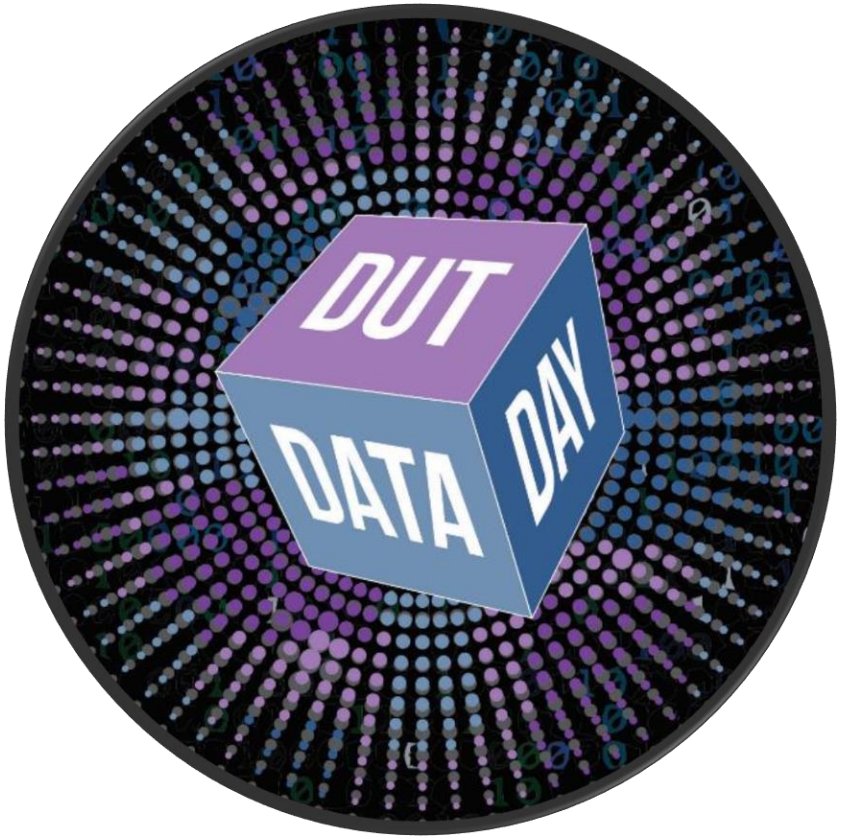

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DURBAN UNIVERSITY OF TECHNOLOGY

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ENVISION2030

FINANCE AND INFORMATION MANAGEMENT/ INFORMATION TECHONOLOGY

BUSINESS ANALYSIS IIB (BANP202)

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INTRODUCTION TO USE CASE (CHAPTER 3)

GROUND RULES

1. PLEASE ALL CELLPHONES OFF OR PUT THEM ON SILENT DURING LECTURES
2. DON'T BE LATE FOR CLASS
4. DON'T MAKE NOISE IN CLASS
6. TAKE NOTES AND ASK QUESTIONS

ABOUT BANP202

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Aim/Purpose:

- To provide students with Business Analysis tools and methodologies to solve business related problems

LEARNING OUTCOMES

- Phases of System Development
- Use-case Modeling
- Components of Use-case Model
- System
- Actors and Finding Actors
- Use-case and Finding Use-case
- Describing Use-case
- Realizing Use-case
- Interaction between user and Use-case
- Use-case Diagram

Phases of System Development

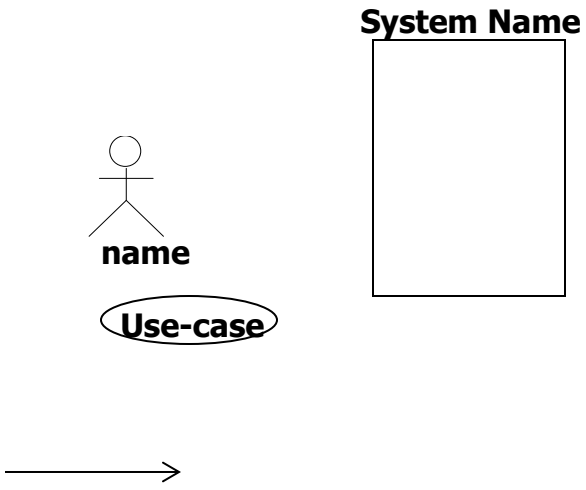
- Requirement Analysis
  - The functionality users require from the system
  - **Use-case model**
- OO Analysis
  - Discovering classes and relationships
  - Class diagram
- OO Design
  - Result of Analysis expanded into technical solution
  - Sequence diagram, state diagram, etc.
  - Results in detailed specs for the coding phase
- Implementation (Programming/coding)
  - Models are converted into code
- Testing
  - Unit tests, integration tests, system tests and acceptance tests.

Use-Case Modeling

- In use-case modeling, the system is looked upon as a black box whose boundaries are defined by its functionality to external stimuli.
- The actual description of the use-case is usually given in plain text. A popular notation promoted by UML is the stick figure notation.
- We will look into the details of text representation later. Both visual and text representation are needed for a complete view.
- A use-case model represents the use-case view of the system. A use-case view of a system may consist of many Use-case diagrams.
- An use-case diagram shows (the system), the actors, the use-cases and the relationship among them.

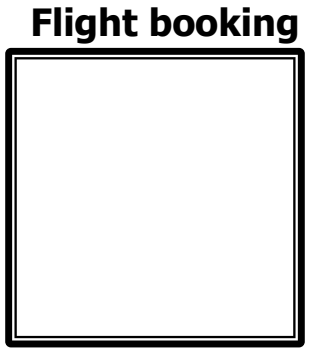
Components of Use-case Model

- The components of a Use-case model are:
  - System Modeled
  - Actors
  - Use-cases
  - Stimulus



System

- As a part of the use-case modeling, the boundaries of the system are developed.
- System in the use-case diagram is a box with the name appearing on the top.
- Define the scope of the system that you are going to design with your **Flight booking** (software scope).



Actors

- An actor is something or someone that interacts with the system.
- Actor communicates with the system by sending and receiving messages.
- An actor provides the stimulus to activate an Use-case.
- Message sent by an actor may result in more messages to actors and to Use-cases.
- Actors can be ranked: primary and secondary; passive and active.
- Actor is a role not an individual instance.

Finding Actors

- The actors of a system can be identified by answering a number of questions:
  - Who will use the functionality of the system?
  - Who will maintain the system?
  - What devices does the system need to handle?
  - What other system does this system need to interact?
  - Who or what has interest in the results of this system?

Use-cases

- A Use-case in UML is defined as a set of sequences of actions a system performs that yield an observable result of value to a particular actor.
- Actions can involve communicating with number of actors as well as performing calculations and work inside the system.
- A Use-case
  - is always initiated by an actor.
  - provides a value to an actor.
  - must always be connected to at least one actor.
  - must be a complete description.

Finding Use-cases

- For each actor ask these questions:
  - Which functions does the actor require from the system?
  - What does the actor need to do?
  - Could the actor's work be simplified or made efficient by new functions in the system?
  - What events are needed in the system?
  - What are the problems with the existing systems?
  - What are the inputs and outputs of the system?

Describing Use-cases

- Use-case Name:
- Use-case Number: system#.diagram#.Use-case#
- Authors:
- Event(Stimulus):
- Actors:
- Overview: brief statement
- Related Use-cases:
- Typical Process description: Algorithm
- Exceptions and how to handle exceptions:

Example

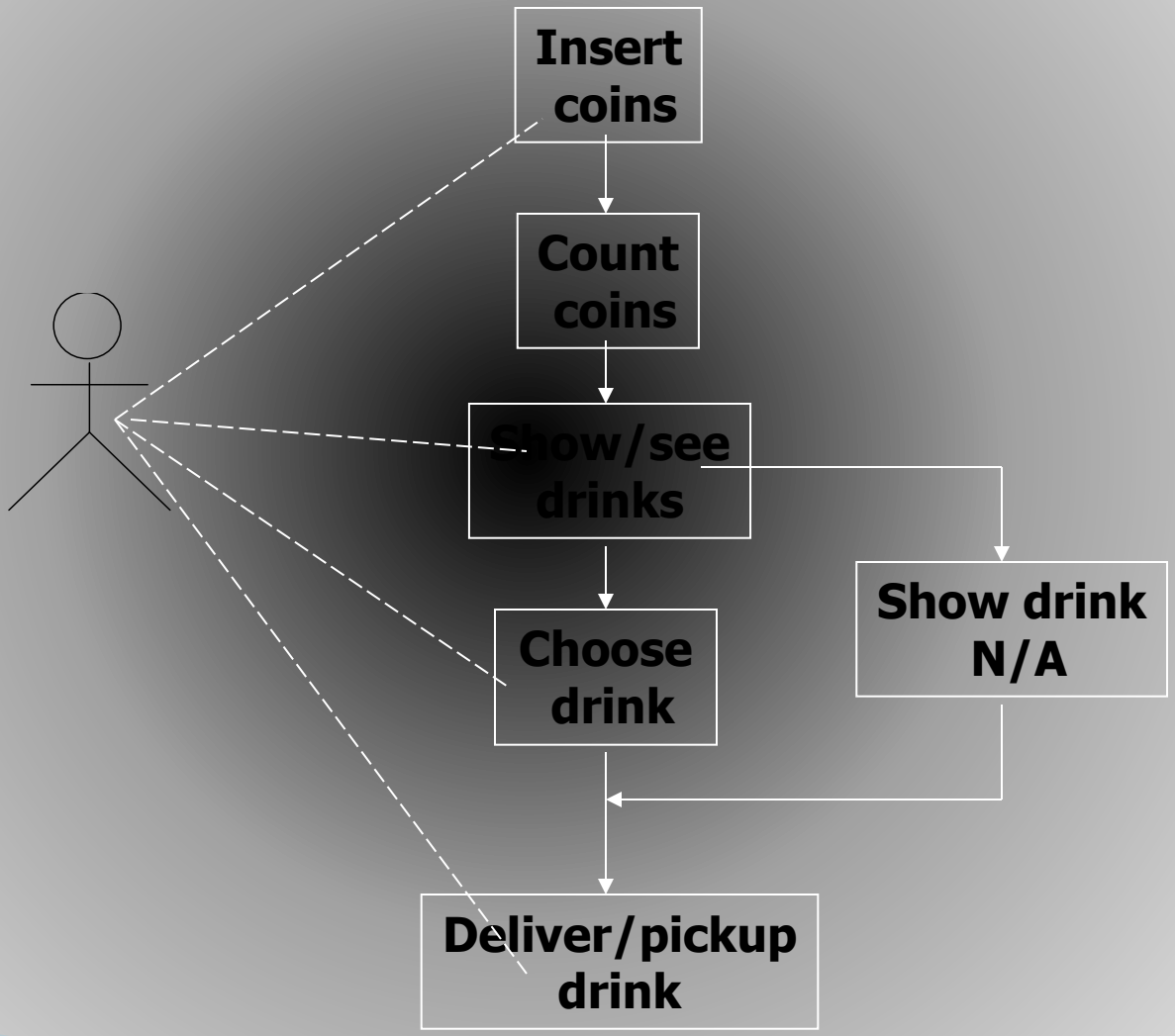
- Number: A.132.4
- Name: Buy book online
- Author: B. Nkosi
- Event: Customer request one or more books
- System: Amazon.com
- Overview: Captures the process of purchasing one or more books and the transactions associated with it.
- Related Use-case: A.132.5, A.132.8
- Typical Process Description with exceptions handled.

NOTE : All these can be in a tabular form, say, in an Excel worksheet for example.

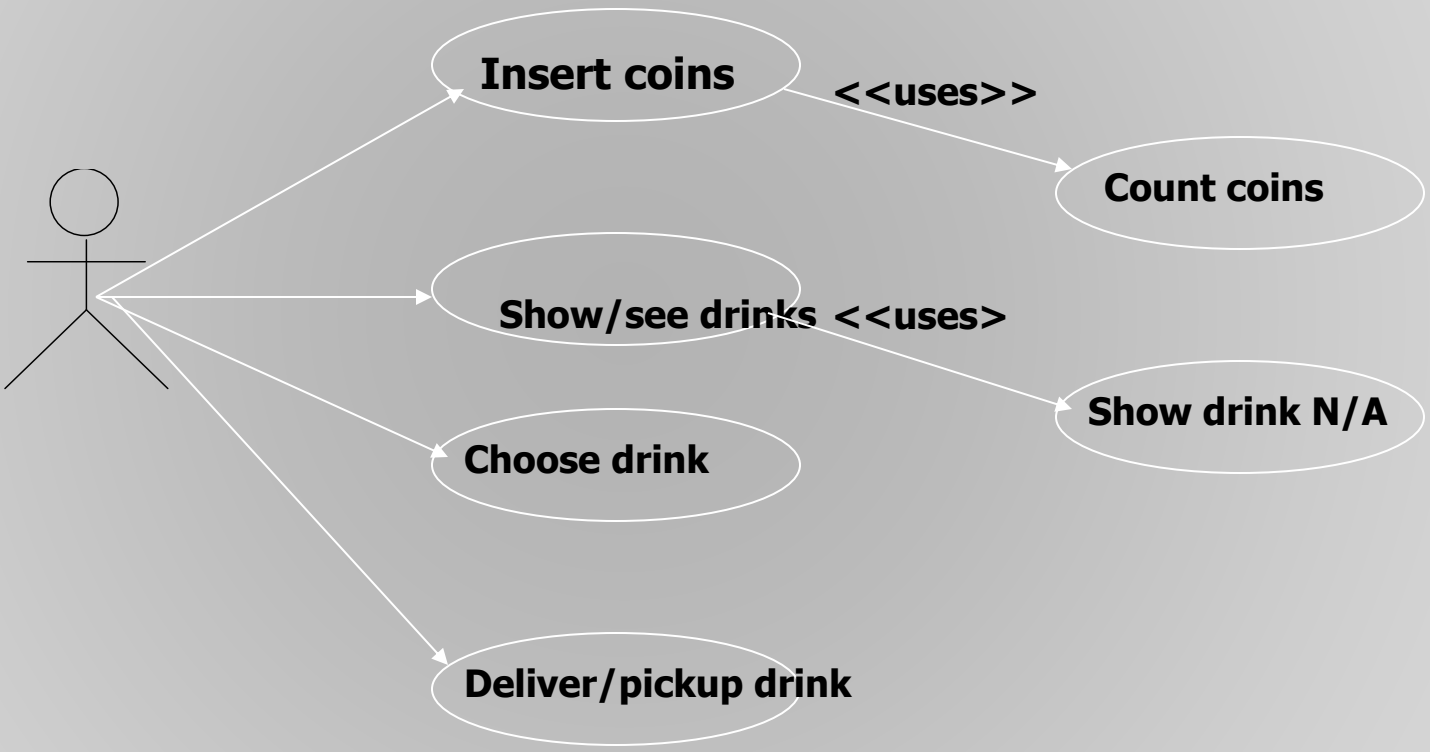
Realizing Use-cases

- Validation is done up front. As soon as the model is ready it has to be presented and discussed with the customers.
- Use-cases are implementation independent descriptions of the functionality of the system.
- Use-case can be realized in the next stages of software development using, say, a class diagram.

Interaction between user and Use-case



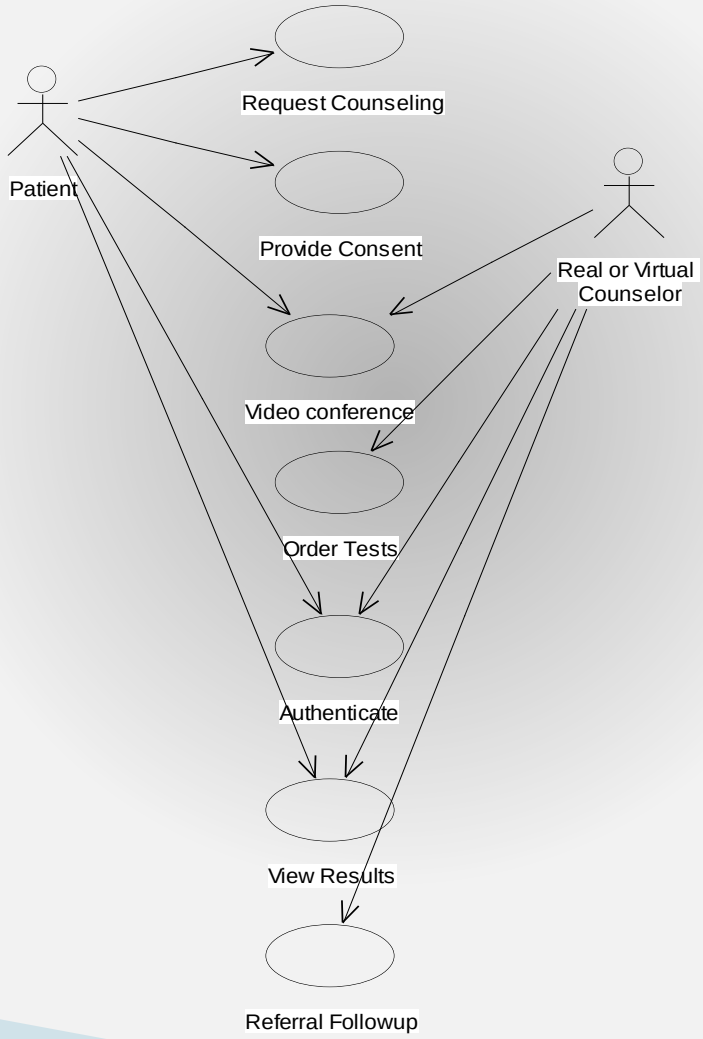
Use Case Diagram



Case Studies

- Ticket counter for basketball game
- Weather Station.
- ATM Machine: Description given as data dictionary.
- Burger queen fast food restaurant's hand-held order device

Use Case Example: Counseling



Example

- Carry out a use-case analysis of the operations performed by a parking ticket vending machine. Consider end-user (motorist), maintenance technician, auditor, and coin (money) collector.

Summary : Use case model

- We studied the Use-case Model of Unified Modeling Language.
- Use-case model provides a formal mechanism for carrying out a requirement analysis with active participation from domain experts and users who may or may not be software savvy.
- Use-case model can be used not only for requirement analysis of software systems, hardware systems and hybrid (combination) systems.
- Given a system, can you draw a use case diagram model.

Thank you…!