**Staff**

**Relational Model:**

Staff(staff\_id, name, salary, birthdate, age, gender, phone)

**Functional Dependencies:**

staff\_id ->name, salary, birthdate, age, gender, phone

**Normal Form:**

BCNF

**Candidate Keys:**

{(staff\_id)}

**Table Definition:**

**create table** *staff*

(*staff\_id* **int primary key**,

*name* **varchar(32),**

*salary* **int,**

*birthdate* **date,**

*age* **date,**

*gender* **char(1),**

*phone* **varchar(15)**);

**Reservation Authoritative**

**Relational Model:**

Reservation\_Authoritative(staff\_id, user\_name, password)

**Functional Dependencies:**

staff\_id -> user\_name, password

**Normal Form:**

BCNF

**Candidate Keys:**

{(staff\_id)}

**Table Definition:**

**create table** *reservation\_authoritative*

(staff\_id int primary key,

user\_name varchar(32),

password varchar(32));

**Permissions**

**Relational Model:**

Permissions(staff\_id, make\_reservation, view\_reservation, register\_plane, send\_plane\_repair, add\_airport, delete\_airport, add\_route, edit\_flight, set\_price, edit\_prom, hire\_staff, manage\_crew, view\_status, manage\_ticket, cancel\_reservation, refund\_ticket, manage\_extra\_bag, assign\_seat)

**Functional Dependencies:**

staff\_id -> make\_reservation, view\_reservation, register\_plane, send\_plane\_repair, add\_airport, delete\_airport, add\_route, edit\_flight, set\_price, edit\_prom, hire\_staff, manage\_crew, view\_status, manage\_ticket, cancel\_reservation, refund\_ticket, manage\_extra\_bag, assign\_seat

**Normal Form:**

BCNF

**Candidate Keys:**

{(staff\_id)}

**Table Definition:**

**create table** *permissions*

(staff\_id int primary key,

make\_reservation char(1),

view\_reservation char(1),

register\_plane char(1),

send\_plane\_repair char(1),

add\_airport char(1),

delete\_airport char(1),

add\_route char(1),

edit\_flight char(1),

set\_price char(1),

edit\_prom char(1),

hire\_staff char(1),

manage\_crew char(1),

view\_status char(1),

manage\_ticket char(1),

cancel\_reservation char(1),

refund\_ticket char(1),

manage\_extra\_bag char(1),

assign\_seat char(1));

**Manager**

**Relational Model:**

Manager(staff\_id, manager\_room)

**Functional Dependencies:**

staff\_id -> manager\_room

**Normal Form:**

BCNF

**Candidate Keys:**

{(staff\_id)}

**Table Definition:**

**create table** *manager*

(staff\_id int primary key,

manager\_room varchar(4));

**Salesperson**

**Relational Model:**

Reservation\_Authoritative(staff\_id, counter\_id)

**Functional Dependencies:**

staff\_id -> counter\_id

**Normal Form:**

BCNF

**Candidate Keys:**

{(staff\_id)}

**Table Definition:**

**create table** *salesperson*

(staff\_id int primary key,

counter\_id int);

**Ticketing/Gate agent**

**Relational Model:**

Ticketing\_gate\_agent(staff\_id, gates)

**Functional Dependencies:**

staff\_id -> gates

**Normal Form:**

BCNF

**Candidate Keys:**

{(staff\_id)}

**Table Definition:**

**create table** *ticketing\_gate\_agent*

(staff\_id int primary key,

gates varchar(512));

**Crew**

**Relational Model:**

Crew(staff\_id, license\_no, rank, current\_location)

**Functional Dependencies:**

staff\_id -> license\_no, rank, current\_location

**Normal Form:**

BCNF

**Candidate Keys:**

{(staff\_id)}

**Table Definition:**

**create table** *crew*

(staff\_id int primary key,

license\_no char(10),

rank int,

current\_location varchar(16));

**Pilot**

**Relational Model:**

Pilot(staff\_id, max\_flight\_distance)

**Functional Dependencies:**

staff\_id -> max\_flight\_distance

**Normal Form:**

BCNF

**Candidate Keys:**

{(staff\_id)}

**Table Definition:**

**create table** *pilot*

(staff\_id int primary key,

max\_flight\_distance int);

**Flight Attendance**

**Relational Model:**

Flight\_Attendance(staff\_id, flight\_class\_served)

**Functional Dependencies:**

No dependencies

**Normal Form:**

BCNF

**Candidate Keys:**

{(staff\_id)}

**Table Definition:**

**create table** *flight\_attendance*

(staff\_id int primary key,

flight\_class\_served char(1));

**City**

**Relational Model:**

City(city\_name, climate)

**Functional Dependencies:**

city\_name -> climate

**Normal Form:**

BCNF

**Candidate Keys:**

{(city\_name)}

**Table Definition:**

**create table** *city*

(city\_name varchar(20) primary key,

climate char(1));

**Airport**

**Relational Model:**

Airport(airport\_id, airport\_capacity, address, city\_name)

**Functional Dependencies:**

airport\_id -> airport\_capacity, address, city\_name

**Normal Form:**

BCNF

**Candidate Keys:**

{(airport\_id)}

**Table Definition:**

**create table** *airport*

(airport\_id int primary key,

airport\_capacity int,

address varchar(100),

city\_name varchar(20),

foreign key (city\_name) references city);

**Route**

**Relational Model:**

Route(route\_id, flight\_duration, departs, arrives)

**Functional Dependencies:**

route\_id -> flight\_duration, departs, arrives

**Normal Form:**

BCNF

**Candidate Keys:**

{(route\_id)}

**Table Definition:**

**create table** *route*

(route\_id int primary key,

flight\_duration time,

departs int,

arrives int,

foreign key(departs) references airport,

foreign key(arrives) references airport);

**Plane**

**Relational Model:**

Plane(plane\_name)

**Functional Dependencies:** No dependencies

**Normal Form:** BCNF

**Candidate Keys:** {(plane\_name)}

**Table Definition:**

**create table** *plane*

(plane\_name varchar(20) primary key);

**Plane Type**

**Relational Model:**

Plane\_Type(plane\_name, plane\_type\_id, eatmap, capacity, max\_flight\_time, plane\_model, brand, storage\_capacity, production\_year, width, height, length)

**Functional Dependencies:**

plane\_type\_id -> seatmap, capacity, max\_flight\_time, plane\_model, brand, storage\_capacity, production\_year, width, height, length

**Normal Form:**

3NF

**Candidate Keys:**

{(plane\_name, plane\_type\_id)}

**Table Definition:**

**create table** *plane\_type*

(plane\_name varchar(20) primary key,

plane\_type\_id varchar(4) primary key,

seatmap varchar(200),

capacity int,

max\_flight\_time time,

plane\_model varchar(4),

brand varchar(10),

storage\_capacity int,

production\_year int,

width int,

height int,

length int

foreign key(plane\_name) references plane);

**Flight**

**Relational Model:**

Flight(flight\_id, date, route\_id, plane\_name, departure\_time)

**Functional Dependencies:**

flight\_id, date -> route\_id, plane\_name, departure\_time

**Normal Form:**

BCNF

**Candidate Keys:**

{(flight\_id, date)}

**Table Definition:**

**create table** flight

(flight\_id int primary key,

date date primary key,

route\_id int,

plane\_name varchar(20),

departure\_time time,

foreign key (route\_id) references route,

foreign key (plane\_name) references plane);

**Flight Crew**

**Relational Model:**

Flight\_Crew(staff\_id, date, flight\_id)

**Functional Dependencies:**

staff\_id, date -> flight\_id

**Normal Form:**

BCNF

**Candidate Keys:**

{(staff\_id, date)}

**Table Definition:**

**create table** flight\_crew

(staff\_id int primary key,

date date primary key,

flight\_id int,

foreign key (staff\_id) references crew,

foreign key (flight\_id, date) references flight);

**Customer**

**Relational Model:**

Customer(user\_name, password, name, birthdate, age, passport\_no, mile\_sum)

**Functional Dependencies:**

user\_name -> password, name, birthdate, age, passport\_no, mile\_sum

**Normal Form:**

BCNF

**Candidate Keys:** {(user\_name)}

Table Definition:

**create table** customer

(user\_name varchar(32) primary key,

password varchar(32),

name varchar(32),

birthdate date,

age int,

passport\_no char(9),

mile\_sum int);

**Promotion**

**Relational Model:**

Given\_Promotion(user\_name, promotion\_id)

**Functional Dependencies:**

No dependencies

**Normal Form:**

BCNF

**Candidate Keys:** {(user\_name, promotion\_id)}

**Table Definition:**

**create table** *given***\_***promotion*

(user\_name varchar(32) primary key,

promotion\_id int primary key,

foreign key (user\_name, promotion\_id) references customer);

**Campaign**

**Relational Model:**

Campaign(user\_name, promotion\_id, campaign\_type)

**Functional Dependencies:**

user\_name, promotion\_id -> campaign\_type

**Normal Form:**

BCNF

**Candidate Keys:**

{(user\_name, promotion\_id)}

**Table Definition:**

**create table** campaign

(user\_name varchar(32) primary key,

promotion\_id int primary key,

campaign\_type archer(10),

foreign key(user\_name) references given\_promotion);

**Sale**

**Relational Model:**

Sale(user\_name, promotion\_id, sale\_amount, sale\_period)

**Functional Dependencies:**

user\_name, promotion\_id -> sale\_amount, sale\_period

**Normal Form:**

BCNF

**Candidate Keys:**

{(user\_name, promotion\_id)}

**Table Definition:**

**create table** sale

(user\_name varchar(32) primary key,

promotion\_id int primary key,

sale\_amount int,

sale\_period interval,

foreign key (user\_name, promotion\_id) references given\_promotion);

**Reservation**

**Relational Model:**

Reservation(user\_name, date, flight\_id, reservation\_id, class, cancelled)

**Functional Dependencies:**

flight\_id, reservation\_no -> class, cancelled

**Normal Form:**

3NF

**Candidate Keys:**

{(user\_name, date, flight\_id, reservation\_no)}

**Table Definition:**

**create table** reservation

(user\_name varchar(32) primary key,

date date primary key,

flight\_id int primary key,

reservation\_no int primary key,

class char(1),

cancelled char(1),

foreign key (user\_name) references customer,

foreign key (date, flight\_id) references flight);

**Ticket**

**Relational Model:**

Ticket(user\_name, date, flight\_id, ticket\_no, price, class, meal, extra\_luggage, seat\_no)

**Functional Dependencies:**

flight\_id,ticket\_no -> ticket, class, meal, extra\_luggage, seat\_no

**Normal Form:**

BCNF

**Candidate Keys:**

{(user\_name, date, flight\_id, ticket\_no)}

**Table Definition:**

**create table** ticket

(user\_name varchar(32) primary key,

date date primary key,

flight\_id int primary key,

ticket\_no int primary key,

price int,

class char(1),

meal varchar(20),

extra\_luggage int,

seat\_no varchar(4),

foreign key (user\_name) references customer,

foreign key (date, flight\_id) references flight);