INHERITANCE

"CLASSES ARE STRUCTS THAT CONTAIN FUNCTIONS"

OFTEN, SOME VARIABLES AND FUNCTIONS JUST MAKE SENSE GROUPED TOGETHER

RECAP

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C++ GOES FAR BEYOND C IN MAKING USER-DEFINED CLASSES FIRST CLASS TYPES, ON PAR WITH THE SYSTEM TYPES SUCH AS INT, FLOAT ETC

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A CLASS IS BASICALLY A STRUCT ON STEROIDS

AN OBJECT IS A VARIABLE OF THAT CLASS

"OBJECT" AND "CLASS" ARE POSSIBLY THE 2 MOST IMPORTANT WORDS IN PROGRAMMING

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THE CONSTRUCTOR

A MEMBER FUNCTION TO TAKE CARE OF TAKING THESE IN, AND ASSIGNING TO THE CORRESPONDING MEMBER VARIABLES

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SUCH A VARIABLE MIGHT REQUIRE SOME INITIALISATION, AND ONCE ITS DONE, SOME CLEAN-UP

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A CLASS CAN 'INHERIT' FROM ANOTHER CLASS - START WITH ALL OF ITS MEMBERS AND METHODS, AND THEN BUILD ON IT

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WE WILL GET BACK TO INHERITANCE ONCE WE REALLY UNDERSTAND OBJECTS AND CLASSES THOROUGHLY

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ITS TIME! LET’S PLUNGE INTO INHERITANCE!

BASICS OF INHERITANCE: LET'S GET ONE CLASS TO INHERIT FROM ANOTHER

BASICS OF INHERITANCE: LET'S GET ONE CLASS TO INHERIT FROM ANOTHER

WE HAVE A CLASS REPRESENTING A SHAPE

WE NOW NEED TO CREATE A CLASS REPRESENTING A CIRCLE

CLEARLY A CIRCLE IS-A SHAPE

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WE HAVE A CLASS REPRESENTING A SHAPE

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INHERITANCE IS PERFECT FOR MODELLING IS-A RELATIONSHIPS

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THE CIRCLE CLASS SHOULD "INHERIT FROM" THE SHAPE CLASS

IS-A RELATIONSHIP

REAL-WORLD RELATIONSHIP

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THERE IS A LOT GOING ON - LET’S TAKE IT ONE AT A TIME

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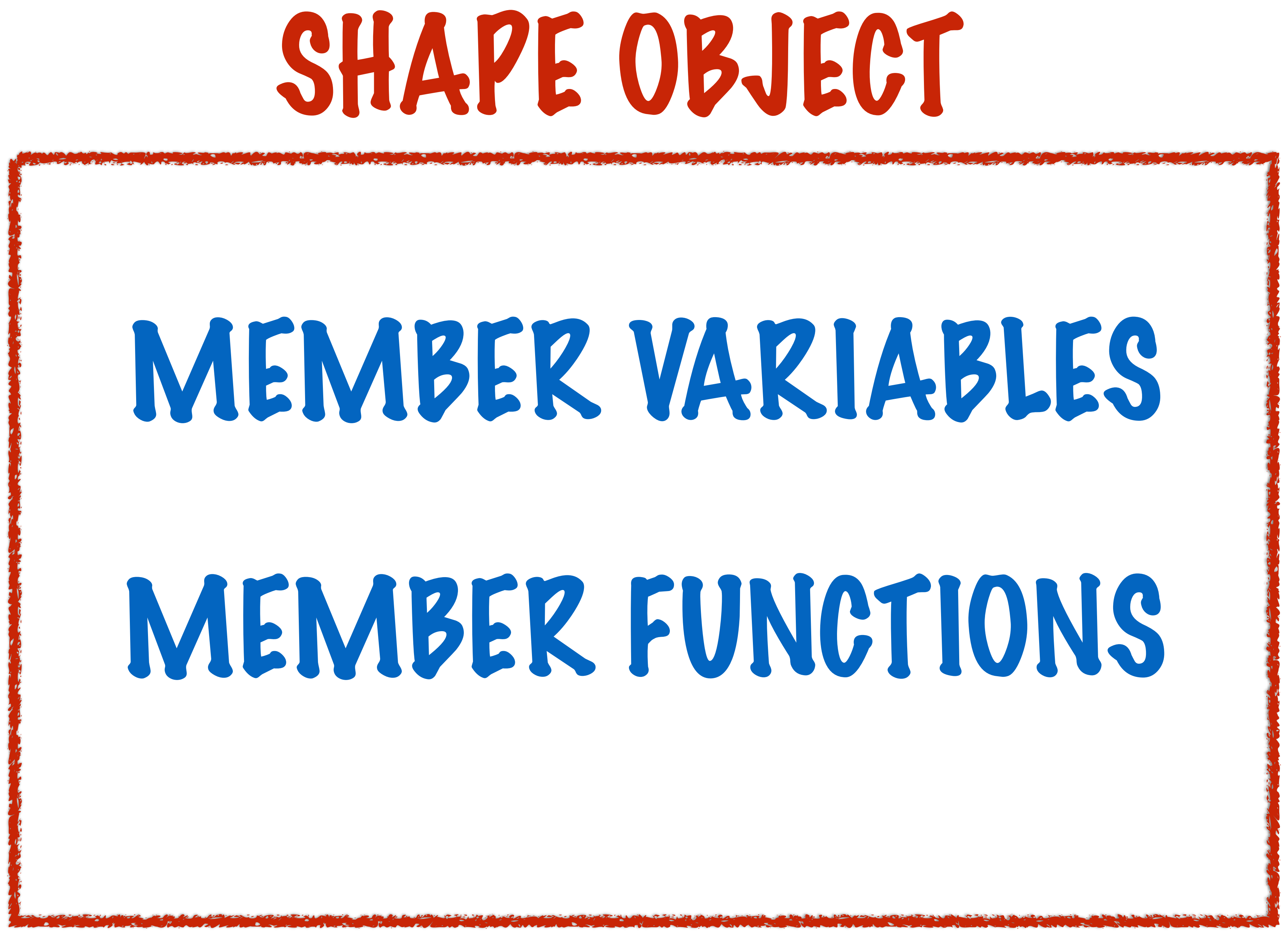

SHAPE OBJECT

MEMBER VARIABLES

MEMBER FUNCTIONS

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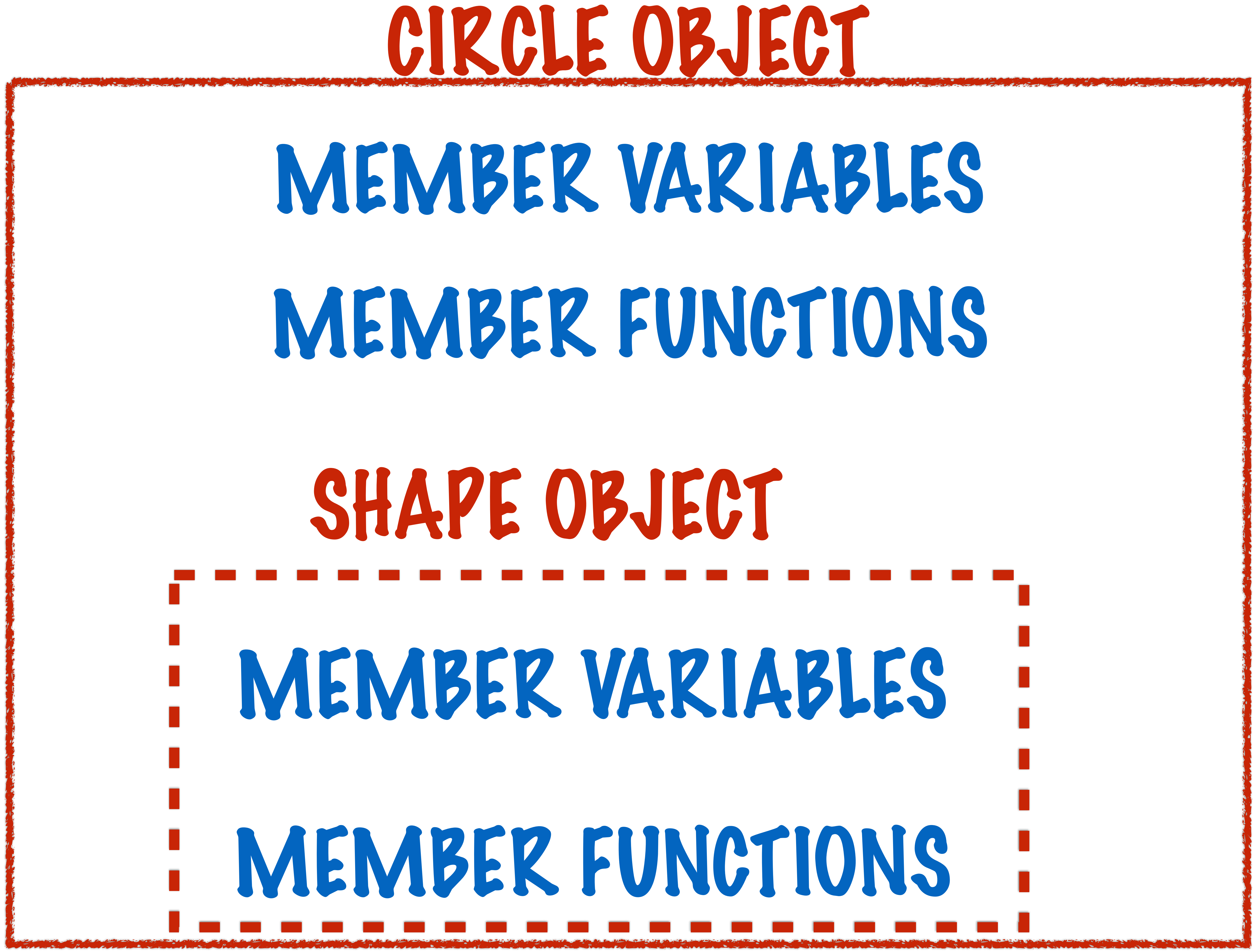

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THE CONSTRUCTOR OF THE SHAPE IS IMPLICITLY CALLED FROM THE CONSTRUCTOR OF THE CIRCLE

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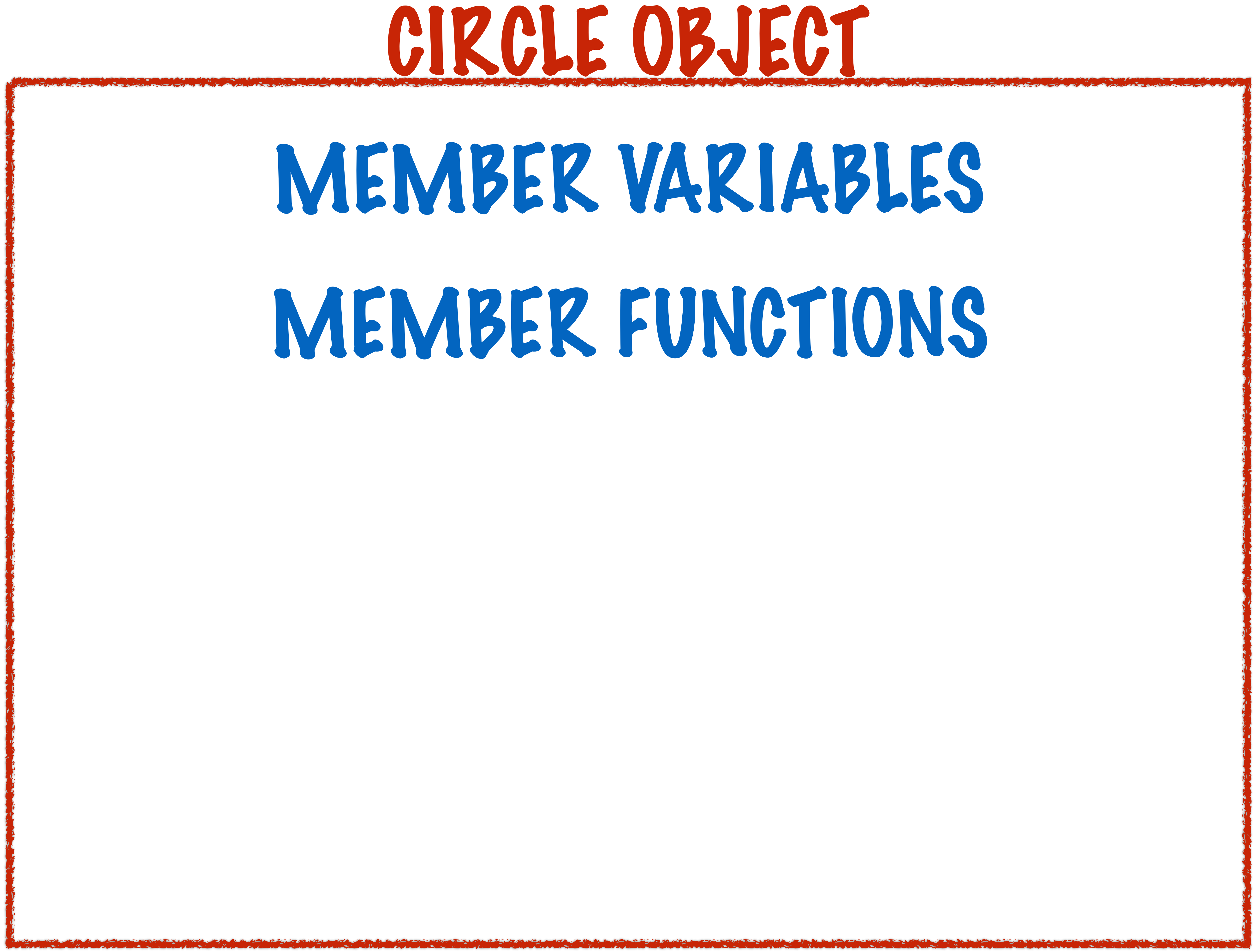

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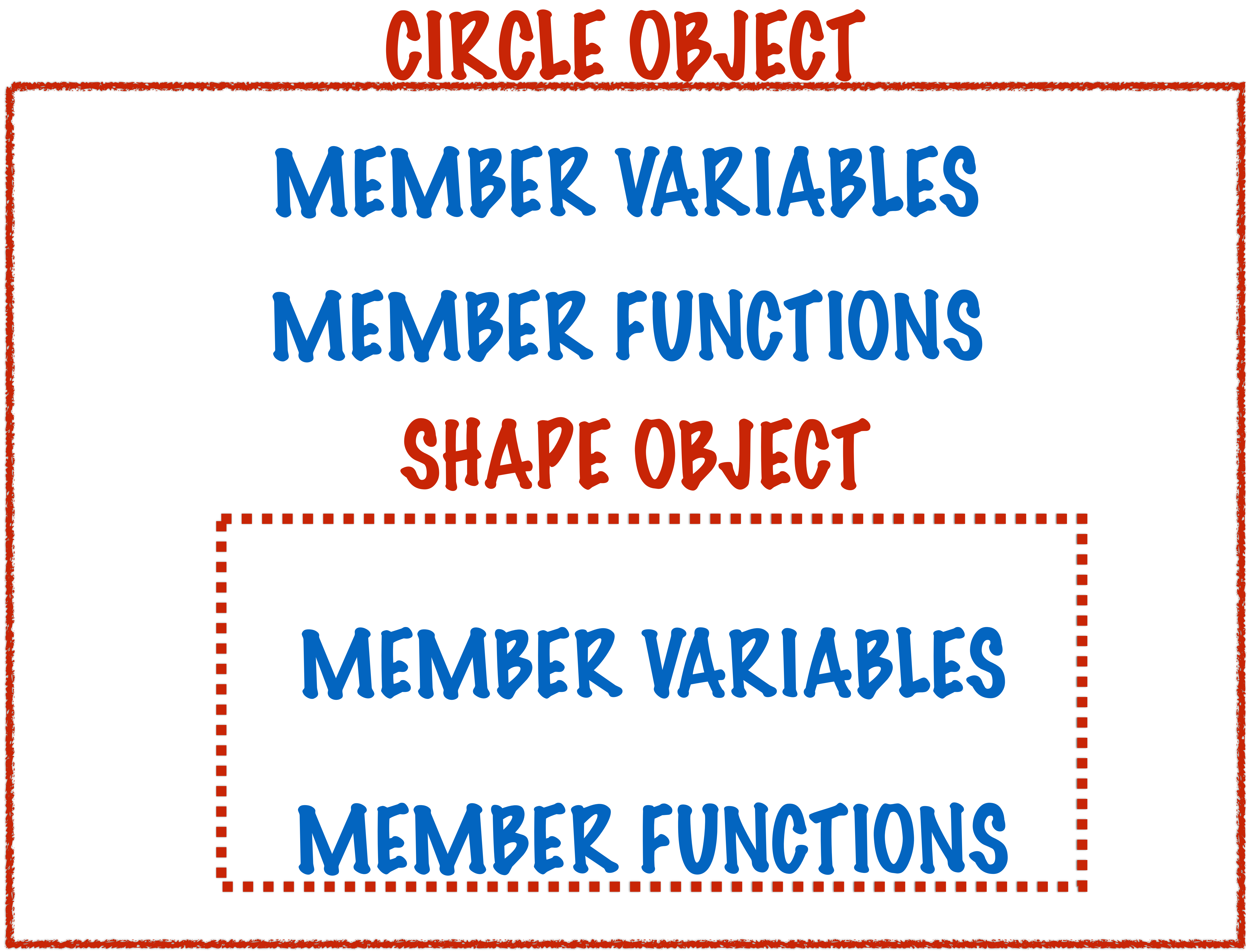

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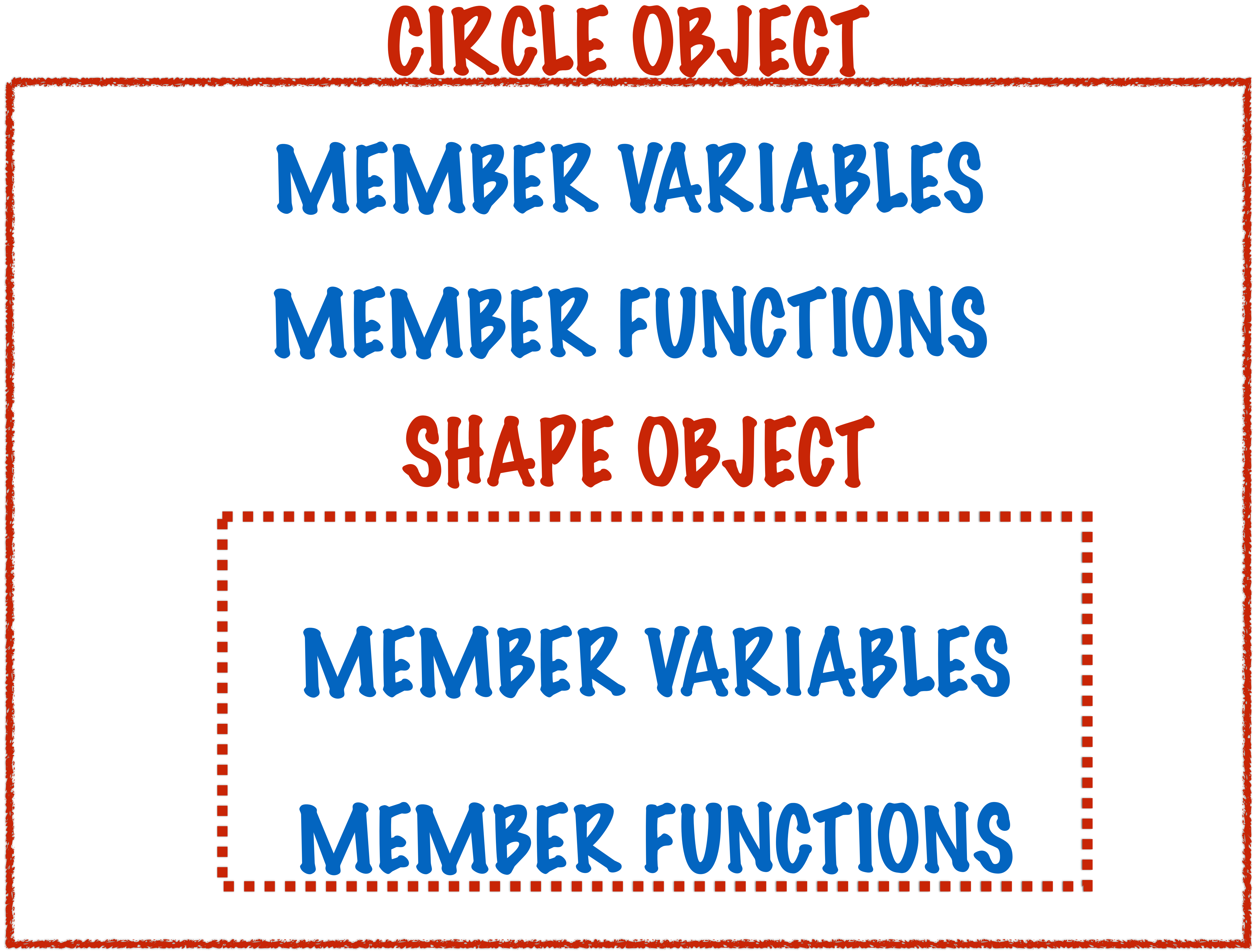

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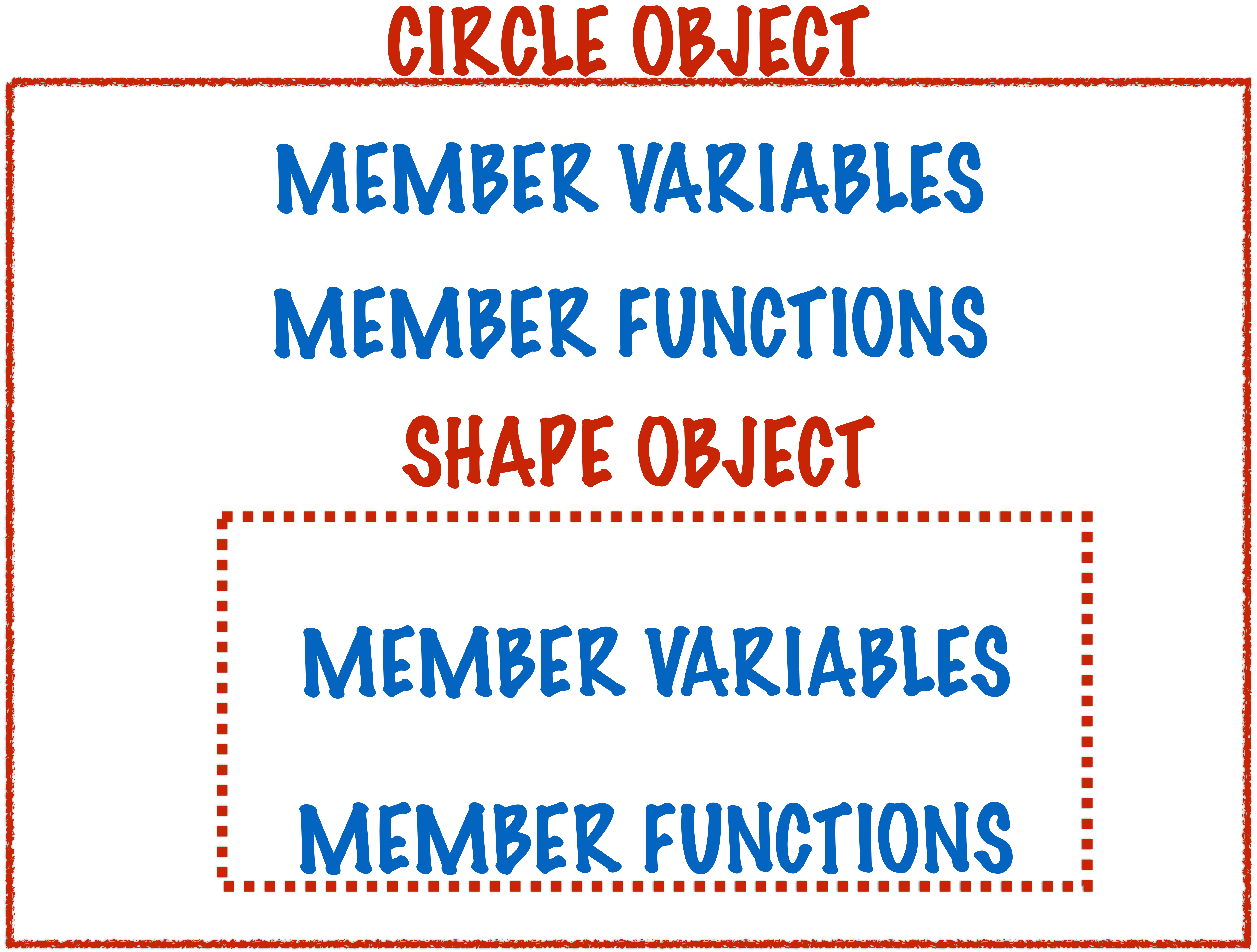
"BASE CLASS" AND "DERIVED CLASS" ARE THE TECHNICAL TERMS FOR SHAPE AND THE CIRCLE RESPECTIVELY



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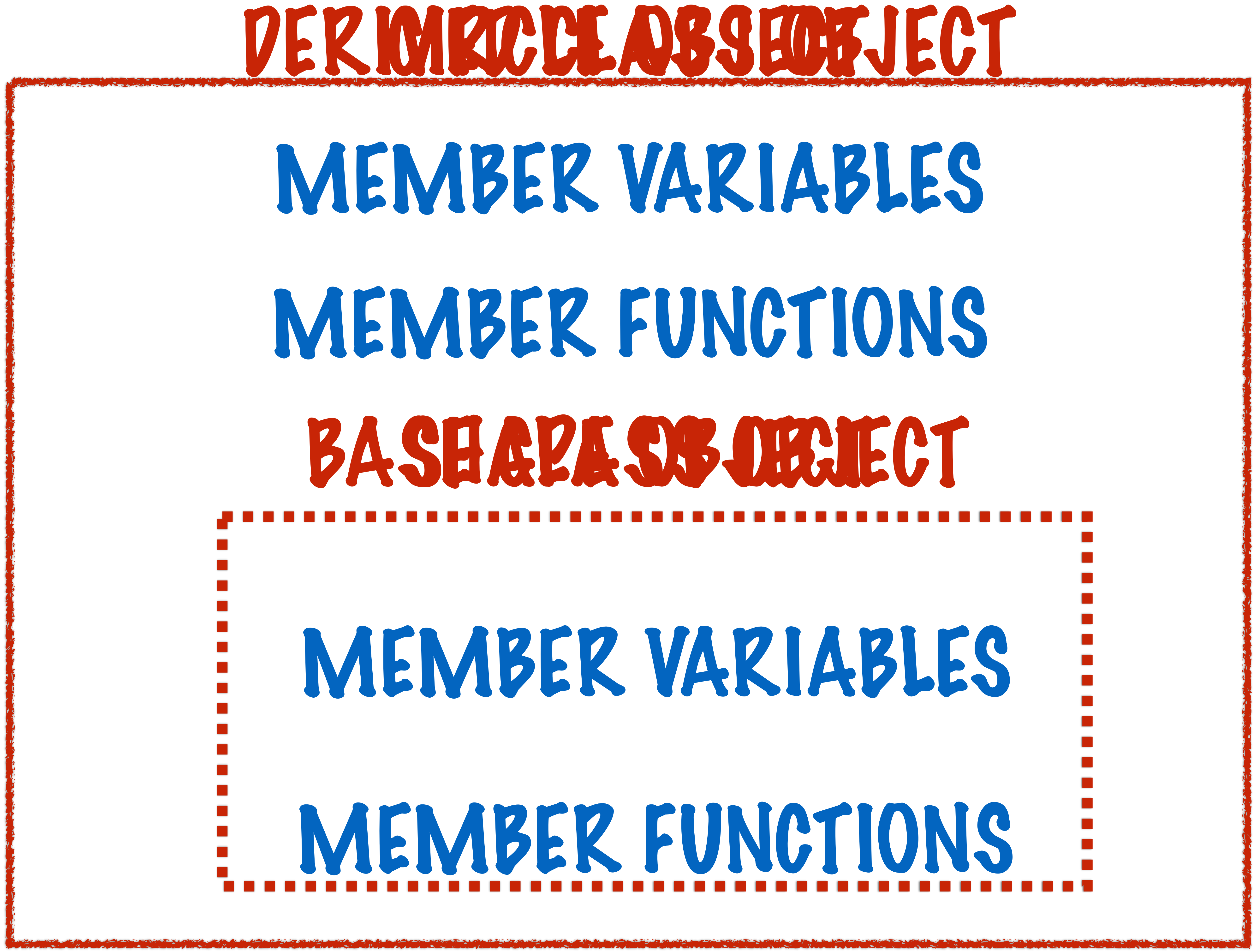

DERIVED CLASS OBJECT

CIRCLE OBJECT

MEMBER VARIABLES

MEMBER FUNCTIONS

BASE CLASS OBJECT

SHAPE OBJECT

MEMBER VARIABLES

MEMBER FUNCTIONS

“BASE CLASS” AND “DERIVED CLASS”

REMEMBER THESE TERMS,
THEY ARE VERY IMPORTANT!

"BASE CLASS" AND "DERIVED CLASS"

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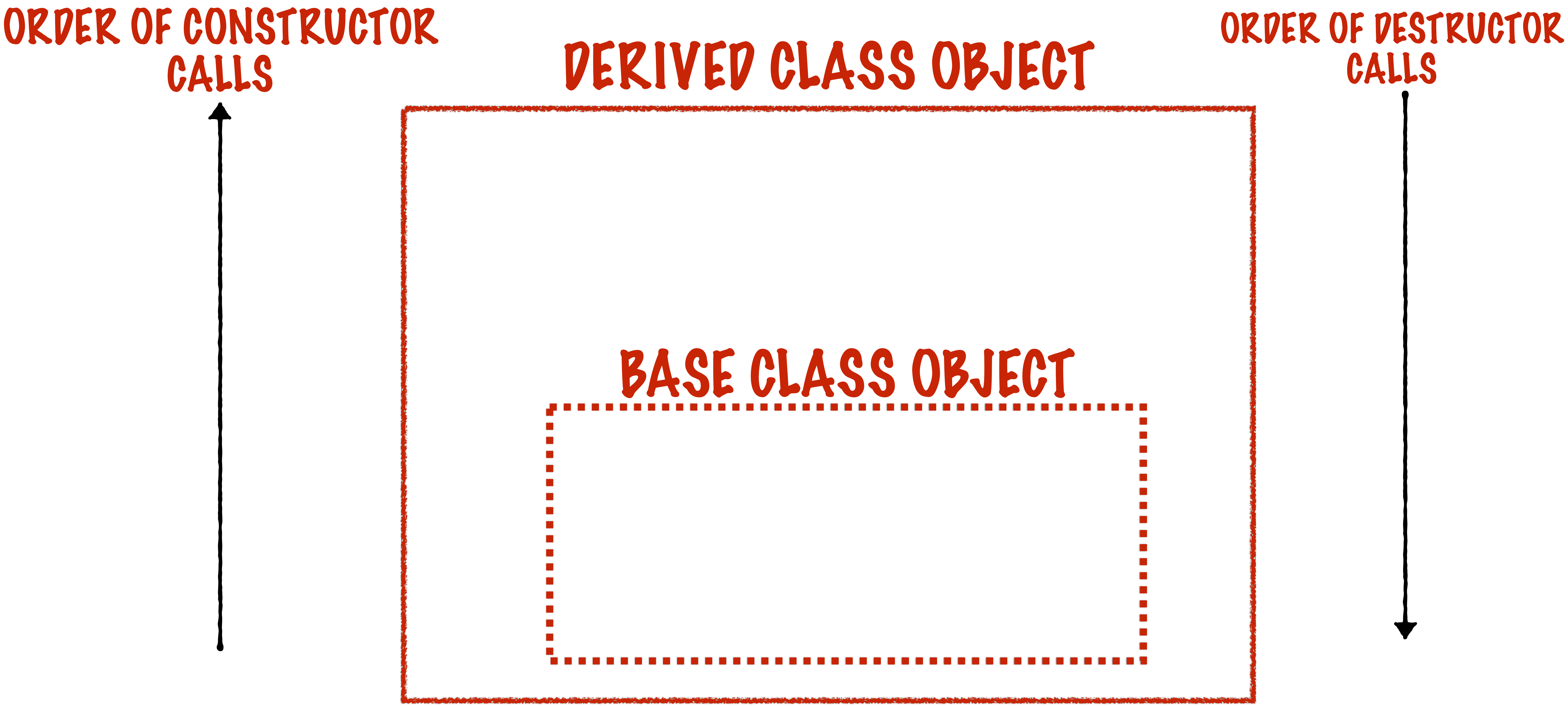

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DURING CONSTRUCTION OF THE CIRCLE..

BASE CLASS CONSTRUCTOR IS CALLED BEFORE THE DERIVED CLASS CONSTRUCTOR

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THE CIRCLE CLASS SHOULD "INHERIT FROM" THE SHAPE CLASS

WHAT EXACTLY DOES THIS MEAN?

EVERY OBJECT OF THE CIRCLE CLASS WILL HAVE INSIDE IT AN OBJECT OF THE SHAPE CLASS

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SPECIFIED WITHIN A CLASS

GOVERN HOW BASE CLASS MEMBERS ARE ACCESSED IN DIRECTLY DERIVED CLASSES

THERE ARE ALSO 3 TYPES OF INHERITANCE: PUBLIC, PRIVATE, PROTECTED

SPECIFIED BETWEEN A BASE AND DERIVED CLASS

GOVERN HOW BASE CLASS MEMBERS ARE ACCESSED IN INDIRECTLY DERIVED CLASSES