Assumptions:

Each user can create 0 or many collections.

Each collection is created by exactly one user.

Each user can author 0 or many recipes.

Each recipe is authored by exactly one user.

Each user may review 0 or many recipes.

Each recipe can be reviewed by 0 or many users.

Each collection contains 0 or many recipes.

Each recipe belongs to 0 or many collections.

Each ingredient is used by 0 or many recipes.

Each recipes uses 0 or many ingredients.

Each tag tags 0 or many recipes.

Each recipe is tagged by 0 or many tags.

Needs to be in format Table-Name(Column1:Domain [PK], Column2:Domain [FK to table.column], Column3:Domain,...)

user(id:VARCHAR(30) [PK], first_name:VARCHAR(20), last_name:VARCHAR(20), email:VARCHAR(255))

recipe(id:INT [PK], title:VARCHAR(50), cooking_method:VARCHAR(255), cuisine:VARCHAR(30), image_path:VARCHAR(255), prep_time:INT, serving_number:INT, user_id:VARCHAR(30) [FK to user.id], creation_date:DATE)

reviewer(user_id:VARCHAR(30) [PK] [FK to user.id], recipe_id:INT [PK] [FK to recipe.id], review_date:DATE, stars:INT, review:VARCHAR(255))

collection(user_id:VARCHAR(30) [PK] [FK to user.id], name:VARCHAR(30) [PK], visibility:INT)

recipe_collection(recipe_id:INT [PK] [FK to recipe.id], user_id:VARCHAR(30) [PK] [FK to user.id], collection_name:VARCHAR(30) [PK] [FK to collection.name])

ingredient(name:VARCHAR(20) [PK])

tag(name:VARCHAR(20) [PK])

recipe_ingredients(recipe_id:INT [PK] [FK to recipe.id], ingredient_name:VARCHAR(20) [PK] [FK to ingredient.name], amount:VARCHAR(30))

recipe_tags(recipe_id:INT [PK] [FK to recipe.id], tag_name:VARCHAR(20) [PK] [FK to tag.name])

An Entity-Relationship diagram for a recipe management system.

creates (relationship diamond)

collection
- name
- visibility

creation_date (attribute box)

user
- id
- first_name
- last_name
- email

recipe
- id
- title
- cooking_method
- cuisine
- image_path
- prep_time
- serving_number

review_date
- stars
- review

amount (attribute box)

ingredient
- name

tag
- name

Relationships and cardinalities:
- creates — collection: 0...* creates
- collection — recipe: 0...* belongs to ... recipe_collection ... contains 0...*
- creates — user: 1...1 created by
- user — recipe (creation_date / author): 1...1 authored by ... author ... authors 0...*
- user — recipe (review_date / reviewer): 0...* reviewed by ... reviewer ... reviews 0...*
- recipe — ingredient (recipe_ingredients / amount): 0...* used by ... recipe_ingredients ... uses 0...*
- recipe — tag (recipe_tags): 0...* tags ... recipe_tags ... tagged by 0...*