Ryan Fredericks

Assignment 2

Database Management

select * from customers;

```
select *
from customers;

select *
from agents;

select *
from products;

select *
from orders;
```

utput pane

Data Output | Explain | Messages | History

	cid character(4)	name text	city text	discount numeric(5,2)
1	c001	Tiptop	Dulutl	10.00
2	c002	Basics	Dallas	12.00
3	c003	Allied	Dallas	8.00
4	c004	ACME	Dulutl	8.00
5	c005	Weylar	Acher	0.00
6	c006	ACME	Kyotc	0.00

select * from agents;

```
select *
from customers;

select *
from agents;

select *
from products;

select *
from orders;
```

Output pane

Data Output | Explain | Messages | History

	aid character(3)	name text	city text	percent real
1	a01	Smith	New Y	6
2	a02	Jones	Newa	6
3	a03	Brown	Tokyo	7
4	a04	Gray	New Y	6
5	a05	Otasi	Dulutl	5
6	a06	Smith	Dallas	5
7	a08	Bond	Londo	7

select * from products;

```
select *
from customers;

select *
from agents;

select *
from products;

select *
from orders;
```

Output pane

Data Output | Explain | Messages | History

	pid character(3)	name text	city text	quantity integer	priceusd numeric(10,2)
1	p02	brush	Newa	203000	0.50
2	p03	razor	Dulutl	150600	1.00
3	p04	pen	Dulutl	125300	1.00
4	p05	pencil	Dallas	221400	1.00
5	p06	folder	Dallas	123100	2.00
6	p07	case	Newa	100500	1.00
7	p08	clip	Newa	200600	1.25
8	p01	comb	Dallas	111400	5.07

select * from orders;

```
select *
from customers;

select *
from agents;

select *
from products;

select *
from orders;
```

Output pane

Data Output | Explain | Messages | History

	ordno integer	mon character(3)	cid character(4)	aid character(3)	pid character(3)	qty integer	dollars numeric(12,2)
1	1011	jan	c001	a01	p01	1000	450.00
2	1013	jan	c002	a03	p03	1000	880.00
3	1015	jan	c003	a03	p05	1200	1104.00
4	1016	jan	c006	a01	p01	1000	500.00
5	1017	feb	c001	a06	p03	600	540.00
6	1018	feb	c001	a03	p04	600	540.00
7	1019	feb	c001	a02	p02	400	180.00
8	1020	feb	c006	a03	p07	600	600.00
9	1021	feb	c004	a06	p01	1000	460.00
10	1022	mar	c001	a05	p06	400	720.00
11	1023	mar	c001	a04	p05	500	450.00
12	1024	mar	c006	a06	p01	800	400.00
13	1025	apr	c001	a05	p07	800	720.00
14	1026	may	c002	a05	p03	800	740.00

2. Explain the distinctions among the terms primary key, candidate key, and superkey.

    a. A primary key is a key in a database that will be unique identifier for every database it is in, and
    b. A candidate key is a combination of columns or a singular column that can be a unique identifier and a unique key for a database. It can be a primary key although that is not always the case.
    c. A superkey is anything that can be a primary key, even if it does not necessarily have unique identified records.

2. Write a short essay on data types. Select a topic for which you might create a table. Name the table and list its fields (columns). For each field, give its data type and whether or not it is nullable.

a. Character strings (CHAR) can be a certain amount of characters, defined in the system by a certain length. Varchar is similar to char, however it is usually denoting an endmarker or string-length, while char is usually used for shorter strings.
b. Bit strings are used to create strings which have a certain length, while bit varying(n) can be used to have a bit strings that get up to that size n of a string.
c. Boolean is a type that is logical, and can be described as True, False, or in some small cases Unknown.
d. The int or integer type denotes integer values (whole numbers), while the SHORTINT type is typically used for smaller integers.
e. FLOAT or REAL can be used for floating-point numbers, which are numbers with a decimal, and has two values which can be used, where FLOAT (n,d), where n is the total length of the floating point number, while d is the number of decimal digits.
f. Dates and times are shown by, surprisingly, DATE and TIME, are character strings which are used in a special way that is predetermined.

```
CREATE TABLE Actors
(
ActorID          int(9) NOT NULL,
LastName         varchar(20) NOT NULL,
FirstName        varchar(20),
Description      bit varing(30) NOT NULL,
Age              int(4) NOT NULL,
Accepted         Boolean NOT NULL,
GPA              Float(3,2),
DateEntered      date

Primary Key (ActorID)
);
```

4. Explain the following relational “rules” with examples and reasons why they are important.

a. The first normal form rule is the rule that says that a relation that is in the first normal form should not have a domain in the relation that is a set, and that it should be individual elements. This means that all data should have individual values of a certain type which is not of any other types unless changed within the table.
b. The access rows by content only rule is the rule that defines how searching for data is achieved within rows. This allows the database to find information through the rows of a table, and makes sure that the system will only extract data from rows using the data that is stored within rows of the database.
c. The “all rows must be unique” rule means that there can be no two rows in a table could be exactly the same, although they can have the same or similar values in the

same columns, as long as the rows are completely similar. This stops duplicate rows which can slow down the system.