showing the university's address, and the other one showing how many international students are in each university. I merged two datasets by 'inner', so there are universities that are not showed in the map. There was university that was in the first dataset, but not in second dataset, and also university that was in the second dataset, but not in first dataset. So when making the map, I could only use the dataset of universities that were in both dataset. 2) I only made a map including undergraduate students. It would have been better to include graduate students, so that the map gets more accurate.

Due to 1),2) weakness, we know that the map is not accurate, but since it was EDA process, we just saw the brief distribution of international students, and we will make more accurate map in the later process if needed. In further process, we decided that it would be better if we had 'Gu' map. So, we made a map showing international students for each 'Gu'.



<'Gu' map of international students>

4.4. [EDA4] Budget magnitude of 'Gu'.



We used data 3.3. According to [6], for Korea's first dormitory for international students, 8 universities in Daejeon invested 4.3 billion won and Daejeon City 4.3 billion won. So, we thought that we might get investment from Seoul City, and by studying about budget from the book that Seoul city made (bibliography1-financial aspects), we thought that we might get investment from the district in which we build the accommodation.

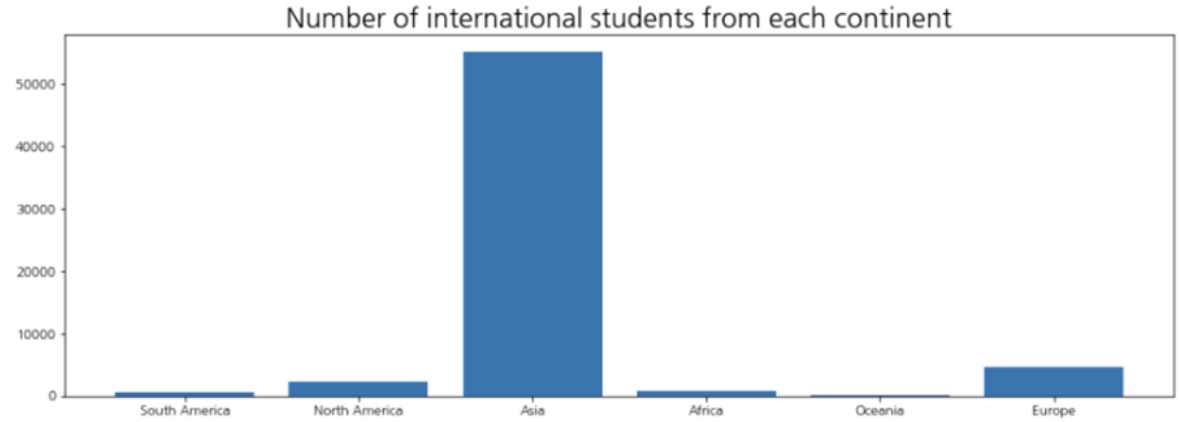
So, we used the folium library to make the map of budget magnitude of each district. The unit on the map is a million won, and as the color goes to blue, it means they have more budgets. Also if the color goes to light-green, it means they have less budgets. Since, the budget of each district vary a lot, we thought it might be critical in getting the investment.

If we are building accommodation in certain district, we thought that we could get the financial investment from that district. So, in order to get as much financial investment as possible, we thought that we should build accommodation in the district that has more budget. So, we should consider building the accommodation in top3 district (노원구(Nowom-gu), 강서구(Gangseo-gu), 강남구(Gangnam-gu)).

4.5. [EDA5] Where are the international students from?

[10] said the loneliness experienced by international students is due to the absence of the preferred cultural and/or linguistic environment. So, we thought that it might be good to build the international student accommodation where international students can meet the similar cultures. So, we just wanted to see the nationality of the international students in Korea.

We used data3.1.. Rather than considering the specific university, we just wanted to know the nationality of whole international students. At first, we wanted to know the number of international students from each continent. We made a bar graph about it, so we could see that most of the students were from Asia.



<bar graph: number of international students from each continent>

We wondered why so many students are from Asia, so we analyzed the specific nationality of the students. We could see that so many students were from Asia because many students were from China(35097 students), Vietnam(7974 students), Japan(2214 students), and Mongolia(1829 students). We thought that many students are from those countries due to short distance between countries, race similarity, and cultural similarity.

	Unnamed: 9	sum1
717	중국	35097
702	베트남	7974
716	일본	2214
699	몽골	1829
692	미국	1785
769	프랑스	1229
696	대만	1098
710	우즈베키스탄	1010
749	독일	755
750	러시아	694

EDA5 might not be directly connected to our topic, but it helped us to know more specifically about the international students in Korea.

4.6. [EDA6] Correlation between house price and other features

We needed land price data for building a new accommodation, but we only had house price data. So, we thought that if we analyze the dataset of house price data, we might have some ideas of what are the features that give effects to house price. If we know how house prices are decided, then we thought that we might roughly estimate the land price.

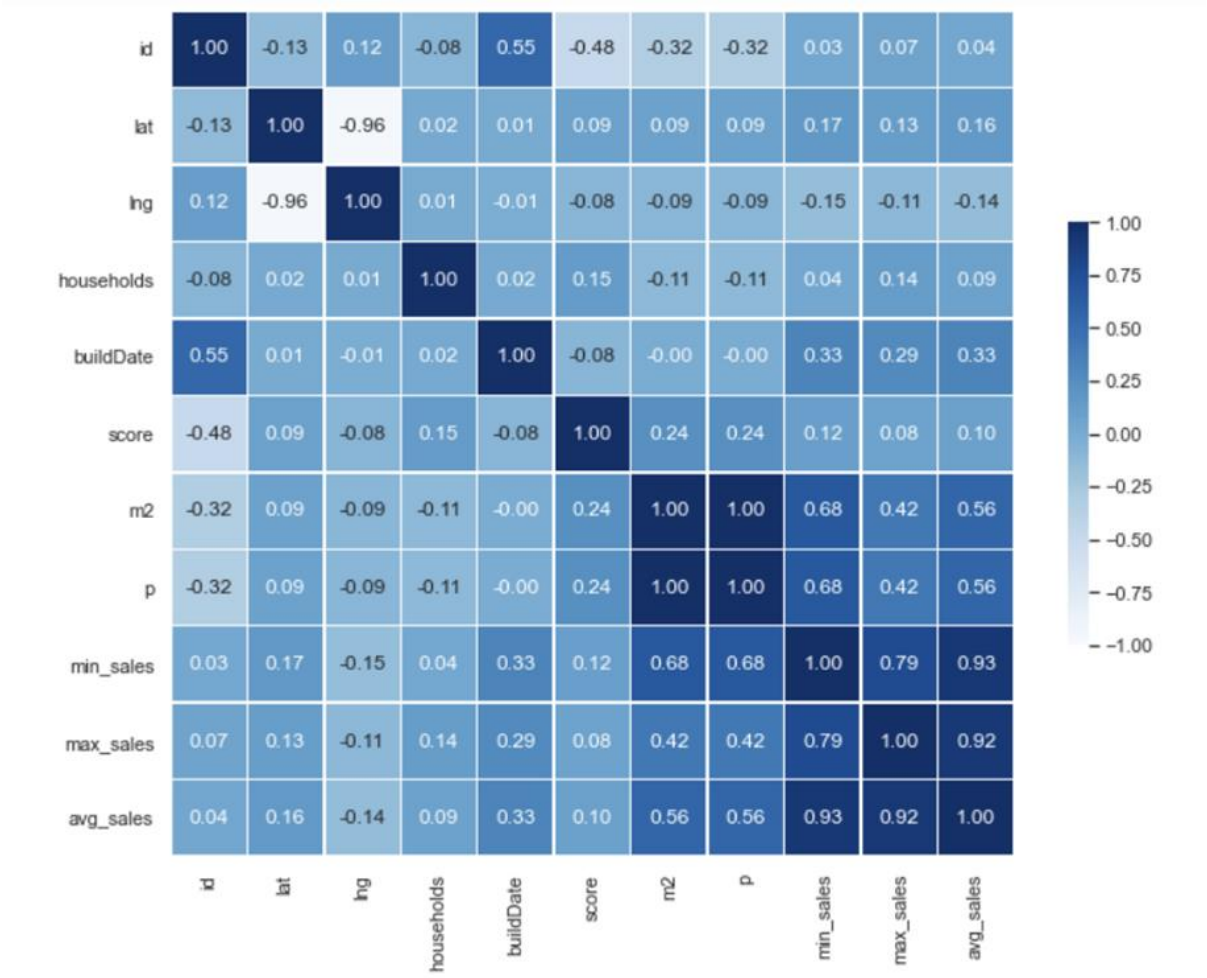
We used data 3.4.. This dataset had several features such as location, number of households in residence, build date, total evaluation(score), the area of the apartment(m2), the number of floors(p), and the descriptive statistics of sales price.

We just wanted to know if there's any correlation between the features. We followed the pearson's correlation coefficient.

Degree of correlation:

- **Perfect:** If the value is near ± 1, then it said to be a perfect correlation: as one variable increases, the other variable tends to also increase (if positive) or decrease (if negative).
- **High degree:** If the coefficient value lies between ± 0.50 and ± 1, then it is said to be a strong correlation.
- **Moderate degree:** If the value lies between ± 0.30 and ± 0.49, then it is said to be a medium correlation.
- **Low degree:** When the value lies below ± .29, then it is said to be a small correlation.
- **No correlation:** When the value is zero.

We thought we should not consider about id, latitude, longitude because they were not quantitative information.



There was moderate degree between build date and sales. Although build date was not quantitative feature, the bigger numbers meant later-built, so it seemed that later-built apartments were more expensive. It was reasonable because generally people like new things. There was high degree between the area of the apartment and sale. It seemed reasonable because more areas, more expensive. Also, since the correlation between area and other features, and the correlation between number of floors and other features are same, so we thought that there is direct proportion between the area and the number of floors. So we thought that the area in each floor is the same in this dataset. And lastly, the correlations between the sales were very high and we thought this was reasonable.

Also, it was interesting to find out that the correlation between some features (build date, area, floors) and the maximum sales were a little lower than correlation between features and minimum or average sales. But we could not find the reason to it.

So if we have to roughly estimate the land price, we should consider the build date and area. For example, let's say A apartment and B apartment price is same, and the build date is same. But if A has 12 floors, and B is 10 floors, then the land price of B is expensive than A.

This EDA was not directly used in the project, but it was interesting to see the correlation between house price and other features.

4.7. Data analysis in the location part

For the data analysis in the location part of the project, we chose to manipulate the data on Excel as the calculations were not too complicated. We firstly made a list of all the Gu in Seoul, then, we added a column containing the budget magnitude of each district. After that, we were able to add the rent price related data for each district, the number of international students, the crime rates for 100000 people, as well as the number of cultural facilities.

The first problem to resolve was the missing data for some features, in different districts. To tackle the issue, we calculated the mean value for each feature and replaced the missing values with it. The replaced values are highlighted in the following picture:

District	Budget magnitude	Grade	Rent price	Grade	Number of international students	Grade	Crime rate (for 100 000 people)	Grade	Cultural facilities	Grade
Jongno-gu	478192	0,25	104,8	0,25	5548	1	139	0,25	110	1
Jung-gu	532170	0,25	103,4	0,75	1503	0,5	135	0,25	12	1
Yongsan-gu	502568	0,25	102,5	1	193	0,5	86	0,25	10	1
Seongdong-gu	601066	0,25	105,1	0,25	3008	0,75	46	0,75	3	0,5
Gwangjin-gu	610063	0,25	103,7	0,5	3110	1	69	0,5	2	0,5
Dongdaemun-gu	685669	0,5	102,5	1	7052	1	51	0,75	1	0,25
Jungnang-gu	807000	0,75	102,9	0,75	13	0,25	50	0,75	10	1
Seongbuk-gu	807074	1	105,1	0,25	6374	1	34	1	6	0,75
Gangbuk-gu	739078	0,75	102,8	1	41	0,25	52	0,5	4	0,75
Dobong-gu	669862	0,5	101,4	1	143	0,25	32	1	10	1
Nowon-gu	1031570	1	103,4	0,75	2992	0,75	37	0,75	3	0,5
Eunpyeong-gu	891000	1	103,7	0,5	3	0,25	35	1	1	0,25
Seodaemun-gu	685580	0,5	102	1	6813	1	50	0,75	4	0,75
Mapo-gu	735557	0,5	106,3	0,25	3153	1	79	0,25	13	1
Yangcheon-gu	768582	0,75	104,8	0,25	2281	0,75	26	1	5	0,75
Gangseo-gu	1030435	1	104,2	0,5	2281	0,75	47	0,75	2	0,5
Guro-gu	739160	0,75	103	0,75	212	0,5	67	0,5	2	0,5
Geumcheon-gu	545733	0,25	103,8	0,5	2281	0,75	62	0,5	1	0,25
Yeongdeungpo-gu	708061	0,5	104,6	0,5	2281	0,75	79	0,25	6	0,75
Dongjak-gu	679453	0,5	104,7	0,25	1932	0,5	72	0,5	1	0,25
Gwanak-gu	795300	0,75	103,3	0,75	1229	0,5	64	0,5	3	0,5
Seocho-gu	746717	0,75	104,2	0,5	17	0,25	91	0,25	9	0,75
Gangnam-gu	1127794	1	103,9	0,5	2281	0,75	83	0,25	31	1
Songpa-gu	963534	1	104,3	0,5	6	0,25	37	0,75	8	0,75
Gangdong-gu	788382	0,75	99,4	1	2281	0,75	36	1	3	0,5
Mean	***746784***	***0,63***	***103,592***	***0,61***	***2281,12***	***0,64***	***62,36***	***0,6***	***10,4***	***0,67***

We then went on calculating the 1st, 2nd, and 3rd quartile for each set of values. The quartiles allowed us to give grades to each Gu for each feature. For features like budget magnitude, number of international students or number of cultural facilities where higher numbers are better, we decided to give a 0.25 grade for districts under the 1st quartile, a grade of 0.5 for districts between the 1st and 2nd quartile, a grade of 0.75 for districts between the 2nd and 3rd quartiles, and a grade of 1 for districts over the 3rd quartile. For features like crime rates and rent price, where lower numbers are better, we did the opposite, giving grades of 1 for districts under the 1st quartile, 0.75 for districts between the 2nd and 3rd quartiles, 0.5 for districts between the 2nd and 3rd quartiles, and 0.25 for districts over the 3rd quartile. We then gave a different importance to each feature by weighing them as follows : 1 for rent price, 3 for number of international students, 2 for budget magnitude, 3 for crime rates, and 1 for cultural richness (number of cultural facilities).

After that, we calculated the sum of each grade squared multiplied by the weight to obtain a final grade for each district. The squaring of the grades allowed a better repartition of the final grades to define better which districts are more suitable. We were then left with the final grades for each district and calculated the 3rd quartile of the value set to determine the best districts to build the accomodation in. The final grades can be seen in this picture:

District	Total
Jongno-gu	4,375
Jung-gu	2,625
Yongsan-gu	3,0625
Seongdong-gu	3,8125
Gwangjin-gu	4,375
Dongdaemun-gu	6,25
Jungnang-gu	4,5625
Seongbuk-gu	8,625
Gangbuk-gu	3,625
Dobong-gu	5,6875
Nowon-gu	6,1875
Eunpyeong-gu	5,5
Seodaemun-gu	6,75
Mapo-gu	4,75
Yangcheon-gu	6,4375
Gangseo-gu	5,875
Guro-gu	3,4375
Geumcheon-gu	2,875
Yeongdeungpo-gu	3,1875
Dongjak-gu	2,125
Gwanak-gu	3,4375
Seocho-gu	2,3125
Gangnam-gu	5,125
Songpa-gu	4,6875
Gangdong-gu	7,0625
Mean	***4,67***

4.8. Summary of data analysis

The first 4 EDAs were mostly focused on the geographical and financial aspects of the international accommodation campus. For the localization, the goal was to find districts of Seoul that are near most of the universities, that have high budgets and whose average rent are low. We know the rent price is not necessarily proportional to land price, but we assumed that if the rent is more expensive, the price of land will be too because it is well situated. Nevertheless, some data about the price of land and construction in each district would be useful in this case. If we fail to find the land price data during the project, then we should roughly estimate the land price based on EDA6.

Furthermore, the number of students in each university as well as their location will prove useful in our opinion as we will be able to determine the optimal location regarding distance to universities to facilitate the greatest number of student's daily lives while also considering the two other criteria. The problem with this EDA was mostly the loss of data while joining the two tables that could be fixed by finding two tables that match or just adding individually data found as things progress.

Regarding the financial aspect of the subject, we can see in EDA 1 the increase in the number of international students coming to study abroad in Korea. Unfortunately, we also see the financial instability of universities in the country increase, but it would be interesting to collect more data about the income brought to Korean universities by foreign students to determine whether internationalization of the studies has a positive impact or not on the universities and more broadly on the country's economy.

The EDA5 brings insight on the nationality of foreign students, which can help the project as it will allow to create a more familiar environment for those students to reduce the feeling of loneliness and other issues that we talked about in our bibliography and the EDA.

Finally, the analysis of the data about each district and the feature engineering to create the district suitability index gave us some insight on what the most suitable districts in Seoul are in terms of building the accommodation campus and by choosing the features that are relevant to study.

To conclude, the EDAs conducted helped a lot for the location of the campus, which is one of the major questions of the project as well as gave us leads to improve the response given to the financial question and on the ways to make this campus more attractive to international students.

1. Proposed solution

5.1. Convincing the presidents of the universities

5.1.1. Set the goal

In the convincing process, It is really important to know the needs of the opposite. Basically, the leader of a group pursues the direction of increasing economic profit. And personally for them, because they have a ambition for winning the election, so they follow policies that can be politically beneficial. So we set their needs up, for financial part and politic part.

5.1.2.convincing and persuading

1) finance part

Now, in earnest, we have to appeal to them that our project will help them. First of all, we found articles and papers including various datasets for this purpose. In the bibliography course, we were able to find an article on the relationship between university finance and the number of foreign students.('Foreign students have increased 61 times in 20 years...filled up the college financial difficulties')

To make the above more clear, we tried to find specific data and find a connection between the two. Using the obtained datasets, the relationship between the two was expressed visually by graphing it, which was also evident enough to be confirmed with the eyes. But to be clear, we tried to get clearer results by controlling other variables, but we couldn't. In controlling variables, there was not only a lack of selectable data, and there were limitations in directly testing and investigating them, so relatively clear limitations were obtained.

2) politic part

a 'political' advantage for mayor of Seoul and present of each universities. However, there were no candidates who pledged these projects in the past, so it could be difficult to associate

our projects with political issues. But what is clear is that politicians in modern society implement a lot of policies to promote their own country or city, and a representative example of this would be local branding.*('I seoul you') The influx of young foreigners, including revitalization of the local economy and rising national image, will clearly bring them political advantages and can be sure to appeal simply.

5.2. Choosing the location

When looking at what districts were in the top quarter, we identified the 3 best candidates to build the international accommodation campus in : Seodaemun-gu, with a grade of 6.75, Gangdong-gu, with a grade of 7.1, and Seongbuk-gu, with a grade of 8.625. Between the three Seongbuk-gu seemed to be the best option as it has the best grade by more than 1.5 points and is also central when looking at the Seoul map. We have therefore chosen to build the international district accommodation in the district of Seongbuk-gu in Seoul.

5.3. Justify the financial investment between the city of Seoul and the universities

5.3.1. Decide the magnitude of the accommodation.

In order to build the accommodation, we thought that we need to decide the magnitude of the accommodation so that we can choose the specific land to build on and roughly calculate the cost that is needed to build the accommodation.

At first, we tried to calculate the total international students in Korea and find the dormitory acceptance rate data and then roughly estimate the number of international students who need accommodation. However, we were only able to find the total student (including Korean students) dormitory acceptance rate data, not international students dormitory acceptance rate data. Also, we were able to calculate the number of total international students in 2021, but we thought that it would vary in future years.

So, we searched for international student accommodation that is existing right now to refer. By doing bibliography, we could find the first international student accommodation in Korea, Nuri-hall. According to [6], at the time of its construction, the Nuri Hall was built in a medium size of 450 people, but planned to build an additional gradually, and had a vision to create an internationalization cluster based on Nuri Hall. One of the reason why Cite universitaire de Paris was able to succeed was because there was a internationalization cluster based on Cite universitaire de Paris. So, because we had same goal as Nuri-hall, we decided to build similar magnitude of accommodation as Nuri-hall and then build more gradually to create an internationalization cluster based on the accommodation.

구 분	내 용
설립주체	• 대전시, 대전 소재 8개 대학(대전대, 목원대, 배재대, 우송대, 충남대, KAIST, 한남대, 한밭대)
개 관	• 2007년 9월
규 모	• 연면적 7,043 m^2, 지하 1층, 지상 10층, 224실 450명 수용, 2인 1실
시 설	• 식당, 휴게실, 체력단련실, 매점, 독서실, 종교실, 세탁실, 공동취사실
설립계획	• 대전시 보유 유휴지, 엑스포과학 공원 내에 설립
주변시설	• 엑스포 공원의 유스호스텔, DCC 대전컨벤션센터, 국립중앙과학관, 대전무역전시관
용 도	• 대전 소재 8개 대학의 외국인 유학생 입주
목 적	• 기존 엑스포공원의 유스호스텔, 컨벤션센터, 게스트 하우스와 연계 외국어체험마을, 외국어아카데미와 국제화 클러스터 조성

자료: www.nurihall.or.kr

<Overview of the Nuri-hall>

5.3.2. Calculate the total cost for building the accommodation.

We decided to calculate the total cost to see how much money is needed to implement our project. According to [7], we needed to calculate the land price and construction price to calculate the total cost to build the accommodation.

1. Calculate the land price

We needed a land in Seongbuk-gu. So we searched for appropriate land by Korean land price website (https://www.valueupmap.com/). Since we wanted to build similar magnitude as Nuri-hall, we needed at least 1360(3.3 ㎡).

대전 누리관	
개 관	2007년 9월
설립주체	대전 소재 8개 대학
부 지	대전시유지 – 1,360평
건립계획	동단위
주변시설	엑스포 과학공원
건립목적	저렴한 가격으로 기숙사 제공 외국인 유치, 주변시설과의 연계를 통한 지역경제 활성화
공동시설	식당, 휴게실, 체력단련실, 매점,독서실, 종교실, 공동취사실
운영방식	대전시 소재 8개 대학의 외국인 유학생에 국한

<More information about Nuri-hall>

So there needed 3 conditions to find the land for our accommodation.

1) The land has to be at least 1360(3.3 ㎡).

2) There should be no building, or no plan to build a building on the land right now.

3) Considering accessibility, it should not be the land of mountain.

We were able to find a land in Seongbuk-gu that fits our needed condition. This was the only land that fits our condition.

토지

서울특별시 성북구 돈암동 83-142

(서울특별시 성북구 북악산로 935-25)

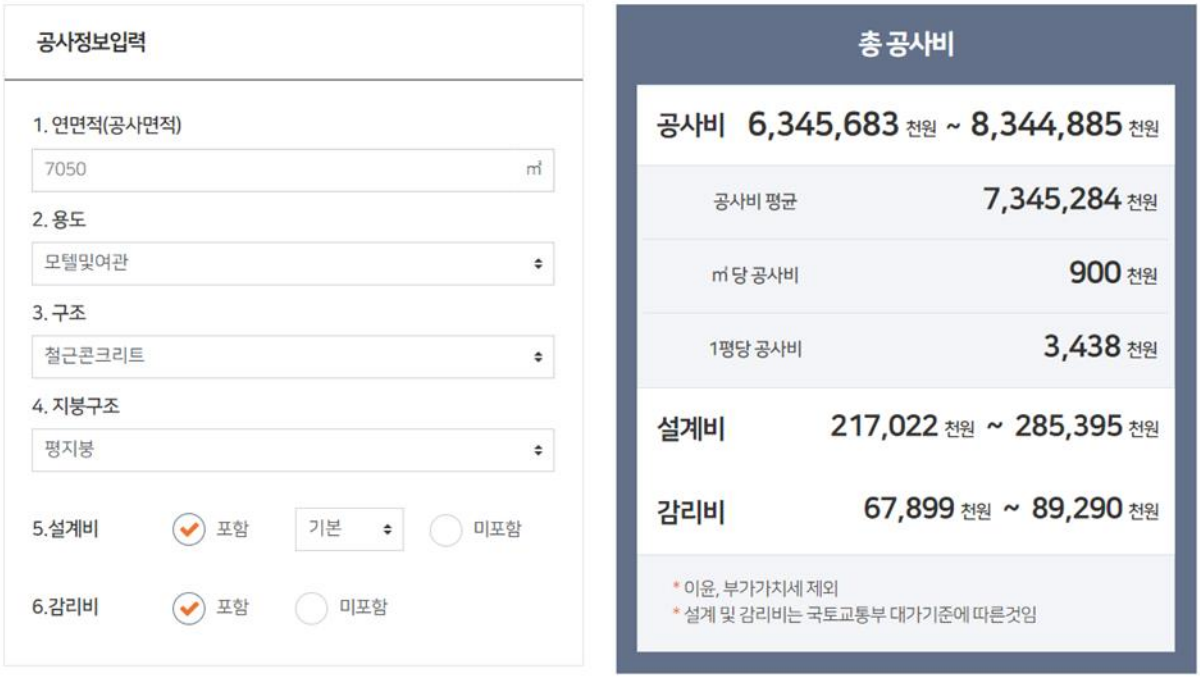
3,785,320,000원

<Land that fits our condition>

We needed about 3,785,320,000 won for land price.

2) Calculate the construction price

Since the total floor area of Nuri hall was about 7043 ㎡, we needed more than it. We found 'Construction Association of Korea' website (http://cais.cak.or.kr/cost/cost/costPage.do) and we were able to roughly estimate the construction cost.



<Estimating the construction price>

We need about 7,345,284,000 won to construct the accommodation.

3) Calculate the total cost

The total cost to build the accommodation can be calculated by adding the land price and construction price.

Total cost= Land price (3,785,320,000 won) + Construction price (7,345,284,000 won) = 11,130,604,000 won.

5.3.3. Find investors for our accommodation

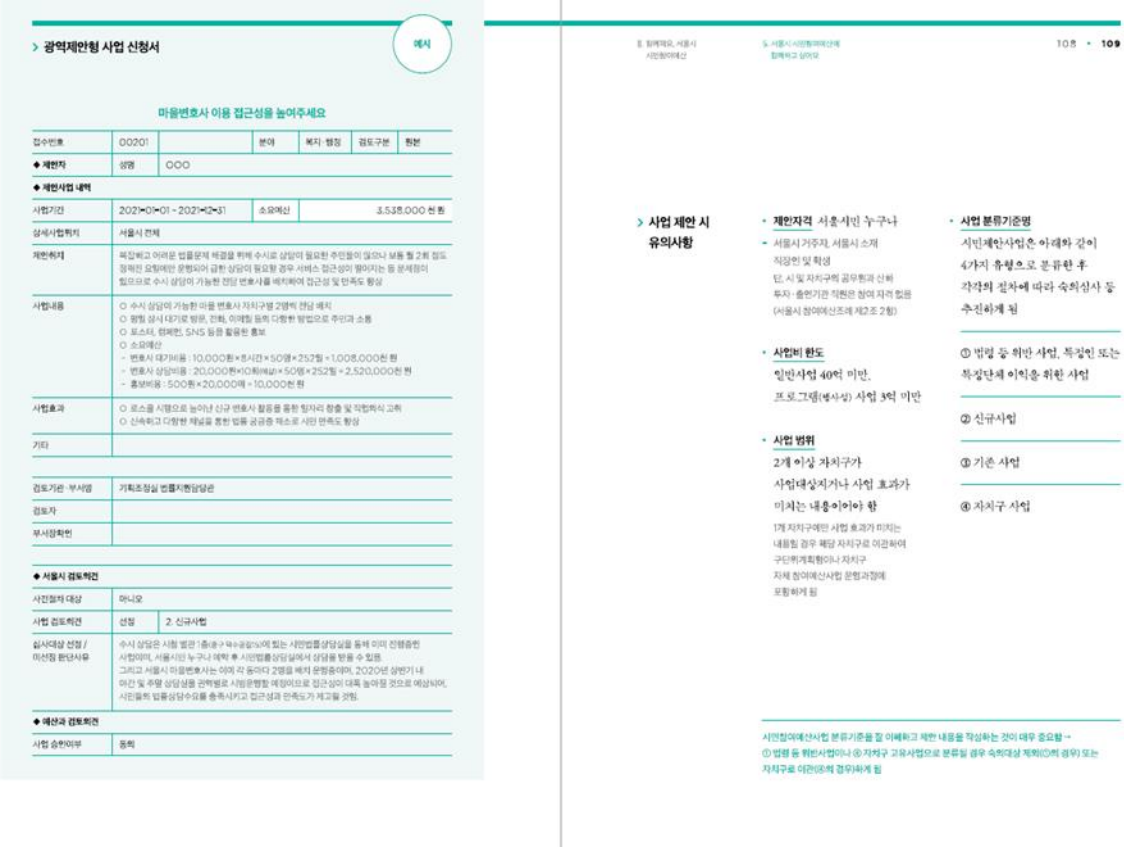
We needed investors for our accommodation, and we thought that the total cost can be funded by 1) Communites, 2) City of Seoul, and 3) Universities of Seoul.

1) Communities

We searched for communities or associations to help our project, but we couldn't find any.

2) City of Seoul

According to [8] and [9], we could found the concepts of 'Participation budget (참여예산)'. If we submit a business proposal to Seoul City and successfully persuade them, we can get invested 4,000,000,000 won in maximum.



> 광역제안형 사업 신청서

예시

마을변호사 이용 접근성을 높여주세요

접수번호	00201		분야	복지·행정	검토구분	원본
◆ 제안자	성명	OOO			
◆ 제안사업 내역					
사업기간	2021-01-01 ~ 2021-12-31		소요예산	3,538,000 천 원	
상세사업위치	서울시 전체				
제안취지	복잡하고 어려운 법률문제 해결을 위해 수시로 상담이 필요한 주민들이 많으나 보통 1회 정도 정적인 오픈예산 운영되어 급한 상담이 필요할 경우 서비스 접근성이 떨어지는 등 문제점이 있으므로 수시 상담이 가능한 전담 변호사를 배치해야 접근성 및 만족도 향상				
사업내용	○ 수시 상담이 가능한 마을 변호사 자치구별 2명씩 전담 배치 ○ 평일 상시 대기로 방문, 전화, 이메일 등의 다양한 방법으로 주민과 소통 ○ 포스터, 현수막, SNS 등을 활용한 홍보 ○ 소요예산 - 변호사 대기비용 : 10,000원×8시간×50명×252일 = 1,008,000천 원 - 변호사 상담비용 : 20,000원×10회/1년×50명×252일 = 2,520,000천 원 - 홍보비용 : 500원×20,000매 = 10,000천 원				
사업효과	○ 로스쿨 시행으로 늘어난 신규 변호사 활동을 통한 일자리 창출 및 직업만족도 고취 ○ 신속하고 다양한 채널을 통한 법률 공공증 제고로 시민 만족도 향상				
기타					
검토기관·부서명	기획조정실 법률지원담당관				
검토자					
부서장확인					
◆ 서울시 검토의견					
사전절차 대상	아니오				
사업 검토의견	선정	2. 신규사업			
심사대상 선정 / 미선정 판단사유	수시 상담은 시청 법관 1층(중구 덕수궁길54)에 있는 시민법률상담실을 통해 이미 진행중인 사업이며, 서울시민 누구나 예약 후 시민법률상담실에서 상담을 받을 수 있음. 그리고 서울시 마을변호사는 이미 각 동마다 2명을 배치 운영중이며, 2020년 상반기 내 마간 및 주말 상담실을 관악별로 시범운영할 예정이므로 접근성이 대폭 높아질 것으로 예상되어, 시민들의 법률상담수요를 충족시키고 접근성과 만족도가 제고될 것임.				
◆ 예산과 검토의견					
사업 승인여부	동의				

E 참여재정, 서울시 시민참여예산

5. 서울시 시민참여예산에 참여하고 싶어요

108 • 109

> 사업 제안 시 유의사항

- **제안자격** 서울시민 누구나
  - 서울시 거주자, 서울시 소재 직장인 및 학생
  - 단, 시 및 자치구의 공무원과 산하 투자·출연기관 직원은 참여 자격 없음 (서울시 참여예산조례 제2조 2항)
- **사업비 한도**
  일반사업 40억 미만,
  프로그램(병사상) 사업 3억 미만
- **사업 범위**
  2개 이상 자치구가 사업대상지거나 사업 효과가 미치는 내용이어야 함
  1개 자치구에만 사업 효과가 미치는 내용일 경우 해당 자치구로 이관하여 구민위계획형이나 자치구 자체 참여예산사업 운영과정에 포함하게 됨

- **사업 분류기준명**
  시민제안사업은 아래와 같이 4가지 유형으로 분류한 후 각각의 절차에 따라 숙의심사 등 추진하게 됨
  - ① 법령 등 위반 사업, 특정인 또는 특정단체 이익을 위한 사업
  - ② 신규사업
  - ③ 기존 사업
  - ④ 자치구 사업

시민참여예산사업 분류기준을 잘 이해하고 제안 내용을 작성하는 것이 매우 중요함 →
① 법령 등 위반사업이나 ④ 자치구 고유사업으로 분류될 경우 숙의대상 제외(①의 경우) 또는 자치구로 이관(④의 경우)하게 됨

<Business proposal form>

3) Universities of Seoul

After we suppose that we will be invested 4,000,000,000won by Seoul City, the rest of the total cost can be invested by universities of Seoul. From the total cost (11,130,604,00 won), if we subtract the amount of money invested by Seoul City (4,000,000,000 won), the rest cost is about 7,130,604,000 won, so this is the amount of money needed to be invested by universities in Seoul.

1. Conclusion

6.1. Summary

The most important process of persuasion is to know what the universities and the city of Seoul want. We assumed that their goals were money and politics, and to do this, we move our project in a direction that benefits them. To this end, we found various associations through bibliography and eda, and laid various foundations for persuasion.

We then went on to determine the most suitable district to build in. According to our calculations and the grades given to every district, we have determined that Seongbuk-gu is the best district to build the international accommodation in, with a grade of 8.625, 1.5 more than the second best location. That is why we chose it to carry on the rest of our project.

After that, we needed to determine the amplitude of the accommodation campus : we decided to build the accommodation with a similar magnitude as Nuri-hall. Land price was 3,785,320,000 won and the construction price was 7,345,284,000 won, so the total cost to build the accommodation can be calculated as 11,130,604,000 won. To think about investment, we can get 4,000,000,000won from Seoul City, and the rest of the total cost will be invested by universities of Seoul.

6.2. Weakness

Even though we tried to be careful while doing the project, selecting features, getting data from sources, etc. our project still has some weaknesses. Firstly, although we tried to be sure that finance has a relationship with the number of international students, the clear connection between the two is indescribably ambiguous. It is necessary to block other external factors, which can be solved by more properly controlling variables.

Secondly, the most problematic point in proceeding with persuasion for a cause is 'uncertainty'. It is questionable whether they will accept the various principles we have put forward, and there are still difficulties in persuasion because what they want is also uncertain.

Another point of uncertainty is the weight given to features when choosing the optimal location : when we decided to put a different weigh on every feature to calculate the final grade, we did it by estimating the most important features we saw in our studies and the bibliography, but the importance of each feature can vary from a study to another and therefore be different for international students in Seoul.

Also, we didn’t have sophisticated architecture knowledge, so we just found a website that roughly estimates the construction price. However, it would have been better if we had sophisticated architecture knowledge so that we could calculate it with more accuracy.

Finally, all of our project was done with the supposition that we succeeded in the proposal part. However, we don’t know if we can succeed in the proposal, and even if we succeed in the project proposal we might not get 4 billion from the city of Seoul (we can get less than it).

6.3. Future analysis

If we had to work further on the project, we would need to solidify our argument through detailed variable control. For example, in the financial sector of a university, it would be better to find another way to exclude such variables, as COVID-19 can have a profound impact on that area.

Furthermore, we could create a survey targeting specifically international students wanting to go to Seoul to determine the most important features the accommodation district should have in order to obtain the highest level of student satisfaction and ensure that the accommodation does well.

To finish, we should think about the distribution of the investment between universities. The location of accommodation is near Sungshin Women's University and Korea University. So, we expect that international students from those universities will likely use the accommodation more than other universities. So we think that the universities near to the accommodation should do more investment and the universities far from the accommodation should do less. If we have any more opportunities later, we should think about the distribution of investment between universities.

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