

COMP2001

Info M'ment & Retrieval

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Session outline

- Contextualise learning so far
- Apply concepts to new scenario
- Review knowledge
 - and identify plan of further study if appropriate



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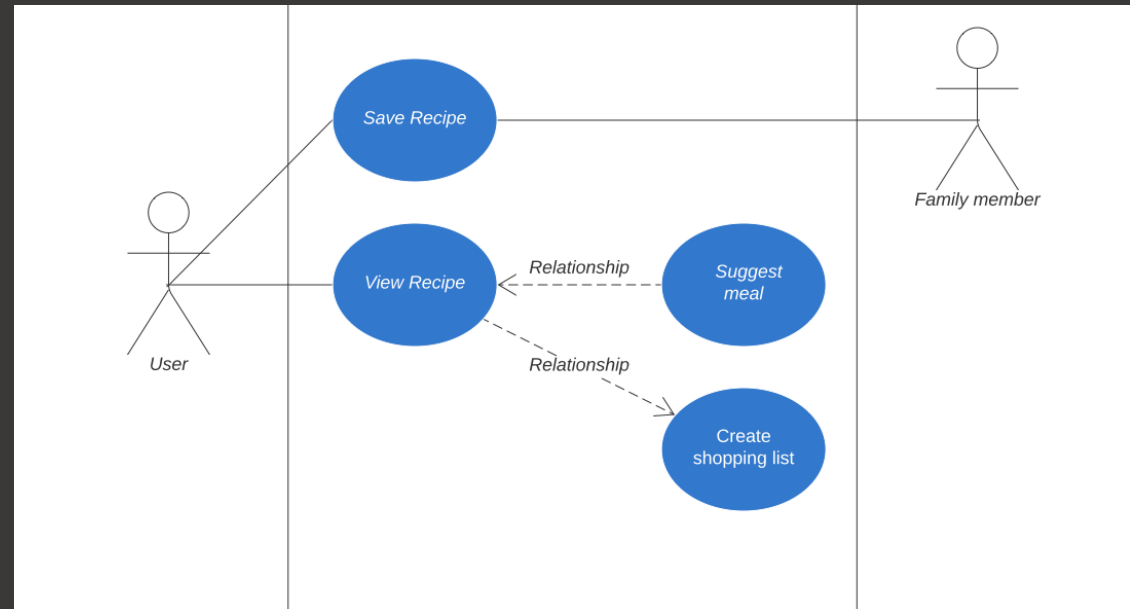
Context

- Manipulating an RDBMS is core skill for any computing professional
- Need to know
 - How to extract entities
 - How to avoid repeating groups
 - Ensure integrity of data
 - Use SQL language to manage the RDBMS
- Not the only approach for data management!



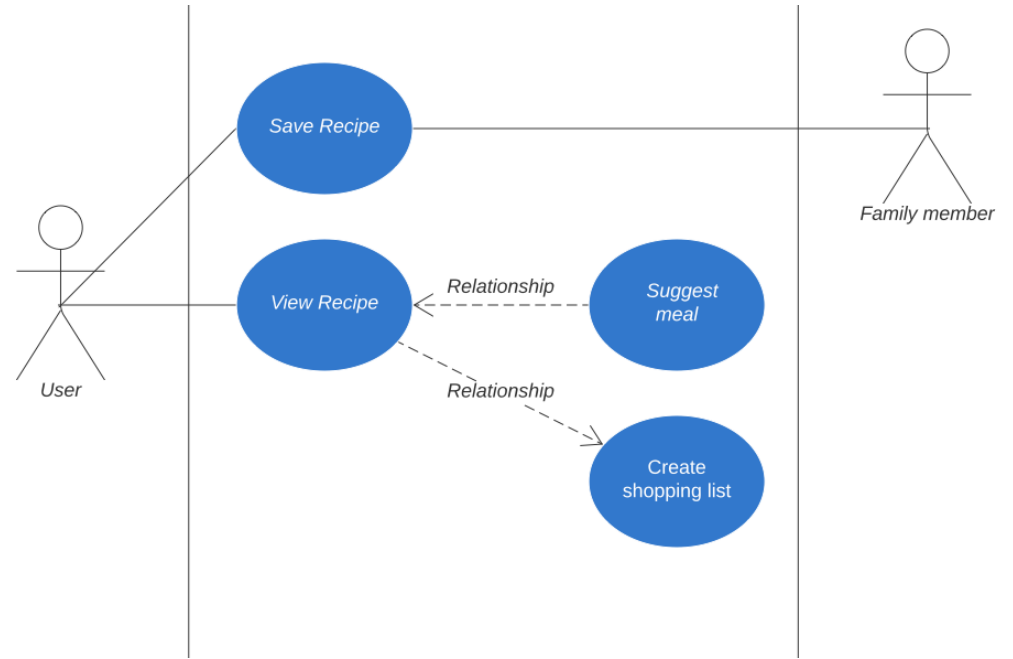
Scenario

- User story: I want to share family recipes with my adult family
- Persona: Me! 3 adult children, left home, 3 grandchildren, keen to take mental load off of child regarding what to cook for tea.
- Use case : save recipe



Entities

What are our entities?



Possible Entities

- Person
- Recipe
- Ingredient

What are their relationships?



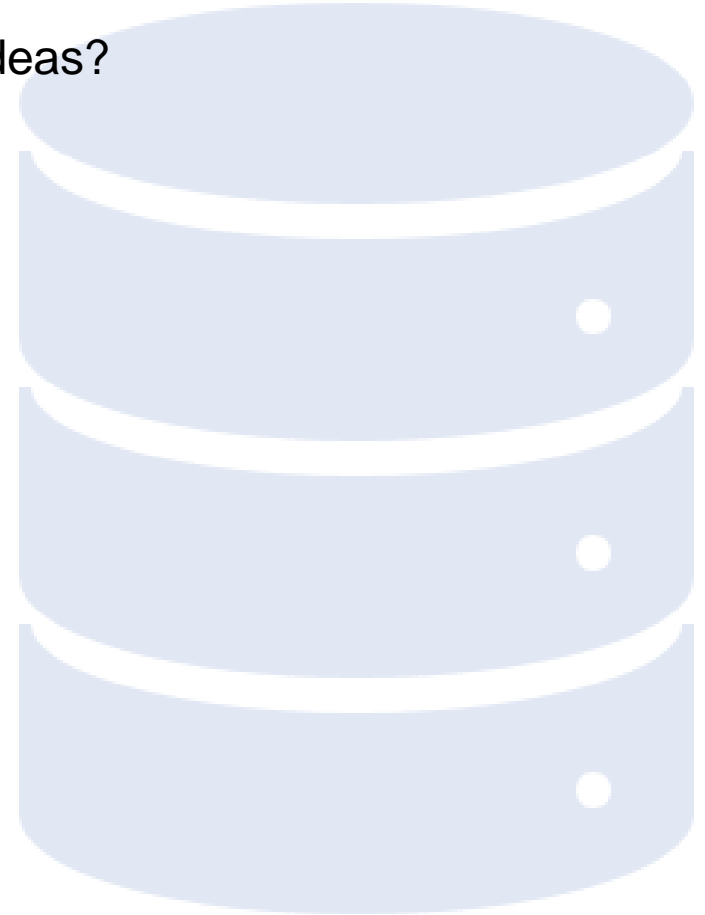
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Data items

What data items do we need to save for our entities?

Ideas?



Analysing recipe structure

- Consider standard cook book
 - Or online source
 - <https://www.bbcgoodfood.com/recipes/chicken-pasta-bake>
- Title, picture, ingredients, weights, method, cooking instructions
- Established structure Recipe ML
 - Worth knowing for structured data apps... more later
 - <https://developers.google.com/search/docs/advanced/structured-data/recipe#add-structured-data>
 - Required items and recommended



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- What have we got first?



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Title

Picture

Method

(Ingredient

Measure

Calories)



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Other NFs

- Take it to 3NF



End up with SQL

- CREATE table for your entities
 - Note what is your primary key?
 - Note what is your foreign key?
- Check your column data types are appropriate
- Check column names are appropriate
- Check any useful constraints
- Insert some dummy data to make it testable



Hints and tips

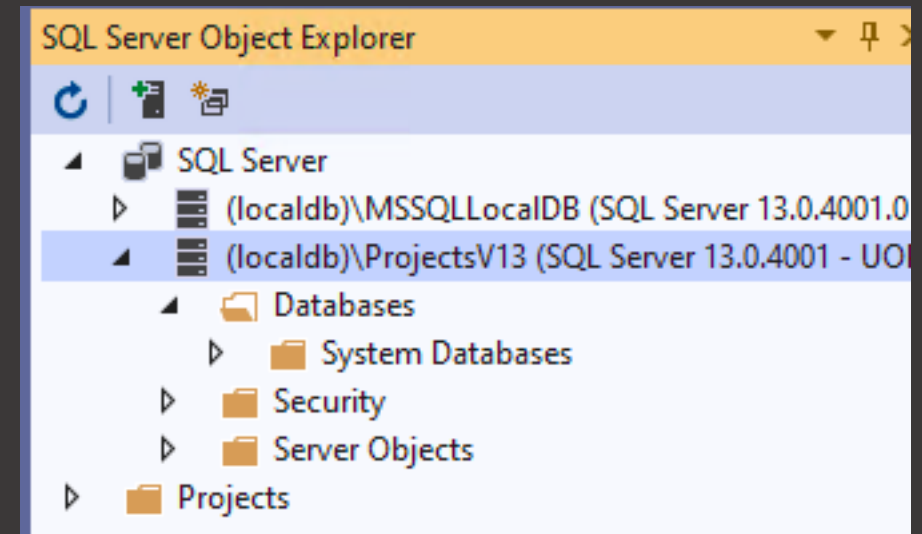
Keep your SQL statements saved in a .sql file

Keep them version controlled in GitHub

When it goes wrong – you can quickly redo it

No internet / can't VPN!!! HELP

- You can create your tables offline
 - Upload later to check if you wish.
- Microsoft Visual Studio has Microsoft SQL Server embedded
 - As localdb
 - **View > SQL Server Object Explorer**





**Any
questions so
far?**



Adding complexity

- What view might we want?
- How about the ingredients for a recipe?

```
CREATE VIEW RB.Meal AS
SELECT RB.Ingredient.Name, RB.RecipeIngredient.Measure,
       RB.Recipe.RecipeID, RB.Recipe.Title, RB.Recipe.Method
FROM RB.Ingredient, RB.RecipeIngredient, RB.Recipe
WHERE RB.Ingredient.IngredientID = RB.RecipeIngredient.IngredientID
AND RB.RecipeIngredient.RecipeID = RB.Recipe.RecipeID
```



Using stored procedures

- Create the stored procedures for adding an ingredient, recipe, etc.
- What does it need to do?

Adding a trigger

- What if we accounted for allergies?
- Let's add a trigger that will label a recipe as having an allergy alert when it contains an ingredient labelled as an allergen
- Which table would we put it on?
- When will it fire?
- What will it do?



Alter tables

```
ALTER TABLE RB.ingredient  
ADD Allergen BIT
```

```
ALTER TABLE RB.Ingredient  
ADD CONSTRAINT dfi DEFAULT 0 for Allergen
```

```
ALTER TABLE RB.Recipe  
ADD Allergy BIT
```

```
ALTER TABLE RB.Recipe  
ADD CONSTRAINT df DEFAULT 0 for Allergy
```

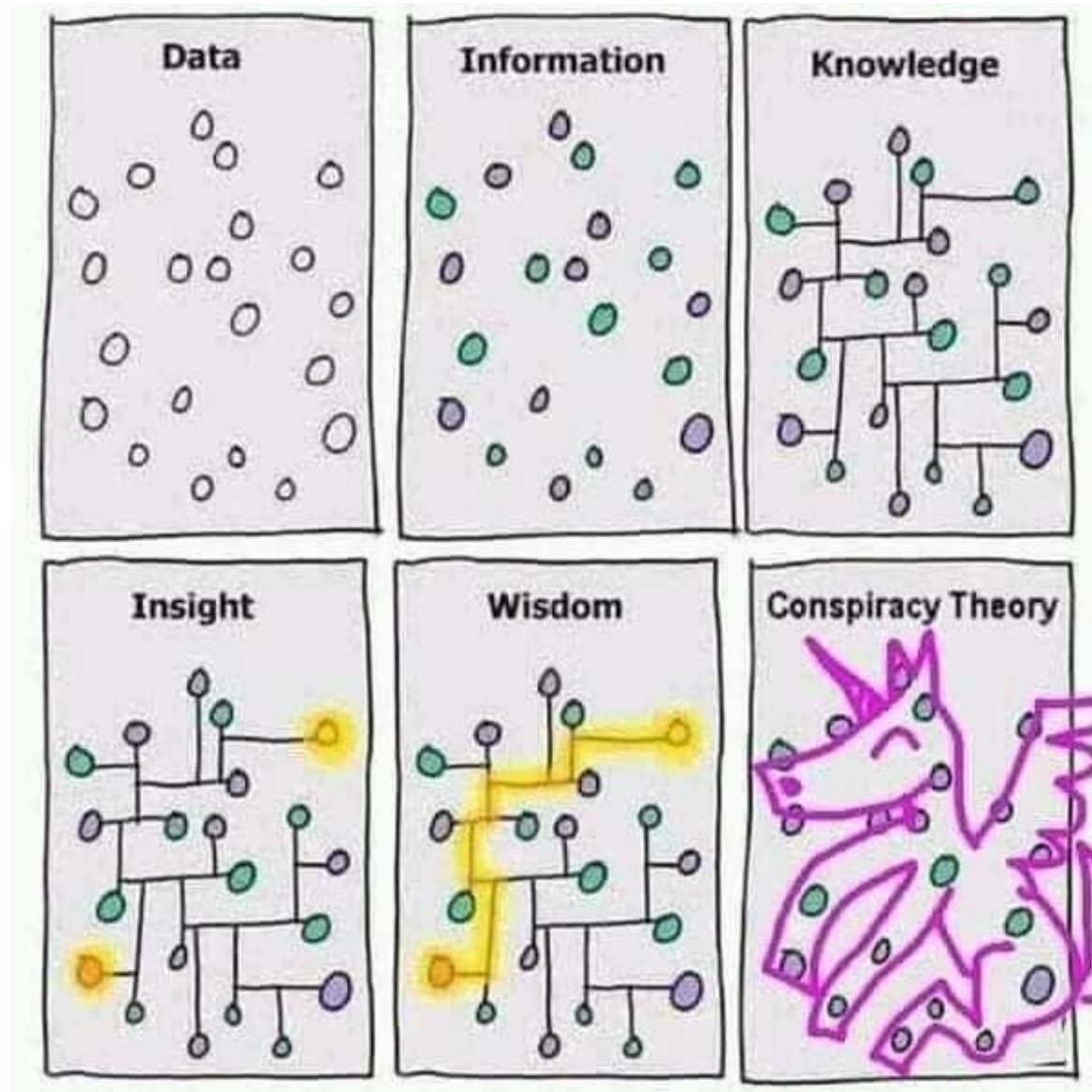


Next up...

- NoSQL



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A wide-angle photograph of the University of Plymouth campus at sunset. The sky is a vibrant mix of pink, purple, and orange. In the background, modern university buildings with lit windows stand against the colorful sky. To the left, a dark, pointed church spire is visible. In the foreground, a body of water reflects the sky's colors, with a small fountain spraying water on the right. The text "Any Questions?" is overlaid in the center in a large, white, sans-serif font.

Any Questions?



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