

# Database Management

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Lab 2

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1.

The first three screenshots show the CAP2 SQL Editor interface with the following queries and results:

- Query 1: SELECT \* FROM customers**

cid	name	city	discount
1	p001	Tipitop	Duluth 10.00
2	c002	Basilio	Duluth 10.00
3	c003	Allies	Duluth 0.00
4	a04	ACME	Duluth 0.00
5	c005	Wayland-France	Aderson 0.00
6	p004	ACME	Ryoto 0.00
- Query 2: SELECT \* FROM agents**

aid	name	city	percent
1	a01	Dutch New York	6
2	a02	Jones Newack	6
3	a03	Brown Tokyo	7
4	a04	Gray New York	6
5	a05	Stann Duluth	5
6	a06	Hutch Duluth	5
7	a08	Bond London	7
- Query 3: SELECT \* FROM products**

pid	name	city	quantity	percost
1	p01	comb	Duluth 111400	0.50
2	p02	brush	Newack 200000	0.50
3	p03	razor	Duluth 100600	1.00
4	p04	pen	Duluth 120200	1.00
5	p05	penoil	Duluth 221400	1.00
6	p06	folder	Duluth 120100	2.00
7	p07	case	Newack 100900	1.00
8	p08	clip	Newack 200600	1.25

The fourth screenshot shows the CAP2 SQL Editor with the query: **SELECT \* FROM orders**

ordno	mon	cid	aid	pid	qty	dollars
integer	character(3)	character(4)	character(3)	character(3)	integer	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. The terms primary key, candidate key, and super key all work as a sort of narrowing process to determine the unique identifier of a table. A super key is the set of all possible sets of attributes that could uniquely identify the table, a candidate key is a set of the sets of attributes that could uniquely identify the table using the least number of attributes, and a primary key is the set of attributes that is chosen to best identify each row in the table. They work as a sort of tiered approach to finding a good unique identifier, as each one narrows the pickings by increasing the criteria and picking from the previous key. So each candidate key must also be a super key but not every super key is a candidate key.

3. Data types are a way of categorizing data so that it can be better understood. There are plenty of different data types, including integer, varchar, decimal, date/time, etc.

So if there were a table that had information about students at a school, the attributes it would need would include an id number, which would be an integer type and could not be null, their first name, which would be a varchar type and could not be null, their middle initial, which would be a varchar type and could be null, their last name, which would be a varchar type and could not be null, their birth date, which would be a date type and could not be null, their enrollment date, which would be a date type and could not be null, their graduation date, which would be a date type and could not be null, whether or not they are currently enrolled, which would be a Boolean type and could not be null, their GPA, which would be a decimal type and could not be null, and their address, which would be a varchar type and could not be null.

4. The “first normal form” rule states that every table must follow the guidelines of the normal form, meaning that the domain of each attribute contains only atomic values, and the value of each attribute contains only a single value from that domain.

The “access rows by content only” rule states that you should only call up data by asking for the content rather than the space where the content is stored since different operating systems can store the data in different places, but the content stays the same.

The “all rows must be unique” rule states that you should not have repeats of data. Every row should be unique data, no two should be the same, so that you are not wasting room or confusing anything by having the same thing saved twice.