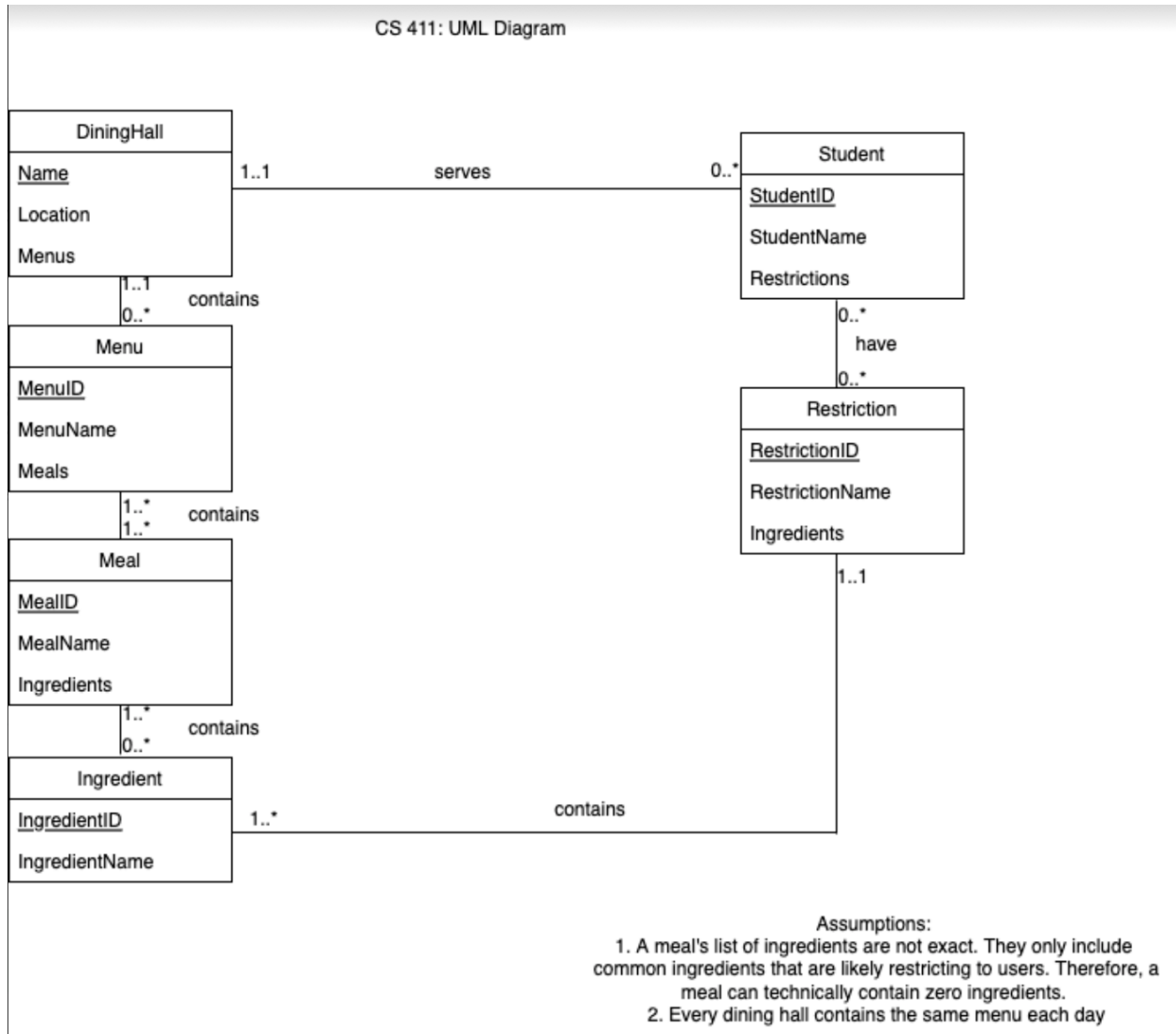


UML Diagram



Relational Schema

DiningHall(Name:VARCHAR(255) [PK], Location:VARCHAR(255), Menus:VARCHAR(255) [FK to Menu.MenuID])

Menu(MenuID:VARCHAR(255) [PK], MenuName:VARCHAR(255), Meals:VARCHAR(255) [FK to Meal.MealID])

Meal(MealID:VARCHAR(255) [PK], MealName:VARCHAR(255), Ingredients:VARCHAR(255) [FK to Ingredient.IngredientID])

Restriction(RestrictionID:VARCHAR(255) [PK], RestrictionName:VARCHAR(255),
Ingredients:VARCHAR(255) [FK to Ingredient.IngredientID])

Ingredient(IngredientID:VARCHAR(255) [PK], IngredientName:VARCHAR(255))

Student(StudentID: VARCHAR(255) [PK], StudentName: VARCHAR(255),
Restrictions:VARCHAR(255) [FK to Restriction.RestrictionID])

Description

Relational Schema Descriptions:

- The database should store information about Students, Restrictions, Dining Halls, Menus, Meals, and Ingredients.
- Students are uniquely identified by their StudentID. Other Student attributes are name and restrictions.
- A Restriction is uniquely identified by its RestrictionID. Other restriction attributes are name and ingredients.
- A Dining Hall is uniquely identified by its name. Other dining hall attributes are location and menus.
- Menus are uniquely identified by their MenuID. Other menu attributes are menu name and meals.
- A Meal is uniquely identified by its MealID. It has meal names and ingredients as other attributes.
- A Student may have multiple Restrictions, and a Restriction may have multiple Students.
- A Dining Hall have multiple Menus, but a Menu can only belong to one Dining Hall
- A Dining hall may serve multiple Students but a Student can only eat at one dining hall
- A Menu should contain at least one Meals, but a Meal can belong to multiple Menus
- A Meal can contain multiple Ingredients, and an Ingredient belongs to at least one Meal
- An Ingredient contains only one Restriction, and a Restriction contains at least one Ingredient

Assumptions

- Instead of letting users enter in any random ingredient when selecting their restrictions, we will be providing a list of common restrictive ingredients (allergens, meat and other non-vegan options, etc.) for them to select from. This is why it is okay for a Meal to contain zero ingredients.
- For simplicity's sake, the prototype will work as if the Dining Hall Menus were constant every day. Also, we will only be considering one meal for the day (which is why a student can only eat at one dining hall).