Assignment III
DATABASE DESIGN Z511
FNU ANIRUDH

QUESTION 1

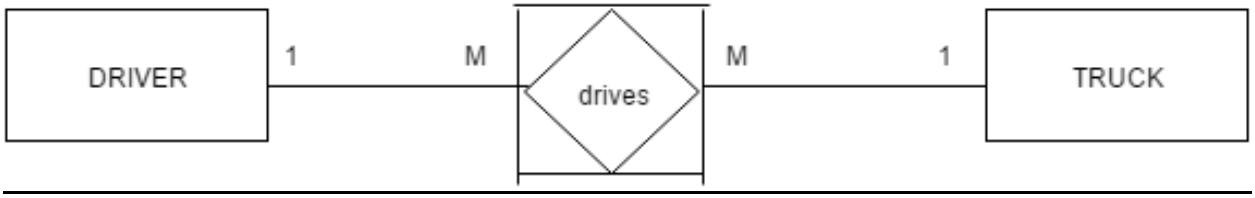
Entity integrity is an integrity rule which states that every table must have a primary key and that the column or columns chosen to be the primary key should be unique and not NULL.

Referential integrity is a concept for ensuring that relationships between database tables remain consistent. In other words, references to data must be valid. A relationship between two database tables, called a referenced table and a referencing table, is created by using a foreign key.

Importance of Defining Entity integrity and referential integrity in Database:-

1. Improved Data Quality
2. Data Reliability
3. Faster Development
4. Fewer Bugs
5. Consistency across Applications

QUESTION 2



QUESTION 3

STUDENT U INSTRUCTOR

NAME	NUMBER
Susan	123
Sam	234
Mary	321
Dan	255

STUDENT ∩ INSTRUCTOR

NAME	NUMBER
Mary	321

STUDENT - INSTRUCTOR

NAME	NUMBER
Susan	123
Sam	234

STAFF **|X|** INSTRUCTOR (**NATURAL JOIN**)

Adm	Number	Name
Janitor	255	Dan
Dean	321	Mary

STAFF **]X|** INSTRUCTOR (**LEFT OUTER JOIN**)

Adm	Number	Name
Secretary	123	NULL
Janitor	255	Dan
Dean	321	Mary

STAFF **|X[** INSTRUCTOR (**RIGHT OUTER JOIN**)

Adm	Number	Name
Janitor	255	Dan
Dean	321	Mary

QUESTION 4

TABLE CHARTER

PRIMARY KEY	CHAR_TRIP
SUPER KEY	CHAR_TRIP + CHAR_DATE+ CHAR_PILOT
CANDIDATE KEY	None
FOREIGN KEY	AC_NUMBER, CUS_CODE (present in Tables AIRCRAFT, CUSTOMER)
SECONDARY KEY	CHAR_DATE + CHAR_PILOT

TABLE AIRCRAFT

PRIMARY KEY	AC_NUMBER
SUPER KEY	AC_NUMBER + MOD_CODE
CANDIDATE KEY	None
FOREIGN KEY	MOD_CODE (Also present in table MODEL)
SECONDARY KEY	MOD_CODE + AC_TTAF

TABLE MODEL

PRIMARY KEY	MOD_CODE
SUPER KEY	MOD_MANUFACTURER + MOD_NAME + MOD_SEATS
CANDIDATE KEY	None
FOREIGN KEY	MOD_CODE (Also present in table AIRCRAFT)
SECONDARY KEY	MOD_NAME + MOD_SEATS

TABLE PILOT

PRIMARY KEY	EMP_NUM
SUPER KEY	EMP_NUM + PIL_LICENSE + PIL_MED_TYPE
CANDIDATE KEY	None
FOREIGN KEY	EMP_NUM (Also present in Table EMPLOYEE)
SECONDARY KEY	PIL_MED_TYPE + PIL_MED_DATE

TABLE EMPLOYEE

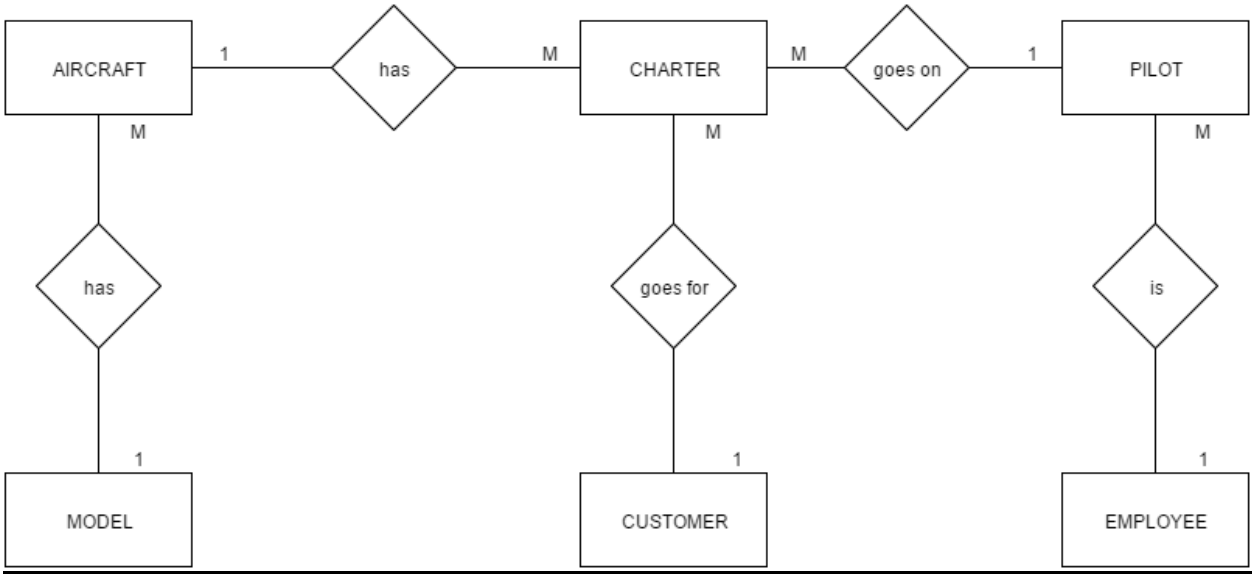
PRIMARY KEY	EMP_NUM
SUPER KEY	EMP_NUM + EMP_LNAME
CANDIDATE KEY	None
FOREIGN KEY	EMP_NUM (Also present in Table PILOT)
SECONDARY KEY	EMP_LNAME + EMP_DOB

TABLE CUSTOMER

PRIMARY KEY	CUS_CODE
SUPER KEY	CUS_CODE + CUS_LNAME
CANDIDATE KEY	None
FOREIGN KEY	CUS_CODE (Also present in Table CHARTER)
SECONDARY KEY	CUS_LNAME + CUS_PHONE

Note: - If we assume Phone Numbers to be unique then CUS_PHONE alone can be secondary key.

QUESTION 5



REFERENCES

1. Database Systems: Design, Implementation, & Management by Rob and Coronel.