



# RAMA UNIVERSITY

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## FACULTY OF ENGINEERING & TECHNOLOGY

### BCS-503: Object Oriented Techniques

#### Lecture-08

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# OBJECTIVES

In this PPT, you will learn to:

- ❖ **Role of UML in SDLC**
- ❖ **Visio as a UML Tool**
- ❖ **Rational Unified Process (RUP)**
- ❖ **Benefits of RUP**



# ROLE OF UML IN SDLC

- The diagrams developed using UML serve as key documents in each phase of SDLC.
- UML to develop software systems based on any SDLC model.

**The following table lists the UML diagrams that the end users can use in the requirement analysis phase:**

<i>Diagram</i>	<i>Role in the Requirements Analysis Phase</i>
<i>Use case</i>	<i>Depicts the various users of the system and how they are going to use the system to meet the requirement objectives.</i>
<i>Class</i>	<i>Depicts the classes and their dependencies for the primary requirements of the system.</i>
<i>Sequence and Communication</i>	<i>Depicts the sequence of steps performed in a process.</i>
<i>Activity</i>	<i>Depicts the specific activities that are required to understand the functional requirements of the system.</i>
<i>Interaction Overview</i>	<i>Depicts how the various processes interact with each other.</i>

*UML Diagrams and their Role in the Requirement Analysis Phase*

## ROLE OF UML IN SDLC (Contd.)

The following table lists various UML diagrams that you can use in the design phase:

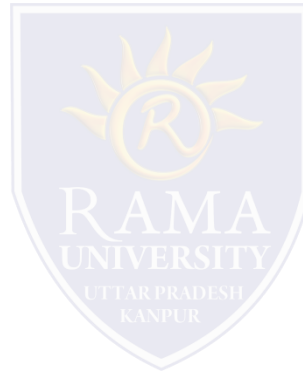
<i>Diagram</i>	<i>Role in the Design Phase</i>
<i>Class</i>	<i>Depicts the classes, their attributes and operations, and the relationship between classes.</i>
<i>Sequence and Communication</i>	<i>Depicts the sequence of interactions between the various objects of the system.</i>
<i>Package</i>	<i>Depicts the various classes that are grouped together depending on their functionality.</i>
<i>Deployment</i>	<i>Depicts the layout of the software components over the network.</i>
<i>State</i>	<i>Depicts the state of an object on the occurrence of an event.</i>
<i>Component</i>	<i>Depicts the components required for executing the system.</i>
<i>Composite Structure</i>	<i>Depicts the internal structure and interaction points of the various classes, objects, and interfaces.</i>
<i>Interaction Overview</i>	<i>Depicts the interactions between the various interaction diagrams.</i>

*UML Diagrams and their Role in the Design Phase*

- You use the use case diagram in the test phase.
- The use case diagram depicts the test cases on the basis of which the system is tested.

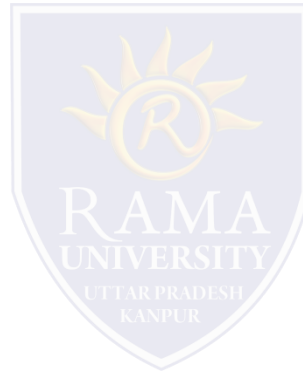
# Visio as a UML Tool

- Visio is a Microsoft tool that facilitates OOAD using UML.
- It helps to create all the diagrams defined by UML.
- It also helps in generating C#, C++ code for UML diagrams.



# RATIONAL UNIFIED PROCESS (RUP)

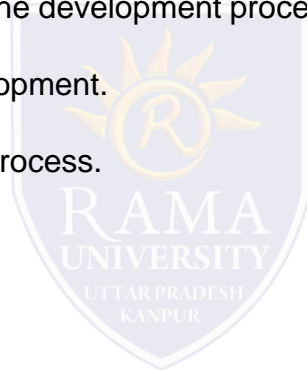
- RUP is a methodology developed by Rational Software Corporation, a division of IBM.
- It provides templates, examples, and tools that act as mentors for all activities performed in the different phases of software development process.
- RUP is completely compatible with UML and is integrated with the Rational suites of software development tools.



# BENEFITS OF RUP

## Benefits of RUP are:

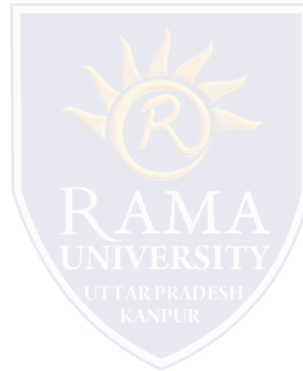
- Enhances team productivity by providing team members with easy access to a knowledge base.
- Provides a guideline on how to effectively use UML.
- Supports tools that automate large parts of the development process.
- Supports iterative process to software development.
- Supports architecture-centric development process.
- Allows customization of the process.
- Allows you to execute test cases



# LIFE CYCLE OF RUP

## Four phases of RUP life cycle are:

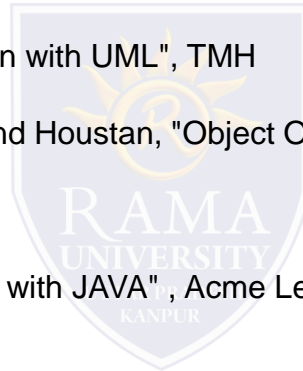
- 1) Inception
- 2) Elaboration
- 3) Construction
- 4) Transition





# REFERENCES

1. James Rumbaugh et al, "Object Oriented Modeling and Design", PHI
2. Grady Booch, James Rumbaugh, Ivar Jacobson, "The Unified Modeling Language User Guide", Pearson Education
3. Naughton, Schildt, "The Complete Reference JAVA2", TMH
4. Mark Priestley "Practical Object-Oriented Design with UML", TMH
5. Booch, Maksimchuk, Engle, Young, Conallen and Houston, "Object Oriented Analysis and Design with Applications",  
Pearson Education
6. Pandey, Tiwari, " Object Oriented Programming with JAVA" , Acme Learning
7. <https://www.javatpoint.com/java-tutorial>
8. <https://www.tutorialspoint.com/java/index.htm>
9. [https://www.tutorialspoint.com/object\\_oriented\\_analysis\\_design/index.htm](https://www.tutorialspoint.com/object_oriented_analysis_design/index.htm)
10. <https://www.slideshare.net/niitstudentcare/>



# MULTIPLE CHOICE QUESTION

## Multiple Choice Question:

Q1. RUP stands for \_\_\_\_\_ created by a division of \_\_\_\_\_

- a) Rational Unified Program, IBM
- b) Rational Unified Process, Infosys
- c) Rational Unified Process, Microsoft
- d) Rational Unified Process, IBM

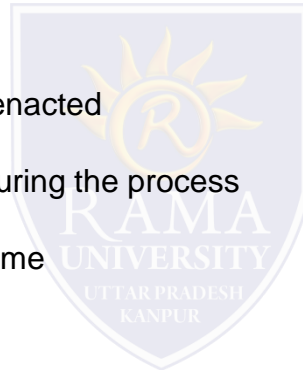


# MULTIPLE CHOICE QUESTION

## Multiple Choice Question:

**Q2. The RUP is normally described from three perspectives-dynamic, static & practice.What does static perspective do ?**

- a) It shows the process activities that are enacted
- b) It suggests good practices to be used during the process
- c) It shows the phases of the model over time
- d) All of the mentioned



# MULTIPLE CHOICE QUESTION

## Multiple Choice Question:

**Q3. Which phase of the RUP is used to establish a business case for the system ?**

- a) Transition
- b) Elaboration
- c) Construction
- d) Inception



# MULTIPLE CHOICE QUESTION

## Multiple Choice Question:

**Q4. What company has made and continues to make a significant investment in the RUP?**

- a) Microsoft Corporation
- b) Sun Microsystems
- c) Project Management Institute
- d) IBM



# MULTIPLE CHOICE QUESTION

## Multiple Choice Question:

**Q5. Use case descriptions consist of interaction\_\_\_\_\_?**

- a) Use case
- b) product
- c) Actor
- d) Product & Actor



## In this PPT, you learned that:

- UML diagrams are used in the analysis and design phases of SDLC.
- Visio is a tool that can be used to draw UML diagrams.
- Rational Unified Process (RUP) is a software development methodology developed by Rationale Software Corporation, which is now a division of IBM. It is a process framework that helps you to create and deploy software designed using UML.

