[Composite: divisible into subparts w/ independent meaning

[atomic (simple): not divisible (zip code)

composite

Address

Street_address   City   State   Z

Number   Street   Apartment_number

atomic
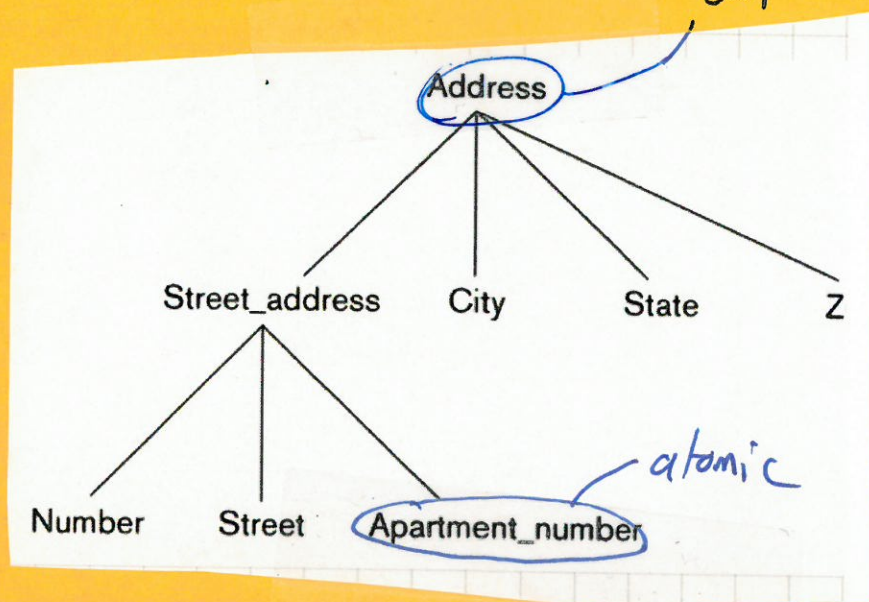
[Single valued: 1 value (age)
[multi-valued: many values (color) ⎰ for shirt

[Stored – value is stored (birth date)
[derrived – comes from other values (age)
                                    ⤷ if birthday
                                       is stored

Nullable – not applicable (apartment_number or Number)

Complex: nesting of attributes

Entity

entity type: collection (or set) of
entities w/ some attributes

entity set: collection of all entites
of a partical type in database

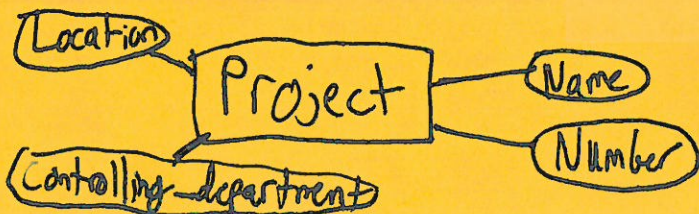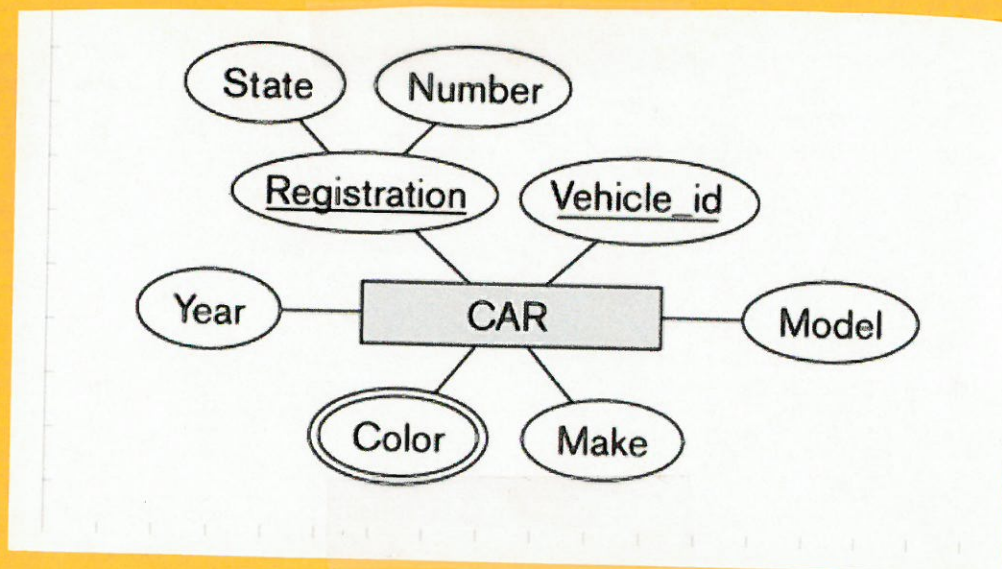| Entity Type Name:	EMPLOYEE	COMPANY
	Name, Age, Salary	Name, Headquarters, President
Entity Set: (Extension)	e_1 • (John Smith, 55, 80k) e_2 • (Fred Brown, 40, 30K) e_3 • (Judy Clark, 25, 20K) ⋮	c_1 • (Sunco Oil, Houston, John Smith) c_2 • (Fast Computer, Dallas, Bob King) ⋮

Represent w/ ER-diagram

— entity type: rectangle w/ name of
                  entity type inside

— attribute types: oval attached to
   entity ^type w/ line

     * composite attribute: attaching
                  attributes to attributes

     * mutivalued: dispay w/ ~~double~~ oval
                  double

State   Number

Registration   Vehicle_id

Year   CAR   Model

Color   Make

Location   Project   Name
                     Number

Controlling department

Keys

Key (uniqueness constraint): one or more attributes whose values are distinct for an entity

eg. PROJECT Number is unique

SSN unique for person

composite key: collection of attributes

Company w/ street_name, street_number and zip unique

should be minimal: no superfluious information

Value Sets

Value set (domain): all possible values for a simple attribute

eg. EMPLOYEE   Age integer between 16, 123

Values come from $\{a, b, c, d\}$

What is size of domain!

(1) Single valued   possible answers   4 or 5 $\underset{\text{nullable}}{\overset{\text{if}}{\subset}}$

(2) multi-valued   possible answers $4!$ 4^4 $\boxed{15}$

2^4