



RAMA UNIVERSITY

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FACULTY OF ENGINEERING & TECHNOLOGY

BCS-503: Object Oriented Techniques

Lecture-19

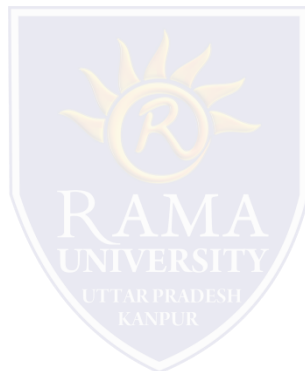
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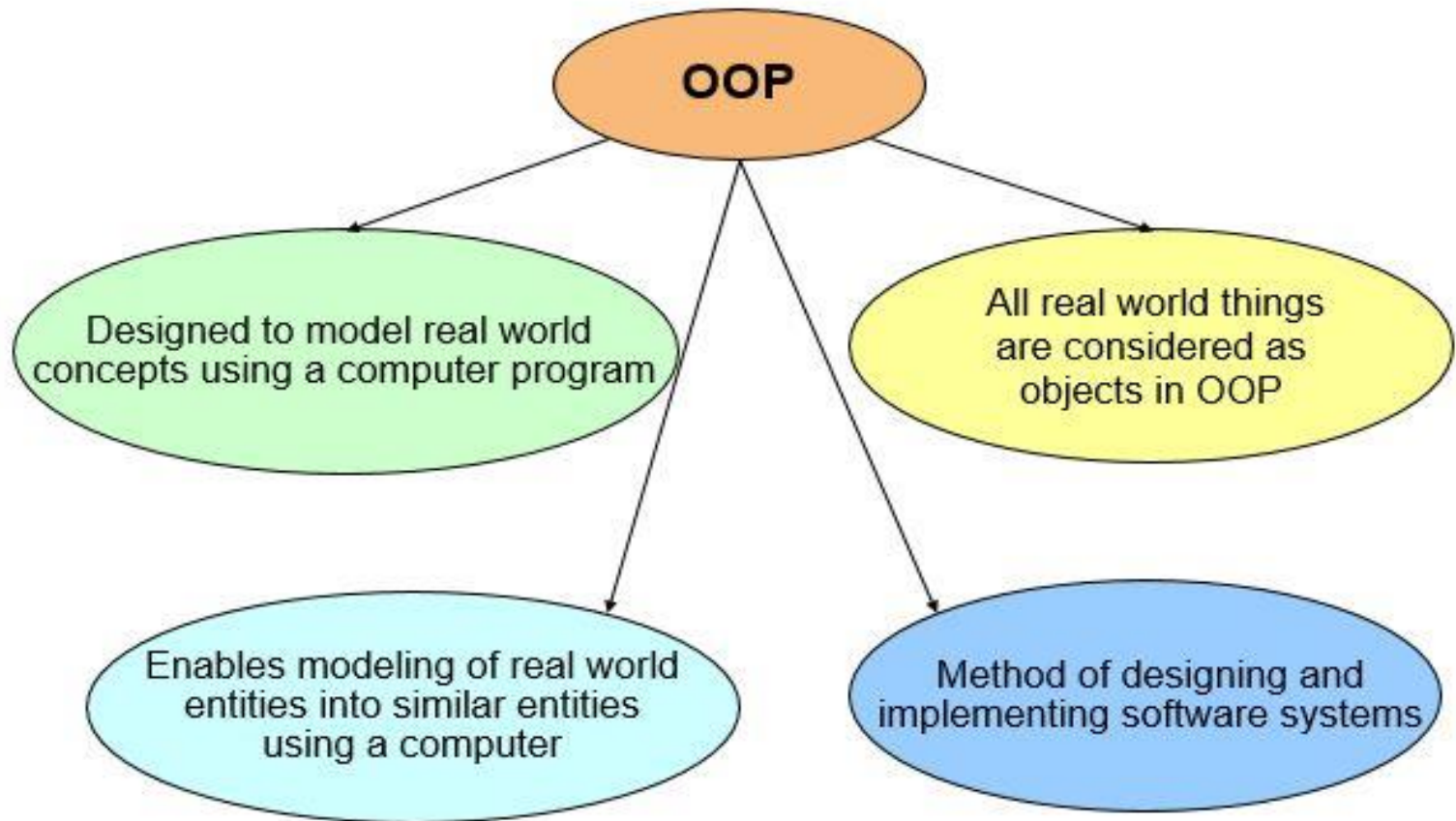
OBJECTIVES

In this PPT, you will learn to:

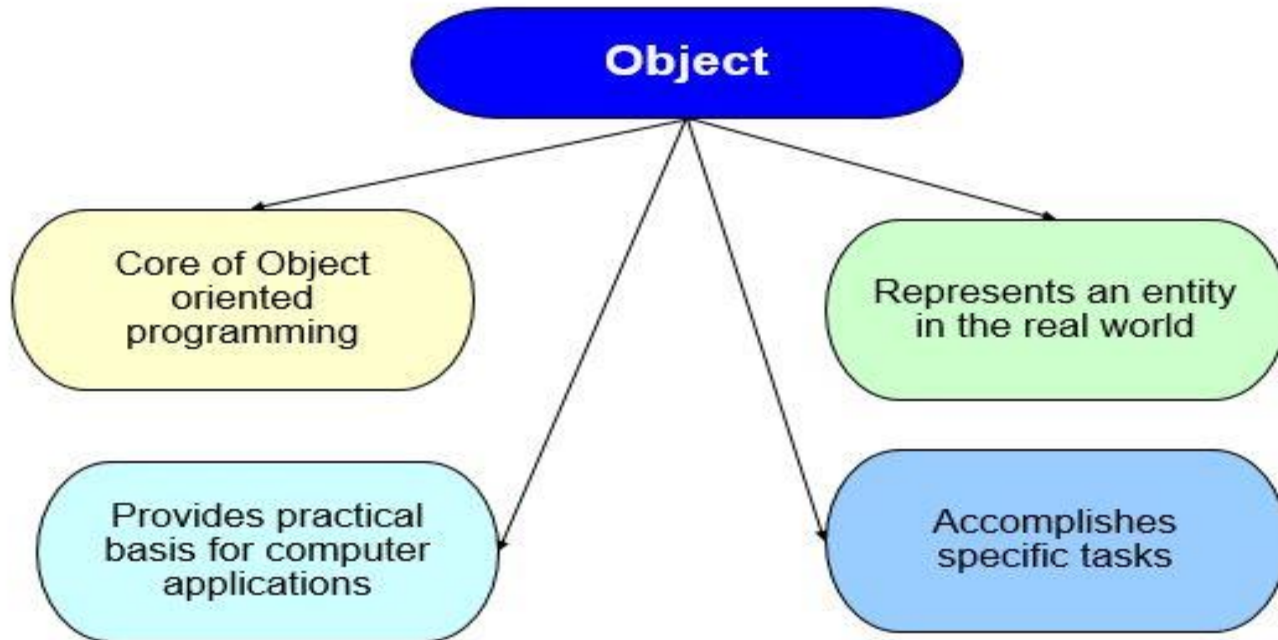
- ❖ **Object Oriented Programming**
- ❖ **Explain Object**
- ❖ **Explain Message Passing**
- ❖ **Explain Class**
- ❖ **Explain abstraction and encapsulation**



OBJECT ORIENTED PROGRAMMING

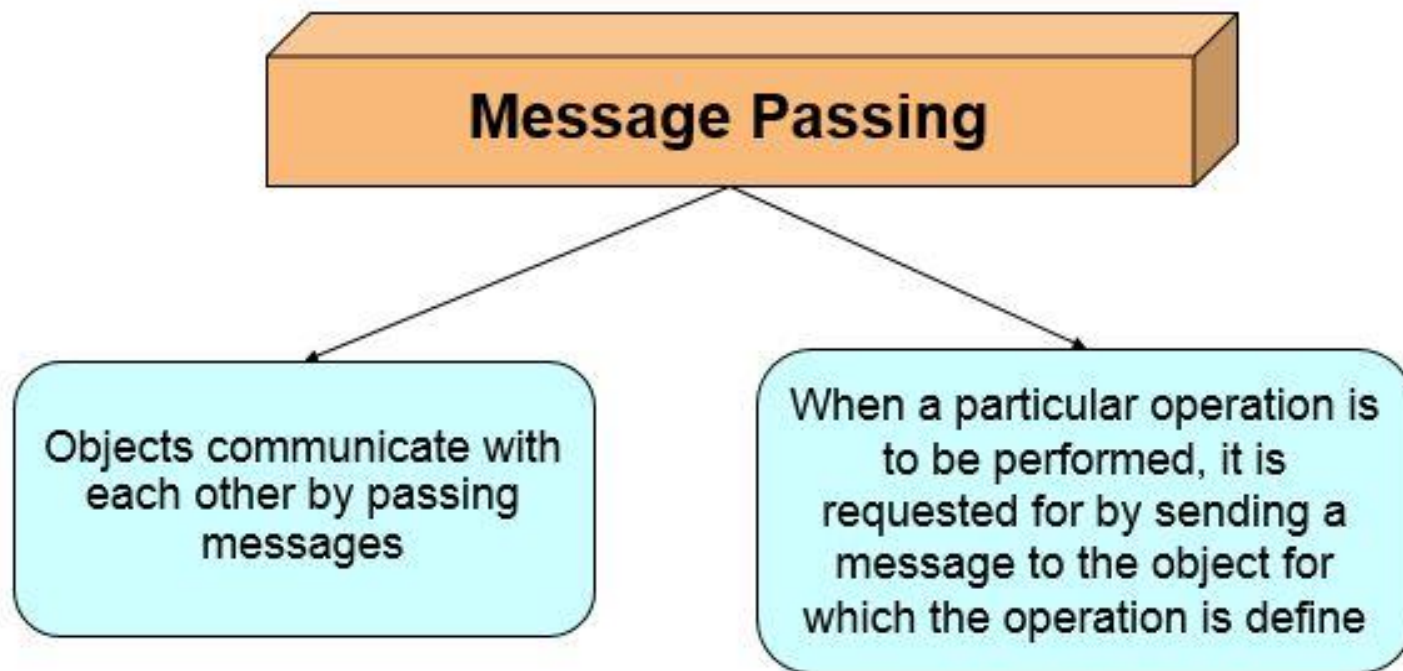


OBJECT



“An object is a concrete entity that exists and which has a well defined state and behavior.”

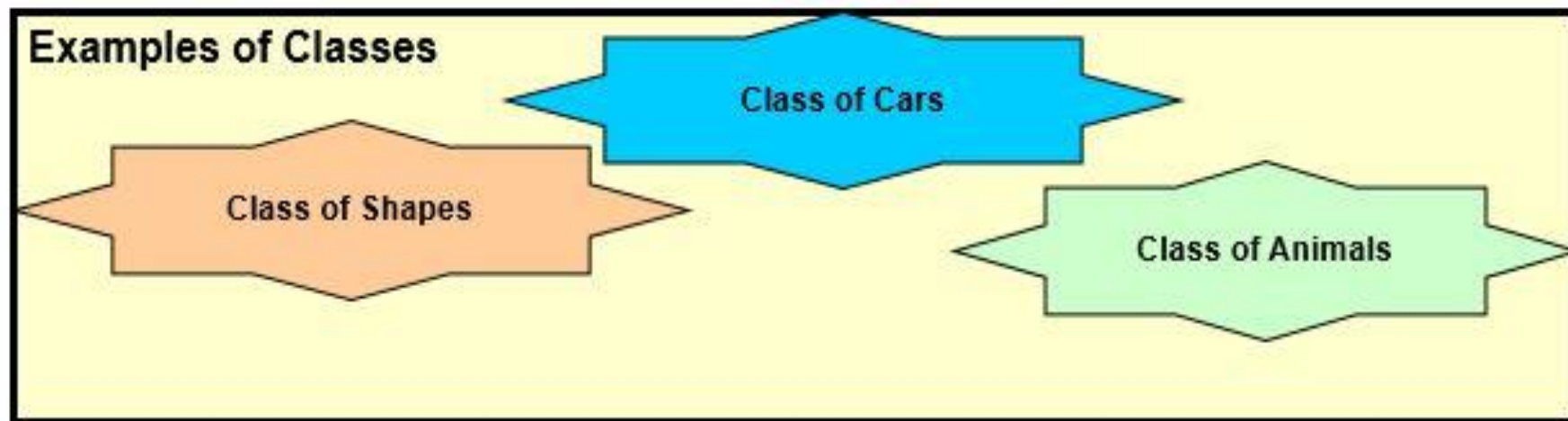
MESSAGE PASSING



“A message is a request sent by one object to another object to carry out certain actions.”

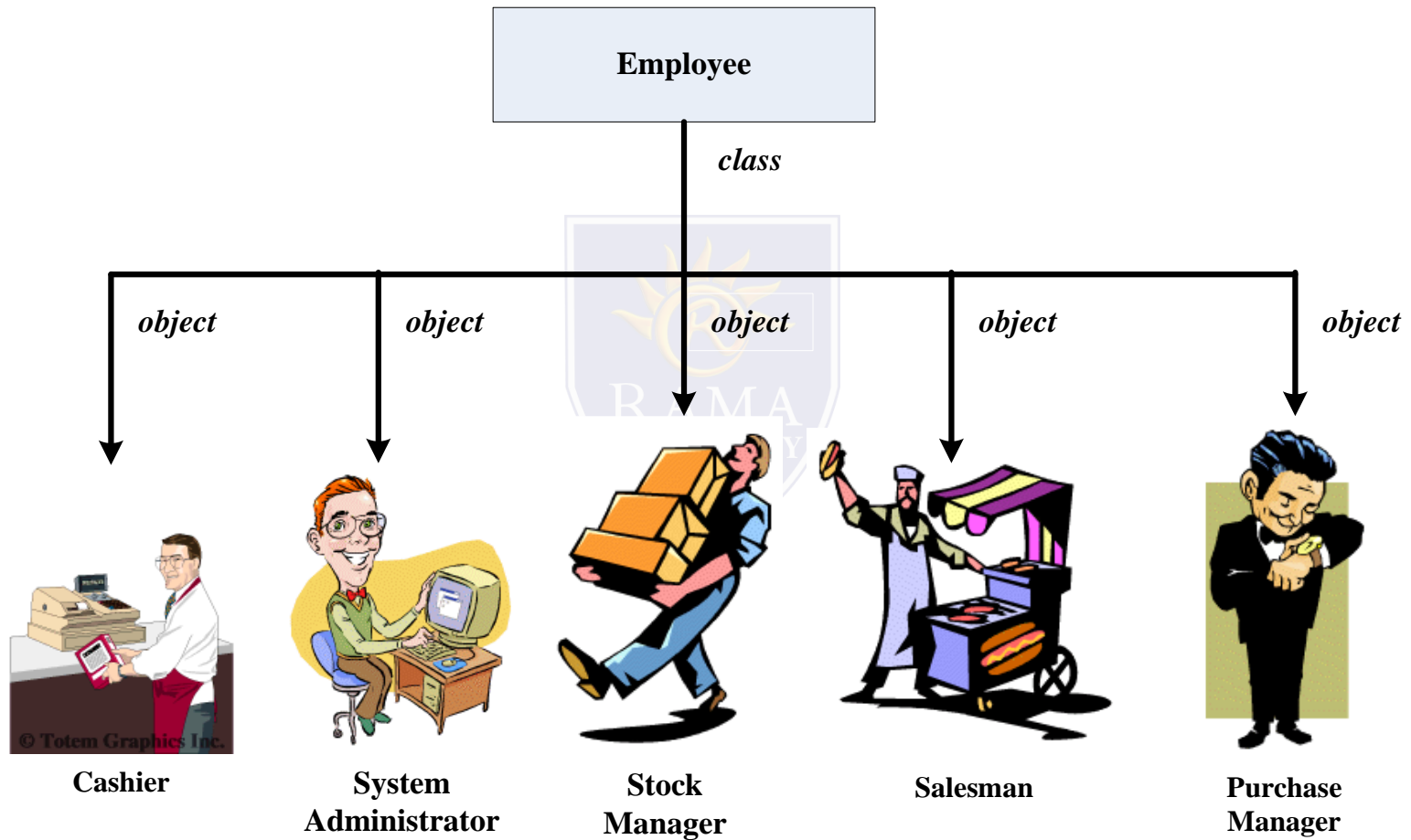
CLASS

- A Class defines an entity in terms of common characteristics and actions.
- Class is a mechanism used to group properties of actions common to various objects.



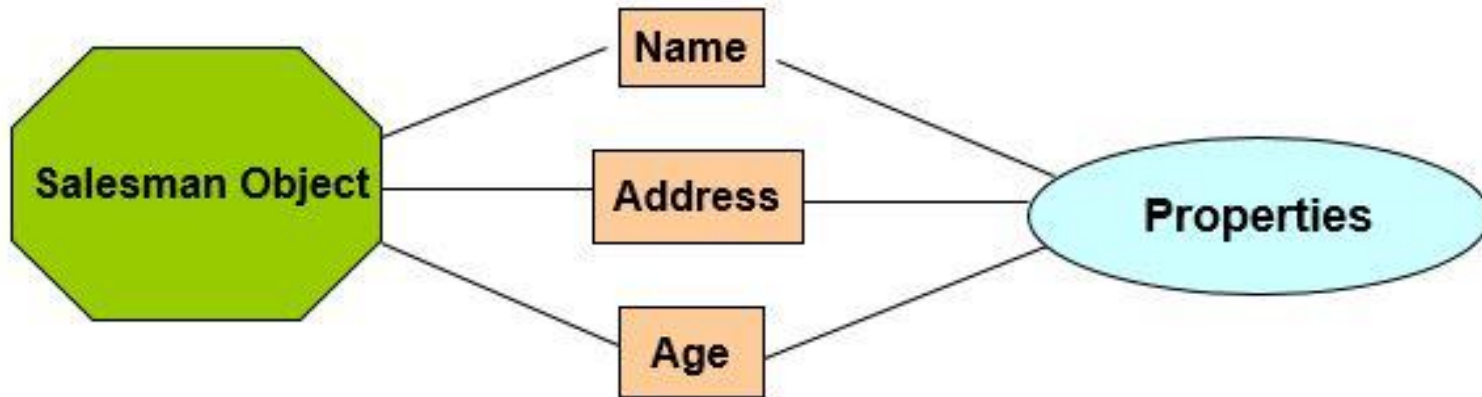
“A class is a blueprint for a group of objects that have common properties and behavior.”

EXAMPLE OF CLASS AND OBJECT



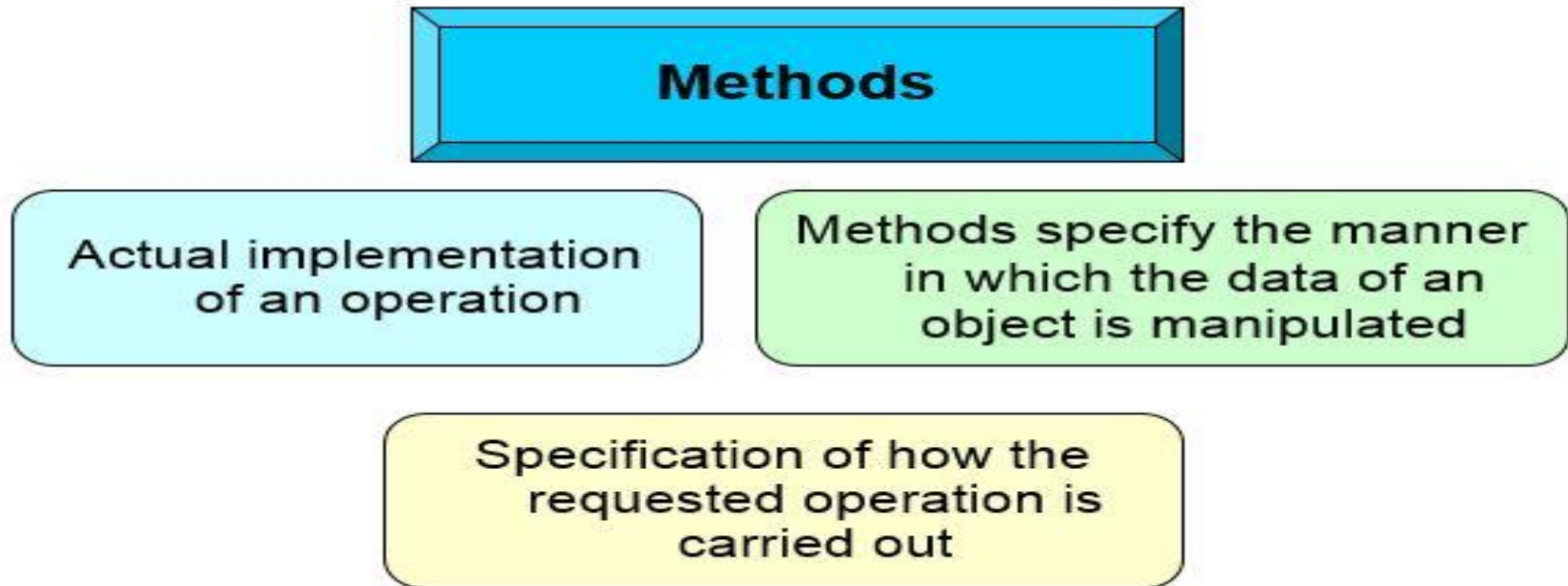
PROPERTIES OR ATTRIBUTES

- Characteristics of objects represented as variables in a class.
- Each object has its own value for each of its properties.
- The property names are shared by all instances of a class.



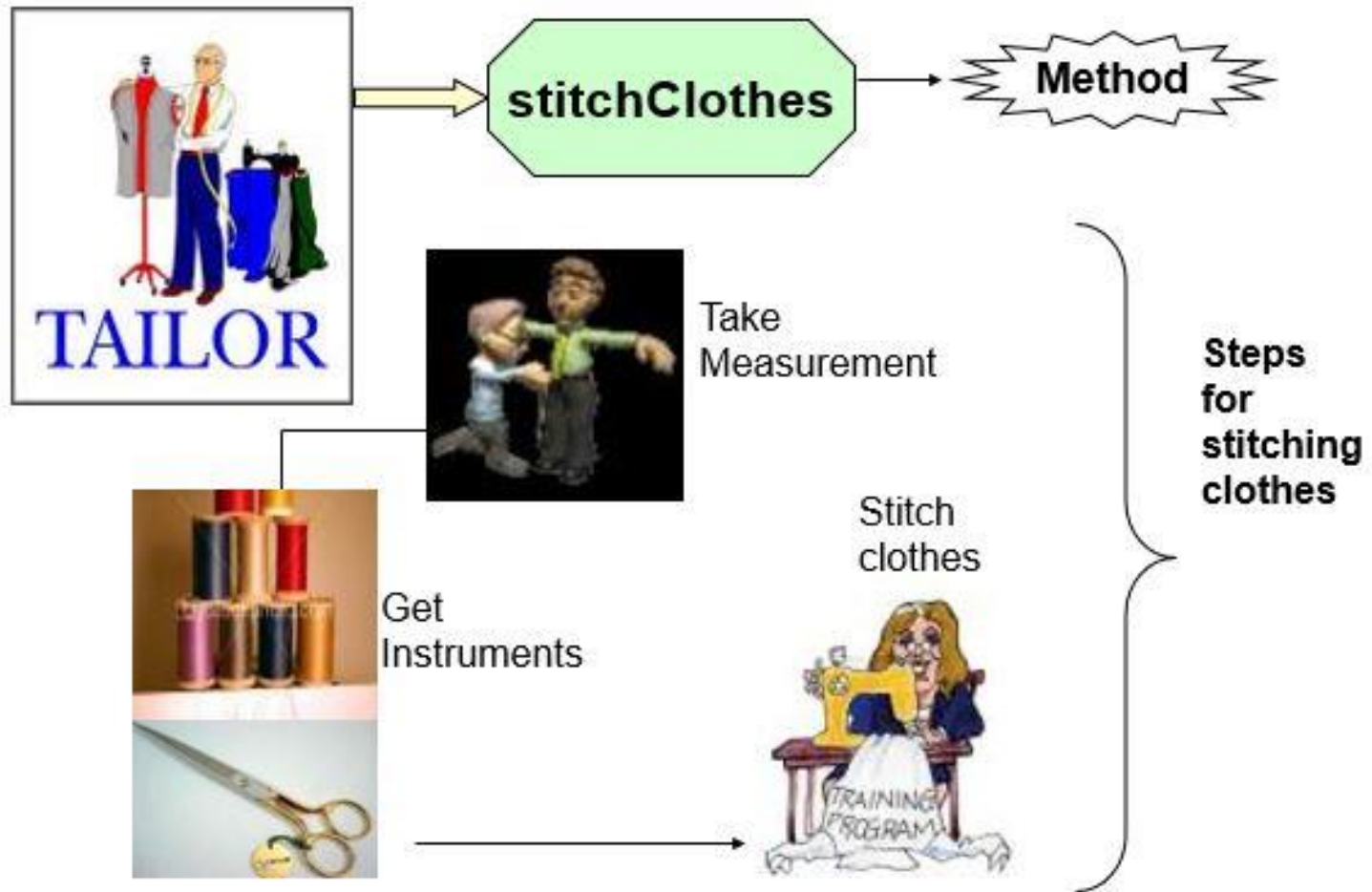
“A characteristic possessed by an object or entity when represented in a class is called a *property*.”

METHODS



“An action performed by an object is known as a method.”

EXAMPLE OF METHOD



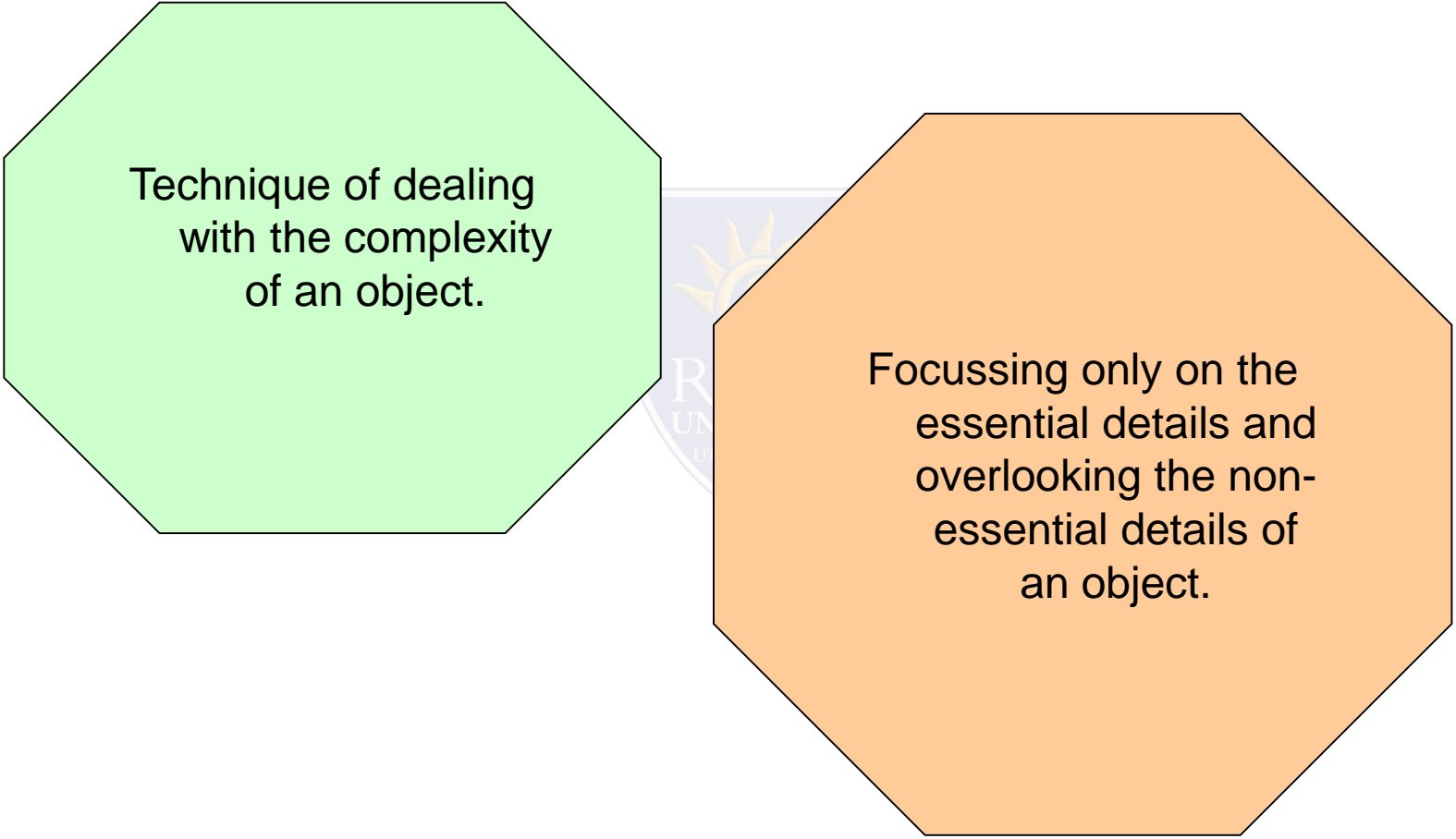
ENCAPSULATION

- Information Hiding
- Hiding implementation details of an object from its user
- Packing things together and presenting them in their new integrated form.
- For example, two or more chemicals form a capsule
- Packing the methods and attributes together in a single unit.
- Units are implemented in the form of classes



“The process of hiding attributes, methods or details of implementation is called Encapsulation.”

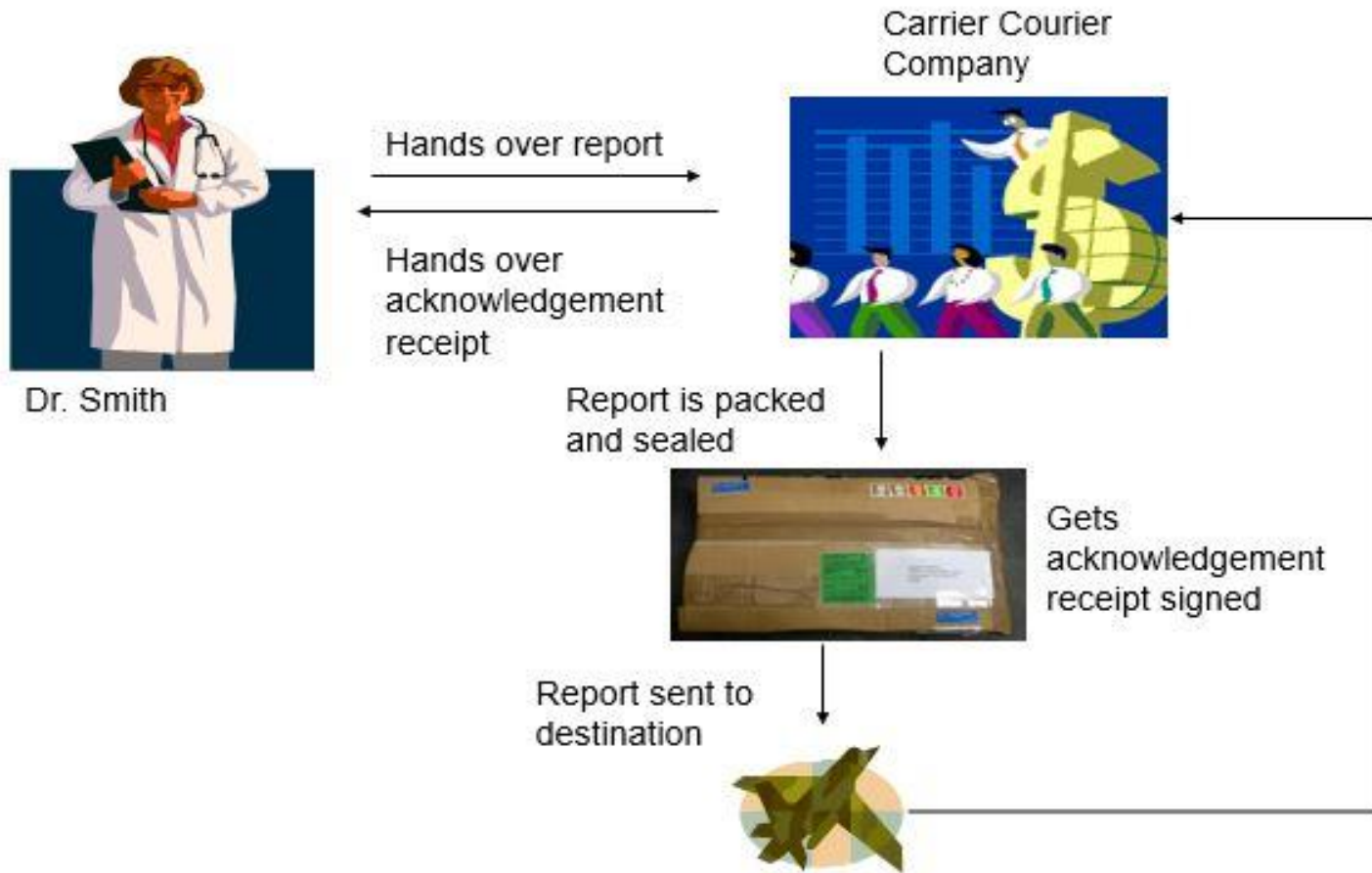
ABSTRACTION



Technique of dealing
with the complexity
of an object.

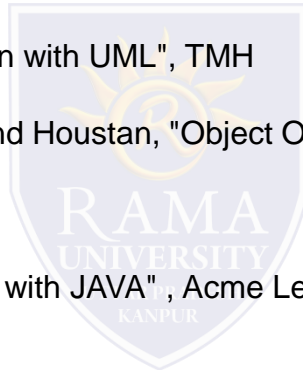
Focussing only on the
essential details and
overlooking the non-
essential details of
an object.

EXAMPLE OF ABSTRACTION



REFERENCES

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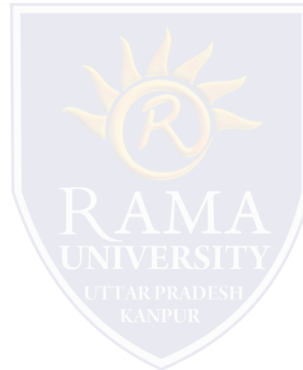


MULTIPLE CHOICE QUESTION

Multiple Choice Question:

Q1. Which of the following is not OOPS concept in Java?

- a) Inheritance
- b) Encapsulation
- c) Polymorphism
- d) Compilation



MULTIPLE CHOICE QUESTION

Multiple Choice Question:

Q2. Which concept of Java is a way of converting real world objects in terms of class?

- a) Polymorphism
- b) Encapsulation
- c) Abstraction
- d) Inheritance

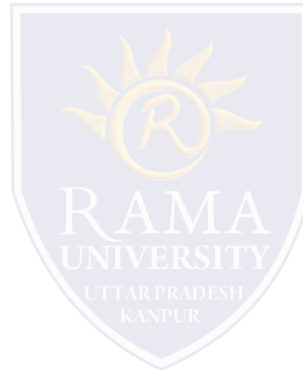


MULTIPLE CHOICE QUESTION

Multiple Choice Question:

Q3. Which concept of Java is achieved by combining methods and attribute into a class?

- a) Encapsulation
- b) Inheritance
- c) Polymorphism
- d) Abstraction



MULTIPLE CHOICE QUESTION

Multiple Choice Question:

Q4. What is it called if an object has its own lifecycle and there is no owner?

- a) Aggregation
- b) Composition
- c) Encapsulation
- d) Association



MULTIPLE CHOICE QUESTION

Multiple Choice Question:

Q5. What is it called where child object gets killed if parent object is killed?

- a) Aggregation
- b) Composition
- c) Encapsulation
- d) Association



Summary

In this PPT, you learned that:

- An object consists of state and a behavior.
- A class acts as a blueprint for a group of objects that have the same properties and behavior.
- Abstraction is ignoring the data that is not required and concentrating only on data relevant to the application.
- Encapsulation is the process of hiding the implementation details of an object from its user.

