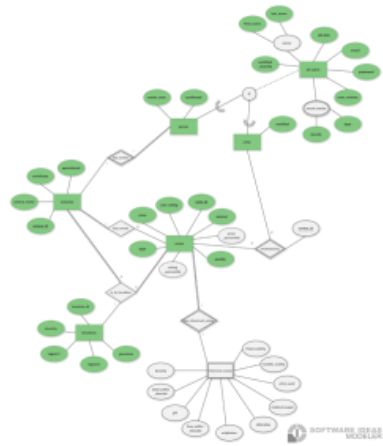


Converting (E)ER to Relational Mapping

Step 1: Mapping of regular(strong) entity types



wines					
BIGINT	VARCHAR(50)	FLOAT	FLOAT	TINYINT	FLOAT
<u>wine_id</u>	type	price	user_rating	quality	alcohol

wineries			
BIGINT <u>winery_id</u>	VARCHAR(50) winery_name	TINYINT(1) certificate	TINYINT(1) operational

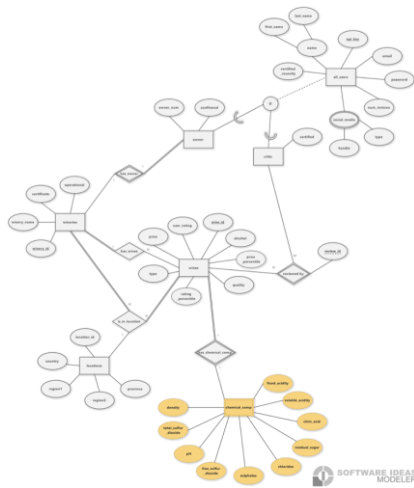
locations				
BIGINT <u>location_id</u>	VARCHAR(50) country	VARCHAR(50) province	VARCHAR(50) region1	VARCHAR(50) region2

all_users					
BIGINT, <u>api_key</u>	VARCHAR(50) first_name	VARCHAR(50) email	VARCHAR(50) password	BIGINT num_reviews	TINYINT(1) verified_recently

BIGINT, <u>api_key</u>	TINYINT(1) certified
----------------------------------	--------------------------------

owner		
BIGINT <u>api_key</u>	BIGINT owner_num	TINYINT(1) confirmed

Step 2: Mapping of weak entity type



wines					
BIGINT, <u>wine_id</u>	VARCHAR(50) type	FLOAT price	FLOAT user_rating	TINYINT quality	FLOAT alcohol

wineries			
BIGINT winery_id	VARCHAR(50) winery_name	TINYINT(1) certificate	TINYINT(1) operational

locations				
BIGINT. <u>location_id</u>	VARCHAR(50) country	VARCHAR(50) province	VARCHAR(50) region1	VARCHAR(50) region2

all_users					
BIGINT	VARCHAR(50)	VARCHAR(50)	VARCHAR(50)	BIGINT	TINYINT(1)
api_key	first_name	email	password	num_reviews	verified_recently

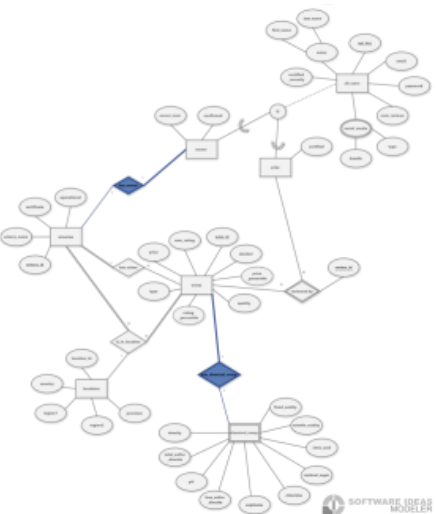
BIGINT <u>api key</u>	TINYINT(1) certified
---------------------------------	--------------------------------

owner		
<u>BIGINT</u> api_key	BIGINT owner_num	TINYINT(1) confirmed

chemical_comp										
BIGINT wine_id	VARCHAR(8,4) density	INT total_sulfur_dioxide	VARCHAR(4,2) pH	INT free_sulfur_dioxide	VARCHAR(4,2) sulphates	VARCHAR(5,3) chlorides	VARCHAR(5,2) residual_sugar	VARCHAR(5,2) citric_acid	VARCHAR(5,2) volatile_acidity	VARCHAR(5,2) fixed_acidity

Step 3: Mapping binary (1:1) relationships

Approach take : Foreign key approach (approach 1)



wines					
BIGINT wine_id	VARCHAR(50) type	FLOAT price	FLOAT user_rating	TINYINT quality	FLOAT alcohol

wineries				
BIGINT winery_id	BIGINT api_key	VARCHAR(50) winery_name	TINYINT(1) certificate	TINYINT(1) operational

locations				
BIGINT. <u>location_id</u>	VARCHAR(50) country	VARCHAR(50) province	VARCHAR(50) region1	VARCHAR(50) region2

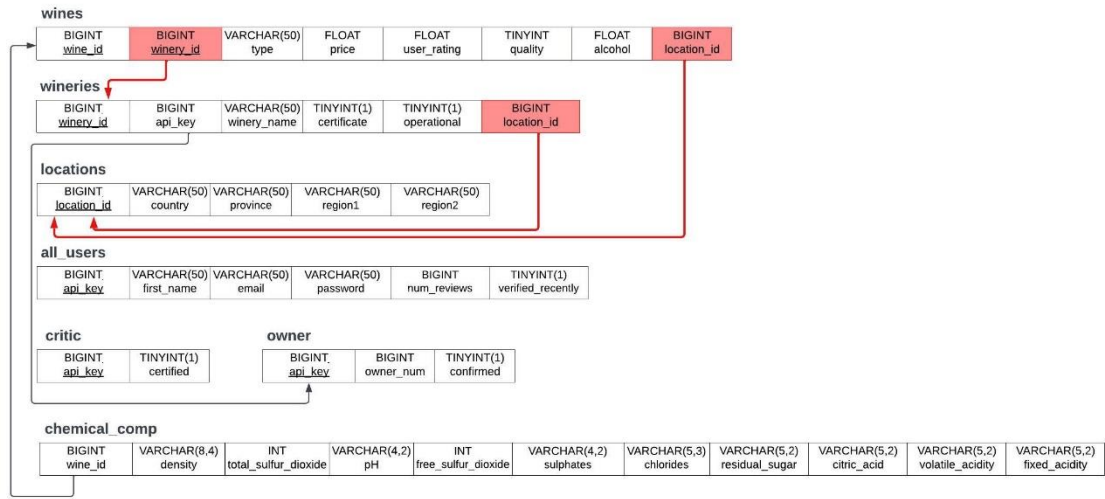
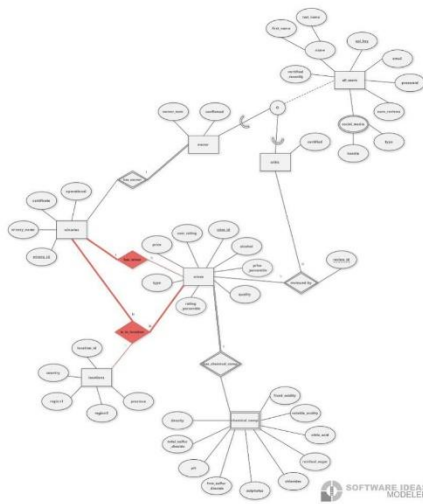
all_users					
BIGINT	VARCHAR(50)	VARCHAR(50)	VARCHAR(50)	BIGINT	TINYINT(1)
api_key	first_name	email	password	num_reviews	verified_recently

BIGINT api key	TINYINT(1) certified
--------------------------	--------------------------------

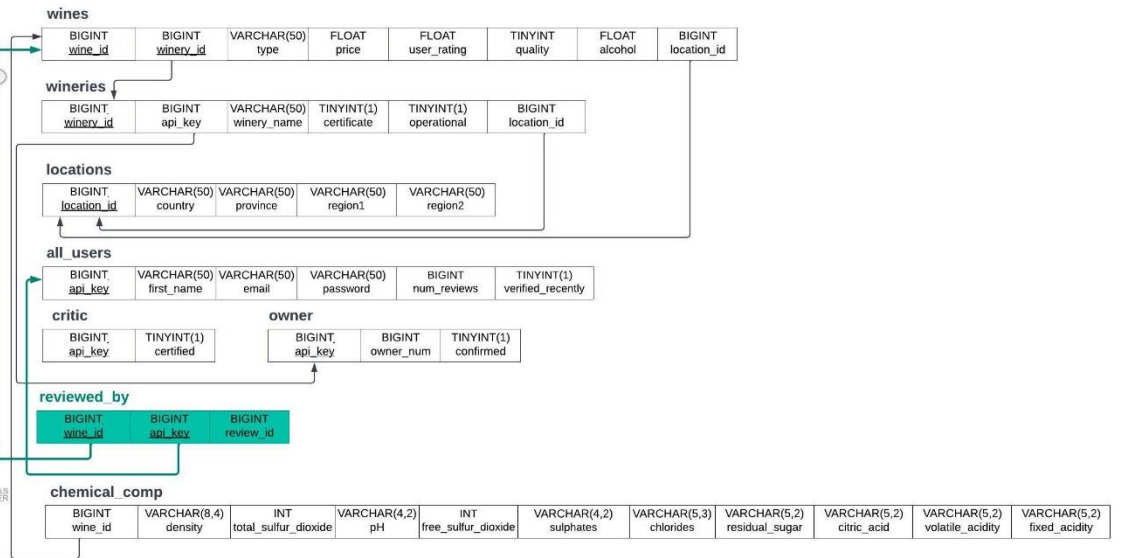
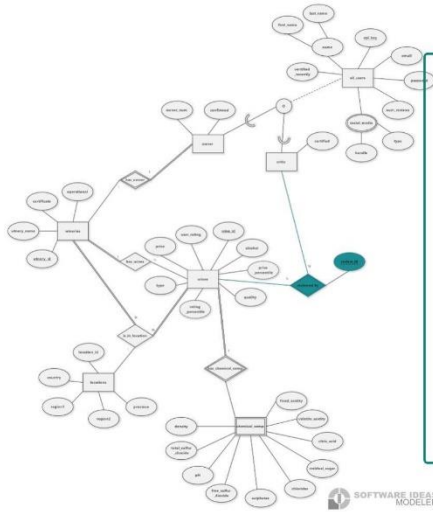
owner		
BIGINT, api key	BIGINT owner num	TINYINT(1) confirmed

chemical_comp										
BIGINT wine_id	VARCHAR(8,4) density	INT total_sulfur_dioxide	VARCHAR(4,2) pH	INT free_sulfur_dioxide	VARCHAR(4,2) sulphates	VARCHAR(5,3) chlorides	VARCHAR(5,2) residual_sugar	VARCHAR(5,2) citric_acid	VARCHAR(5,2) volatile_acidity	VARCHAR(5,2) fixed_acidity

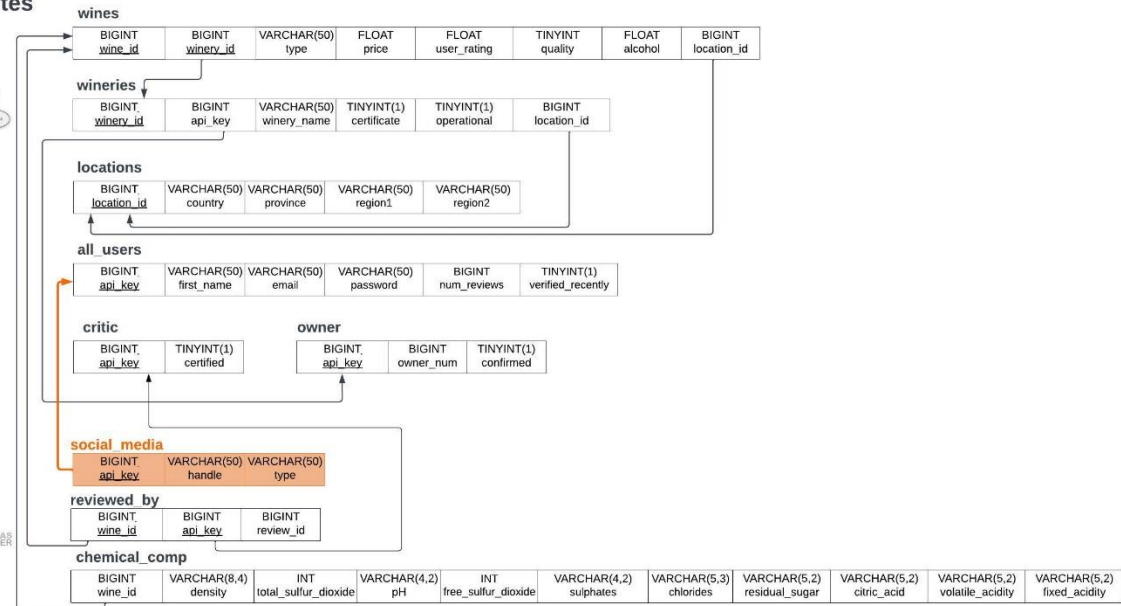
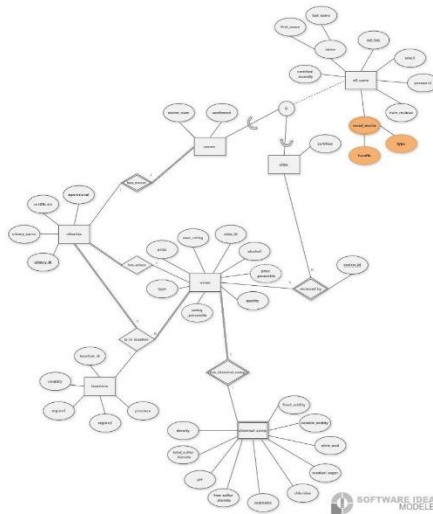
Step 4: Mapping binary (1:N) relationships



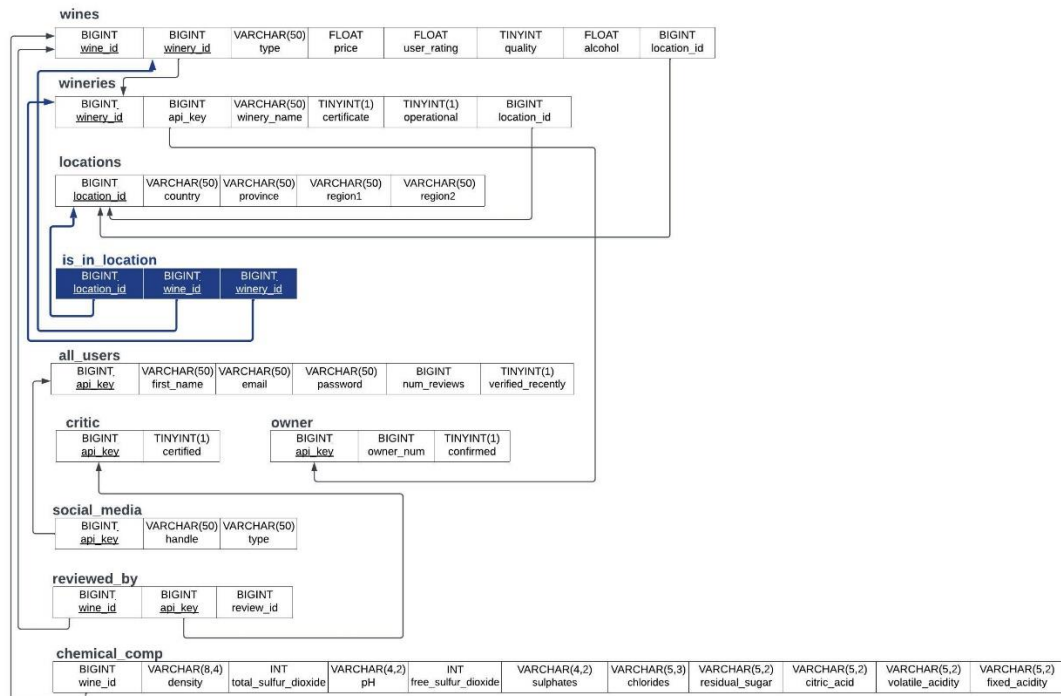
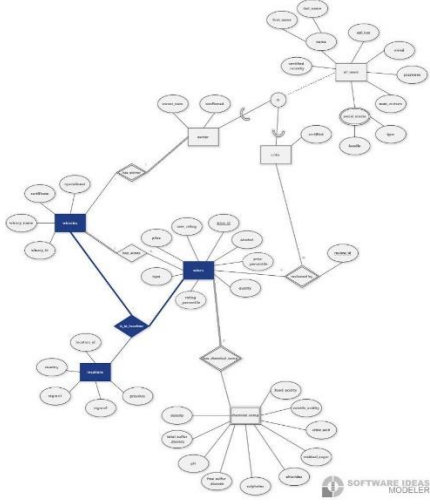
Step 5: Mapping binary (M:N) relationships



Step 6: Mapping multivalued attributes



Step 7: Mapping N-ary relationships



Step 8: Mapping Specialization and generalization

Option 8A: Multiple relations - superclass and subclasses

