2024-09-11

항공편 예매
DB 테이블 설계

with Oracle SQL

송수빈
최형진

| acorn |

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Chapter 1.

주제

항공권 예매

1 항공사 테이블 - airline_11

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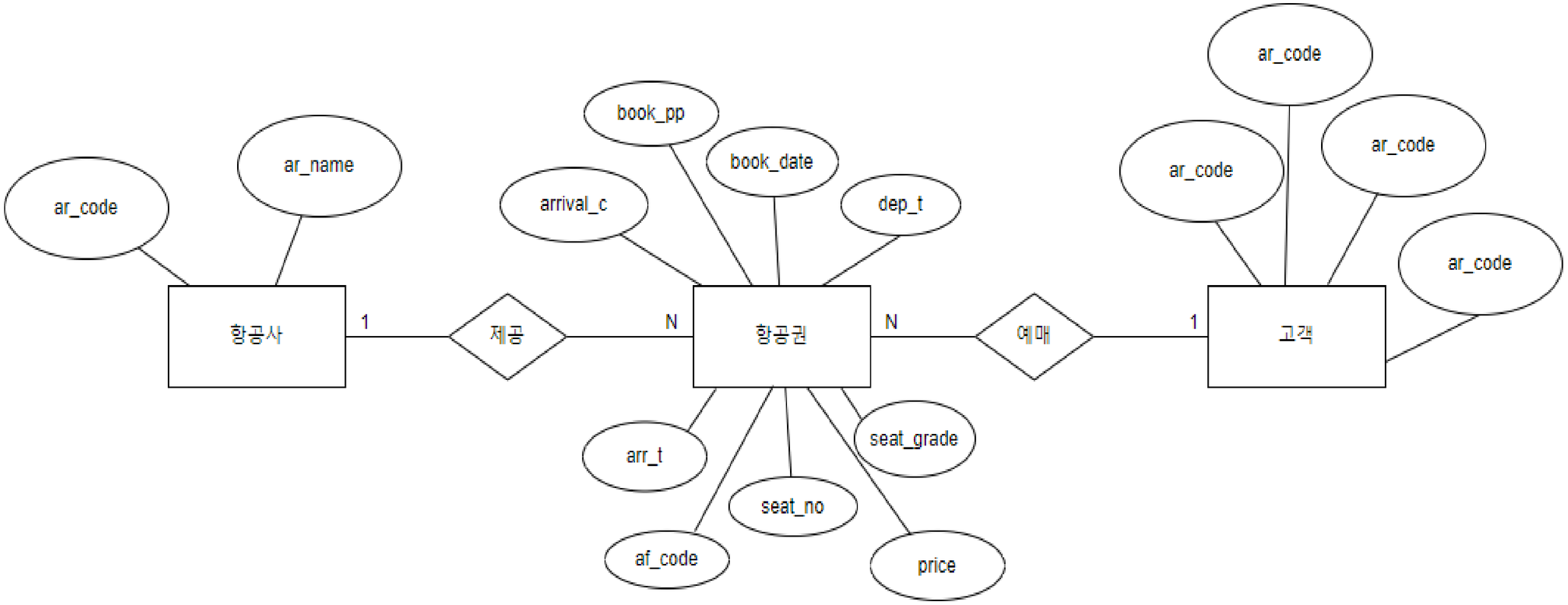
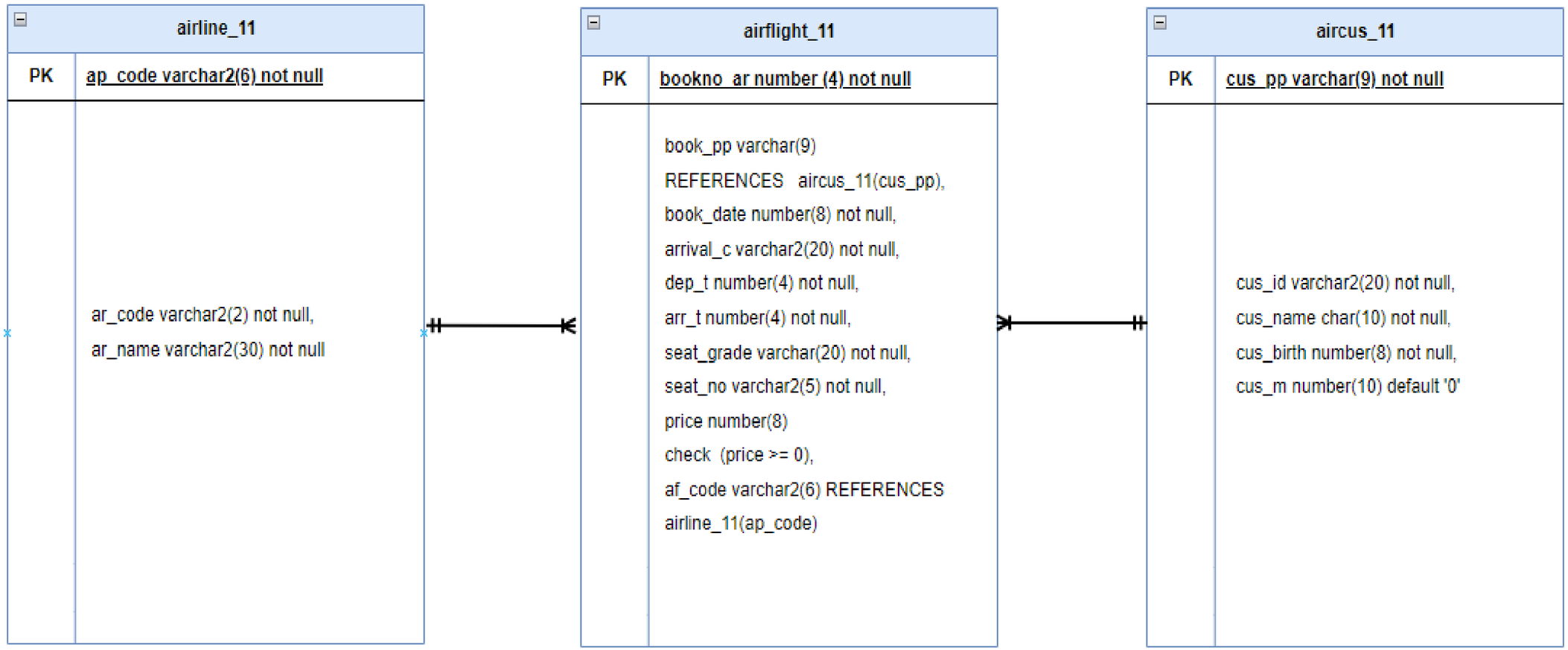
3 항공권 테이블 - airflight_11

Chapter 2.

ER 다이어그램



ER 다이어그램


airline_11
PK
ap_code varchar2(6) not null
ar_code varchar2(2) not null,
ar_name varchar2(30) not null
airflight_11
PK
bookno ar number (4) not null
book_pp varchar(9)
REFERENCES aircus_11(cus_pp),
book_date number(8) not null,
arrival_c varchar2(20) not null,
dep_t number(4) not null,
arr_t number(4) not null,
seat_grade varchar(20) not null,
seat_no varchar2(5) not null,
price number(8)
check (price >= 0),
af_code varchar2(6) REFERENCES
airline_11(ap_code)
aircus_11
PK
cus_pp varchar(9) not null
cus_id varchar2(20) not null,
cus_name char(10) not null,
cus_birth number(8) not null,
cus_m number(10) default '0'

코드 구현

```
create table airline_11 (
   ar_code varchar2(2) not null,
   ar_name varchar2(30) not null,
   ap_code varchar2(6) not null primary key
);
```

```
insert into airline_11 values ('KE', '대한항공', 'B737');
insert into airline_11 values ('OZ', '아시아나항공', 'B767');
insert into airline_11 values ('TW', '티웨이항공', 'A320');
insert into airline_11 values ('KE', '대한항공', 'EF2000');
insert into airline_11 values ('LJ', '진에어', 'MD80');
insert into airline_11 values ('LJ', '진에어', 'B787');
insert into airline_11 values ('KE', '대한항공', 'E175');
insert into airline_11 values ('KE', '대한항공', 'DH4');
insert into airline_11 values ('BX', '에어부산', 'CRJ2');
insert into airline_11 values ('OZ', '아시아나항공', 'DC9');
insert into airline_11 values ('OZ', '아시아나항공', 'MD90');
```

	AR_CODE	AR_NAME	AP_CODE
1	KE	대한항공	B737
2	OZ	아시아나항공	B767
3	TW	티웨이항공	A320
4	KE	대한항공	EF2000
5	LJ	진에어	MD80
6	LJ	진에어	B787
7	KE	대한항공	E175
8	KE	대한항공	DH4
9	BX	에어부산	CRJ2
10	OZ	아시아나항공	DC9
11	OZ	아시아나항공	MD90

코드 구현

```
create table aircus_11 (
    cus_id varchar2(20) not null,
    cus_name char(10) not null,
    cus_birth number(8) not null,
    cus_pp varchar(9) not null primary key,
    cus_m number(10) default '0'
    );
```

```
insert into aircus_11 values ('lcrztw9k', '김하늘', '19990101', 'M12345678','', '56468');
insert into aircus_11 values ('xjvpi7mn', '유지민', '20000411', 'M23456789','' ,'456213');
insert into aircus_11 values ('wstqpe2y', '김민정', '20010101', 'M34567890','' ,'587845');
insert into aircus_11 values ('bmdfrz1x', '최도윤', '19750412', 'M45678901','' ,'231');
insert into aircus_11 values ('jkpvl4qz', '정민수', '19920617', 'M56789012','' ,'6544');
insert into aircus_11 values ('nrxwz5pf', '강서연', '19870830', 'M67890123','', '964');
insert into aircus_11 values ('qcrb7tkj', '오준호', '19660923', 'M78901234', '','674523');
insert into aircus_11 values ('fvspl8lw', '조아린', '19710514', 'M89012345', '','65872');
insert into aircus_11 values ('xjtvr3ml', '임태윤', '19800307', 'M90123456', '','3214');
insert into aircus_11 values ('yqknb4zx', '최형진', '20020812', 'M01234567', '','65432');
insert into aircus_11 values ('dhlr7vcp', '송수빈', '20010222', 'M13467985', '','98654');
insert into aircus_11 values ('mnbv6wzk', '송병화', '20000213', 'M24579036','', '0');
insert into aircus_11 values ('tqvkp2js', '용지민', '19990915', 'M35680147','', '4474');
insert into aircus_11 values ('zpwgr8yf', '소병학', '19960507', 'M46791258','', '9999');
insert into aircus_11 values ('hsmcr9lv', '장원영', '20040831', 'M57802369','', '7894531');
```

CUS_ID	CUS_NAME	CUS_BIRTH	CUS_PP	CUS_M
xjvpi7mn	유지민	20000411	M23456789	456213
wstqpe2y	김민정	20010101	M34567890	587845
bmdfrz1x	최도윤	19750412	M45678901	231
jkpvl4qz	정민수	19920617	M56789012	6544
nrxwz5pf	강서연	19870830	M67890123	964
qcrb7tkj	오준호	19660923	M78901234	674523
fvspl8lw	조아린	19710514	M89012345	65872
xjtvr3ml	임태윤	19800307	M90123456	3214
yqknb4zx	최형진	20020812	M01234567	65432
dhlr7vcp	송수빈	20010222	M13467985	98654
mnbv6wzk	송병화	20000213	M24579036	0
tqvkp2js	용지민	19990915	M35680147	4474
zpwgr8yf	소병학	19960507	M46791258	9999
hsmcr9lv	장원영	20040831	M57802369	7894531
lcrztw9k	김하늘	19990101	M12345678	56468

Chapter 3.

코드 구현

```
create table airflight_11 (
    bookno_ar number (4) not null primary key,
    book_pp varchar(9) REFERENCES aircus_11(cus_pp),
    book_date number(8) not null,
    arrival_c varchar2(20) not null,
    dep_t number(4) not null,
    arr_t number(4) not null,
    seat_grade varchar(20) not null,
    seat_no varchar2(5) not null,
    price number(8) check (price >= 0),
    af_code varchar2(6) REFERENCES airline_11(ap_code)
   );
```

```
insert into airflight_11 values ('1','M45678901','20240915','상하이','0825','0940','Economy','2A','169000','B737');
insert into airflight_11 values ('2','M23456789','20241006','바르셀로나','1110','2255','First','14F','6374400','EF2000');
insert into airflight_11 values ('3','M90123456','20240929','방콕','1955','2335','Economy','6B','303900','B787');
insert into airflight_11 values ('4','M56789012','20241101','런던','1050','1720','Economy','21E','653600','MD90');
insert into airflight_11 values ('5','M67890123','20240925','괌','0945','1515','Economy','15C','301800','EF2000');
insert into airflight_11 values ('6','M89012345','20241203','뉴욕','1000','1105','Business','3C','2977100','DC9');
insert into airflight_11 values ('7','M57802369','20241012','도쿄','1010','1240','Business','6V','497500','MD80');
insert into airflight_11 values ('8','M01234567','20241125','프랑크푸르트','1125','1720','First','8A','5958800','E175');
insert into airflight_11 values ('9','M24579036','20240918','뉴델리','1245','1820','Ecomomy','8C','421500','A320');
insert into airflight_11 values ('10','M13467985','20240923','로스엔젤레스','1430','0830','First','14E','5516200','B737');
insert into airflight_11 values ('11','M46791258','20241212','울란바토르','0745','1025','Economy','11E','270800','CRJ2');
insert into airflight_11 values ('12','M35680147','20241225','밀라노','1225','1805','Business','23D','1778600','B767');
insert into airflight_11 values ('13','M78901234','20241105','후쿠오카','0800','0920','Economy','6F','136800','DH4');
insert into airflight_11 values ('14','M34567890','20241111','상파울루','1725','0515','Economy','12D','2018900','DH4');
insert into airflight_11 values ('15','M89012345','20241223','프라하','1050','1610','Economy','15J','558600','E175');
insert into airflight_11 values ('16','M01234567','20241223','산티아고','1725','0750','Economy','11K','1932800','MD90');
insert into airflight_11 values ('17','M24579036','20241005','쿠웨이트','1325','2115','Economy','13O','673200','EF2000');
insert into airflight_11 values ('18','M67890123','20241123','세부','1850','2225','Economy','12P','222000','E175');
```

코드 구현

BOOKNO_AR	BOOK_PP	BOOK_DATE	ARRIVAL_C	DEP_T	ARR_T	SEAT_GRADE	SEAT_NO	PRICE	AF_CODE
1	M45678901	20240915	상하이	825	940	Economy	2A	169000	B737
2	M23456789	20241006	바르셀로나	1110	2255	First	14F	6374400	EF2000
3	M90123456	20240929	방콕	1955	2335	Economy	6B	303900	B787
4	M56789012	20241101	런던	1050	1720	Economy	21E	653600	MD90
5	M67890123	20240925	괌	945	1515	Economy	15C	301800	EF2000
6	M89012345	20241203	뉴욕	1000	1105	Business	3C	2977100	DC9
7	M57802369	20241012	도쿄	1010	1240	Business	6V	497500	MD80
8	M01234567	20241125	프랑크푸르트	1125	1720	First	8A	5958800	E175
9	M24579036	20240918	뉴델리	1245	1820	Ecomomy	8C	421500	A320
10	M13467985	20240923	로스엔젤레스	1430	830	First	14E	5516200	B737
11	M46791258	20241212	울란바토르	745	1025	Economy	11E	270800	CRJ2
12	M35680147	20241225	밀라노	1225	1805	Business	23D	1778600	B767
13	M78901234	20241105	후쿠오카	800	920	Economy	6F	136800	DH4
14	M34567890	20241111	상파울루	1725	515	Economy	12D	2018900	DH4
15	M89012345	20241223	프라하	1050	1610	Economy	15J	558600	E175
16	M01234567	20241223	산티아고	1725	750	Economy	11K	1932800	MD90
17	M24579036	20241005	쿠웨이트	1325	2115	Economy	13O	673200	EF2000
18	M67890123	20241123	세부	1850	2225	Economy	12P	222000	E175

데이터 출력

1-1. 고객별 예매한 항공권 출력 (코드)

```
select ac.cus_name as name, to_date(ac.cus_birth, 'YYYY-MM-DD') as birthday, ac.cus_pp as "Passport Number",
        to_date(af.book_date, 'YYYY-MM-DD') as "Date", af.arrival_c as city,
        to_char(to_date(LPAD(af.dep_t,4,0),'HH24MI'), 'HH24:MI') as "Departure Time",
        to_char(to_date(LPAD(af.arr_t,4,0),'HH24MI'), 'HH24:MI') as "Arrival Time",
        af.seat_grade as class, seat_no as seat, to_char(af.price,'999,999,999') as price,
        af.af_code airplane
from airflight_11 af
join aircus_11 ac
on af.book_pp = ac.cus_pp;
```

Chapter 4.

데이터 출력

1-2. 고객별 예매한 항공권 출력 (출력화면)

NAME	BIRTHDAY	Passport Number	Date	CITY	Departure Time	Arrival Time	CLASS	SEAT	PRICE	AIRPLANE
최도윤	75/04/12	M45678901	24/09/15	상하이	08:25	09:40	Economy	2A	169,000	B737
유지민	00/04/11	M23456789	24/10/06	바르셀로나	11:10	22:55	First	14F	6,374,400	EF2000
임태윤	80/03/07	M90123456	24/09/29	방콕	19:55	23:35	Economy	6B	303,900	B787
정민수	92/06/17	M56789012	24/11/01	런던	10:50	17:20	Economy	21E	653,600	MD90
강서연	87/08/30	M67890123	24/09/25	괌	09:45	15:15	Economy	15C	301,800	EF2000
조아린	71/05/14	M89012345	24/12/03	뉴욕	10:00	11:05	Business	3C	2,977,100	DC9
장원영	04/08/31	M57802369	24/10/12	도쿄	10:10	12:40	Business	6V	497,500	MD80
최형진	02/08/12	M01234567	24/11/25	프랑크푸르트	11:25	17:20	First	8A	5,958,800	E175
송병화	00/02/13	M24579036	24/09/18	뉴델리	12:45	18:20	Ecomomy	8C	421,500	A320
송수빈	01/02/22	M13467985	24/09/23	로스엔젤레스	14:30	08:30	First	14E	5,516,200	B737
소병학	96/05/07	M46791258	24/12/12	울란바토르	07:45	10:25	Economy	11E	270,800	CRJ2
용지민	99/09/15	M35680147	24/12/25	밀라노	12:25	18:05	Business	23D	1,778,600	B767
오준호	66/09/23	M78901234	24/11/05	후쿠오카	08:00	09:20	Economy	6F	136,800	DH4
김민정	01/01/01	M34567890	24/11/11	상파울루	17:25	05:15	Economy	12D	2,018,900	DH4
조아린	71/05/14	M89012345	24/12/23	프라하	10:50	16:10	Economy	15J	558,600	E175
최형진	02/08/12	M01234567	24/12/23	산티아고	17:25	07:50	Economy	11K	1,932,800	MD90
송병화	00/02/13	M24579036	24/10/05	쿠웨이트	13:25	21:15	Economy	13O	673,200	EF2000
강서연	87/08/30	M67890123	24/11/23	세부	18:50	22:25	Economy	12P	222,000	E175

데이터 출력

2. 항공사별 매출

```
select ar.ar_name, ar.ar_code, sum(af.price)
from airline_11 ar
join airflight_11 af
on ar.ap_code = af.af_code
group by ar.ar_name, ar.ar_code;
```

AR_NAME	AR_CODE	SUM(AF.PRICE)
대한항공	KE	21929700
에어부산	BX	270800
티웨이항공	TW	421500
진에어	LJ	801400
아시아나항공	OZ	7342100

데이터 출력

3. 월별 예매 건수, 매출

```
select substr(book_date, 5, 2) month,count(substr(book_date, 5, 2)) reservation , sum(price) Revenue
from airflight_11
group by substr(book_date, 5, 2)
order by substr(book_date, 5, 2) ;
```

MONTH	RESERVATION	REVENUE
09	5	6712400
10	3	7545100
11	5	8990100
12	5	7517900

데이터 출력

4. 고객 마일리지별 등급

```
select cus_id, cus_name,
        to_date(cus_birth, 'YYYY-MM-DD') as birthday,
        cus_pp, cus_m,
        case when cus_m >= 500000 then 'Diamond'
             when cus_m >= 200000 then 'Platinum'
             when cus_m >= 50000 then 'Gold'
             when cus_m >= 5000 then 'Silver'
             else 'Standard '
        end as grade
from aircus_11;
```

CUS_ID	CUS_NAME	BIRTHDAY	CUS_PP	CUS_M	GRADE
xjvpi7mn	유지민	00/04/11	M23456789	456213	Platinum
wstqpe2y	김민정	01/01/01	M34567890	587845	Diamond
bmdfrzlx	최도윤	75/04/12	M45678901	231	Standard
jkpvl4qz	정민수	92/06/17	M56789012	6544	Silver
nrxwz5pf	강서연	87/08/30	M67890123	964	Standard
qcrb7tkj	오준호	66/09/23	M78901234	674523	Diamond
fvspl8lw	조아린	71/05/14	M89012345	65872	Gold
xjtvr3ml	임태윤	80/03/07	M90123456	3214	Standard
yqknb4zx	최형진	02/08/12	M01234567	65432	Gold
dhlr7vcp	송수빈	01/02/22	M13467985	98654	Gold
mnbv6wzk	송병화	00/02/13	M24579036	0	Standard
tqvkp2js	용지민	99/09/15	M35680147	4474	Standard
zpwgr8yf	소병학	96/05/07	M46791258	9999	Silver
hsmcr9lv	장원영	04/08/31	M57802369	7894531	Diamond
lcrztw9k	김하늘	99/01/01	M12345678	56468	Gold

데이터 출력

5-1. 마일리지 사용 후 예상 가격 (코드)

```
select ac.cus_name as name, ac.cus_pp as "Passport Number",
        to_date(af.book_date, 'YYYY-MM-DD') as "Date", af.arrival_c as city,
        to_char(to_date(LPAD(af.dep_t,4,0),'HH24MI'), 'HH24:MI') as "Departure Time",
        to_char(to_date(LPAD(af.arr_t,4,0),'HH24MI'), 'HH24:MI') as "Arrival Time",
        af.seat_grade as class, seat_no as seat, to_char(af.price,'999,999,999') as price,
        to_char(cus_m,'999,999,999') mileage,
        case when (price - cus_m)>0 then to_char((price - cus_m),'999,999,999') || ' '
             else '전액 마일리지 예매 가능'
        end as "Mileage use"
from airflight_11 af
join aircus_11 ac
on af.book_pp = ac.cus_pp;
```

Chapter 4.

데이터 출력

5-2. 마일리지 사용 후 예상 가격 (출력화면)

NAME	Passport Number	Date	CITY	Departure Time	Arrival Time	CLASS	SEAT	PRICE	MILEAGE	Mileage use
최도윤	M45678901	24/09/15	상하이	08:25	09:40	Economy	2A	169,000	231	168,769
유지민	M23456789	24/10/06	바르셀로나	11:10	22:55	First	14F	6,374,400	456,213	5,918,187
임태윤	M90123456	24/09/29	방콕	19:55	23:35	Economy	6B	303,900	3,214	300,686
정민수	M56789012	24/11/01	런던	10:50	17:20	Economy	21E	653,600	6,544	647,056
강서연	M67890123	24/09/25	괌	09:45	15:15	Economy	15C	301,800	964	300,836
조아린	M89012345	24/12/03	뉴욕	10:00	11:05	Business	3C	2,977,100	65,872	2,911,228
장원영	M57802369	24/10/12	도쿄	10:10	12:40	Business	6V	497,500	7,894,531	전액 마일리지 예매 가능
최형진	M01234567	24/11/25	프랑크푸르트	11:25	17:20	First	8A	5,958,800	65,432	5,893,368
송병화	M24579036	24/09/18	뉴델리	12:45	18:20	Ecomomy	8C	421,500	0	421,500
송수빈	M13467985	24/09/23	로스엔젤레스	14:30	08:30	First	14E	5,516,200	98,654	5,417,546
소병학	M46791258	24/12/12	울란바토르	07:45	10:25	Economy	11E	270,800	9,999	260,801
용지민	M35680147	24/12/25	밀라노	12:25	18:05	Business	23D	1,778,600	4,474	1,774,126
오준호	M78901234	24/11/05	후쿠오카	08:00	09:20	Economy	6F	136,800	674,523	전액 마일리지 예매 가능
김민정	M34567890	24/11/11	상파울루	17:25	05:15	Economy	12D	2,018,900	587,845	1,431,055
조아린	M89012345	24/12/23	프라하	10:50	16:10	Economy	15J	558,600	65,872	492,728
최형진	M01234567	24/12/23	산티아고	17:25	07:50	Economy	11K	1,932,800	65,432	1,867,368
송병화	M24579036	24/10/05	쿠웨이트	13:25	21:15	Economy	13O	673,200	0	673,200
강서연	M67890123	24/11/23	세부	18:50	22:25	Economy	12P	222,000	964	221,036

감사합니다

최형진
송수빈