# *Lab 5 –UML Diagrams and Interpretation*

Date assigned: Wednesday, January 27, 2016

Date due: **Wednesday, January 27, 2016, 6:00 PM**

**Learning Objectives**

Upon successful completion of this lab exercise, the student will be able to:

* Demonstrate the ability to read various UML diagrams
* Understand the basic concepts of UML Diagrams
* Understand the basic concepts of System and Object Modeling

Lab Set Up

1. Create a copy of this document called YourUsername\_E21\_L05.docx for E21 on your home drive.

To do:

# Part A – Diagram types and interpretation

Using Diagrams from the Lecture notes “E21\_S04- Diagrams and UML Overview”

Use Case Diagram example:

1. Who can view the Billboard 200 Report?

Brand manager and Record manager

1. Can a Band Manager view the sales statistics for a specific CD?

Yes

Activity Diagram example:

1. What step is required just prior to being able to executing “Display Sales Report”? Which sub-system/actor is responsible for that step?
2. How does the system determine which band to generate the report for?

Sequence Diagram example:

1. What level of abstraction is this diagram, system/sub-system or objects?
2. What instantiates a new CDSalesReport instance?

Statechart Diagram example:

1. What happens if a loan is pre-approved but the customer doesn’t sign within 14 days?
2. What are the states of a loan?

Component Diagram example:

1. What 3 components is the Reporting tool dependent on?

Deployment Diagram example:

1. Where does the client browser run from?
2. What machine and environment does the Reporting tool run on?
3. Where is the database hosted and which other hosts need to access it for this system?

# Part B – Research, Q&A

1. What is the Unified Modeling Language?

A general-purpose, developmental, modeling language in the field of software engineering that is intended to provide a standard way to visualize the design of a system.

1. Who is the Object Management Group?

An international, open membership, not-for-profit technology standards consortium. OMG Task Forces develop enterprise integration standards for a wide range of technologies and industries.

1. What is the primary purpose of structure diagrams?

A structure diagram is a conceptual modeling tool used to document the different structures that make up a system such as a database or an application. It shows the hierarchy or structure of the different components or modules of the system and shows how they connect and interact with each other.

1. Give/show 3 examples of different types of structure diagrams. (You don’t have to build these yourself).
2. What are behavior diagrams used for?

UML behavioral diagrams visualize, specify, construct, and document the dynamic aspects of a system.

1. Give/show 3 examples of different types of behavior diagrams. (You don’t have to build these yourself).
2. How does a model differ from a diagram?
3. What is a context diagram? (see http://en.wikipedia.org/wiki/System\_context\_diagram)

A diagram that defines the boundary between the system, or part of a system, and its environment, showing the entities that interact with it. This diagram is a high level view of a system.

1. UML does not define a context diagram formally. How can you build a context diagram in UML? (see http://stackoverflow.com/questions/23761522/uml-replacement-for-context-diagram)
2. Can a Use Case diagram be used as a Context diagram? Please explain.

Yes. Use case diagram (your example) support the context explicitly on the functional level. Use cases are elements of the system under development, while the actors are extern entities (systems or human users). Before mentioned boundary is often used to visually delimit between the system and its environment.

1. What views are parts of the [4+1 Model view](https://en.wikipedia.org/wiki/4%2B1_architectural_view_model)? Briefly explain each?

Logical View:

The logical view is concerned with the functionality that the system provides to end-users.

Development view:

The development view illustrates a system from a programmer's perspective and is concerned with software management

Process View:

The process view deals with the dynamic aspects of the system, explains the system processes and how they communicate, and focuses on the runtime behavior of the system

Physical View:

The physical view depicts the system from a system engineer's point of view. It is concerned with the topology of software components on the physical layer as well as the physical connections between these components.

1. Give/show examples of UML diagrams that can be used to represent each view in the 4+1 Model View.
2. What are the advantages of using UML?

Provides standard for software development. - Reducing of costs to develop diagrams of UML using supporting tools.

1. Why is it important to use models in systems development?

# Part C - Assessment

1. What did you learn in completing this lab?
2. What did you have difficulty with?
3. What did you do well?
4. How many hours did you spend in completing this lab?
5. What took you the most time?

**Mark Breakdown:**

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| --- | --- |
| **Section** | **Marks** |
| **Part A** | **26** |
| **Part B** | **30** |
| **Assessment, Organization and English** | **5** |

To Submit

Upload the document in Word format to the Moodle page for this course.