# COMP1531

Week 3 Tutorial!

# Functional vs Non-Functional Requirements

# Pop quiz!

a. The ticket machine must enable a traveller to buy weekly or monthly passes

Functional!

# Pop Quiz!

b. The software in the ticket machine must be written in Java -

This could be a NFR or a system decision
Remember: A requirement must be a concise piece of information that describes an aspect of what the proposed system should do.

If the constraint “software must be written in Java” is a constraint imposed by the customer, then it is a NFR. If it is technical decision taken by the developer, then it is a system design decision and not a user requirement)

# Pop Quiz!

c. The ticket machine must be easy to use –

NFR

# Pop Quiz!

d. A confirmation email must be sent when a new customer registers to use the online banking app -

FR

# Pop quiz!

e. The application must be built for a total cost of $1,500,000

NFR

# Pop quiz!

f. A transaction record can be printed upon request -

FR

# Pop Quiz!

g. The data modified in a database should be updated for all users accessing it within 2 seconds -

NFR

# Use-case Diagram

# Use-case diagram - Structure

A use-case diagram is a type of requirement specification to capture how the actors (users) of the system interact with the software.

The key entities in a use-case diagram are:

- System boundary boxes: You can draw a rectangle around the use cases, called the system boundary box
- Actors: An actor is a person, organization, or external system that plays a role in one or more interactions with your system. Actors are drawn as stick figures
- Associations: Associations between actors and use cases are indicated in use case diagrams by solid lines.

# Use-case Diagram - Types of Association

- includes
- extends
- abstract/generalise

# Let’s practice!

- A waiter inputs orders from a diner into the system.
- An order can include an order for food and an order for drinks.
- Food orders are sent to the kitchen staff, while drink orders are sent to the bar.
- A waiter can check on the status of the food or drink order at any time.
- The bar staff updates the status on the system when the drinks are ready to serve.
- The kitchen staff updates the system when the food ordered has been prepared. - At the end of a meal, a waiter can request the system to print the bill.
- A waiter collects payment from the diner and can optionally print the bill during the payment.
- The system logs each order and payment from a diner.
- If a diner is not pleased with the order, they can refuse to make the payment. The discount must be authorised by the manager.
- The system records orders with such special discounts.
- A manager can view the log statistics any-time to see a record of orders and payments made.

# Bad User stories

# Can you spot the problem?

(a) As a customer of “MenuForAll” food service, I need to be able to save my menu so that I can print or email the menu for later use.

# What about this one?

(b) As a customer of “MenuForAll” food service, I need to be able to save or print the menu so that I can access the menu at any time offline and place an order

# Last challenge!

(c) As a developer, I want to finalise the database table changes for the release so that we do not have to makes changes to the model later

# Snaky time!

Q1: Write a function that computes the factorial of a given integer n. You may assume that n is non-negative. (Note: 0! = 1). If n is not specified, then it should compute the factorial of 5. e.g.,

# More Python :)

Q2 - George wishes to write a function called transform_string that takes in any number of string arguments and prints out each string after applying the following transformation:

1. shorter than 5 characters: every letter in the string is converted to lowercase

2. between 5 to 9 characters (inclusive): no change

3. longer than 9 characters: every letter in the string is converted to uppercase

# Python python python ~~~

Isaac wants to upgrade George’s function to take in two extra integer arguments min_length and max_length that would replace the values 5 and 9 from the original function respectively. You may assume that min_length is always less than or equal to max_length