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FACULTY OF ENGINEERING & TECHNOLOGY

BCS-503: Object Oriented Techniques

Lecture-23

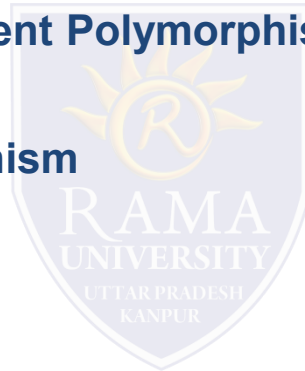
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OBJECTIVES

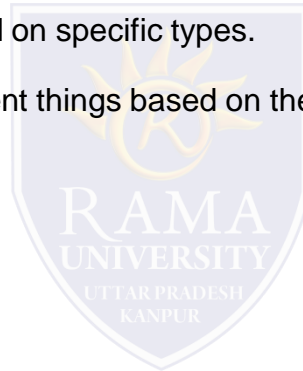
In this PPT, you will learn to:

- ❖ Explain Polymorphism
- ❖ Design an example to implement Polymorphism
- ❖ List the features of Polymorphism
- ❖ Identify the access specifiers

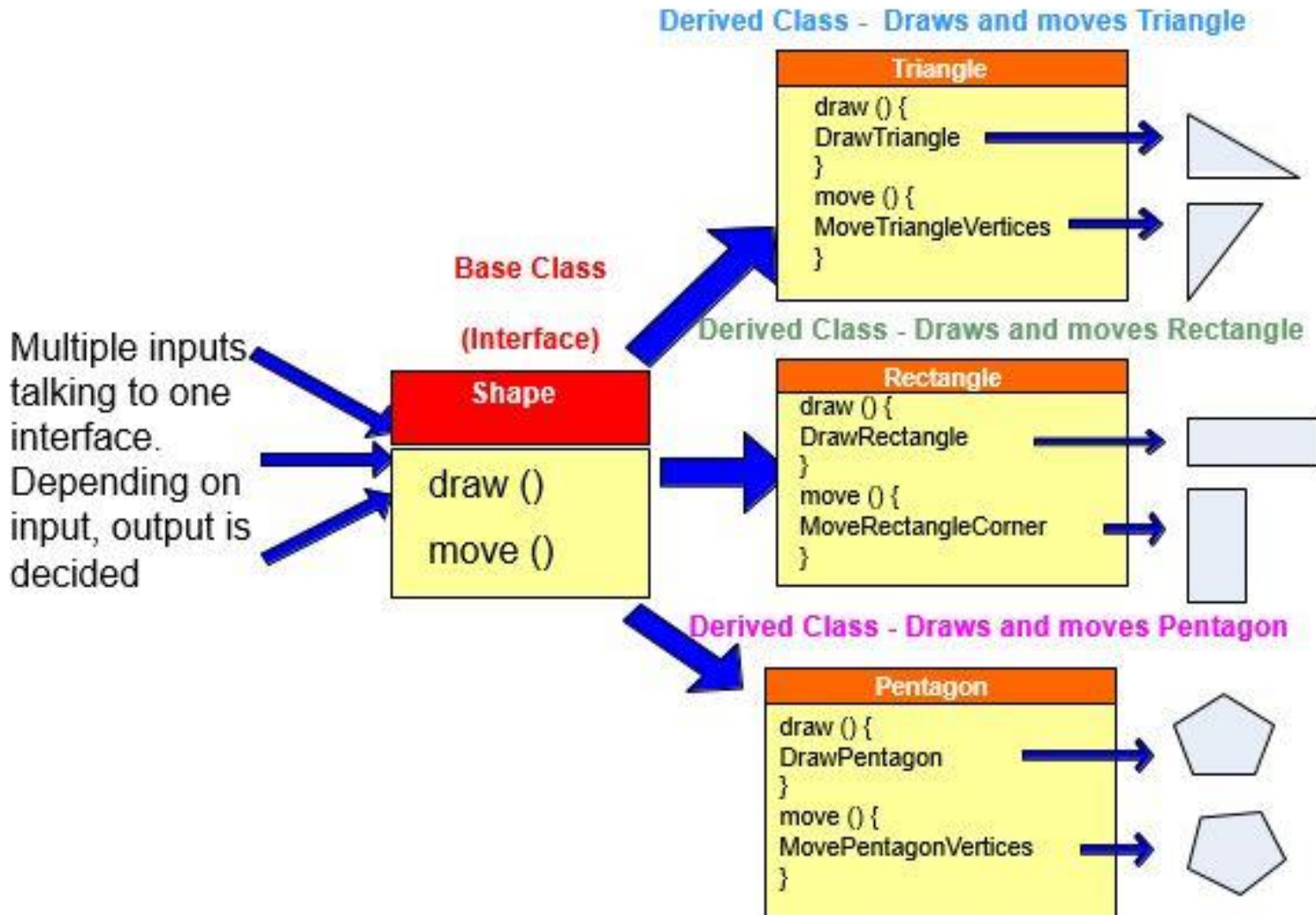


POLYMORPHISM

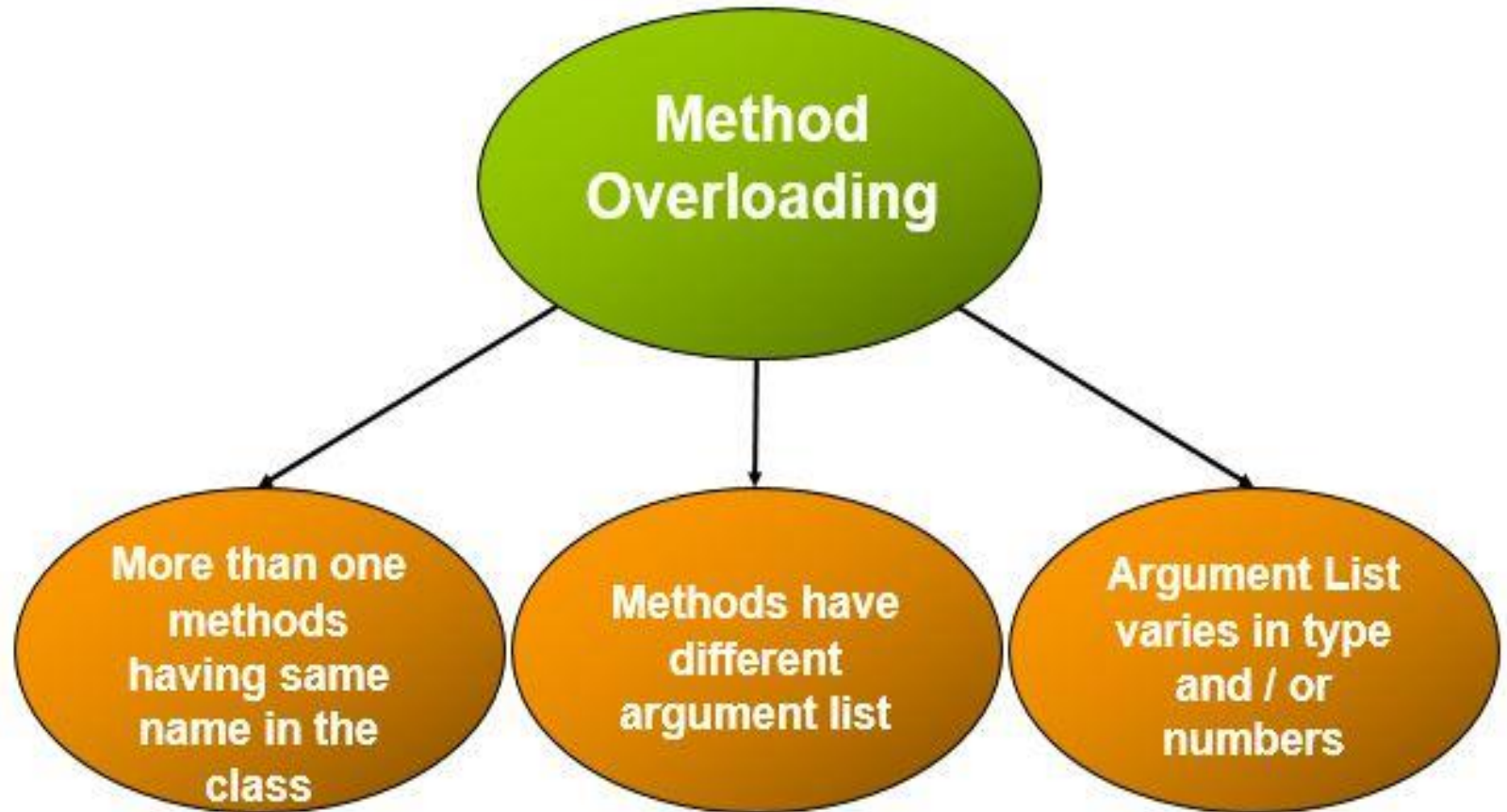
- Polymorphism means “**many forms**”.
- It is described as “**one interface, many implementations**”.
- It helps to write code that does not depend on specific types.
- It is the capability of a method to do different things based on the object that is acting upon it.



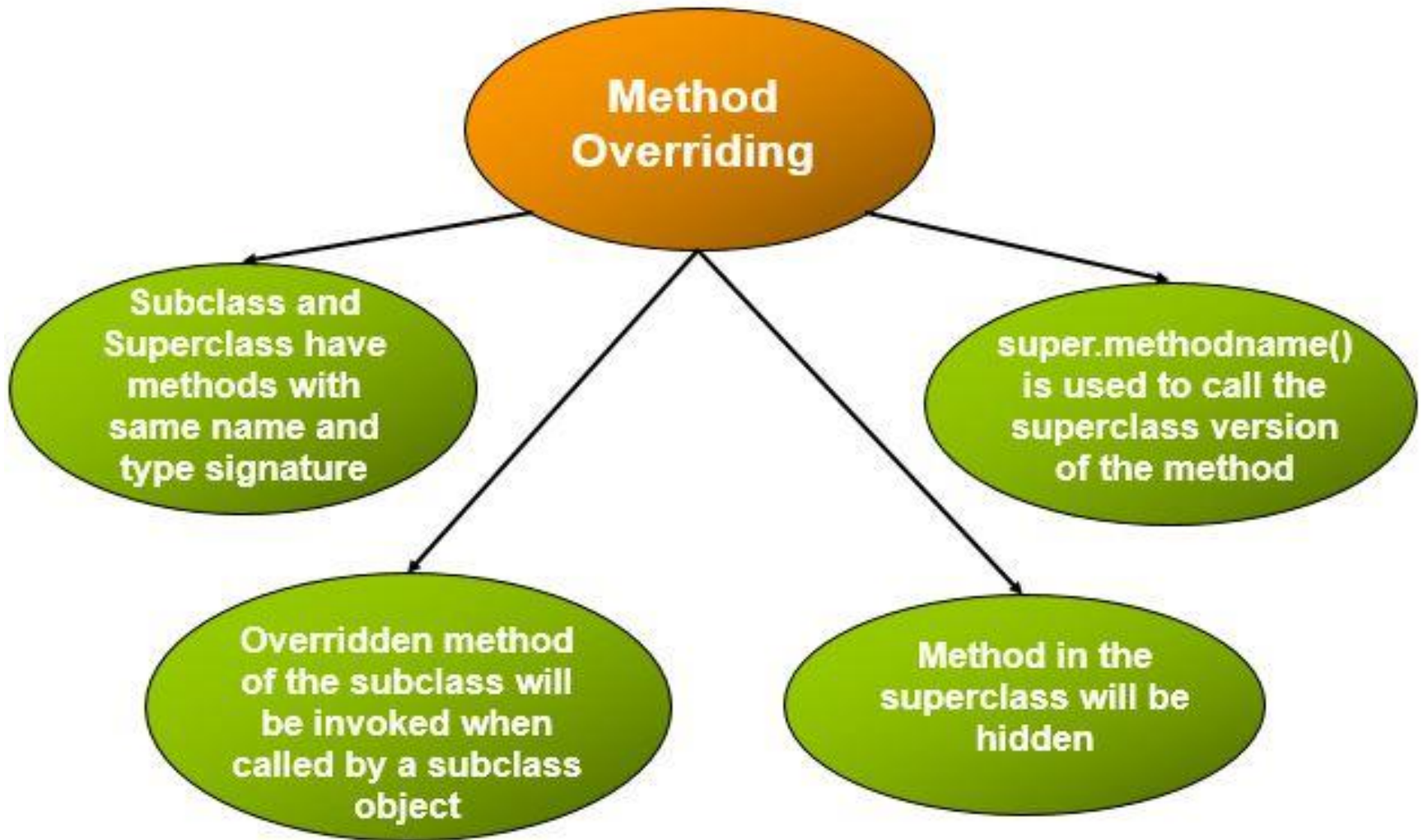
POLYMORPHISM (Contd.)



METHOD OVERLOADING

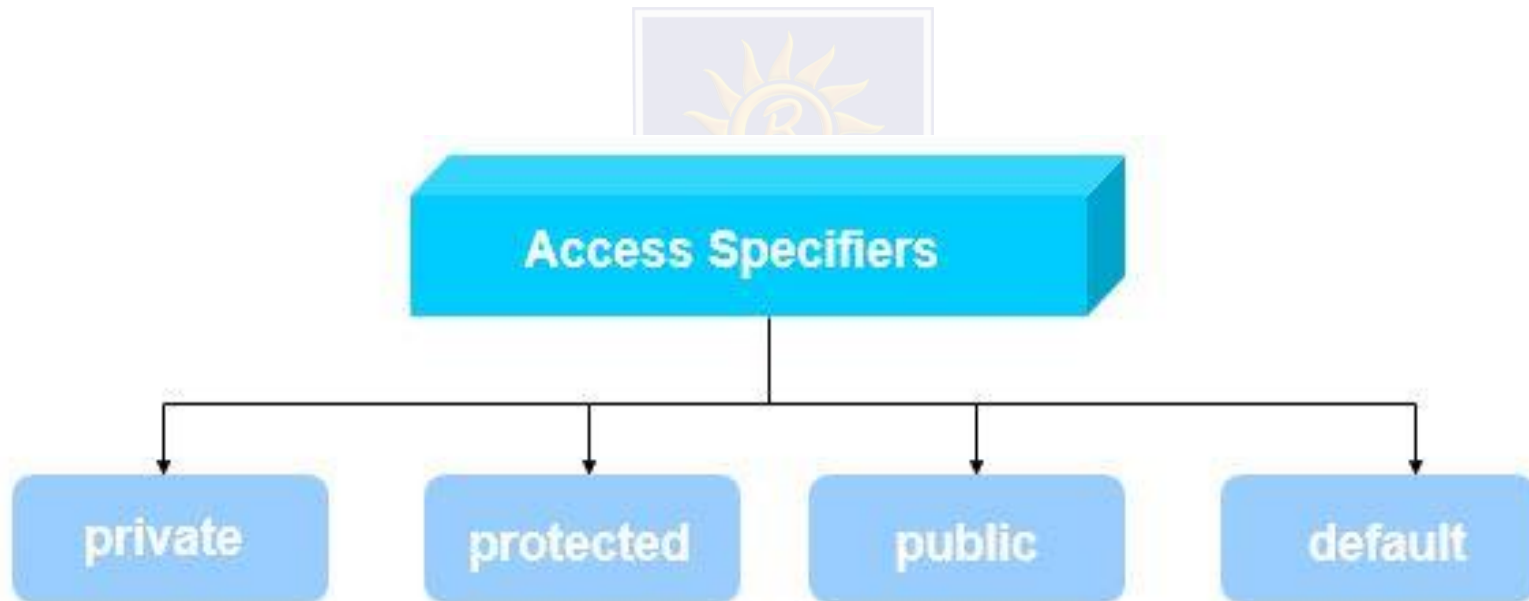


METHOD OVERRIDING



ACCESS SPECIFIER

- Information hiding is one of the most important features of OOPs.
- Reasons for information hiding are:
 - Changes made to any implementation details will not affect code that uses this class.
 - Prevents accidental erasure of data by users.
 - The class is easy to use.



ACCESS SPECIFIER (Contd.)

public

Accessible to
members and non
members of the
class

private

Accessible only to
members of the
class

protected

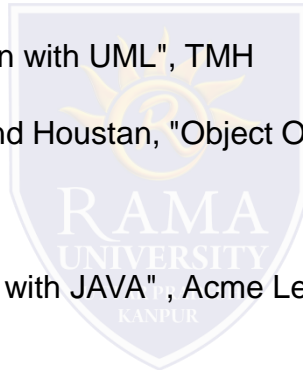
Accessible to
members of the
class and
members of its
subclass

default

Accessible to
members of the
class in the same
package

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
10. <https://www.slideshare.net/niitstudentcare/>

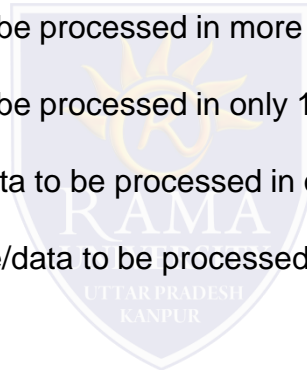


MULTIPLE CHOICE QUESTION

Multiple Choice Question:

Q1. Which among the following best describes polymorphism?

- a) It is the ability for a message/data to be processed in more than one form
- b) It is the ability for a message/data to be processed in only 1 form
- c) It is the ability for many messages/data to be processed in one way
- d) It is the ability for undefined message/data to be processed in at least one way

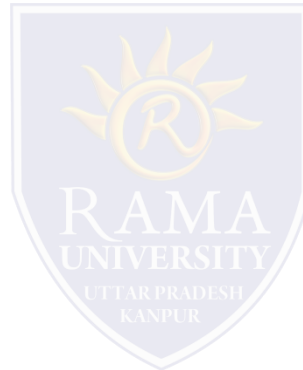


MULTIPLE CHOICE QUESTION

Multiple Choice Question:

Q2. If same message is passed to objects of several different classes and all of those can respond in a different way, what is this feature called?

- a) Inheritance
- b) Overloading
- c) Polymorphism
- d) Overriding

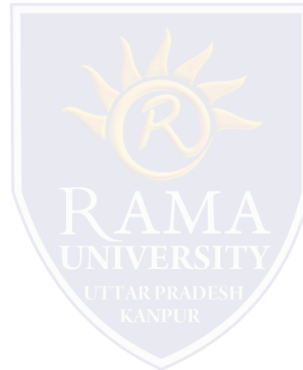


MULTIPLE CHOICE QUESTION

Multiple Choice Question:

Q3. Which among the following can't be used for polymorphism?

- a) Static member functions
- b) Member functions overloading
- c) Predefined operator overloading
- d) Constructor overloading

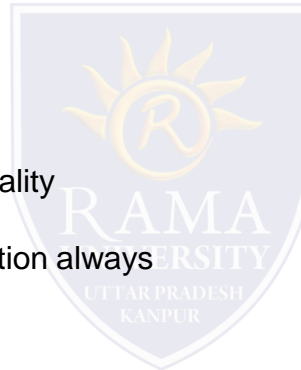


MULTIPLE CHOICE QUESTION

Multiple Choice Question:

Q4. Which among the following is not true for polymorphism?

- a) It is feature of OOP
- b) Ease in readability of program
- c) Helps in redefining the same functionality
- d) Increases overhead of function definition always



MULTIPLE CHOICE QUESTION

Multiple Choice Question:

Q5. Which among the following is the language which supports classes but not polymorphism?

- a) SmallTalk
- b) Java
- c) C++
- d) Ada



Summary

In this PPT, you learned that:

- Polymorphism is the ability of different objects to respond to the same message in different ways.
- Overloaded methods are examples of static polymorphism and overridden methods are examples of dynamic polymorphism.
- Access specifiers are used to determine how the class members are accessed.

