Pacility

Pohang-sport-facility

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1. Problem specification:

1-1. State (clearly describe) the problem.

It is necessary to provide information about sports facilities in Pohang City. There is no way to receive information about outside sport-facilities. For example, even if a user wants to play basketball on a rainy day, it is not easy to know where the indoor basketball court is. Even if users searched on the Internet, only one or two indoor basketball courts were listed through blogs, and even those were available only for a fee. Based on these experiences, we would like to plan a web service that provides accurate information on sports institutions in Pohang when a user wants to enjoy a specific sport but does not know where to exercise.

1-2. In the perspective of problem solving, introduce the database and database application that the team is working on.

The database data to be provided is as follows.

1. Sport facility (Facility_name, Sport_type, Acceptable),
2. Address, Contact, Traffic, Bus_stop, Special comment of facility (ex: If you come with your friend, we give you a 10% discount.)
3. Operating(=openning),Operating_hours(Weekday/Weekend), Operating_charge(Weekday/Weekend)

In the application, the user can search for organizations by region and sport, and can check various information about the institution. Additional information about the new organization may be posted under the manager's permission.

1-3. In the perspective of problem solving, summarize or list up the requirements (developmental objectives and outcomes) that the team has set to address; present the requirement in a succinct manner

Developmental objectives and outcomes: Users can find the most suitable sports institution for them through the service. As an expected result, a database application provides accurate information about sport institutions according to the user's situation.

2. Application proposal:

2-1. Main Goal

Provide web service that gives detailed information on sports facilities in Pohang.

2-2. Main Features

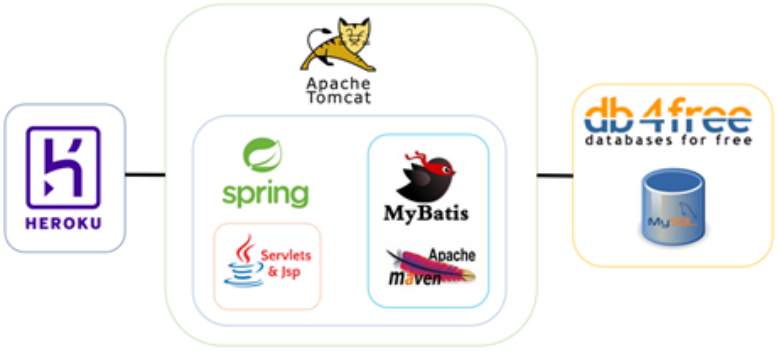
1. View sports facility lists : One would be able to see Pohang sports facilities with details, order records in order (alphabetical or numerical), and sort out the records by categories (ex: view sports facilities that are open on Friday)

2. Search certain keywords : One could search specific facilities, sports type, etc.

3. Request uploading new sports facility : Anyone can request a new sports facility and the administrator will check if it is a valid sports facility and decide whether to add it or not.

4. Administrator management : Manage administrator list with id and password.

Development tools



1. For the database server, we will be using **db4free** and if it is too slow, we will find a better DB server.

2. Use **Apache Tomcat** for WAS. We will be using **Spring Framework** and use **JSP** for the dynamic page. Also, we will use **Mybatis** for SQL usage and **Maven** to manage our project.

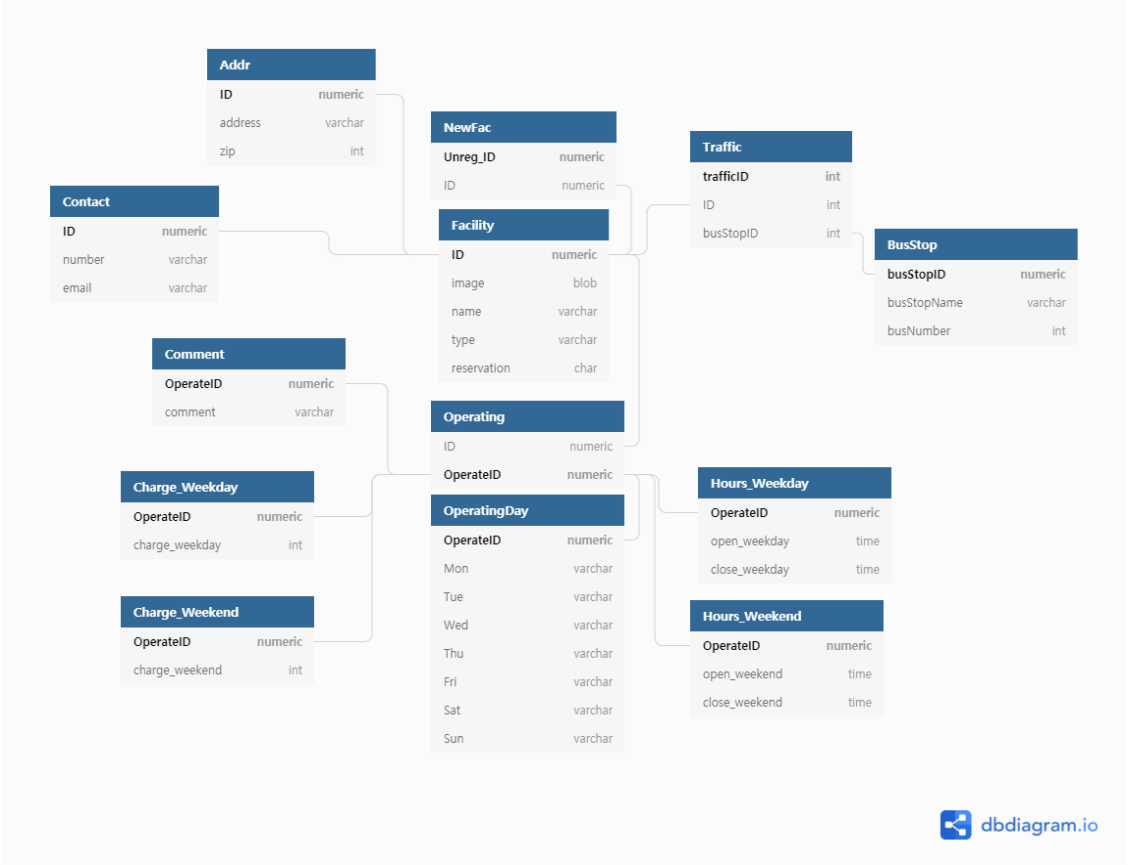
3. For web deployment, we will be using **Heroku**.

* If our team finds out db4free is too slow or problematic, we will use a new DB server like Google Cloud Platform or Oracle.

3. Designed database:

3-1. Present the schema diagram and describe them

1. Schema diagram



2. **Describe tables and attributes.**

Facility (ID, image, name, type, reservation) : TableS recorded to store and distinguish facility information and Use ID to form relationships with Addr, Contact, and Traffic.

- ID : Identification ID for each facility
- image: Image(logo) of Sports Facility
- name : Name of Sports Facility
- type : Exercise available in sports facilities
- reservation: To tell if a facility is available for reservation or not. (CAN or NOT)

Addr (ID, address, zip) : A table that stores the facility's address

- ID : Identification ID for each facility REF Facility
- address : Address of sports facilities
- zip : Postal Code for Facilities

Contact(ID, number, email) : A table that stores the facility's contacts.

- ID : Identification ID for each facility REF Facility
- number : Sports Facilities Phone Number
- email : e-mail from sports facilities

Traffic (trafficID, ID, busStopID) : A table with information about bus stops around the facility. It has a relationship with the *BusStop* table.

- trafficID : Identification ID to manage Traffic list
- ID : Identification ID for each facility REF Facility
- busStopID : Fixed bus stop ID

BusStop (busStopID, busStopName, busNumber) : A table that stores the name of the bus stop and bus information arriving at it.

- busStopID : Fixed bus stop ID
- busStopName : Name of Bus Stations
- busNumber : The number of the bus coming to the bus stop.

NewFac (Unreg_ID, ID) : A table created to obtain administrator permission for a new sport facility.

- Unreg_ID : ID for managing facilities that are unregistered
- ID : Identification ID for each facility REF Facility

Operating (ID, OperateID) : A table that receives 'Facility.ID', and gives the primary key to the 'OperateID' to store overall information of the facility operating identifiable.

- ID: Identification ID for each facility REF Facility
- OperateID: Identified ID for containing operating information for each facility.

OperatingDay (OperateID, Mon, Tue, Wed, Thu, Fri, Sat, Sun) : A table that contains information about the facility's operation day, Monday through Sunday.

- OperateID: Identified ID for containing operating information for each facility.
- Mon: If the facility is open on Monday, its value is "Open", or else(otherwise,) "Close".
- Tue: same as 'Mon'. Open or Close on Tuesday
- Wed: Open or Close on Wednesday
- Thu: Open or Close on Thursday
- Fir: Open or Close on Friday
- Sat: Open or Close on Saturday
- Sun: Open or Close on Sunday

Charge_Weekday (OperateID, charge_weekday) : A table that contains information about weekday charge.

- OperateID: REFERENCES Facility.
- charge_weekday: State the charge for weekday use.

Charge_Weekend (OperateID, charge_weekend) : A table that contains information about weekend charge.

- OperateID: REFERENCES Facility.
- charge_weekend: State the charge for weekend use.

Hours_Weekday (OperateID, open_weekday, close_weekday) : A table that contains information about weekday office hours.

- OperateID: REFERENCES Facility.
- open_weekday: State the opening hours of weekday.
- close_weekday: State the closing hours of weekday.

Hours_Weekend (OperateID, open_weekend, close_weekend) : A table that contains information about weekend office hours.

- OperateID: REFERENCES Facility.
- open_weekend: State the opening hours of the weekend.
- close_weekend State the closing hours of the weekend.

Comment (OperateID, comment) : A table that represents additional information other than the specified operating days, charge, and office hours. (ex.If you come with your friend, we give you a 10% discount.)

- OperateID: REFERENCES Facility.
- comment: Additional information specified by the facility.

3-2. Justify that your database schema is complete in terms of providing the planned features or services (one may use sample data records or joined results).

<example> Show list with type 'health center'

```
SELECT F.name AS name, F.reservation AS reservation, A.address AS address
FROM Facility AS F LEFT JOIN Operating AS O
        ON F.ID = O.ID
        LEFT JOIN Contact AS C
        On F.ID = C.ID
        LEFT JOIN NewFac AS N
        ON F.ID = N.ID
        LEFT JOIN Addr AS A
        ON F.ID = A.ID
WHERE F.type = 'health center' and N.Unreg_ID = NULL
```

name	reservation	address
마이다스짐	1	경북 포항시 북구 우창동로 70 테라스31 403호
커브스 이동클럽	1	경북 포항시 남구 대이로 112 삼성빌딩
다이어트 클럽	0	경북 포항시 남구 오천읍 원동로 80
최은숙피트니스	1	경북 포항시 남구 송림로55번길 6
팀Y휘트니스	0	경북 포항시 북구 중앙로 205
the bI gym 이동점	1	경북 포항시 남구 대이로 109 4층

3-3. Explain how you have inserted and/or how you will insert the data records to the database.

Use python crawling to obtain the name and address of sports facilities on Naver map. Create a CSV file for the facility name and create a CSV file for each address and contact. Create a new database with mysql at jsp and upload each csv file to the database you created.

[X. Appendix]

```
CREATE TABLE Facility(
  ID              NUMERIC(5,0) PRIMARY KEY,
  image           BLOB,
  name            VARCHAR(20) NOT NULL,
  type            VARCHAR(15) NOT NULL,
  reservation     CHAR(3)
);

CREATE TABLE Contact(
  ID              NUMERIC(5,0) PRIMARY KEY,
  number          VARCHAR(11) NOT NULL,
  email           VARCHAR(30),
  UNIQUE(number),
  FOREIGN KEY (ID) REFERENCES Facility
);

CREATE TABLE Traffic(
  trafficID       NUMERIC(6,0) PRIMARY KEY,
  ID              NUMERIC(5,0),
  busStopID               NUMERIC(6,0),
  FOREIGN KEY (ID) REFERENCES Facility
);
CREATE TABLE BusStop(
  busStopID               NUMERIC(6,0) PRIMARY KEY,
  busStopName  VARCHAR(15),
  busNumber               NUMERIC(3,0),
  FOREIGN KEY (busStopID) REFERENCES Traffic
);

CREATE TABLE Addr(
  ID              NUMERIC(5,0) PRIMARY KEY,
  address         VARCHAR(50) NOT NULL,
  zip             INT(5),
  UNIQUE(address),
  FOREIGN KEY (ID) REFERENCES Facility
);

CREATE TABLE NewFac(
  ID              NUMERIC(5,0),
  Unreg_ID        NUMERIC(5,0) PRIMARY KEY,
  FOREIGN KEY (ID) REFERENCES Facility
);

CREATE TABLE Operating(
  ID              NUMERIC(5,0),
  OperateID       NUMERIC(5,0) PRIMARY KEY,
```

```
  FOREIGN KEY (ID) REFERENCES Facility
);

CREATE TABLE OperatingDay(
  OperateID       NUMERIC(5,0) PRIMARY KEY,
  Mon    VARCHAR(5) NOT NULL,
  Tue    VARCHAR(5) NOT NULL,
  Wed    VARCHAR(5) NOT NULL,
  Thu    VARCHAR(5) NOT NULL,
  Fri    VARCHAR(5) NOT NULL,
  Sat    VARCHAR(5) NOT NULL,
  Sun    VARCHAR(5) NOT NULL,
  FOREIGN KEY (OperateID) REFERENCES Operating
);

CREATE TABLE Charge_Weekend(
  OperateID                    NUMERIC(5,0) PRIMARY KEY,
  charge_weekend        INT(7),
  FOREIGN KEY (OperateID) REFERENCES Operating
);
CREATE TABLE Charge_Weekday(
  OperateID                    NUMERIC(5,0) PRIMARY KEY,
  charge_weekday        INT(7),
  FOREIGN KEY (OperateID) REFERENCES Operating
);

CREATE TABLE Hours_Weekend(
  OperateID                    NUMERIC(5,0) PRIMARY KEY,
  open_weekend                 TIME,
  close_weekend                TIME,
  FOREIGN KEY (OperateID) REFERENCES Operating
);
CREATE TABLE Hours_Weekday(
  OperateID                    NUMERIC(5,0) PRIMARY KEY,
  open_weekday                 TIME,
  close_weekday                TIME,
  FOREIGN KEY (OperateID) REFERENCES Operating
);

CREATE TABLE Comment(
  OperateID               NUMERIC(5,0) PRIMARY KEY,
  comment                 VARCHAR(80),
  FOREIGN KEY (OperateID) REFERENCES Operating
);
```