교내 자리 확인 및 관리 시스템

Group 1
김규석, 임범혁, 이강훈

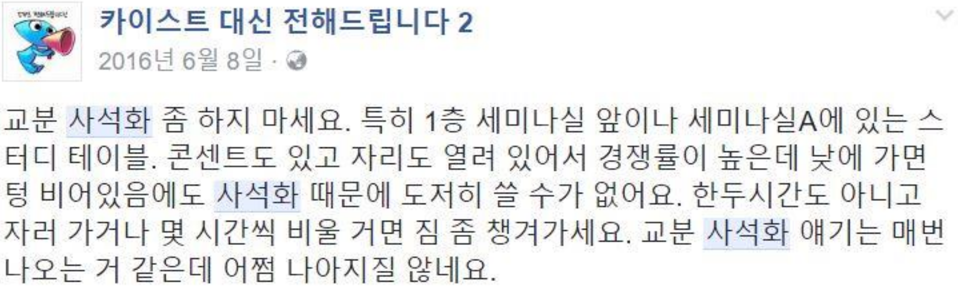
PART A: General Description

1. Describe Target System
2. Pre-Analysis

1. Describe Target System

To make the database application system of reservation policies in 교분(N10) & 신학(N13-1)

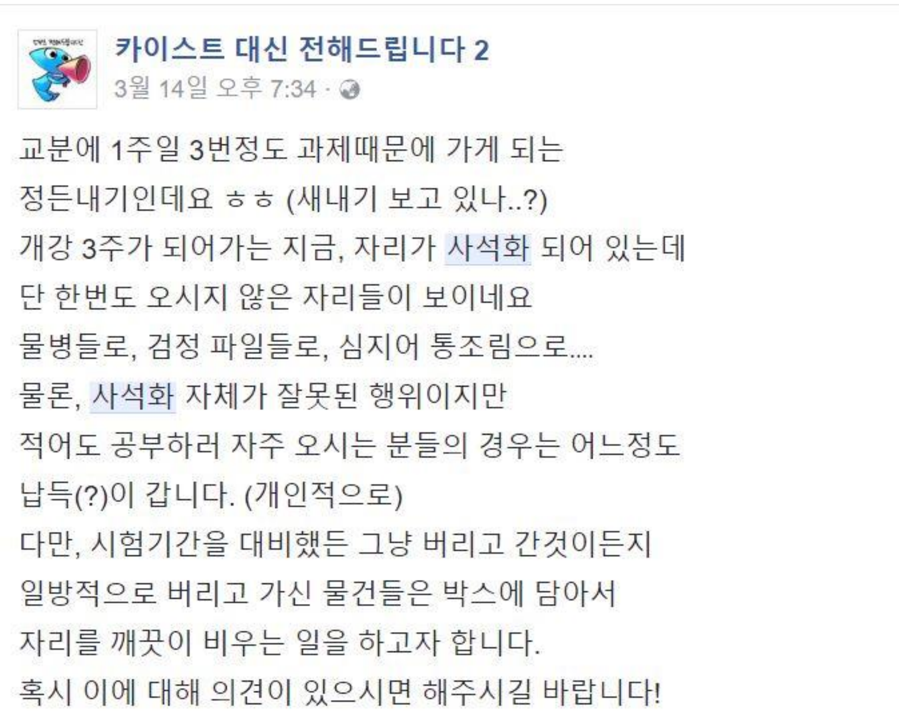
* In this presentation, we will call 교분 as N10 and 신학 as N13-1.



카이스트 대신 전해드립니다 2

2016년 6월 8일 ·

교분 사석화 좀 하지 마세요. 특히 1층 세미나실 앞이나 세미나실A에 있는 스터디 테이블. 콘센트도 있고 자리도 열려 있어서 경쟁률이 높은데 낮에 가면 텅 비어있음에도 사석화 때문에 도저히 쓸 수가 없어요. 한두시간도 아니고 자러 가거나 몇 시간씩 비울 거면 짐 좀 챙겨가세요. 교분 사석화 얘기는 매번 나오는 거 같은데 어쩜 나아지질 않네요.



카이스트 대신 전해드립니다 2

3월 14일 오후 7:34 ·

교분에 1주일 3번정도 과제때문에 가게 되는
정든내기인데요 ㅎㅎ (새내기 보고 있나..?)
개강 3주가 되어가는 지금, 자리가 사석화 되어 있는데
단 한번도 오시지 않은 자리들이 보이네요
물병들로, 검정 파일들로, 심지어 통조림으로....
물론, 사석화 자체가 잘못된 행위이지만
적어도 공부하러 자주 오시는 분들의 경우는 어느정도
납득(?)이 갑니다. (개인적으로)
다만, 시험기간을 대비했든 그냥 버리고 간것이든지
일방적으로 버리고 가신 물건들은 박스에 담아서
자리를 깨끗이 비우는 일을 하고자 합니다.
혹시 이에 대해 의견이 있으시면 해주시길 바랍니다!

1. Describe Target System

To make the database application system of reservation policies in 교분(N10) & 신학(N13-1)

* In this presentation, we will call 교분 as N10 and 신학 as N13-1.

1. Describe Target System

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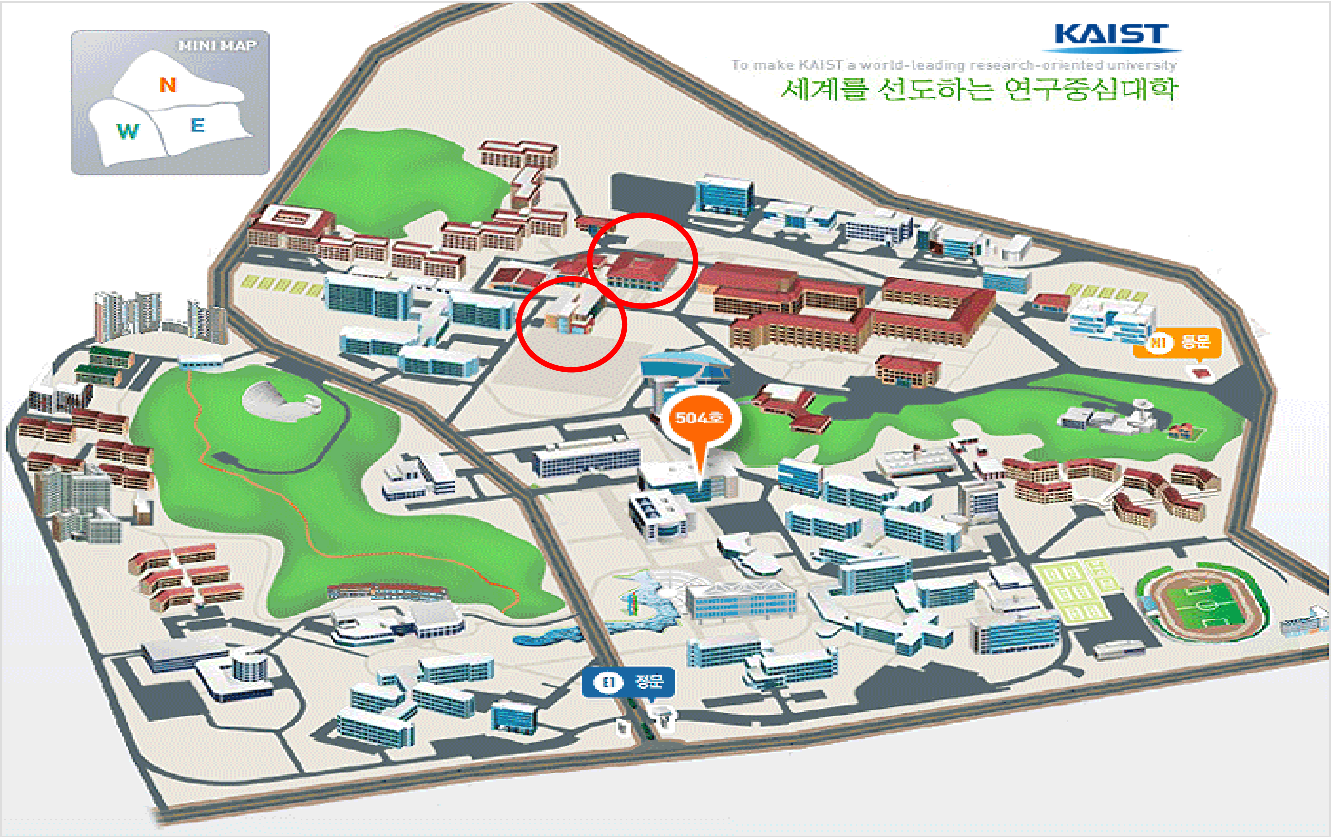
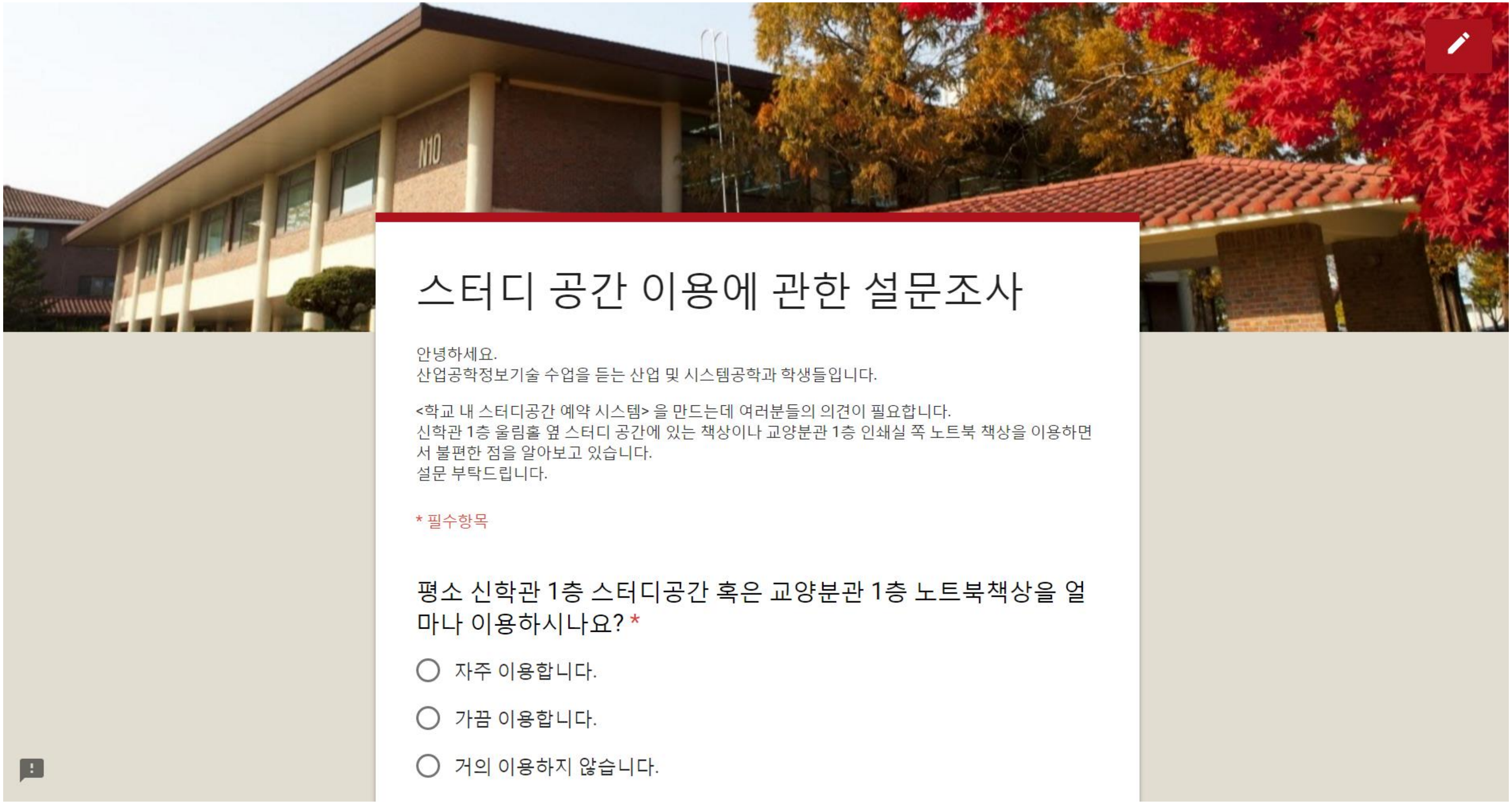

MINI MAP
N
W
E
KAIST
To make KAIST a world-leading research-oriented university
세계를 선도하는 연구중심대학
N1 동문
504호
E1 정문

2. Pre-Analysis

- Conducted a Survey



스터디 공간 이용에 관한 설문조사

안녕하세요.
산업공학정보기술 수업을 듣는 산업 및 시스템공학과 학생들입니다.

<학교 내 스터디공간 예약 시스템> 을 만드는데 여러분들의 의견이 필요합니다.
신학관 1층 울림홀 옆 스터디 공간에 있는 책상이나 교양분관 1층 인쇄실 쪽 노트북 책상을 이용하면서 불편한 점을 알아보고 있습니다.
설문 부탁드립니다.

* 필수항목

평소 신학관 1층 스터디공간 혹은 교양분관 1층 노트북책상을 얼마나 이용하시나요? *

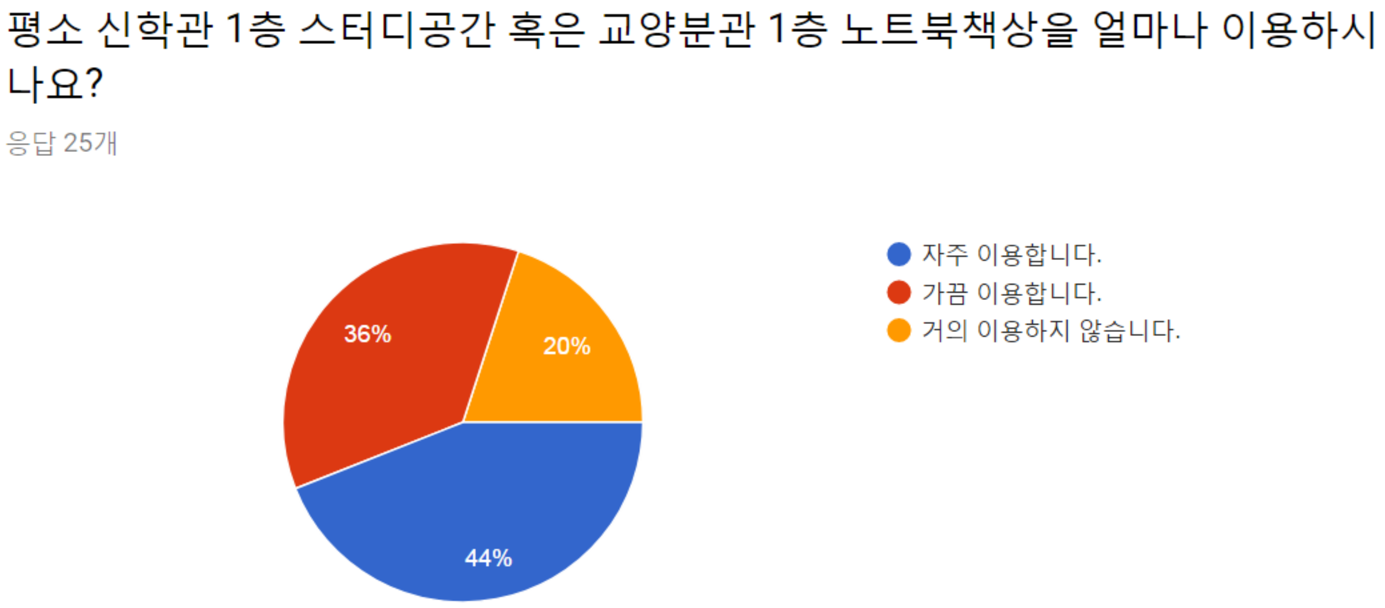
○ 자주 이용합니다.

○ 가끔 이용합니다.

○ 거의 이용하지 않습니다.

2. Pre-Analysis

- 25 people participated in the survey and 80% of students replied that they often or occasionally use study tables in N10 and N13-1.



평소 신학관 1층 스터디공간 혹은 교양분관 1층 노트북책상을 얼마나 이용하시나요?

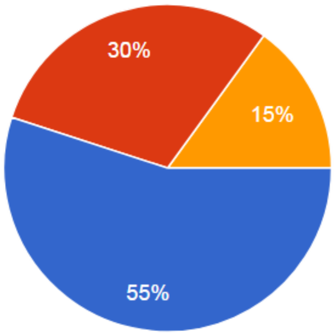
응답 25개

2. Pre-Analysis

- 30% of participants who replied that they use study tables in N10 and N13-1 replied that there are too many students who occupy the table for a long period of time. 55% of participants replied that some students leave their belongings on the table and personalize the seats. 100% of participants replied that they have an experience of not being able to use the tables because there were no empty seats.

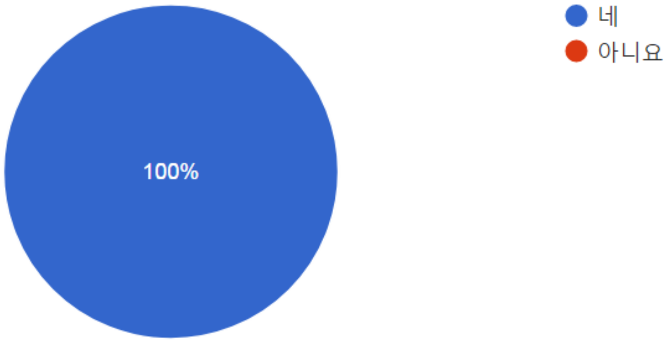
1. 이용하실 때 다음 중 불편하신 점을 모두 골라주세요.

응답 20개



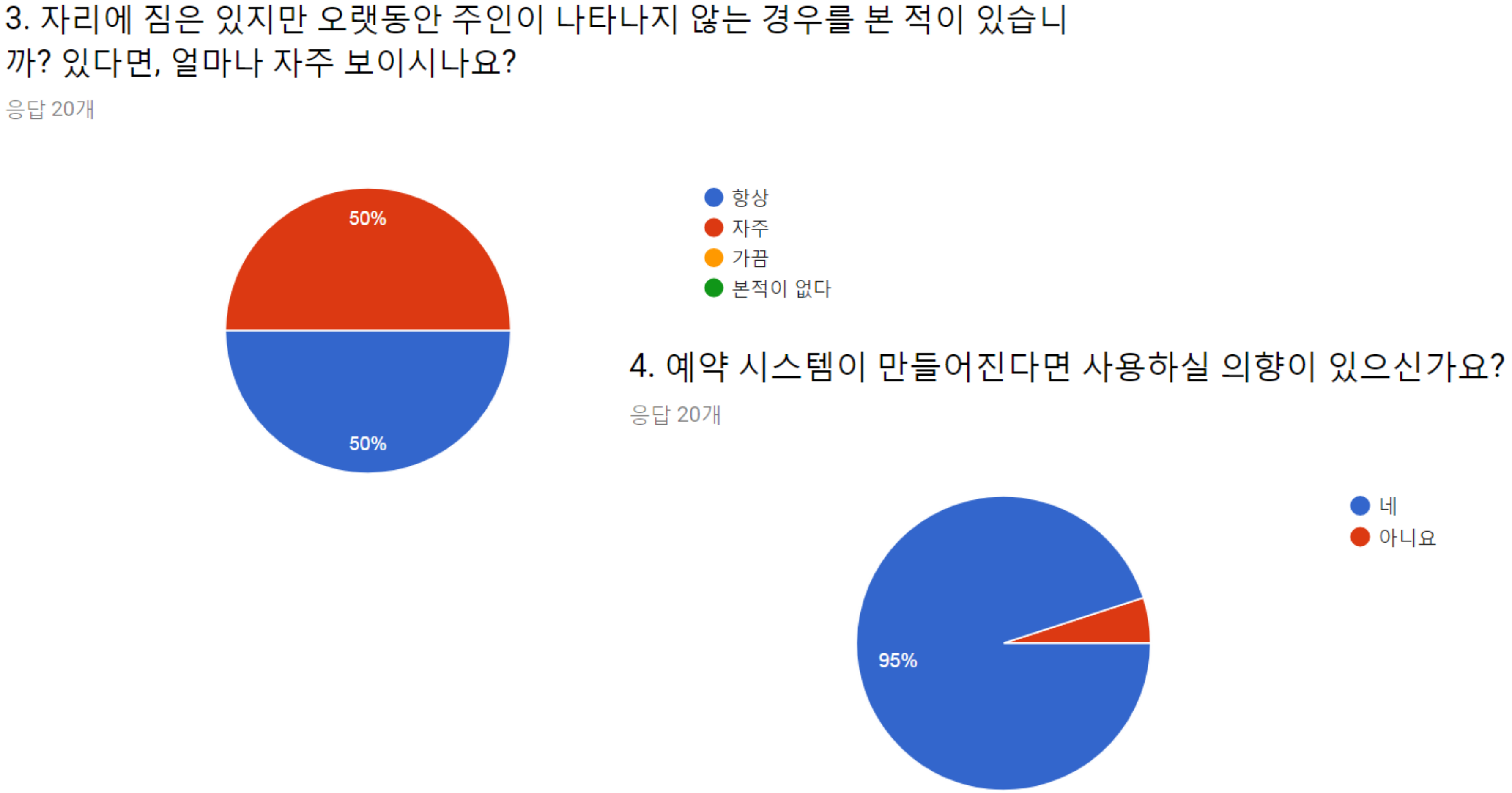
2. 빈 자리가 없어서 이용하지 못한 적이 있으십니까?

응답 20개



2. Pre-Analysis

- All participants who use study tables in N10 and N13-1 replied that they have seen seats with belongings for a long time without the owner. Except one student, all students replied that they are willing to use the reservation system in N10 and N13-1 if it is launched.



3. 자리에 짐은 있지만 오랫동안 주인이 나타나지 않는 경우를 본 적이 있습니까? 있다면, 얼마나 자주 보이시나요?

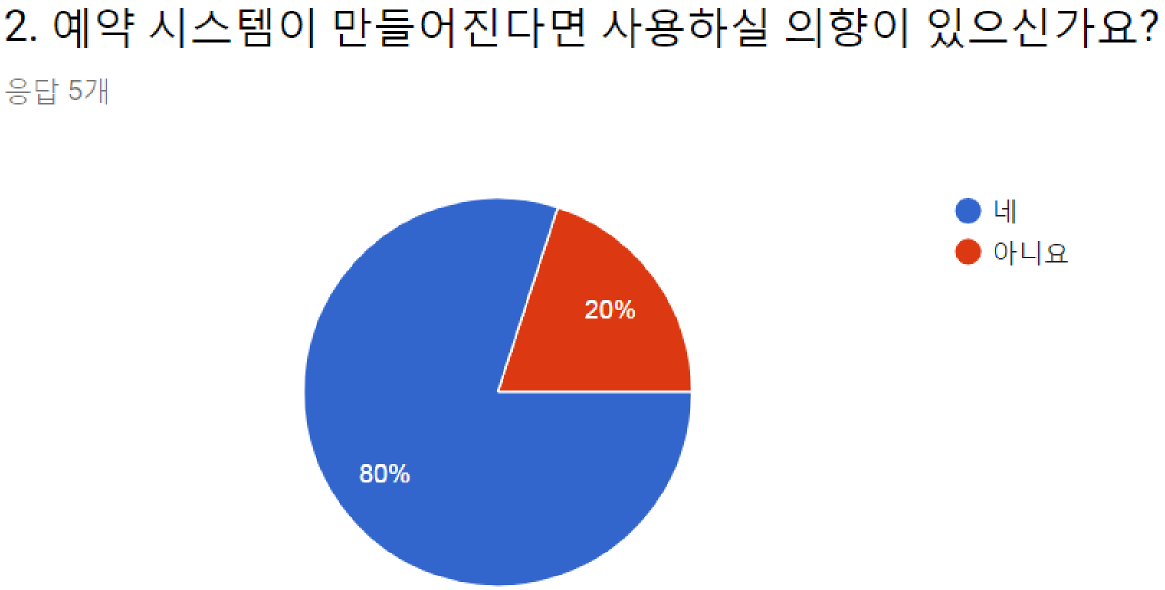
응답 20개

4. 예약 시스템이 만들어진다면 사용하실 의향이 있으신가요?

응답 20개

2. Pre-Analysis

- 80% of participants who do not use study tables in N10 and N13-1 replied that they are willing to use the reservation system in N10 and N13-1 if it is launched.



2. 예약 시스템이 만들어진다면 사용하실 의향이 있으신가요?

응답 5개

- Some students personalize the study tables in N10 and N13-1 by leaving their belongings on the table and not appearing for a long time, which hinders other students from using the tables. Thus, we need a reservation system of study tables in N10 and N13-1 to prevent this discomfort.

PART B: AS-IS Description

3-1. AS-IS Scenario
3-2. AS-IS Process (Swim-Lane Chart)
4. Problems & Requirments

3-1. AS-IS Scenario

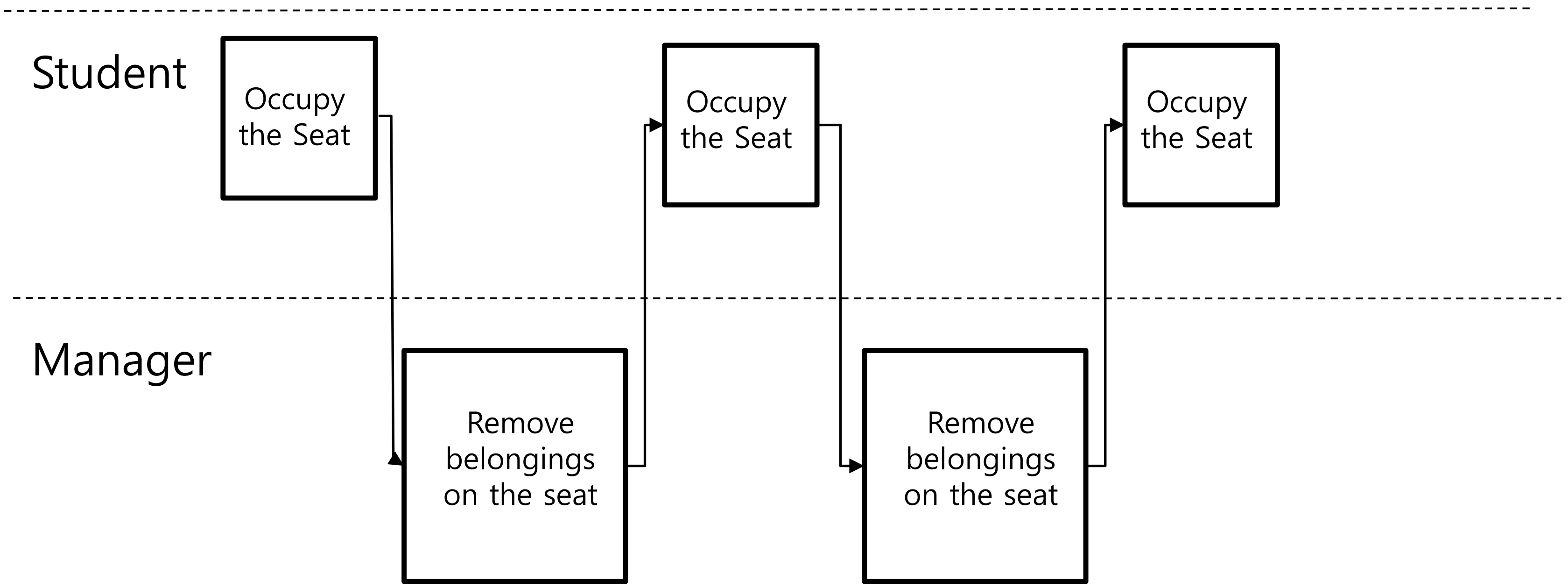
Students come to N10 & N13-1 to study.

Some of students leaves their belongings on the table and personalize the seats.

Managers walk around now and then and remove belongings on the table.

Students come back and leave their belongings on the seat again.

3-2. AS-IS Process (Swim-Lane Chart)



Student

Occupy the Seat

Occupy the Seat

Occupy the Seat

Manager

Remove belongings on the seat

Remove belongings on the seat

4. Problems & Requirements

Current Problems

- Students personalize their seats and other students cannot use the seats.
- Students may waste their time coming to N10 & N13-1 to find out that there are no seats available.
- Students from other universities sometimes come to use the seats.

Requirements

- Reservation system should record the number of personalization of seats by students and prevent them from reserving.
- Reservation system should tell the users which seats are currently available.
- Reservation system should have the process of checking that the users are KAIST students.
- Reservation system should contain information about all seats in N10 & N13-1.
- We need 3 managers for each building (total of 6).

PART C: TO-BE Description

5. Project Definition
6. TO-BE Scenario
7. TO-BE Process (Swim-Lane Chart)
8. FTD (Functional Tree Diagram)
9. DFD (Process & Data Model)
10. ERD (Entity Relationship Diagram)
11. Table Definitions
12. UI (Input/Output)
13. Logic Procedure
14. SQLs

5. Project Definition

Objectives

- To make a reservation system of N10 and N13-1 to tell which seats are available and to prevent personalization of seats.

Team (Member & Role)

- 김규석: Programming, Swim Lane Chart, DFD, …
- 임범혁: Programming, ERD, Logic, …
- 이강훈: Programming, UI, SQL, …

Schedule

- Possibly everyday, but subject to change.

6. TO-BE Scenario

Let’s make a system for reservation of N10 & N13-1 that can manage the database of students, reservation history and seats.

KAIST students provide their information to register into the system and the system checks whether users are actually KAIST students.

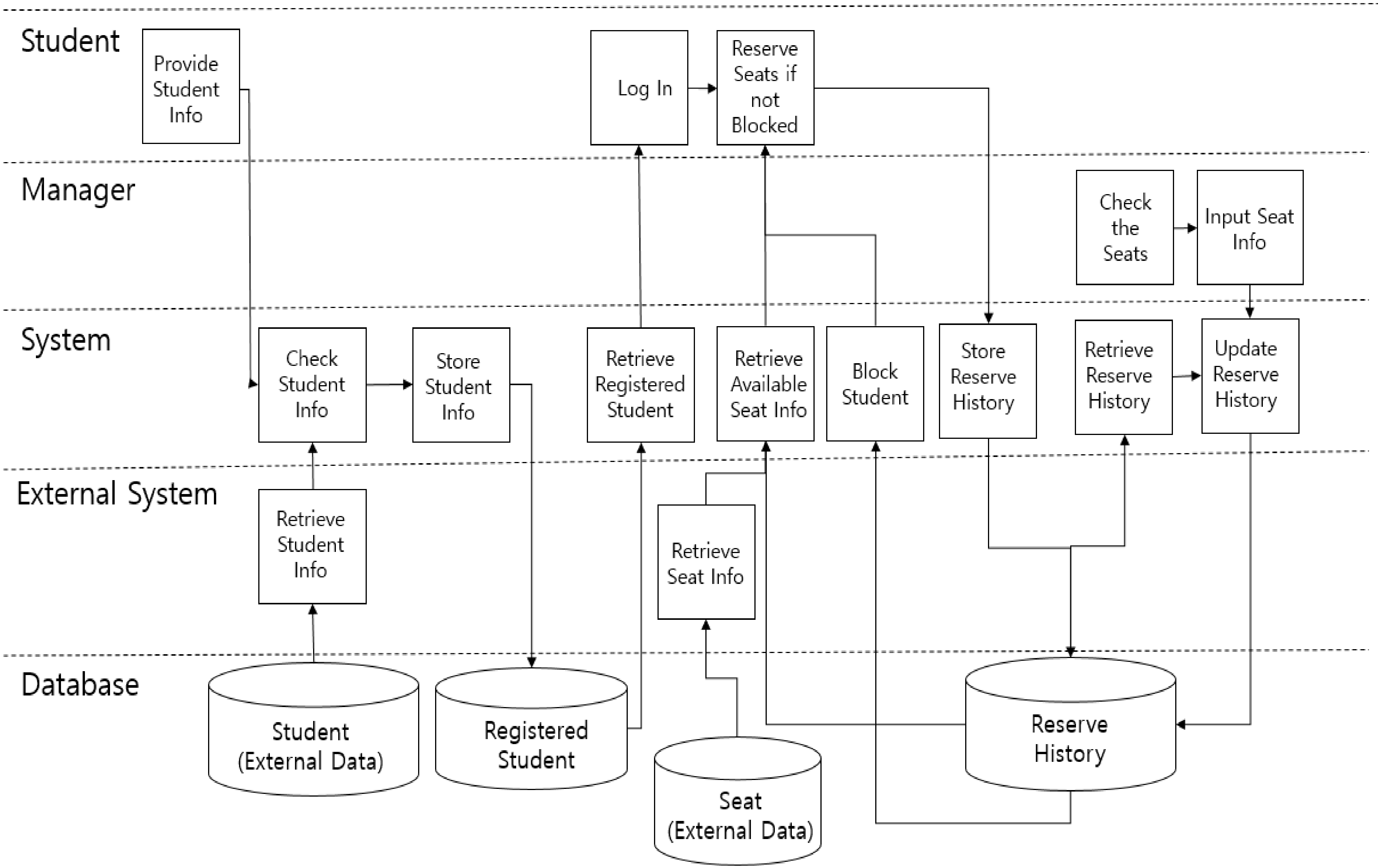
Registered students provide reservation info (Time, date …) and selects seat data from the system to reserve seats in N10 & N13-1.

Every 3 hours, managers walk around the seats to check any reserved but unused seats.

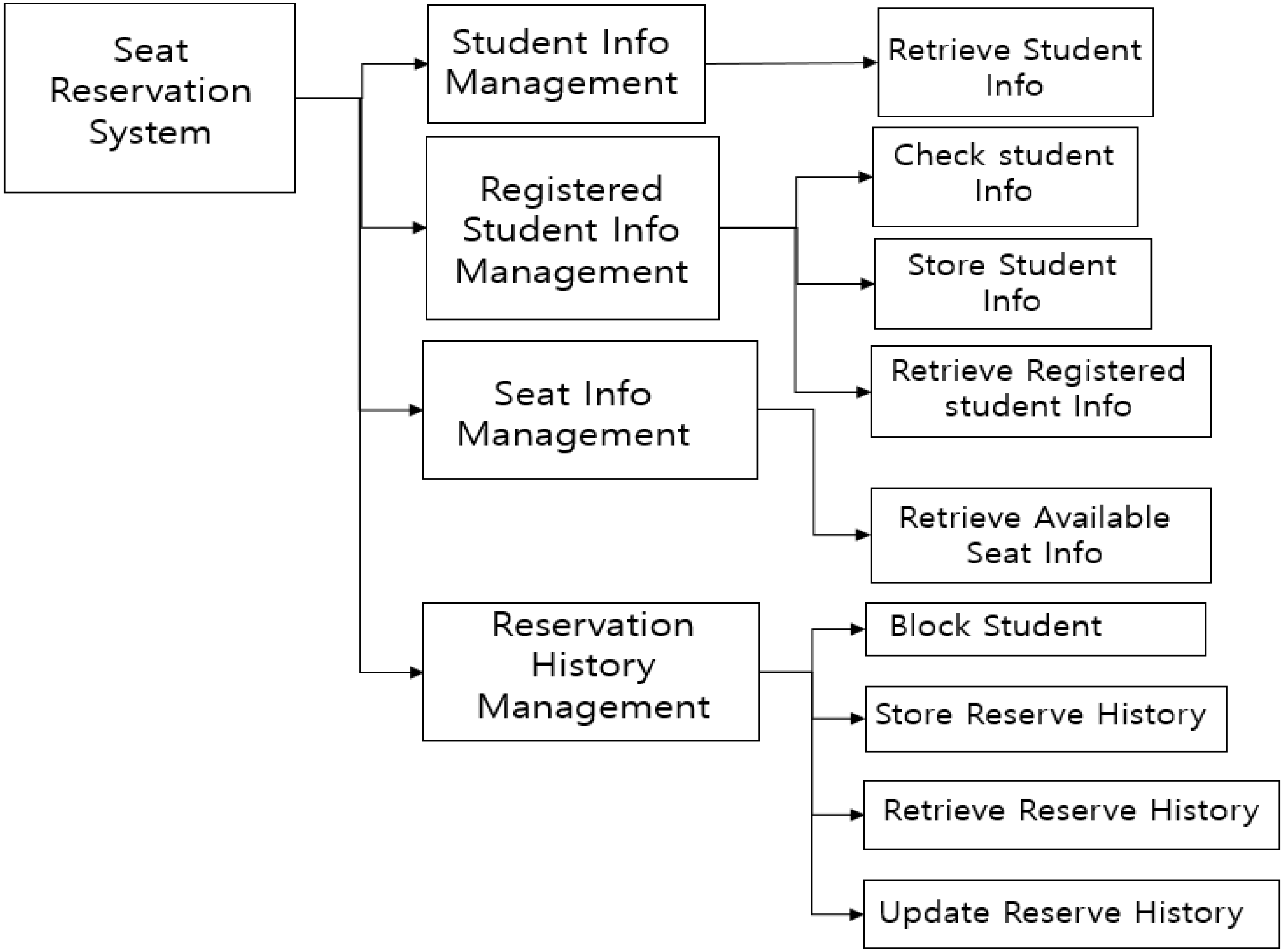
Managers input the seat info of the unused seats and the system determines the current time to update the reservation history data.

Reservation history data will be updated to block students who reserved but unused seats for more than 1 time.

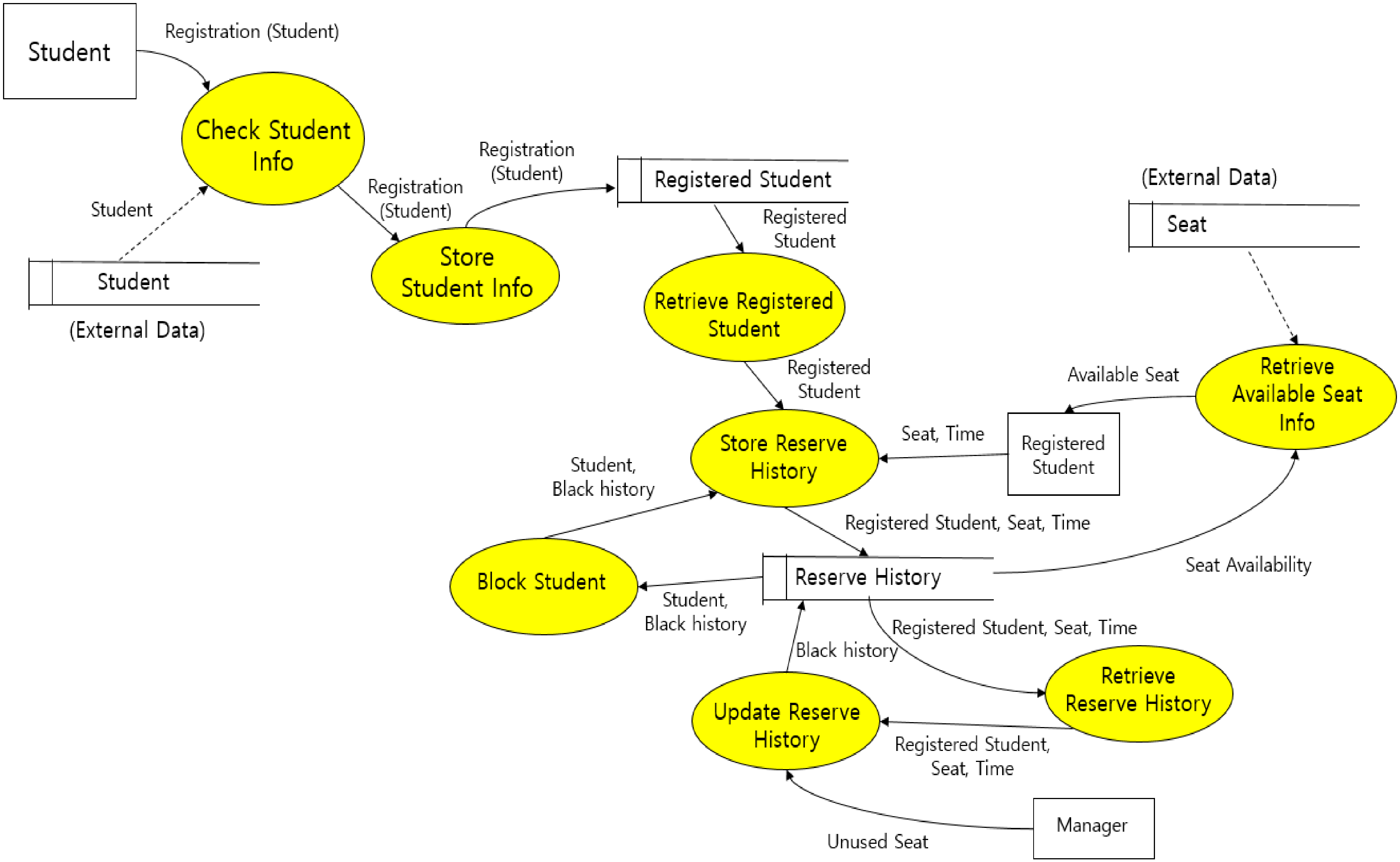
7. TO-BE Process (Swim-Lane Chart)



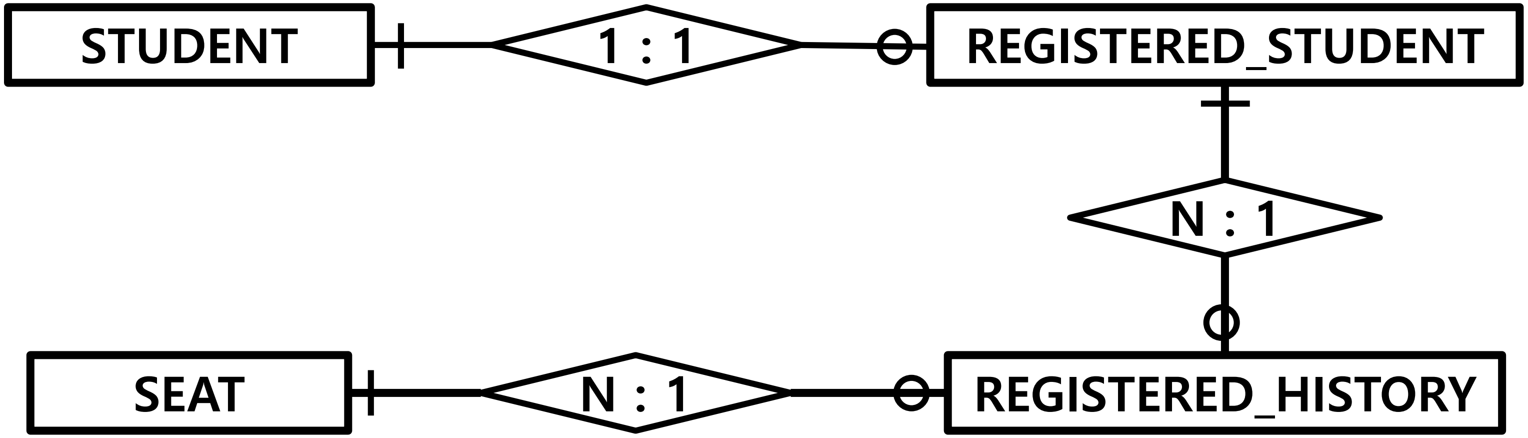
8. FTD (Functional Tree Diagram)



9. DFD (Process & Data Model)



10. ERD (Entity Relationship Diagram)



- Student is a external data which is made by KAIST.
- The registered student 는 STUDENT 테이블에 존재해야 한다.
- Registered student는 여러 개의 예약을 할 수 있다.
- 하나의 Seat는 시간대별로 다른 registered history에 존재할 수 있다.

11. Table Definition

1. STUDENT
   (Student_ID, Name, Major) → External Data

2. REGISTERED_STUDENT
   (Student_Code, ID, Password, *Student_ID*)

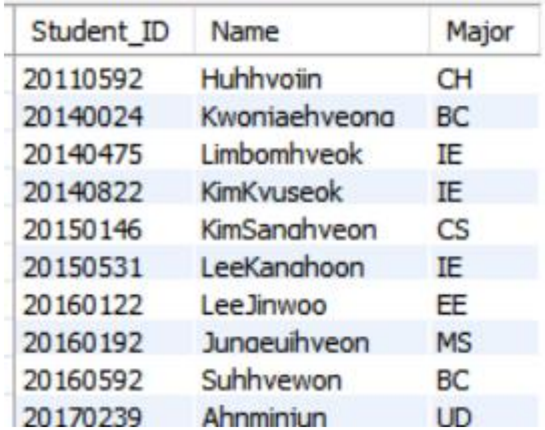
3. RESERVATION_HISTORY
   (History_Code, Start, End, , Blackhistory, *Student_Code*, *Seat_Code*)

4. SEAT
   (Seat_Code, Building, Seat_Num) → External Data

5. MANAGER
   (Manager_Code, Manager_ID, Manager_Password, Manager_Name) → External Data

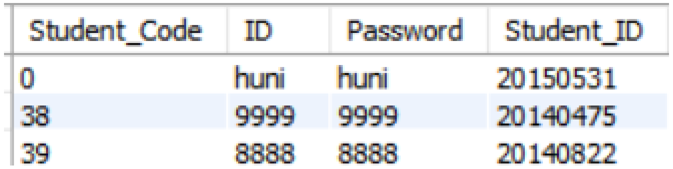
11. Table Definition

1. STUDENT
   (<u>Student_ID</u>, Name, Major) → External Data



Student_ID	Name	Major
20110592	Huhhyojin	CH
20140024	Kwonjaehyeong	BC
20140475	Limbomhyeok	IE
20140822	KimKyuseok	IE
20150146	KimSanghyeon	CS
20150531	LeeKanghoon	IE
20160122	LeeJinwoo	EE
20160192	Jungeuihyeon	MS
20160592	Suhhyewon	BC
20170239	Ahnminjun	UD

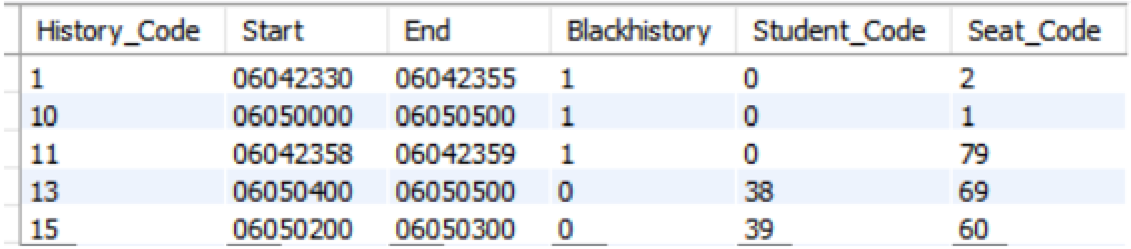
2. REGISTERED_STUDENT
   (<u>Student_Code</u>, ID, Password, *Student_ID*)



Student_Code	ID	Password	Student_ID
0	huni	huni	20150531
38	9999	9999	20140475
39	8888	8888	20140822

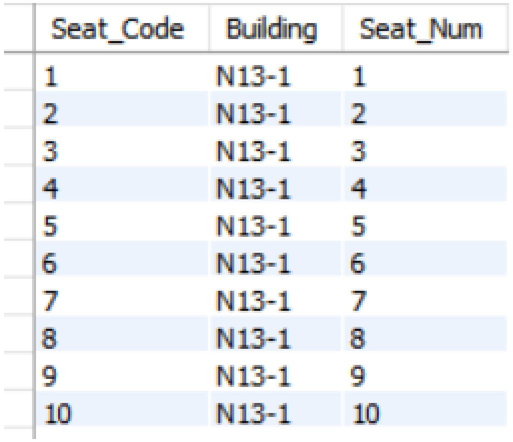
11. Table Definition

3. RESERVATION_HISTORY
   (History_Code, Start, End, , Blackhistory, *Student_Code*, *Seat_Code*)

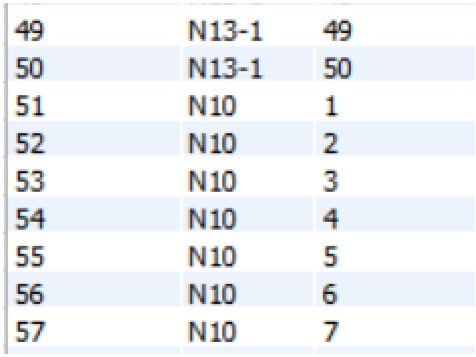


History_Code	Start	End	Blackhistory	Student_Code	Seat_Code
1	06042330	06042355	1	0	2
10	06050000	06050500	1	0	1
11	06042358	06042359	1	0	79
13	06050400	06050500	0	38	69
15	06050200	06050300	0	39	60

4. SEAT
   (Seat_Code, Building, Seat_Num) → External Data



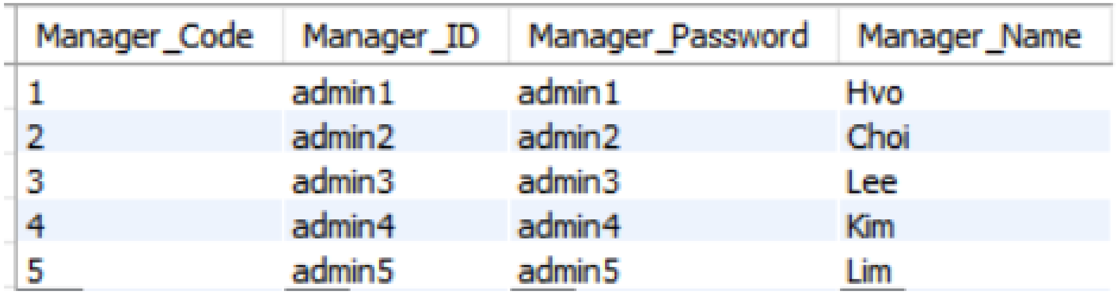
Seat_Code	Building	Seat_Num
1	N13-1	1
2	N13-1	2
3	N13-1	3
4	N13-1	4
5	N13-1	5
6	N13-1	6
7	N13-1	7
8	N13-1	8
9	N13-1	9
10	N13-1	10



49	N13-1	49
50	N13-1	50
51	N10	1
52	N10	2
53	N10	3
54	N10	4
55	N10	5
56	N10	6
57	N10	7

11. Table Definition

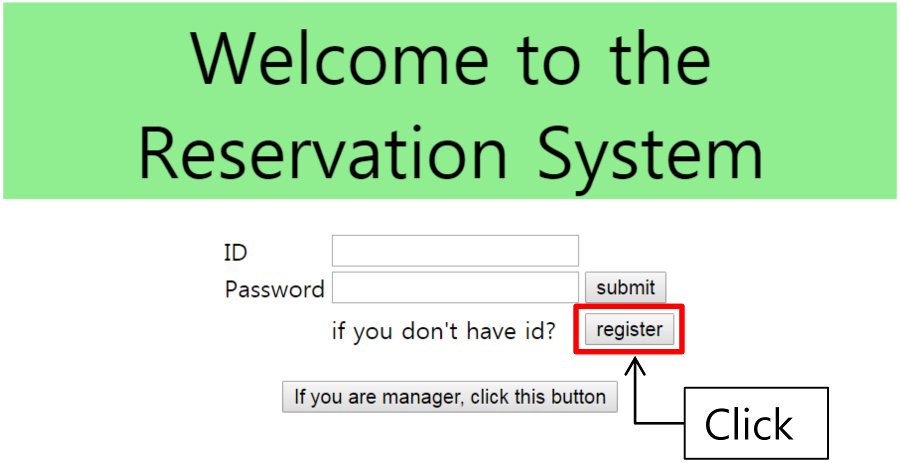
5. MANAGER
   (Manager_Code, Manager_ID, Manager_Password, Manager_Name) → External Data



Manager_Code	Manager_ID	Manager_Password	Manager_Name
1	admin1	admin1	Hvo
2	admin2	admin2	Choi
3	admin3	admin3	Lee
4	admin4	admin4	Kim
5	admin5	admin5	Lim

12. UI (Input/Output)

- Main Page



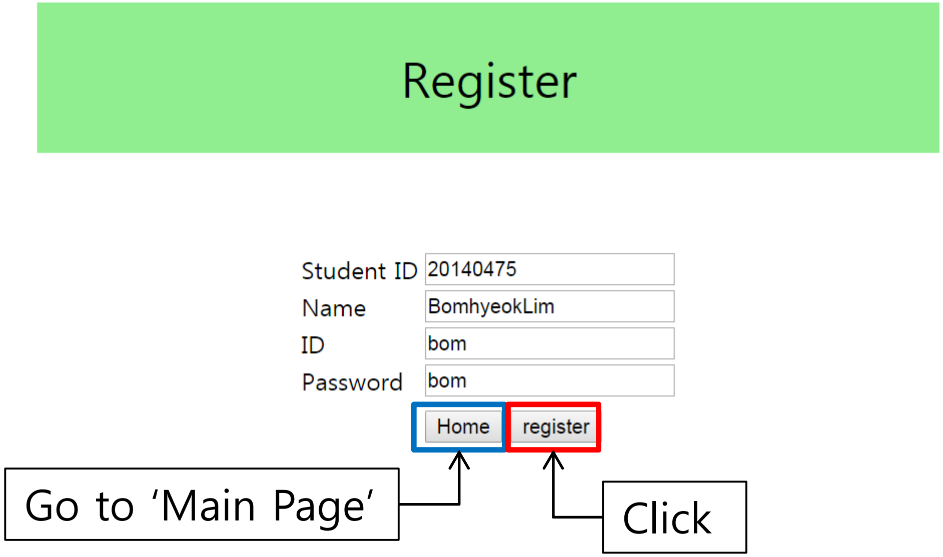
Welcome to the Reservation System

ID

Password

if you don't have id?

12. UI (Input/Output)



Register

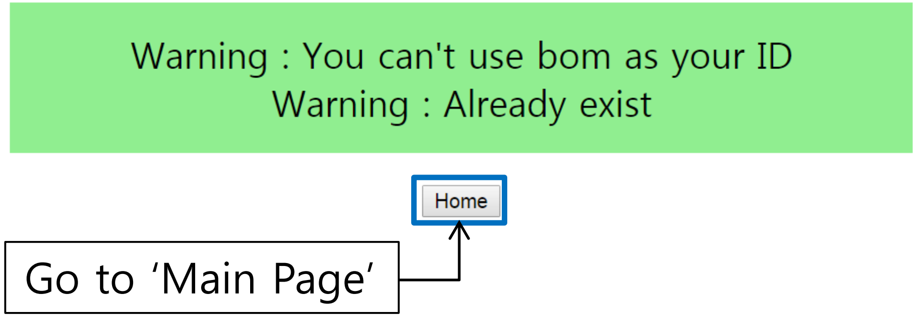
Student ID	20140475
Name	BomhyeokLim
ID	bom
Password	bom

Go to ‘Main Page’

Click

12. UI (Input/Output)

- 이미 가입되어 있을 때

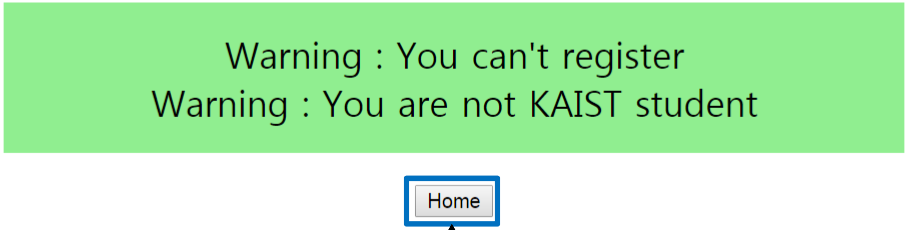


Warning : You can't use bom as your ID
Warning : Already exist

Go to ‘Main Page’

12. UI (Input/Output)

- 잘못 입력하였을 때 (STUDENT 에 Student_id 와 Name이 없을 때)

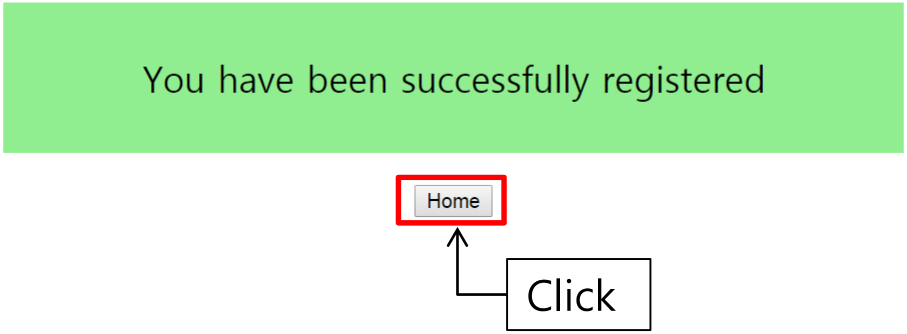


Warning : You can't register
Warning : You are not KAIST student

Go to ‘Main Page’

12. UI (Input/Output)

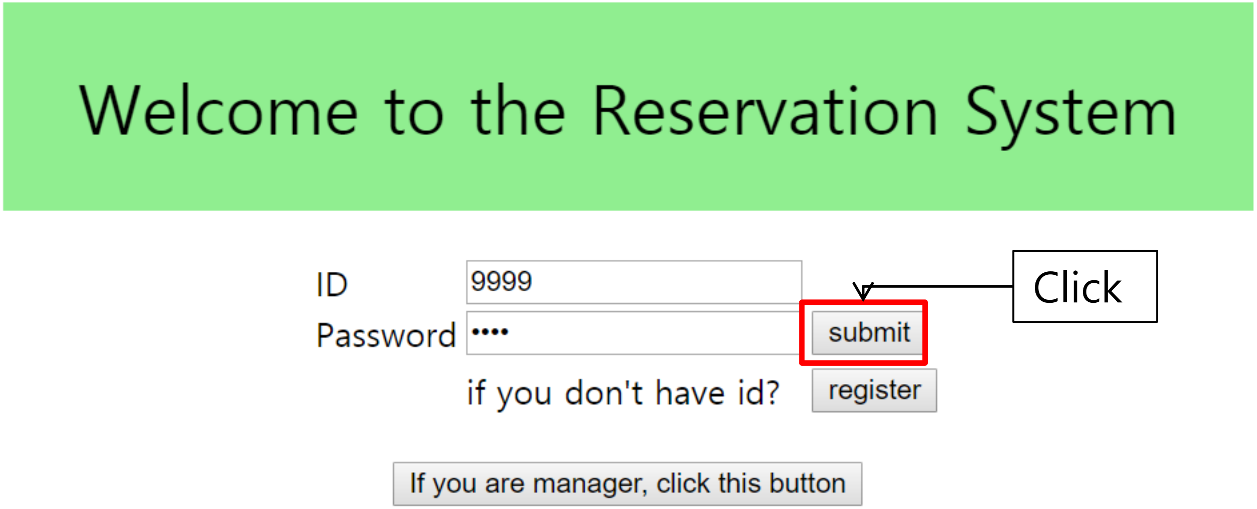
- 제대로 가입했을 때



You have been successfully registered

Click

12. UI (Input/Output)



Welcome to the Reservation System

ID 9999

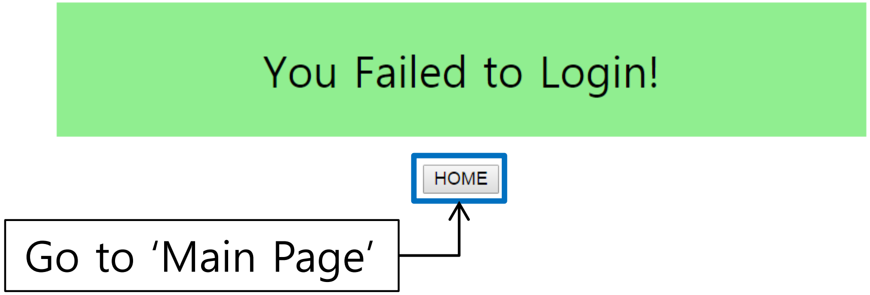
Password ••••

if you don't have id?

Click

12. UI (Input/Output)

- 로그인을 잘못 했을 때

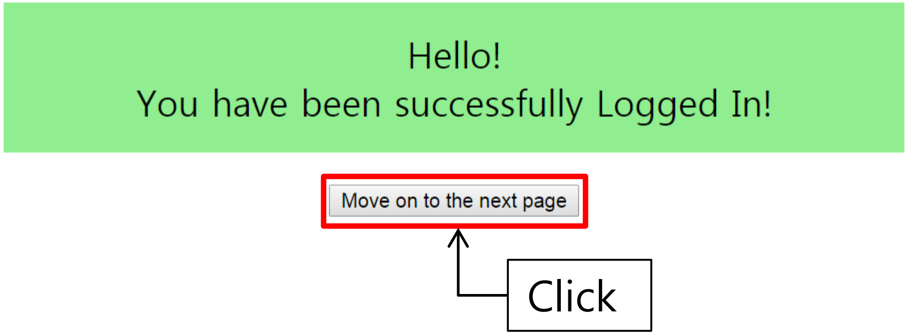


You Failed to Login!

Go to ‘Main Page’

12. UI (Input/Output)

- 로그인을 제대로 했을 때

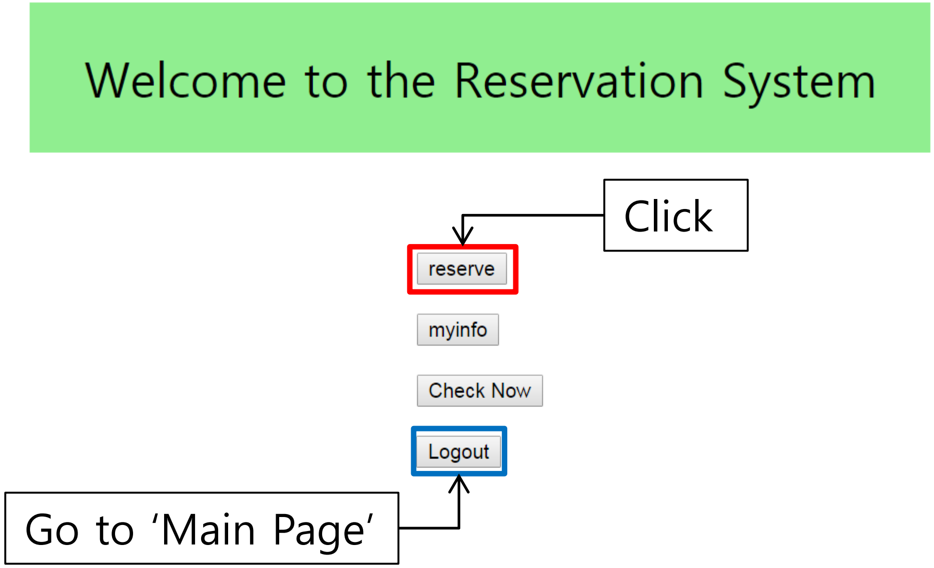


Hello!
You have been successfully Logged In!

Click

12. UI (Input/Output)

- Welcome Page



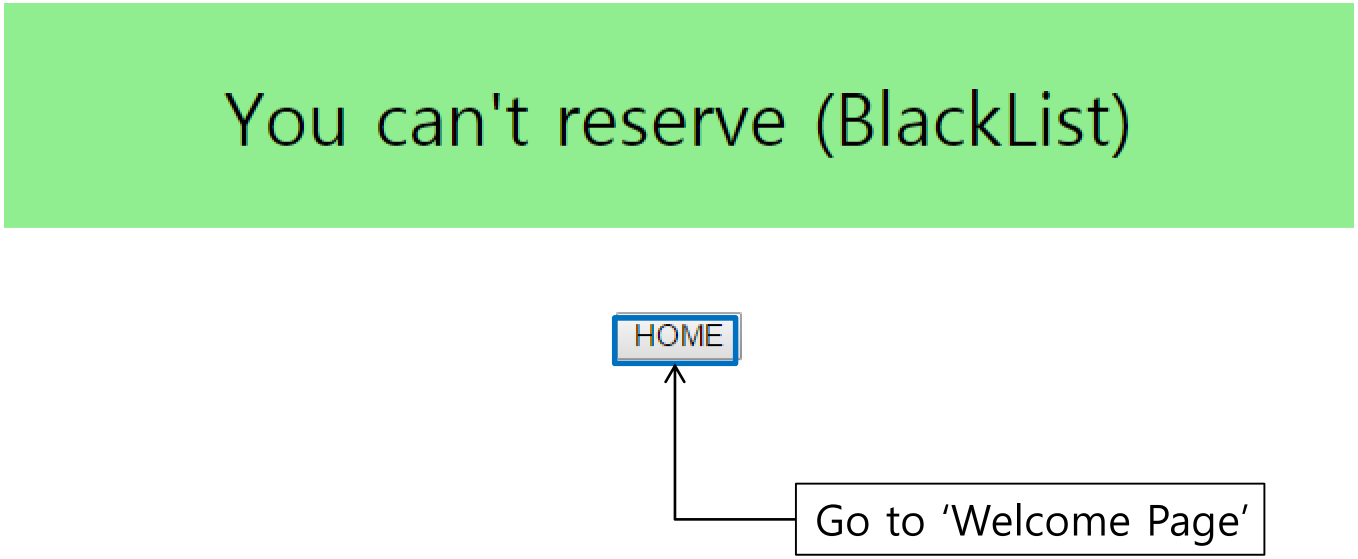
Welcome to the Reservation System

Click

Go to ‘Main Page’

12. UI (Input/Output)

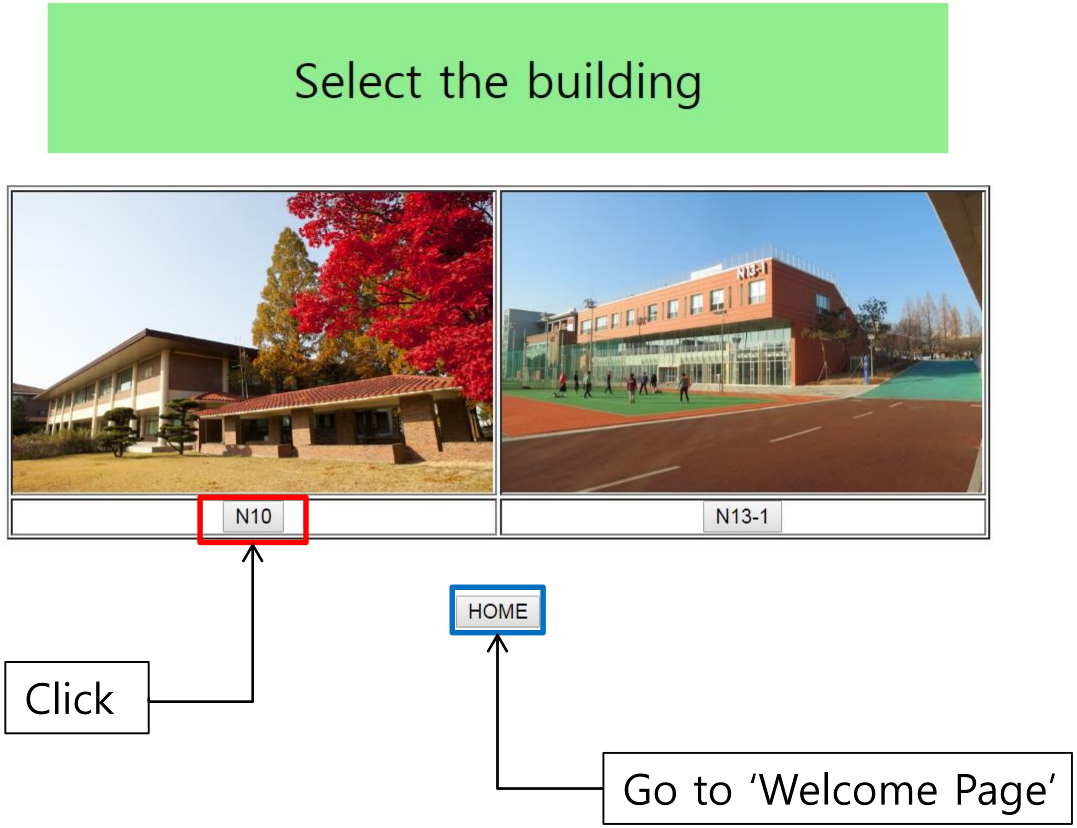
- If the student is in the blacklist.



You can't reserve (BlackList)

Go to ‘Welcome Page’

12. UI (Input/Output)

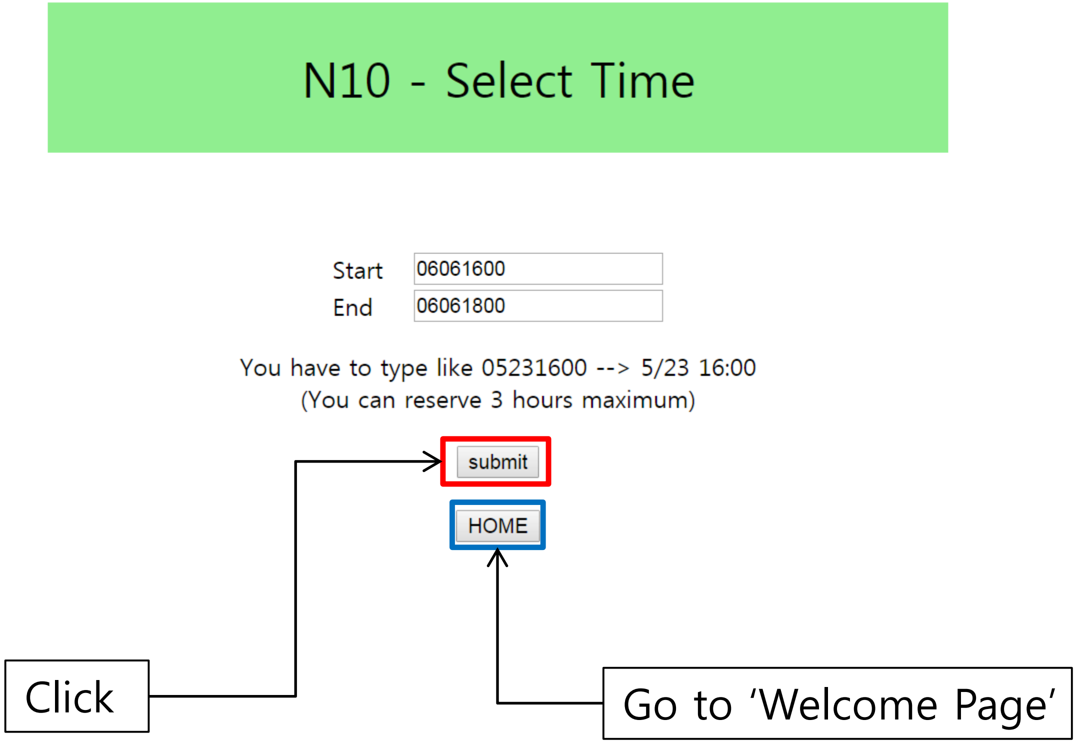


Select the building

Click

Go to ‘Welcome Page’

12. UI (Input/Output)



N10 - Select Time

Start 06061600

End 06061800

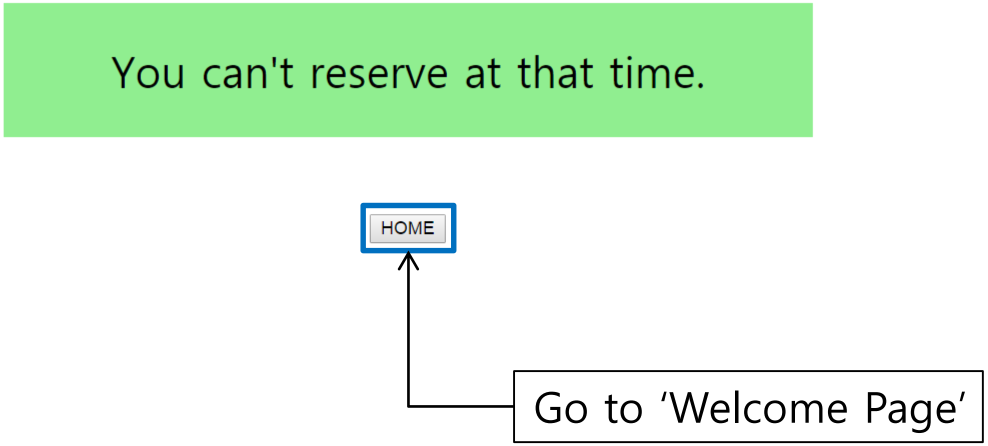
You have to type like 05231600 --> 5/23 16:00
(You can reserve 3 hours maximum)

Click

Go to 'Welcome Page'

12. UI (Input/Output)

- One student can reserve only on seat at one time.

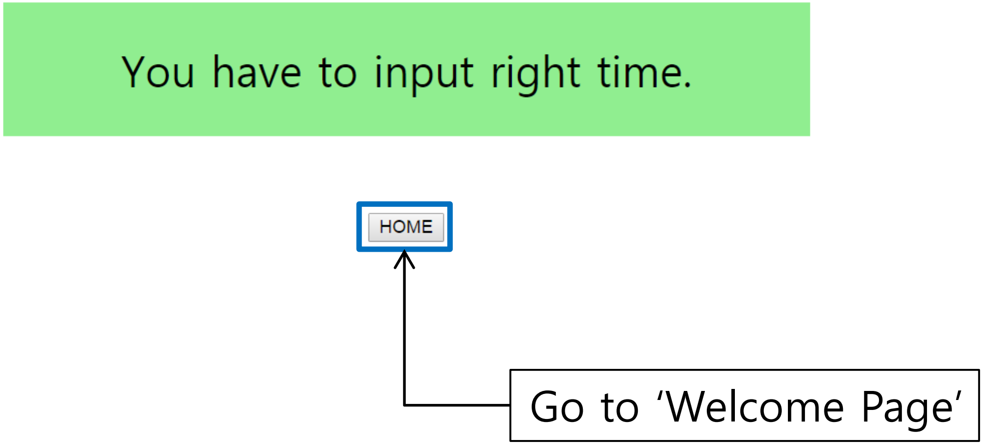


You can't reserve at that time.

Go to 'Welcome Page'

12. UI (Input/Output)

- If the format of input time is wrong (not 06051000 type), or input time is past.

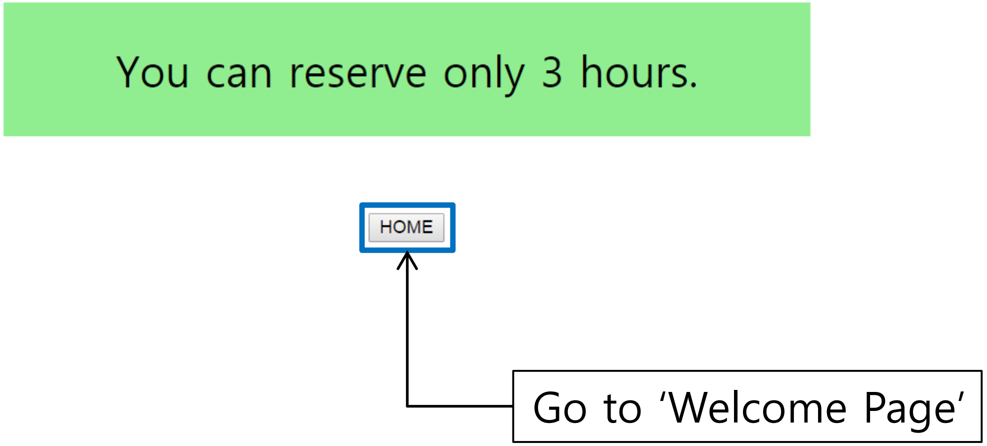


You have to input right time.

Go to ‘Welcome Page’

12. UI (Input/Output)

- If reservation time is over 3 hours.

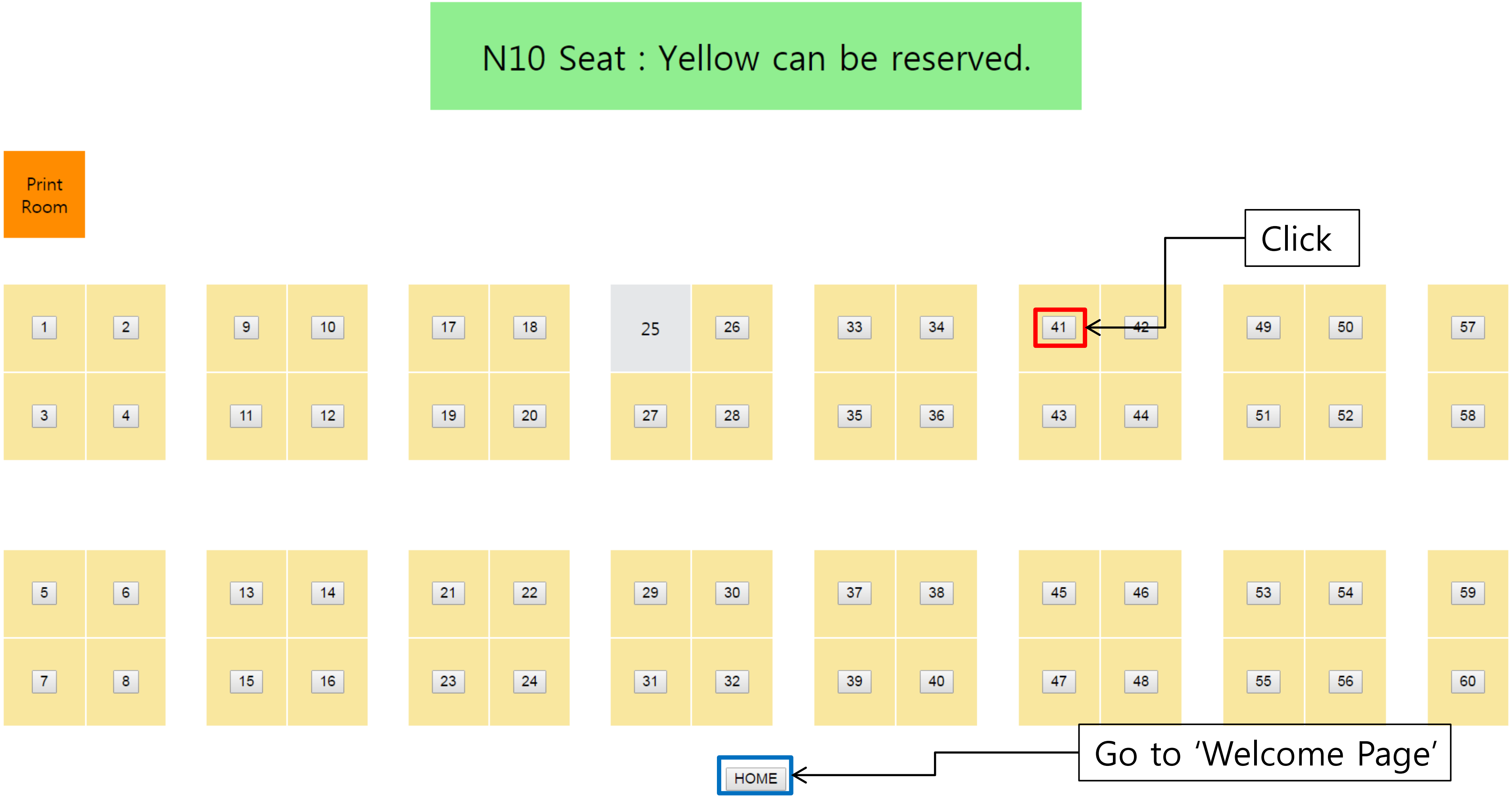


You can reserve only 3 hours.

Go to ‘Welcome Page’

12. UI (Input/Output)

- Gray Box : Unavailable seat and can’t click

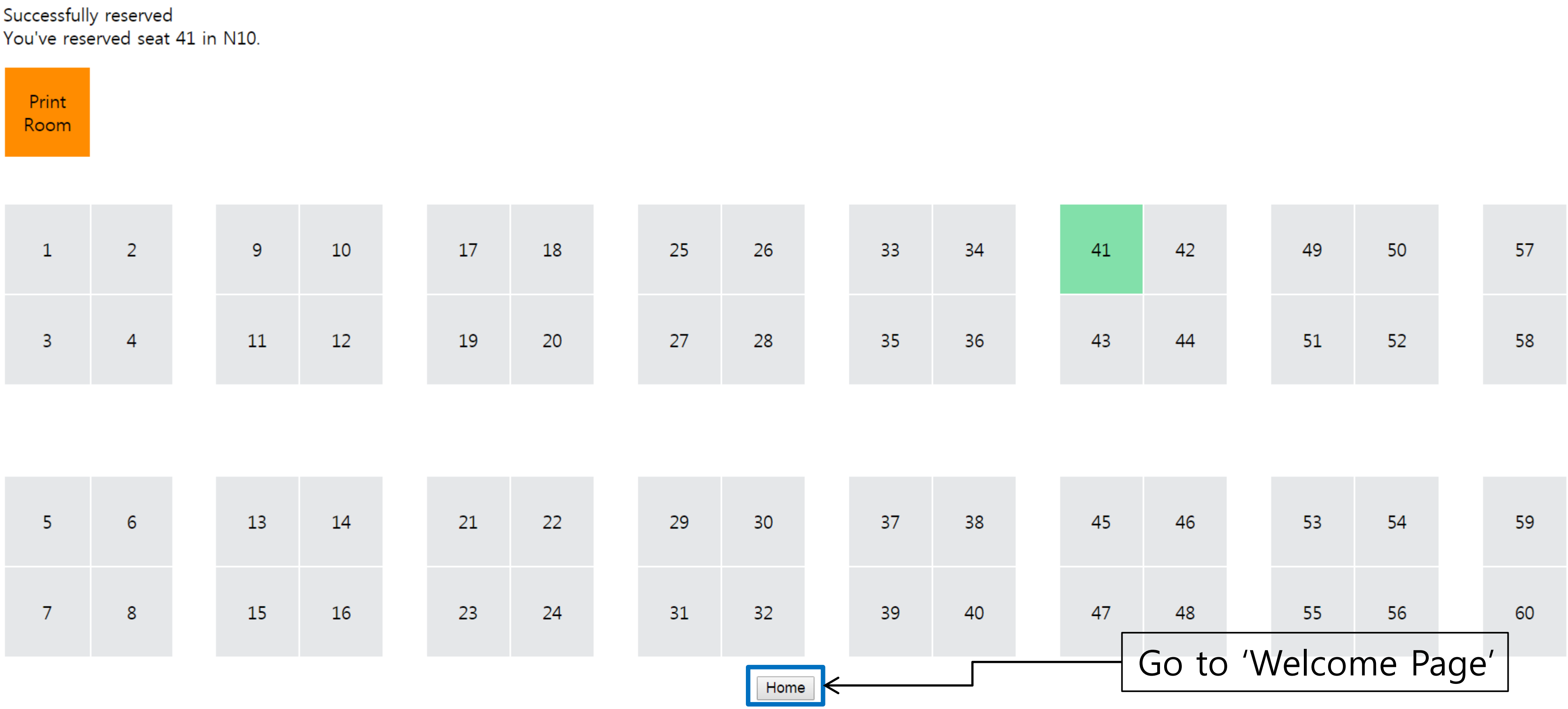


N10 Seat : Yellow can be reserved.

Click

Go to ‘Welcome Page’

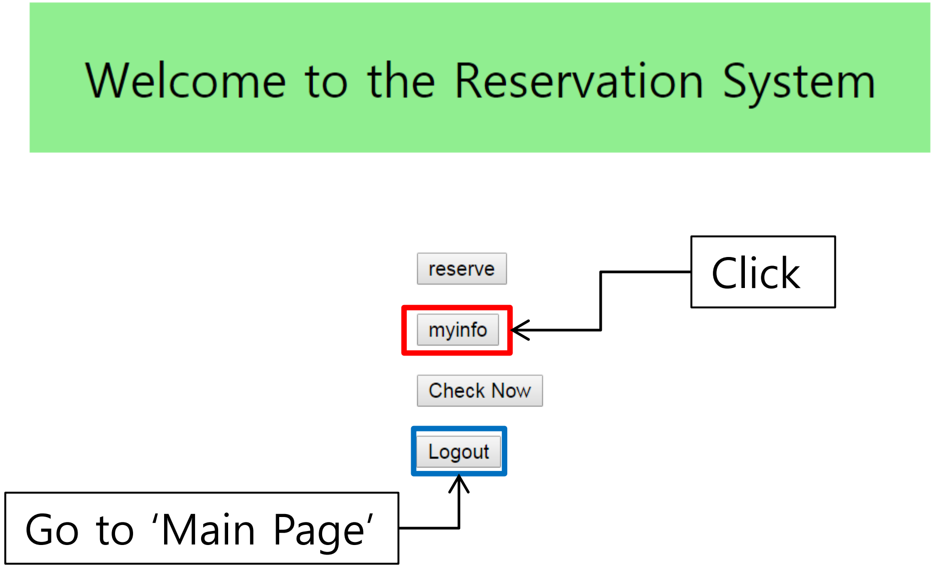
12. UI (Input/Output)



Successfully reserved
You've reserved seat 41 in N10.

Go to ‘Welcome Page’

12. UI (Input/Output)

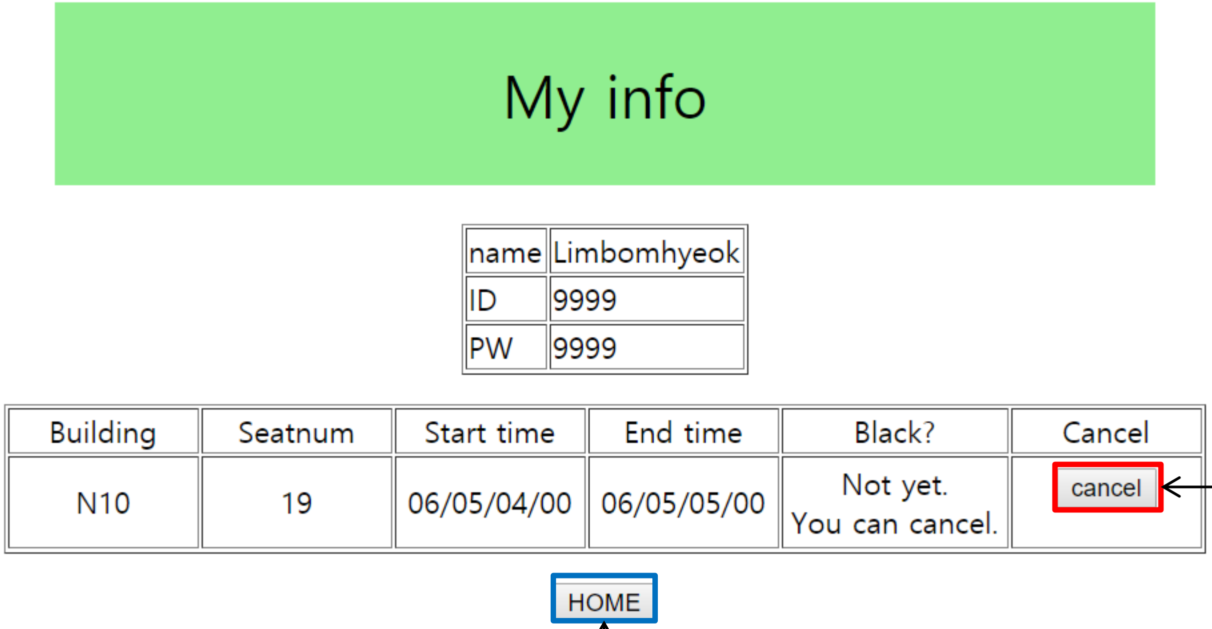


Welcome to the Reservation System

Click

Go to 'Main Page'

12. UI (Input/Output)



My info

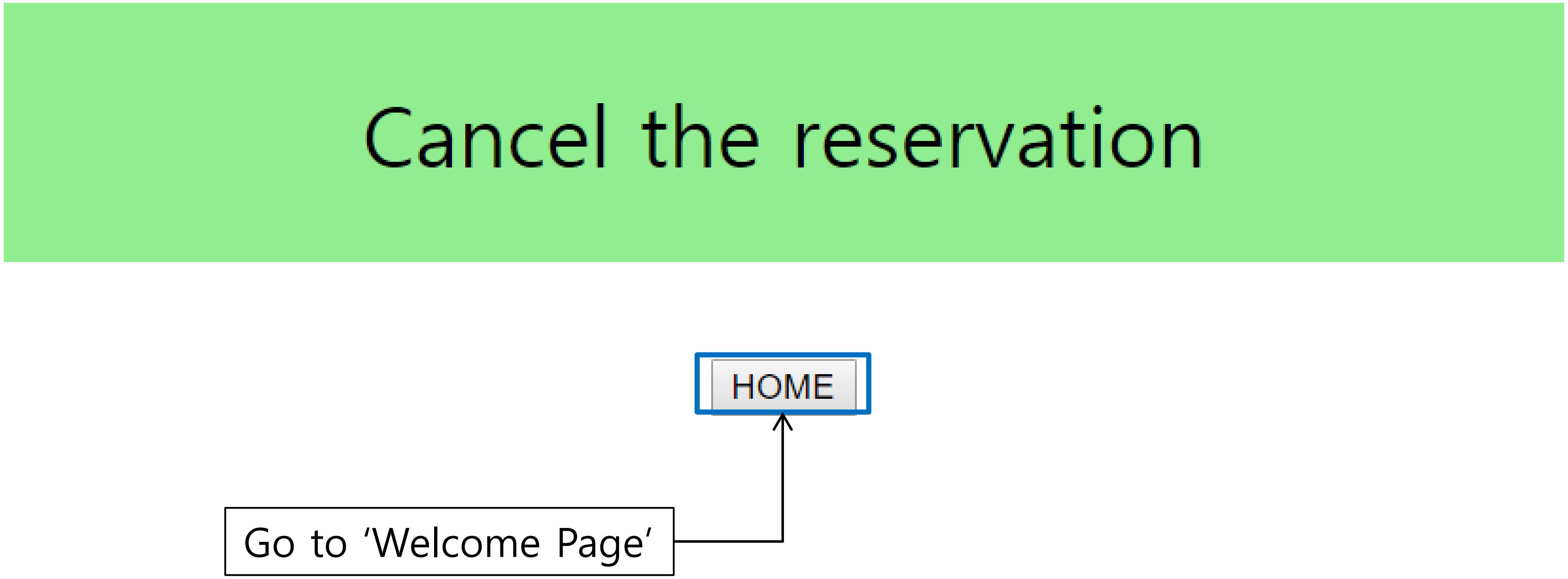
name	Limbomhyeok
ID	9999
PW	9999

Building	Seatnum	Start time	End time	Black?	Cancel
N10	19	06/05/04/00	06/05/05/00	Not yet. You can cancel.	cancel

Click

Go to 'Welcome Page'

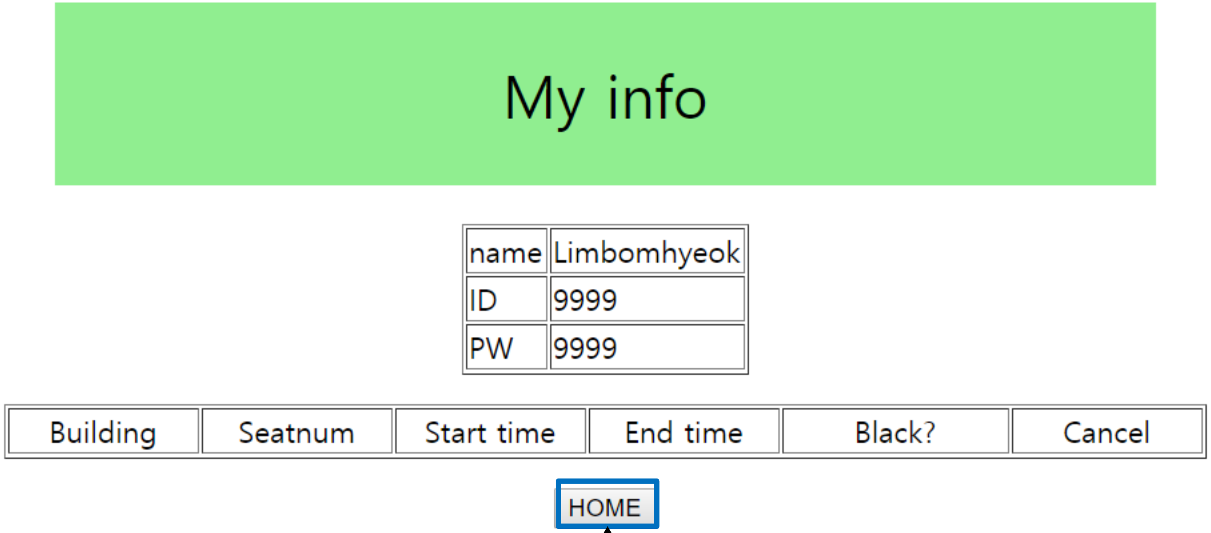
12. UI (Input/Output)



Cancel the reservation

Go to ‘Welcome Page’

12. UI (Input/Output)



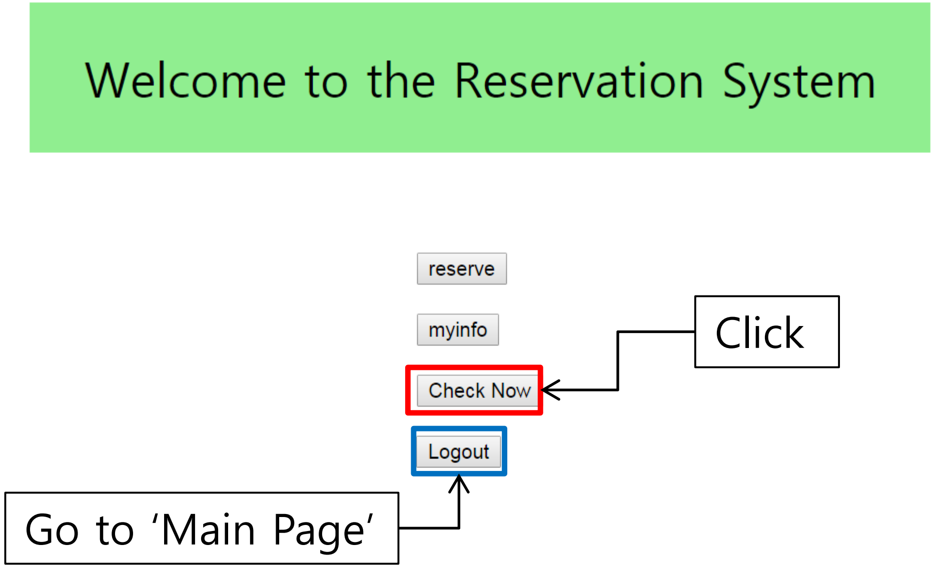
My info

name	Limbomhyeok
ID	9999
PW	9999

Building	Seatnum	Start time	End time	Black?	Cancel

Go to ‘Welcome Page’

12. UI (Input/Output)

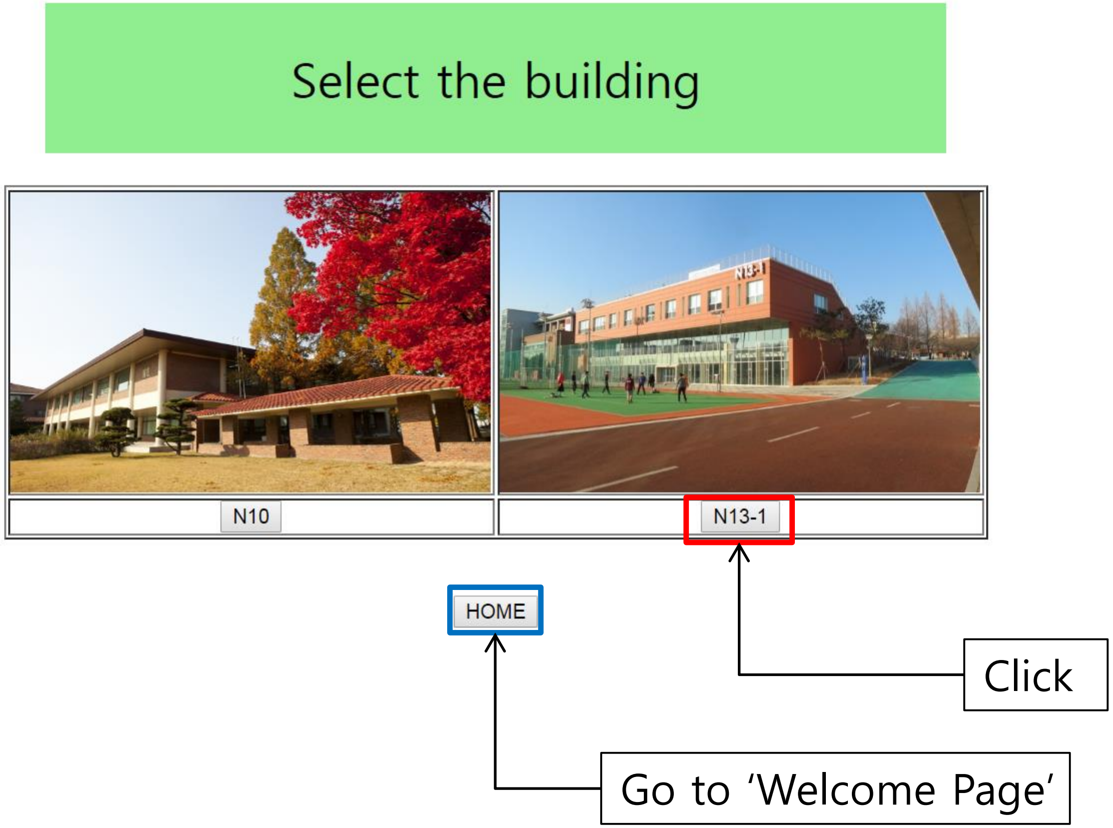


Welcome to the Reservation System

Click

Go to ‘Main Page’

12. UI (Input/Output)

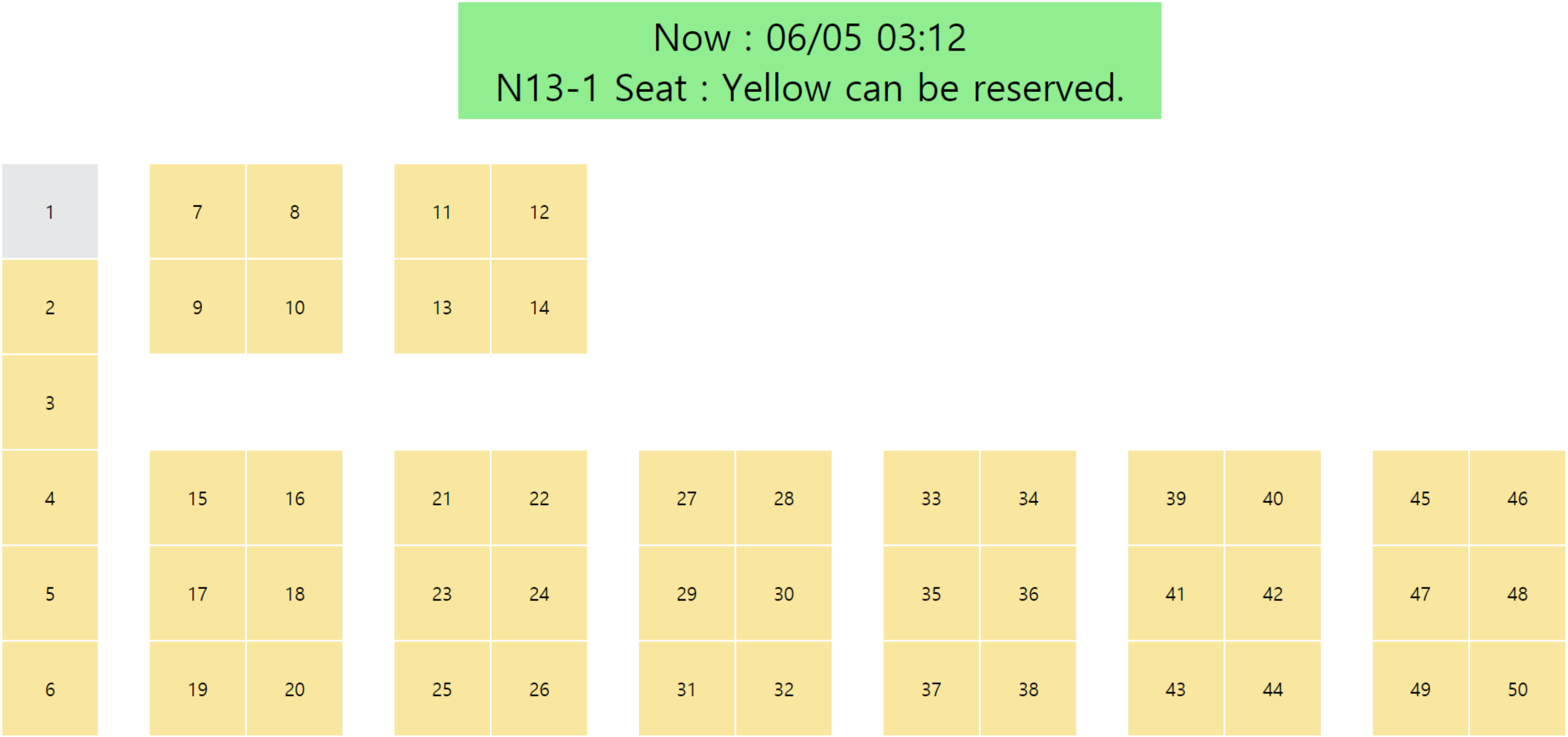


Select the building

Click

Go to ‘Welcome Page’

12. UI (Input/Output)

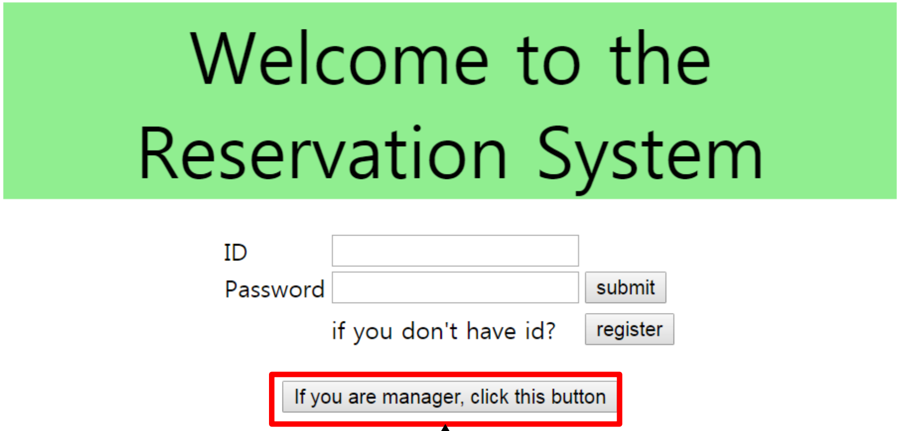


Now : 06/05 03:12

N13-1 Seat : Yellow can be reserved.

12. UI (Input/Output)

- Main Page

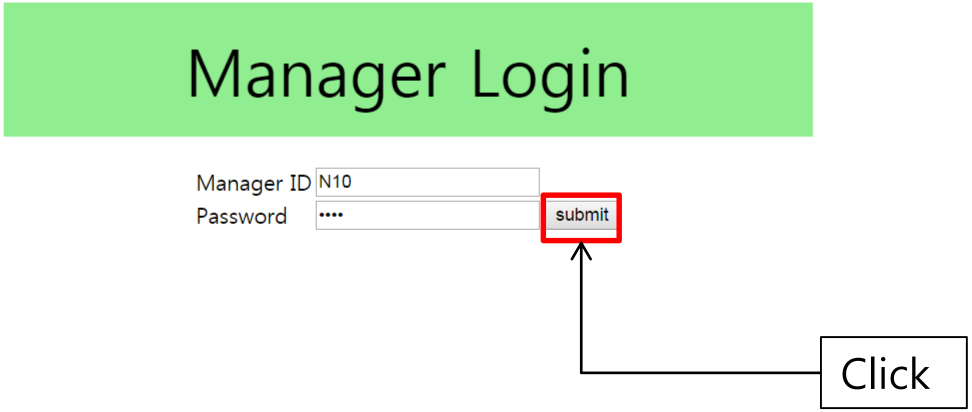


Welcome to the Reservation System

Click

12. UI (Input/Output)

- Manager Login Page



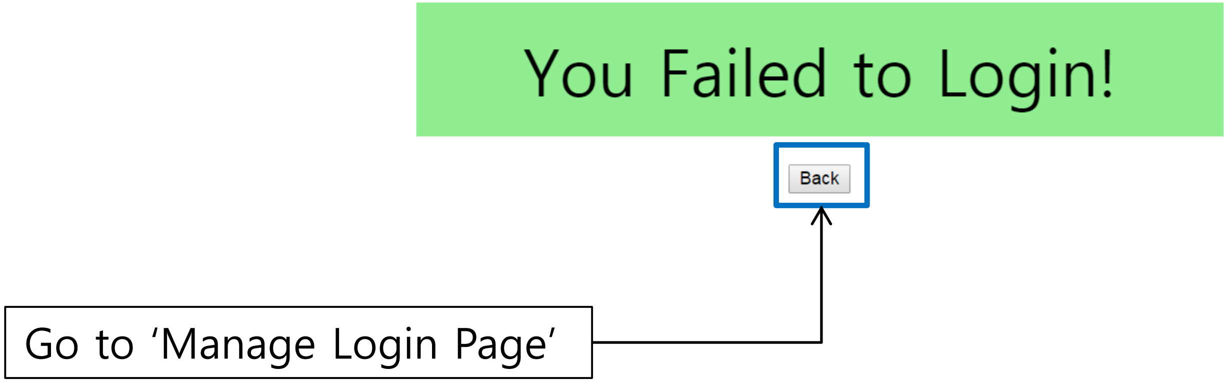
Manager Login

Manager ID N10

Password ••••

12. UI (Input/Output)

- Fail to login

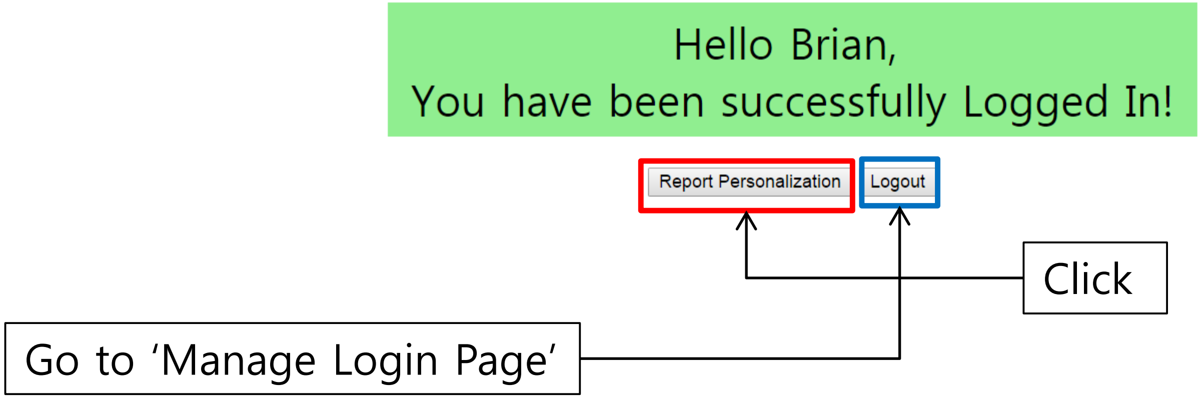


You Failed to Login!

Go to ‘Manage Login Page’

12. UI (Input/Output)

- Success to login, Hello Page

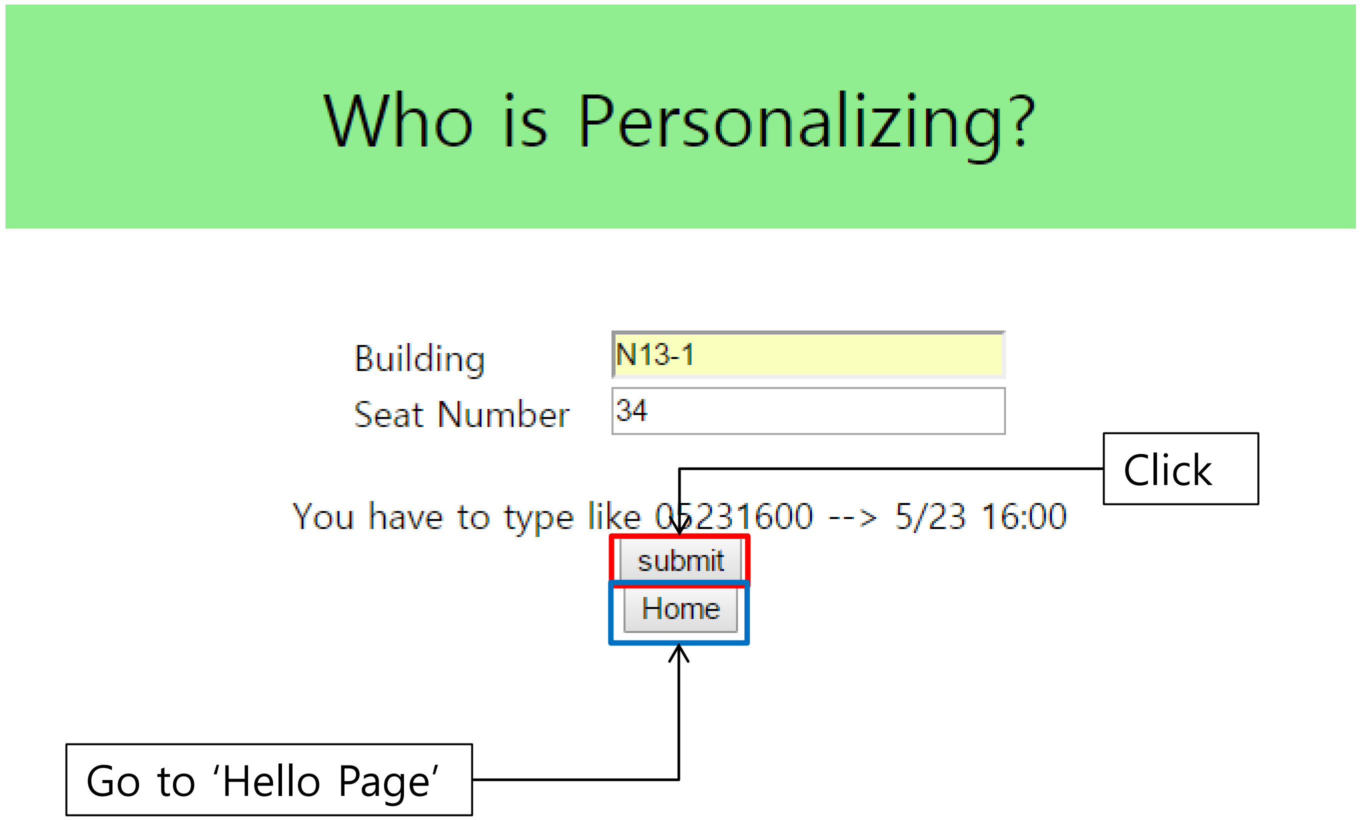


Hello Brian,
You have been successfully Logged In!

Click

Go to ‘Manage Login Page’

12. UI (Input/Output)



Who is Personalizing?

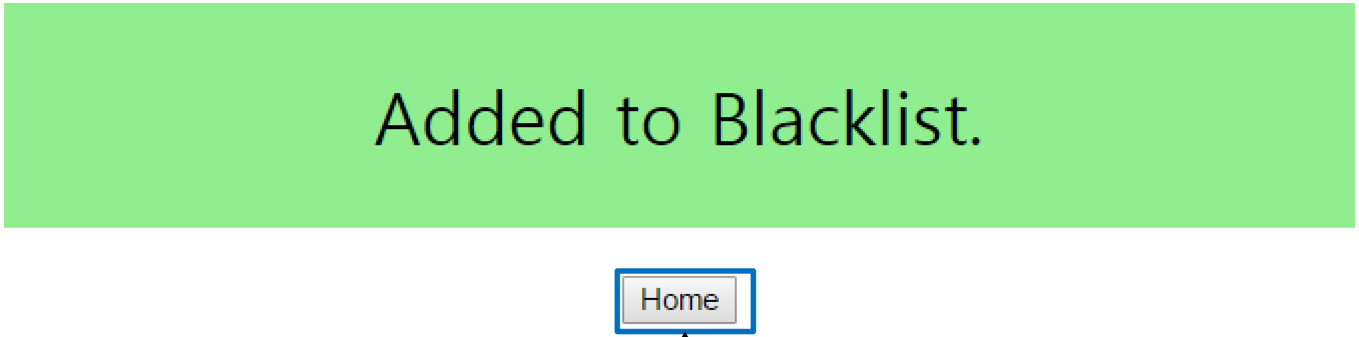
Building	N13-1
Seat Number	34

You have to type like 05231600 --> 5/23 16:00

Click

Go to ‘Hello Page’

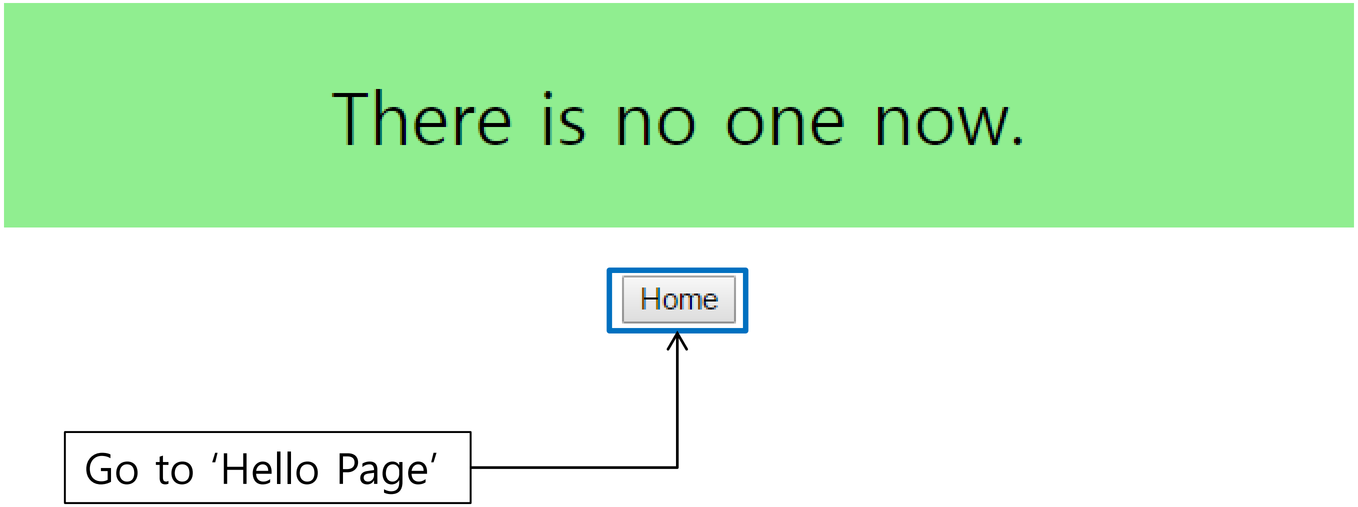
12. UI (Input/Output)



Added to Blacklist.

Go to ‘Hello Page’

12. UI (Input/Output)

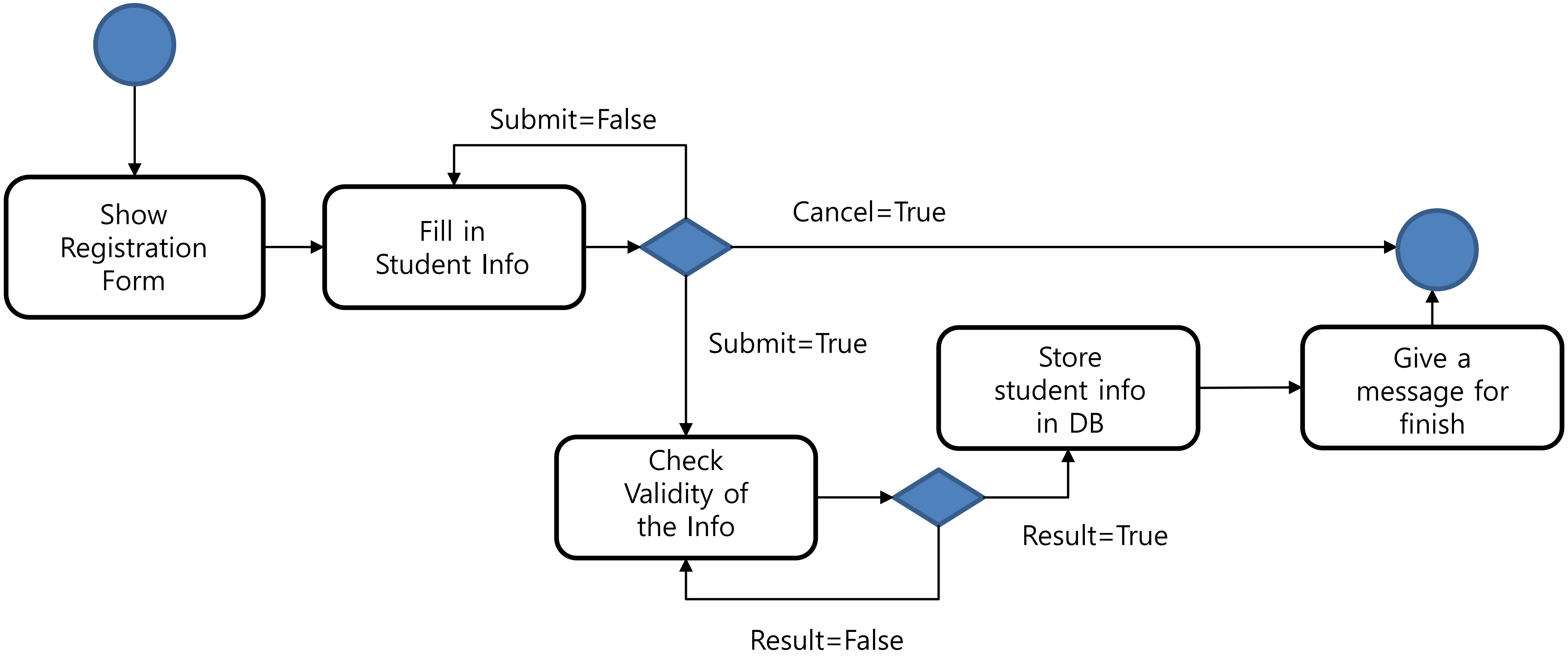


There is no one now.

Go to ‘Hello Page’

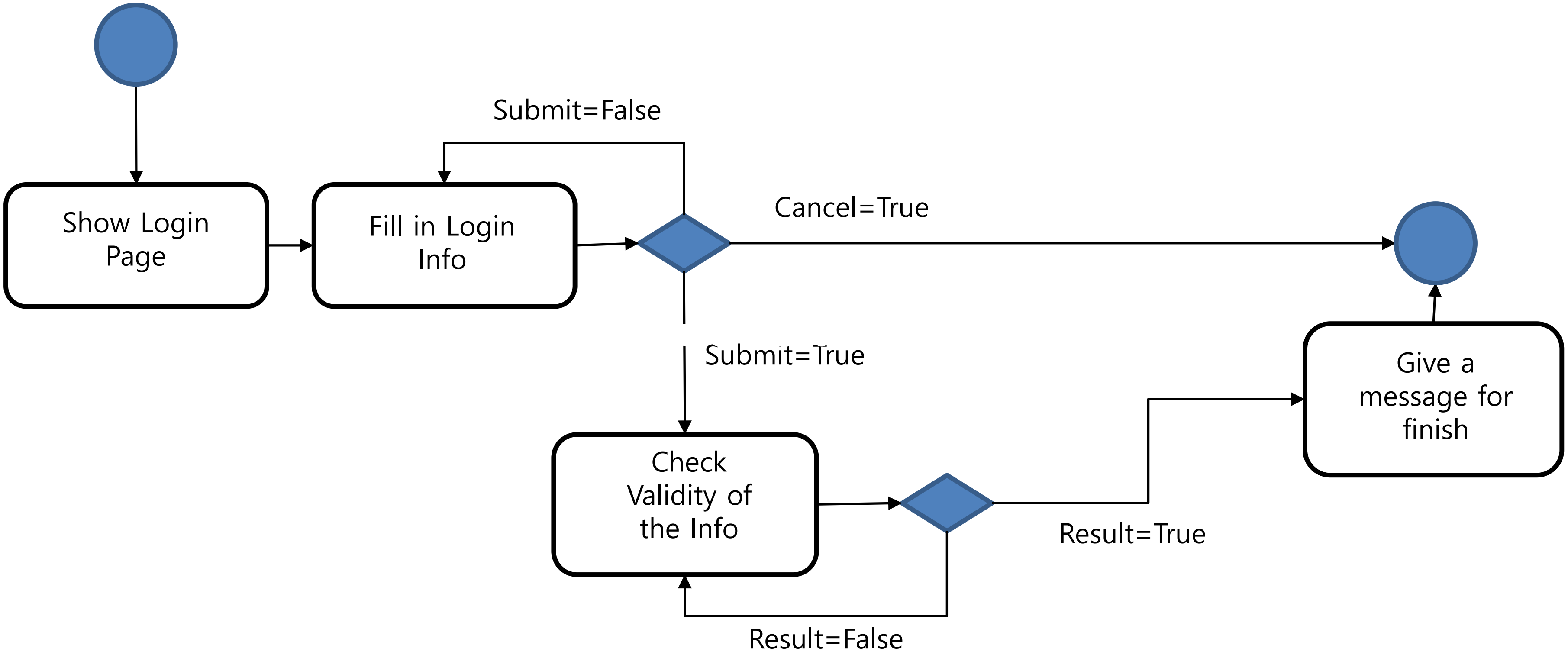
13. Logic Procedure

Student Registration



13. Logic Procedure

Student Login


Show Login Page

Fill in Login Info

Submit=False

Cancel=True

Submit=True

Check Validity of the Info

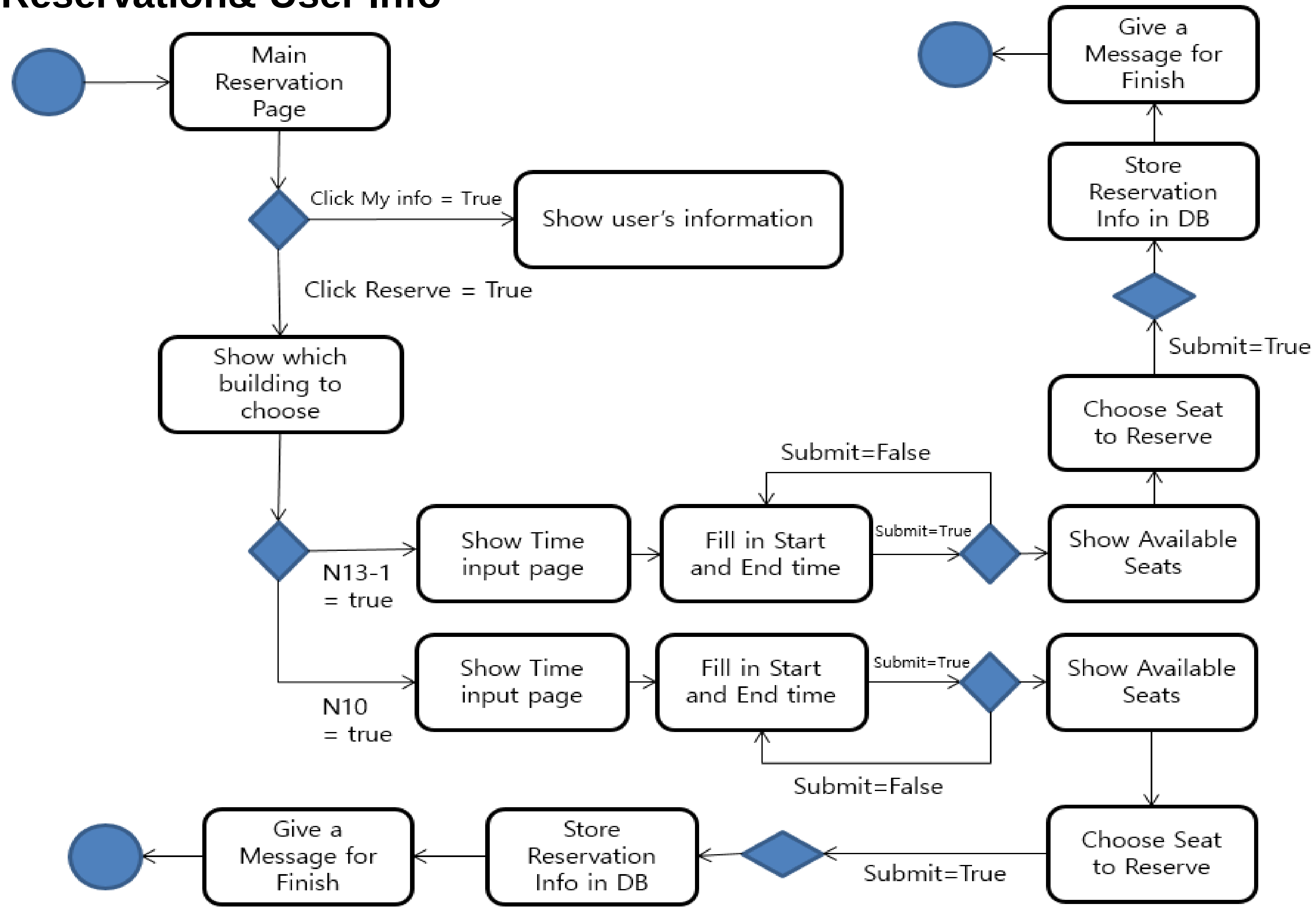
Result=True

Result=False

Give a message for finish

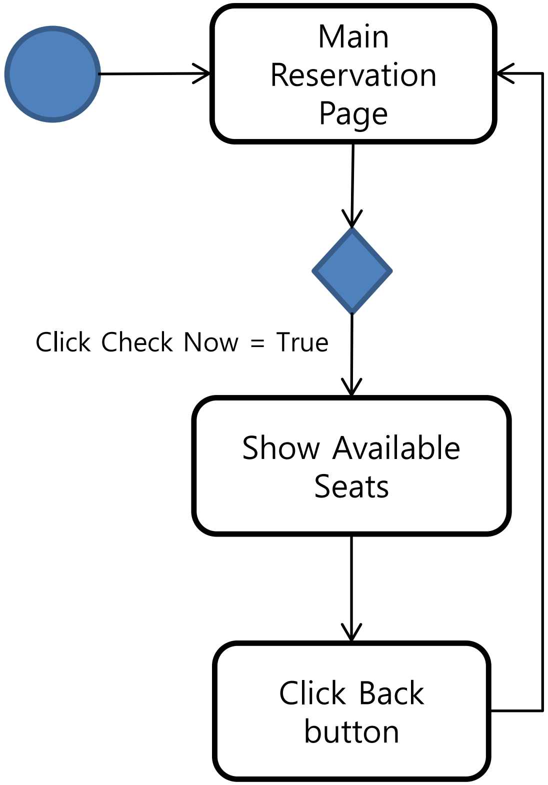
13. Logic Procedure

Reservation& User Info



13. Logic Procedure

Check Available Seats & Logout

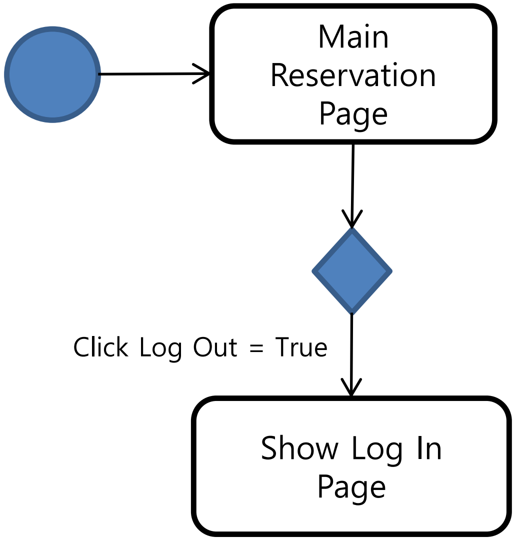


Main Reservation Page

Click Check Now = True

Show Available Seats

Click Back button



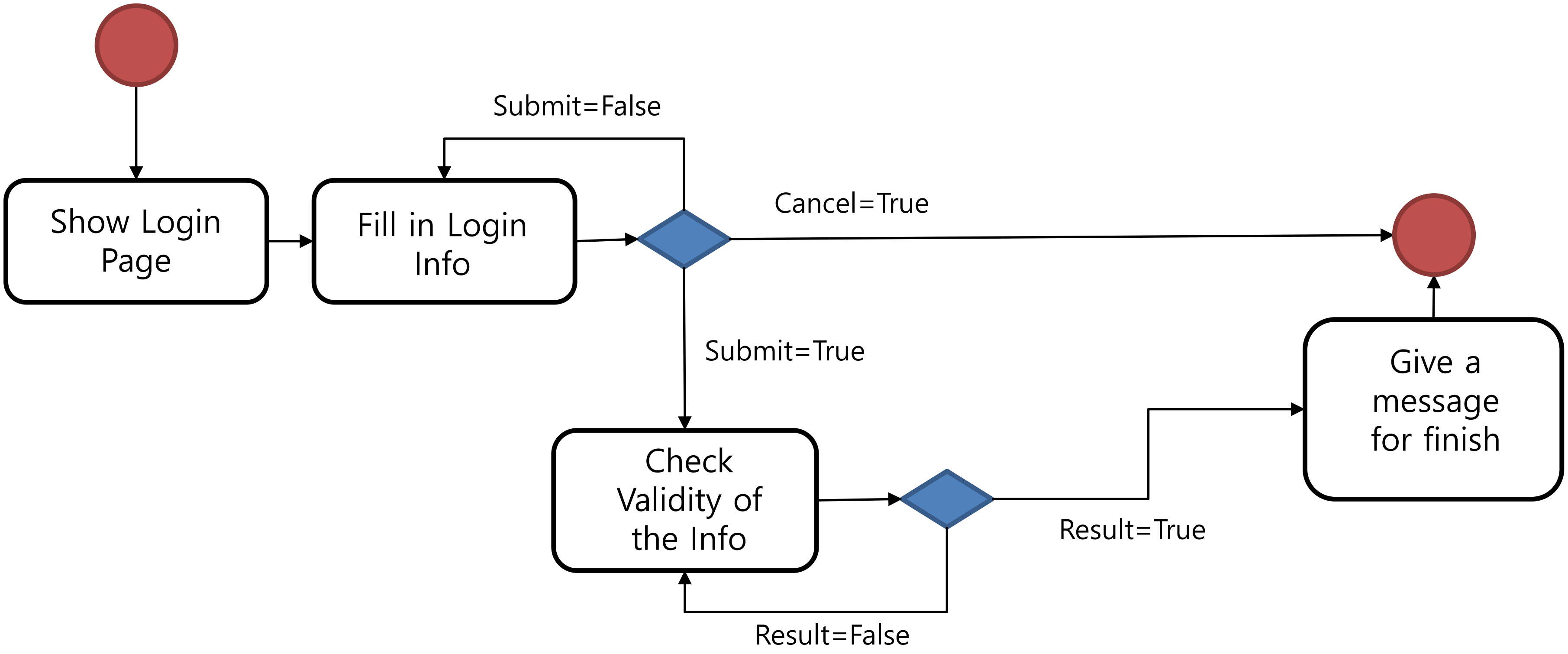
Main Reservation Page

Click Log Out = True

Show Log In Page

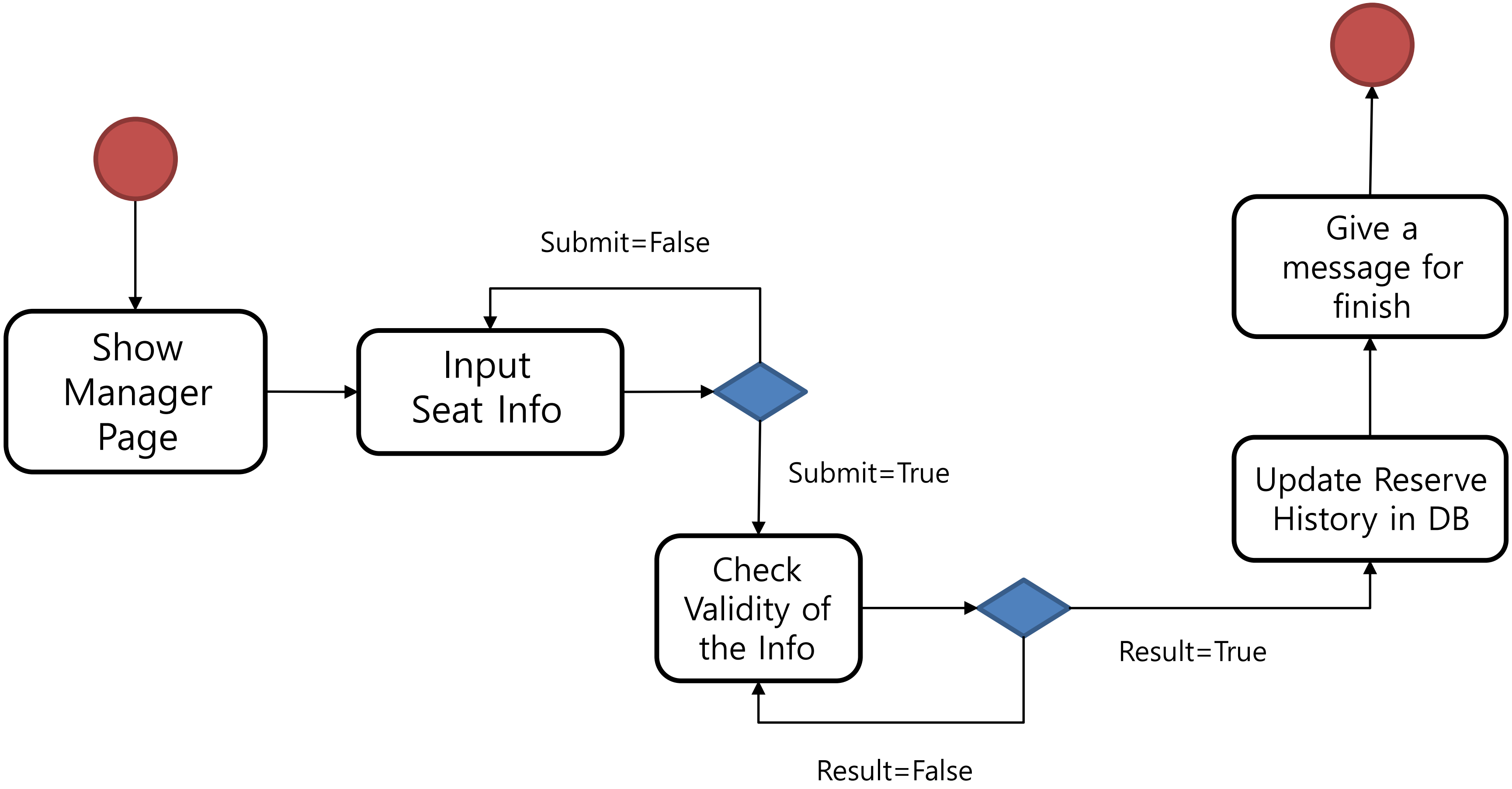
13. Logic Procedure

Manager Login



13. Logic Procedure

Manager Black History


Show Manager Page
Input Seat Info
Submit=False
Submit=True
Check Validity of the Info
Result=True
Result=False
Update Reserve History in DB
Give a message for finish

14. SQLs

1. Check KAIST student info

$sid : student id
$sname : student name

```
SELECT    *
FROM      STUDENT
WHERE     (Student_ID=$sid AND Name=$sname)
```

2. Insert student info

$sid : student id
$id : ID
$pw : Password

```
INSERT    INTO      REGISTERED_STUDENT(ID,Password,Student_ID)
          VALUES    ('$id','$pw','$sid')
```

14. SQLs

3. Retrieve registered student

```
$id       :  ID
$pw       : Password
```

```
SELECT    Name
FROM      STUDENT, REGISTERED_STUDENT
WHERE     (student.student_id=registered_student.student_id and registered_student.ID=$id)
```

4. Retrieve Manager

```
$mid       : Manager ID
$mpw       : Manager Password
```

```
SELECT    Manager_name
FROM      MANAGER
WHERE     (Manager_id='$mid' and Manager_password='$mpw‘)
```

14. SQLs

5. Update Reservation History

$code : History code of history that needs update

```
UPDATE    RESERVATION_HISTORY
SET       Blackhistory=1
WHERE     History_Code=$code
```

6. Block the blacked Students

$student_code : student id

```
SELECT    *
FROM      RESERVATION_HISTORY
WHERE     ( RESERVATION_HISTORY.Student_Code=$student_code
    AND   Blackhistory=1 )
```

14. SQLs

7. Store reserve history

$start : start time
$end : end time
$student_code : student code
$seat_code : seat code

```
INSERT     RESERVATION_HISTORY(Start, End, Student_Code, Seat_Code)
VALUES     ('$start‘, '$end', $student_code, $seat_code)
```

8. Cancel the reserved history

$hist_code : code to be deleted

```
DELETE
FROM       RESERVATION_HISTORY
WHERE      History_Code=$hist_code
```