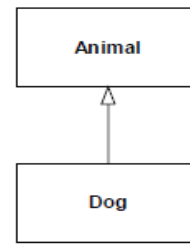# UML & TOOL INTRODUCTION

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CONTEXT

- UML Introduction

- UML Diagram Types

- UML Tool Introduction

- About Vision and Project Plan Templates

- Software System to be developed

WHAT IS UML?

Figure 1-1
A Dog is an Animal

public class Animal {}
Public class Dog extends Animal {}

- **The Unified Modeling Language (UML)** is a graphical notation for drawing diagrams of software concepts.

- A language for specifying, visualizing, constructing, and documenting the **artifacts** of software systems.

- **Conceptual** (a problem domain), **Specification** (a proposed software design), and **Implementation** (software implementation).

An **artifact** is one of many kinds of tangible by-products produced during the development of software.

➢ Some artifacts which are requirements, design documents, use cases, class diagrams, sequence diagrams and other UML models etc. are used to utilize describing the function, architecture and design of the software developed.

➢ Other artifacts are concerned with the process of development itself—such as project plans, business cases, and risk assessments.

UML – THE BASICS

- **Abstraction** (A simplification or model of a complex concept, process, or real-world object – help people understand something at an appropriate level)

- **Encapsulation** (Higlight the important aspects of an object – Hide the cumbersome internal details of the object – make the system easier to understand and reuse – make a system more extendible)

- **Entities** (object, class) and **relationships** between objects

UML DIAGRAM TYPES

- UML has three main kinds of diagrams

  - **Static diagrams** describe the unchanging logical structure of software elements by depicting classes, objects, and data structures; and the relationships that exist between them.

  - **Dynamic diagrams** show how software entities change during execution by depicting the flow of execution, or the way entities change state.

  - **Physical diagrams** show the unchanging physical structure of software entities by depicting physical entities such as source files, libraries, binary files, data files, etc., and the relationships that exist between them.

UML DIAGRAM TYPES

- The current UML standards call for 14 different types of diagrams

- These diagrams are organized into two distinct groups: **structural diagrams** and **behavioral (interaction) diagrams.**
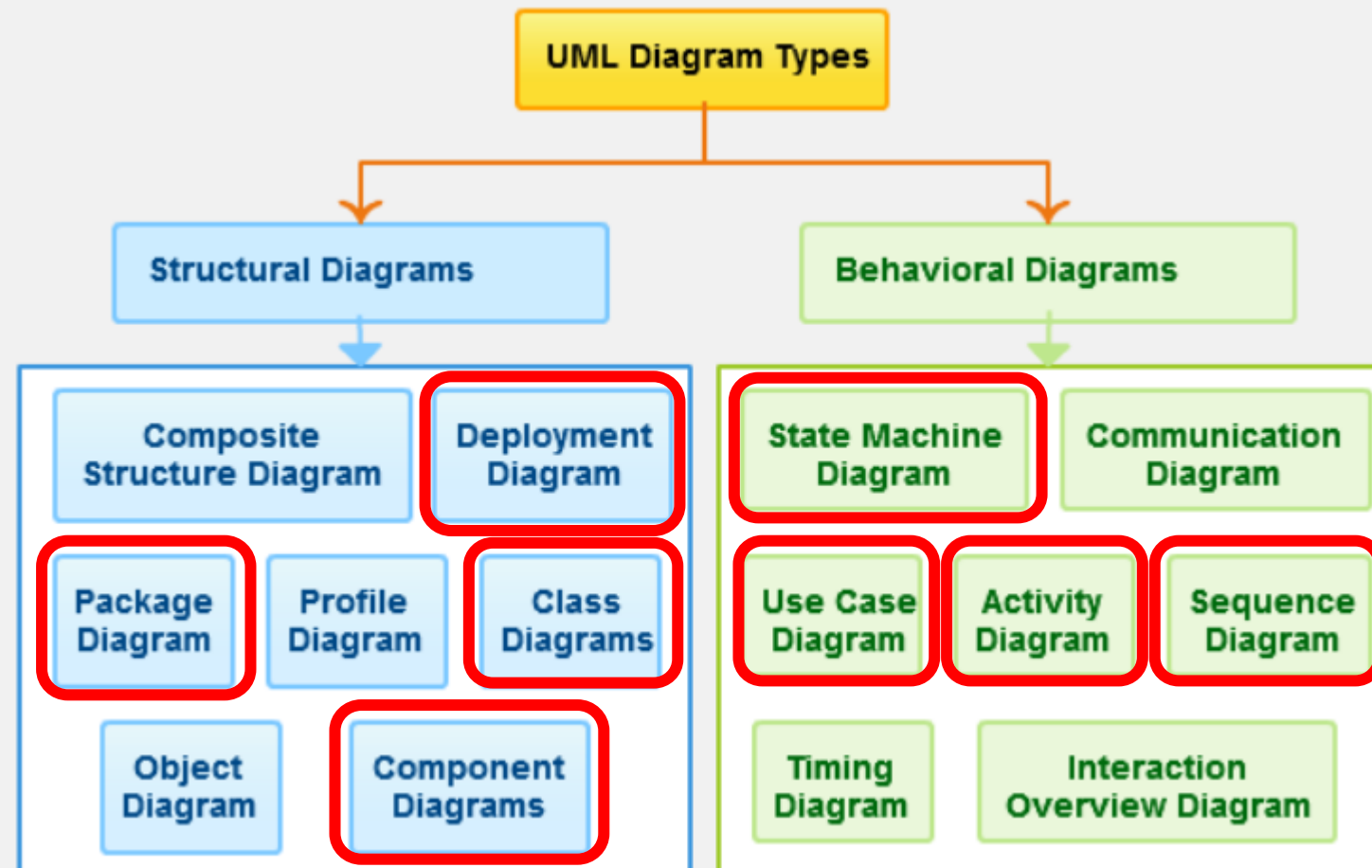

Figure 2. UML Diagram Types

UML TOOL

In the Project, Visual Paradigm must be used.

- **Visual Paradigm Community Edition**

  https://www.visual-paradigm.com/download/community.jsp

  - **Visual Paradigm** is a powerful, cross-platform and yet easy-to-use design and management tool for IT systems. **Visual Paradigm** provides software developers the cutting edge development platform to build quality applications faster, better and cheaper.

- SmartDraw https://www.smartdraw.com/

- MS Visio

SOFTWARE VISION AND PROJECT PLAN TEMPLATES

❖ **Software Vision**

- ✓ **Software Vision** is **the artifact** that defines the view of the stakeholders of the technical solution to be developed. This definition is specified in terms of the key needs and features of the stakeholders. The vision contains an outline of the envisioned core requirements for the system.

SOFTWARE VISION AND PROJECT PLAN TEMPLATES

❖ **Project Plan**

    ✓ **Project Plan** is the **artifact** that is a collaborative task outlining an initial agreement on how the project will achieve its goals. The resulting project plan provides a summary-level overview of the project.

PRODUCT OF THE LAB. PROJECT

System to be developed:

- System to be developed: Social Interest eClub

SEE YOU NEXT WEEK…