

Report #1

- ER Diagram -
(Airline Reservation)



Subject :	데이터 베이스
Prof :	김혁만 교수님
Major :	소프트웨어학과
Student No. :	20171697
Name :	전하훈

1. logical schema를 설계하시오. 설계된 테이블은 다음 순서로 나열하고, 각각의 테이블에서 PK와 FK를 명확히 밝히시오.

※ PK는 밑줄표시, FK는 별표표시*, FK중에 색깔 칠해져 있는 것은 관계 이름

1.1) entity relation

Airport (Airport_code, City, State, Name)

Airplane_type (Type_name, Max_seats, company)

Airplane (Airplane_ID, Total_No_Of_Seats, Airplane_type_Name*)

Leg_Instance (Date, Leg_No*, Leg_Flight_No*, Dep_Leg_Airport_Code*, Dep_Time, Arr_Leg_Airport_Code*, Arr_Time, Assigned_Airplane_ID*, No_Of_Avail_Seats)

Seat (Seat_No, Date*, Leg_No*, Leg_Flight_No*, Customer_Name, Cphone)

Flight_Leg (Leg_No, Flight_No*, Dep_Airport_Code*, Scheduled_Dep_Time, Arr_Airport_Code*, Scheduled_Arr_Time)

Flight (Number, Airline, Weekdays)

Fare (Code, Flight_No*, Amount, Restrictions)

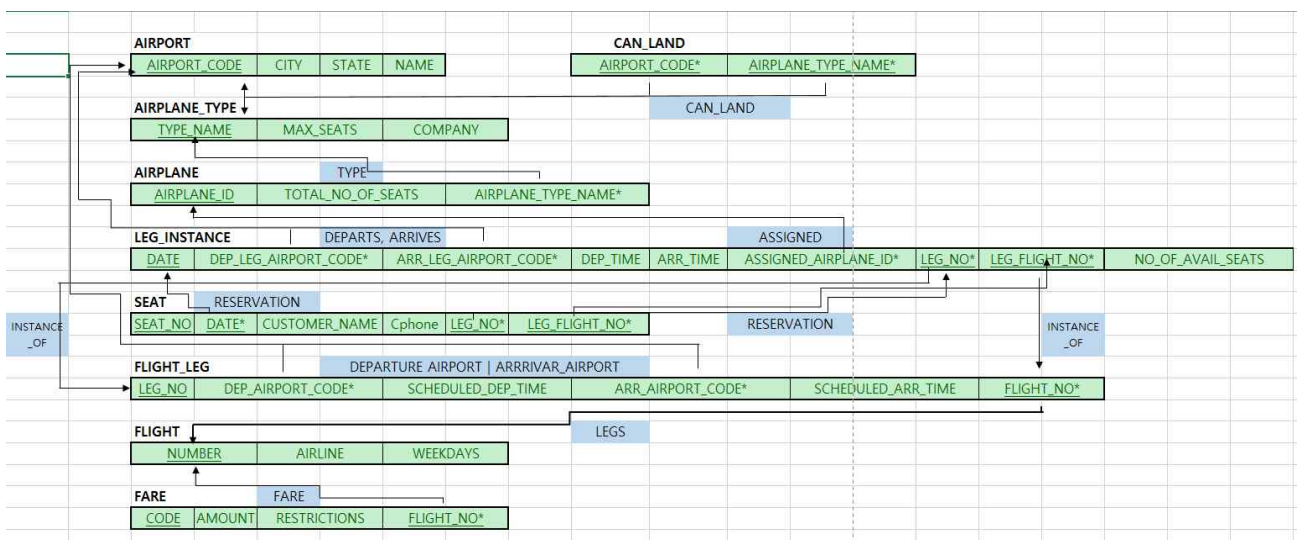
1.2) relationship relation

Can_Land (Airport_Code*, Airplane_Type_Name*)

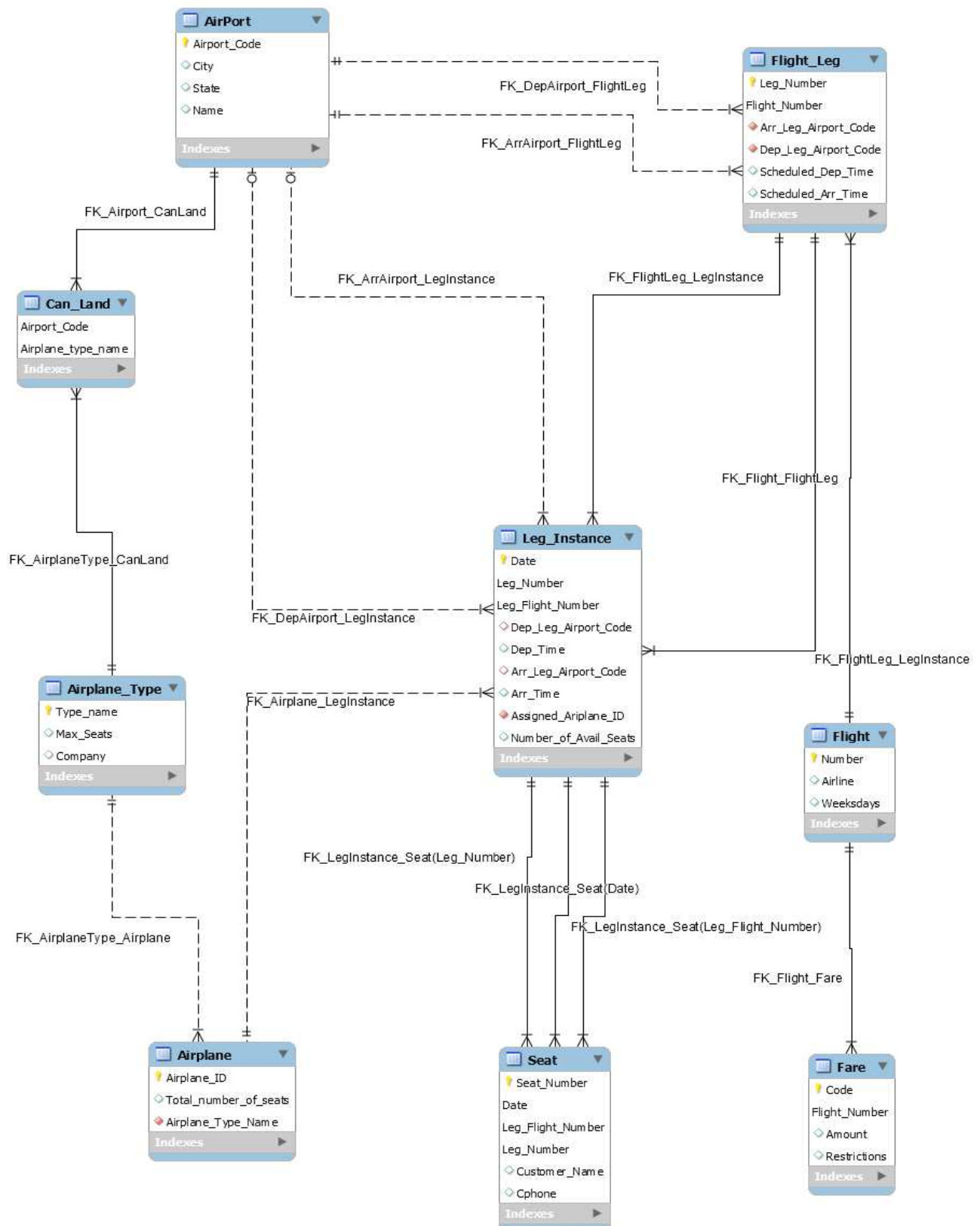
1.3) attribute relation

- 주어진 ER diagram에서는 Attribute relation은 없다.

※ 그림 참조.



2. 설계한 logical schema를 MySQL Workbench를 사용하여 EER 다이어그램으로 그리시오. 다이어그램은 Workbench의 다음 기능을 이용하여 PNG 파일로 출력하시오.



3. 설계한 logical schema를 MySQL Workbench를 사용하여 DDL Script file로 출력하시오.

```
-- MySQL Script generated by MySQL Workbench
-- Mon Apr 15 11:57:40 2019
-- Model: New Model    Version: 1.0
-- MySQL Workbench Forward Engineering

SET @OLD_UNIQUE_CHECKS=@@UNIQUE_CHECKS, UNIQUE_CHECKS=0;
SET @OLD_FOREIGN_KEY_CHECKS=@@FOREIGN_KEY_CHECKS, FOREIGN_KEY_CHECKS=0;
SET @OLD_SQL_MODE=@@SQL_MODE,
SQL_MODE='ONLY_FULL_GROUP_BY,STRICT_TRANS_TABLES,NO_ZERO_IN_DATE,NO_ZERO_DATE,
ERROR_FOR_DIVISION_BY_ZERO,NO_ENGINE_SUBSTITUTION';

-- -----
-- Schema Airline_Reservation_DB
-- -----
DROP SCHEMA IF EXISTS `Airline_Reservation_DB` ;

-- -----
-- Schema Airline_Reservation_DB
-- -----
CREATE SCHEMA IF NOT EXISTS `Airline_Reservation_DB` DEFAULT CHARACTER SET utf8 ;
USE `Airline_Reservation_DB` ;

-- -----
-- Table `Airline_Reservation_DB`.`AirPort`
-- -----
DROP TABLE IF EXISTS `Airline_Reservation_DB`.`AirPort` ;

CREATE TABLE IF NOT EXISTS `Airline_Reservation_DB`.`AirPort` (
  `Airport_Code` INT NOT NULL,
  `City` VARCHAR(45) NULL,
  `State` VARCHAR(45) NULL,
  `Name` VARCHAR(45) NULL,
  PRIMARY KEY (`Airport_Code`))
ENGINE = InnoDB;
```

```

-- -----
-- Table `Airline_Reservation_DB`.`Airplane_Type`
-- -----

DROP TABLE IF EXISTS `Airline_Reservation_DB`.`Airplane_Type` ;

CREATE TABLE IF NOT EXISTS `Airline_Reservation_DB`.`Airplane_Type` (
  `Type_name` VARCHAR(45) NOT NULL,
  `Max_Seats` INT NULL,
  `Company` VARCHAR(45) NULL,
  PRIMARY KEY (`Type_name`))
ENGINE = InnoDB;

-- -----
-- Table `Airline_Reservation_DB`.`Can_Land`
-- -----

DROP TABLE IF EXISTS `Airline_Reservation_DB`.`Can_Land` ;

CREATE TABLE IF NOT EXISTS `Airline_Reservation_DB`.`Can_Land` (
  `Airport_Code` INT NOT NULL,
  `Airplane_type_name` VARCHAR(45) NOT NULL,
  PRIMARY KEY (`Airport_Code`, `Airplane_type_name`),
  INDEX `FK_AirplaneType_CanLand_idx` (`Airplane_type_name` ASC) VISIBLE,
  CONSTRAINT `FK_Airport_CanLand`
    FOREIGN KEY (`Airport_Code`)
      REFERENCES `Airline_Reservation_DB`.`AirPort` (`Airport_Code`)
      ON DELETE NO ACTION
      ON UPDATE NO ACTION,
  CONSTRAINT `FK_AirplaneType_CanLand`
    FOREIGN KEY (`Airplane_type_name`)
      REFERENCES `Airline_Reservation_DB`.`Airplane_Type` (`Type_name`)
      ON DELETE NO ACTION
      ON UPDATE NO ACTION)
ENGINE = InnoDB;

-- -----
-- Table `Airline_Reservation_DB`.`Airplane`
-- -----

DROP TABLE IF EXISTS `Airline_Reservation_DB`.`Airplane` ;

CREATE TABLE IF NOT EXISTS `Airline_Reservation_DB`.`Airplane` (
  `Airplane_ID` INT NOT NULL,
  `Total_number_of_seats` INT NULL,
  `Airplane_Type_Name` VARCHAR(45) NOT NULL,
  PRIMARY KEY (`Airplane_ID`),

```

```

INDEX `FK_AirplaneType_Airplane_idx` (`Airplane_Type_Name` ASC) VISIBLE,
CONSTRAINT `FK_AirplaneType_Airplane`
  FOREIGN KEY (`Airplane_Type_Name`)
  REFERENCES `Airline_Reservation_DB`.`Airplane_Type` (`Type_name`)
  ON DELETE NO ACTION
  ON UPDATE NO ACTION)
ENGINE = InnoDB;

```

```

-- -----
-- Table `Airline_Reservation_DB`.`Flight`
-- -----
DROP TABLE IF EXISTS `Airline_Reservation_DB`.`Flight` ;

```

```

CREATE TABLE IF NOT EXISTS `Airline_Reservation_DB`.`Flight` (
  `Number` INT NOT NULL,
  `Airline` VARCHAR(45) NULL,
  `Weeksdays` DATE NULL,
  PRIMARY KEY (`Number`))
ENGINE = InnoDB;

```

```

-- -----
-- Table `Airline_Reservation_DB`.`Flight_Leg`
-- -----
DROP TABLE IF EXISTS `Airline_Reservation_DB`.`Flight_Leg` ;

```

```

CREATE TABLE IF NOT EXISTS `Airline_Reservation_DB`.`Flight_Leg` (
  `Leg_Number` INT NOT NULL,
  `Flight_Number` INT NOT NULL,
  `Arr_Leg_Airport_Code` INT NOT NULL,
  `Dep_Leg_Airport_Code` INT NOT NULL,
  `Scheduled_Dep_Time` TIME NULL,
  `Scheduled_Arr_Time` TIME NULL,
  PRIMARY KEY (`Leg_Number`, `Flight_Number`),
  INDEX `FK_DepAirport_FlightLeg_idx` (`Dep_Leg_Airport_Code` ASC) VISIBLE,
  INDEX `FK_ArrAirport_FlightLeg_idx` (`Arr_Leg_Airport_Code` ASC) VISIBLE,
  INDEX `FK_Flight_FlightLeg_idx` (`Flight_Number` ASC) VISIBLE,
  CONSTRAINT `FK_DepAirport_FlightLeg`
    FOREIGN KEY (`Dep_Leg_Airport_Code`)
    REFERENCES `Airline_Reservation_DB`.`AirPort` (`Airport_Code`)
    ON DELETE NO ACTION
    ON UPDATE NO ACTION,
  CONSTRAINT `FK_ArrAirport_FlightLeg`
    FOREIGN KEY (`Arr_Leg_Airport_Code`)
    REFERENCES `Airline_Reservation_DB`.`AirPort` (`Airport_Code`)

```

```

        ON DELETE NO ACTION
        ON UPDATE NO ACTION,
CONSTRAINT `FK_Flight_FlightLeg`
    FOREIGN KEY (`Flight_Number`)
    REFERENCES `Airline_Reservation_DB`.`Flight` (`Number`)
    ON DELETE NO ACTION
    ON UPDATE NO ACTION)
ENGINE = InnoDB;

```

```

-- -----
-- Table `Airline_Reservation_DB`.`Leg_Instance`
-- -----
DROP TABLE IF EXISTS `Airline_Reservation_DB`.`Leg_Instance` ;

```

```

CREATE TABLE IF NOT EXISTS `Airline_Reservation_DB`.`Leg_Instance` (
    `Date` DATE NOT NULL,
    `Leg_Number` INT NOT NULL,
    `Leg_Flight_Number` INT NOT NULL,
    `Dep_Leg_Airport_Code` INT NULL,
    `Dep_Time` TIME NULL,
    `Arr_Leg_Airport_Code` INT NULL,
    `Arr_Time` TIME NULL,
    `Assigned_Ariplane_ID` INT NOT NULL,
    `Number_of_Avail_Seats` INT NULL,
    PRIMARY KEY (`Date`, `Leg_Number`, `Leg_Flight_Number`),
    INDEX `FK_Airport_LegInstance_idx` (`Dep_Leg_Airport_Code` ASC) VISIBLE,
    INDEX `FK_ArrAirport_LegInstance_idx` (`Arr_Leg_Airport_Code` ASC) VISIBLE,
    INDEX `FK_Airplane_LegInstance_idx` (`Assigned_Ariplane_ID` ASC) VISIBLE,
    INDEX `FK_FlightLeg_LegInstance_idx` (`Leg_Number` ASC) VISIBLE,
    INDEX `FK_FlightLeg_LegInstance_idx1` (`Leg_Flight_Number` ASC) VISIBLE,
    CONSTRAINT `FK_DepAirport_LegInstance`
        FOREIGN KEY (`Dep_Leg_Airport_Code`)
        REFERENCES `Airline_Reservation_DB`.`AirPort` (`Airport_Code`)
        ON DELETE NO ACTION
        ON UPDATE NO ACTION,
    CONSTRAINT `FK_ArrAirport_LegInstance`
        FOREIGN KEY (`Arr_Leg_Airport_Code`)
        REFERENCES `Airline_Reservation_DB`.`AirPort` (`Airport_Code`)
        ON DELETE NO ACTION
        ON UPDATE NO ACTION,
    CONSTRAINT `FK_Airplane_LegInstance`
        FOREIGN KEY (`Assigned_Ariplane_ID`)
        REFERENCES `Airline_Reservation_DB`.`Airplane` (`Airplane_ID`)
        ON DELETE NO ACTION

```

```

        ON UPDATE NO ACTION,
CONSTRAINT `FK_FlightLeg_LegInstance`
    FOREIGN KEY (`Leg_Number`)
        REFERENCES `Airline_Reservation_DB`.`Flight_Leg` (`Leg_Number`)
        ON DELETE NO ACTION
        ON UPDATE NO ACTION,
CONSTRAINT `FK_FlightLeg_LegInstance`
    FOREIGN KEY (`Leg_Flight_Number`)
        REFERENCES `Airline_Reservation_DB`.`Flight_Leg` (`Flight_Number`)
        ON DELETE NO ACTION
        ON UPDATE NO ACTION)
ENGINE = InnoDB;

-- -----
-- Table `Airline_Reservation_DB`.`Seat`
-- -----

DROP TABLE IF EXISTS `Airline_Reservation_DB`.`Seat` ;

CREATE TABLE IF NOT EXISTS `Airline_Reservation_DB`.`Seat` (
    `Seat_Number` INT NOT NULL,
    `Date` DATE NOT NULL,
    `Leg_Flight_Number` INT NOT NULL,
    `Leg_Number` INT NOT NULL,
    `Customer_Name` VARCHAR(45) NULL,
    `Cphone` INT NULL,
    PRIMARY KEY (`Seat_Number`, `Leg_Flight_Number`, `Leg_Number`, `Date`),
    INDEX `FK_LegInstance_Seat_idx` (`Date` ASC) VISIBLE,
    INDEX `FK_LegInstance_Seat_idx1` (`Leg_Flight_Number` ASC) VISIBLE,
    INDEX `FK_LegInstance_Seat_idx2` (`Leg_Number` ASC) VISIBLE,
    CONSTRAINT `FK_LegInstance_Seat(Date)`
        FOREIGN KEY (`Date`)
            REFERENCES `Airline_Reservation_DB`.`Leg_Instance` (`Date`)
            ON DELETE NO ACTION
            ON UPDATE NO ACTION,
    CONSTRAINT `FK_LegInstance_Seat(Leg_Flight_Number)`
        FOREIGN KEY (`Leg_Flight_Number`)
            REFERENCES `Airline_Reservation_DB`.`Leg_Instance` (`Leg_Flight_Number`)
            ON DELETE NO ACTION
            ON UPDATE NO ACTION,
    CONSTRAINT `FK_LegInstance_Seat(Leg_Number)`
        FOREIGN KEY (`Leg_Number`)
            REFERENCES `Airline_Reservation_DB`.`Leg_Instance` (`Leg_Number`)
            ON DELETE NO ACTION
            ON UPDATE NO ACTION)

```


ENGINE = InnoDB;

```
-- -----  
-- Table `Airline_Reservation_DB`.`Fare`  
-- -----  
  
DROP TABLE IF EXISTS `Airline_Reservation_DB`.`Fare` ;  
  
CREATE TABLE IF NOT EXISTS `Airline_Reservation_DB`.`Fare` (  
  `Code` INT NOT NULL,  
  `Flight_Number` INT NOT NULL,  
  `Amount` INT NULL,  
  `Restrictions` VARCHAR(45) NULL,  
  PRIMARY KEY (`Code`, `Flight_Number`),  
  INDEX `FK_Flight_Fare_idx` (`Flight_Number` ASC) VISIBLE,  
  CONSTRAINT `FK_Flight_Fare`  
    FOREIGN KEY (`Flight_Number`)  
      REFERENCES `Airline_Reservation_DB`.`Flight` (`Number`)  
    ON DELETE NO ACTION  
    ON UPDATE NO ACTION)  
ENGINE = InnoDB;
```

```
SET SQL_MODE=@OLD_SQL_MODE;  
SET FOREIGN_KEY_CHECKS=@OLD_FOREIGN_KEY_CHECKS;  
SET UNIQUE_CHECKS=@OLD_UNIQUE_CHECKS;
```