Monday, November 8, 2021 10:43 AM

Biennial Release ----- twice a year java releases a new version !!

Sun Microsystems --- Created Java
Oracle has taken over sun ---- Oracle inc owns Java

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Java is an object oriented language !!!

Object is the theme of everything !!!

Person object ----------> motorcycle object
motorcycle.kick()

motorcycle.getPetrolLevel()
motorcycle.getSpeed()

motorcycle.accelerate()
motorcycle.brake()

Door.open() !!!

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object = object is an instance of the class

class = a design of object with respect to properties and behavior !

architects blueprint = layout = DESIGN = CLASS
Actual building = OBJECT

We can have many objects as per the class design !!!
Objects occupy real memory space!!
Class occupies space required design!!

Object Oriented Language ----------------
4 major pillars of OOL and 3 minor pillars of OOL

4 major pillars of OOL
1. Abstraction
2. Encapsulation
3. Inheritance
4. Polymorphism

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3 minor pillars of OOL
1. Modularity
2. Persistence
3. Concurrency

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        In built MODULARITY is achieved in JAVA  -----  .class files

        SOURCE File  ----->Example.java  -------------I add 4 classes ( class A, B, C ,D ) in this file!
        |
        |
         JAVAC =  Java Compiler
        |
        |
         COMPILED  CODE  -------------  A.class, B.class, C.class, D.class
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JAVA treats every class as a module --- so it always keeps every class in a separate .class file !!!!

Abstraction = Select RELEVANT properties and behavior for the object !!!

Example -----

Human = properties ---name, place of birth, dob, gender, blood group, height,weight,profession, education - kg, 1 ,2,3,4,5,6,7,8,9,10,hsc,grad,pg , address, mothers name, fathers name, mother tongue, nationality, adhar card ,passport, mobile,pan,license, marital status, haemoglobin, bp , heart rate, diseases in child hood, handicap, hair color, mail id, sugar, vaccination, grandmothers name, eyesight, grand fathers name, caste, religion, criminal record,shoulder, chest, waist , neck , ankle ,.................................

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|
|

class Student

class Patient

PLEASE write relevant properties for student class and patient class!!!

Encapsulation --------------------   properties + behavior are bound into a class
Hide/protect the properties of the class

Access Specifiers = Scope specifiers = Visibility

Java has 4 SCOPES and 3 access specifiers
NARROWEST =====   private (not visible outside the class)

BROADEST ==========public

FOR hiding or protecting data we make the properties as "private"
+
Provide PUBLIC   accessor and modifier methods for that property

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Assignment ---

Write a class Student_IET
the class has following properties

- firstName , lastName , age , graduation_year , graduation_stream
- make all the properties as private
- write accessor and mutator methods for each property
  - in the setter methods apply following checks
    - firstname, lastname cannot be blank
    - age must be greater than 18 and less than 80
    - graduation year should be 4 to 0 years before current year
    - graduation_stream must be between ---- COMPUTER, IT, ELECTRICAL,MECH ,CIVIL ,CHEMICAL,AUTO

write a User class that will create object of Student_IET and set properties and show all properties using getters
while using set properties accept value from user and pass to setter.

String class !!! Java Library

Class Written By = Java Library
Class Used By = us
HOW to use a class ??? make their objects , call their methods

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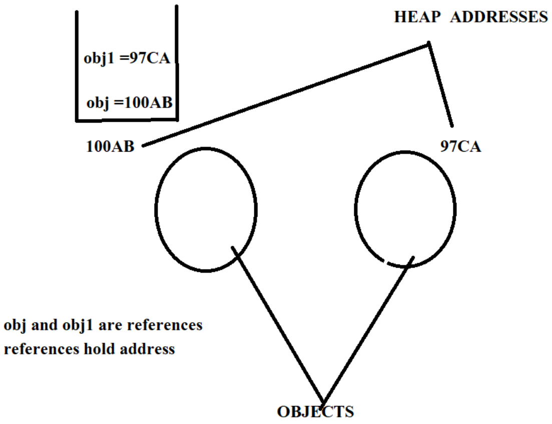
JAVADOCS = Java Documentation

How to compare address of two objects ? Use == sign



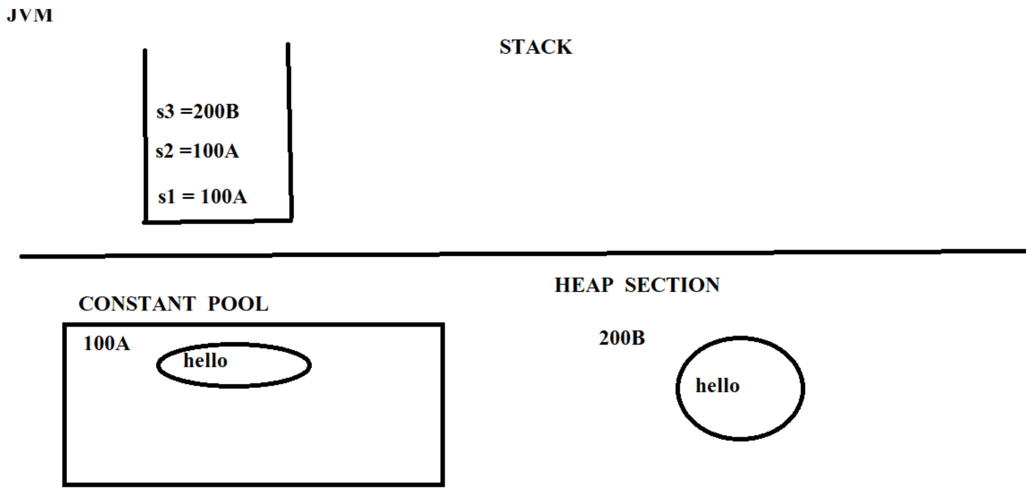
Create a String Object !!

Two ways to create a string object
String s = new String("rainbow") ;
String s1 = "hello" ; // LITERAL way

CONSTANT ====== IMMUTABLE

CONSTANT POOL ----- array of string literals = THIS IS TO SAVE space !!
whenver you create a new string --- the JVM checks if the string literal is already present in constant pool

if yes then NO new string is created !!!!



Assignment ---- OPEN javadocs in your browser for String class . observe the constructors of string class

Write a class StringTest

write the starting point main

create 5 string objects using following 4 constructors from Javadocs

String(String)

String()

String(char[])

String(char[] , offset,count)

print all the strings

Assignment ----------- write a class StringTest2

write the starting point main

create 2 strings using literals and 1 string using new

compare address of two literal strings when values are same and different

compare addresses of one literal and 1 new string when values are same and different