* Created inside Pool * inside Pool or inside heap.

② How many object is created?

Assignment 5

1) How does Java Achieve portability?

→ Java is Portable means it is platform independent reason is that

1) the output of Java Compiler is bytecode which is non executable code

2) Bytecode is highly optimized set of instruction.

3) Bytecode is executed by Java run time system which is called Java Virtual m/c (JVM)

4) JVM accept bytecode as input and execute it

5) translating Java code into bytecode make it more easier to run it on
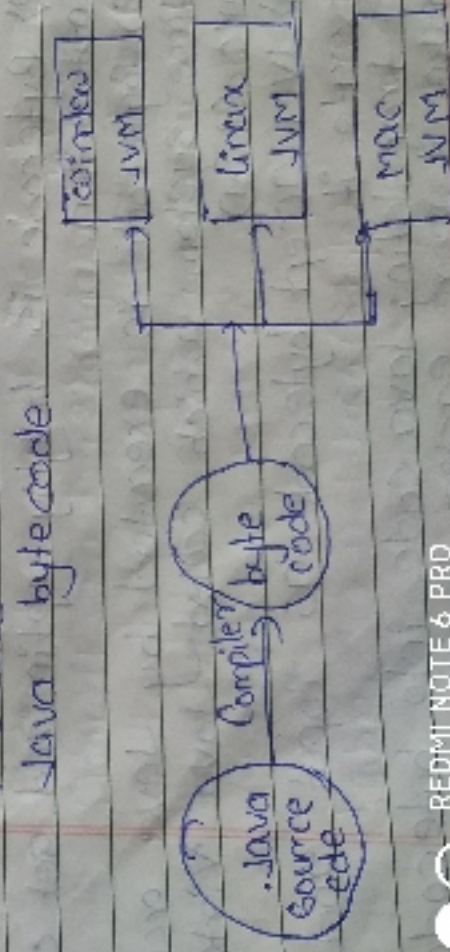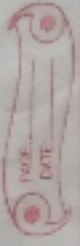
Variety of environment and only required JVM platform.

8) Internal detail of JVM is different from platform to platform but still understand same Java code bytecode

2) Explain Compilation process of Java?

→ In Java compilation the source Java source code is compiled to binary code called bytecode. It no executable code and understand by only Java virtual machine / JVM.

to JVM take input as bytecode and execute it. JVM is different for platform to platform but when proper JVM is installed then it can understand any Java bytecode
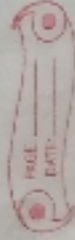

.Java Source code → Compiler → byte code

Windows JVM
Linux JVM
mac JVM

Compilation process

3) Diff between JRE, JVM and JDK

JRE	JVM	JDK

1) JRE is a also JVM is a JDK is a
bundle that also environment software
Java program to run for execute development
byte code kit

2) Platform is Java full form is Platform is
runtime environ- Java Virtual Java develo-
ment machine prent kit

3) Platform dependen- platform platform
ent independent dependent

4) JRE contain class Also develop- tools for
libraries and other ment tools debugg-
supporting file are not inside ing

5) JRE only contain JVM bundle JDK
the environment with both the comes
to run source JDK and JRE with
insl-
alle

4) which is the latest version of Java SE? JDK?

→ Java SE 8 Java SE 8u301

5) What are different primitive types & their memory size and range of value?

→ there are eight primitive data type.

Type	Size (bits)	min	max
byte	8 (1 byte)	-2^7 (whole no)	$2^7 - 1$
short	16 (2 byte)	-2^{15} (whole no)	$2^{15} - 1$
int	32 (4 byte)	-2^{31} (whole no)	$2^{31} - 1$
long	64 (8 byte)	-2^{63} (whole no)	$2^{63} - 1$
float	32 (4 byte)	Store fraction no sufficient for storing 6 to 7 dec
double	64 (8 byte)	Store fractional no sufficient for storing 15 decim

boolean	1 bit	Store true or False values
char	16(2 bytes)	Store Single character/letter or ASCII value

6) Why float and double should not be used for Banking Apps? Explain How it is not accurate enough?

→ Float and double are insuitable for Banking App or any for currency App because it is Difficult be impossible to meeting the experta-tion who can use base to for circulation.

Float or double can not produce corring Co-given in mathematical sense but it can not produced correct expected in a financial sense if you roundoff meant using float or double so you it does not match expectations.

eg if calculation 1.40 * 1.65 = 2.31 exactly However internally using float/double H gives 2.30.999994... and if you truncating the number you get 2.30 instead of 2.31 ---- solution for that used "BigDecimal" solution for that used BigDecimal.

7) Significance of BigDecimal?

→ BigDecimal are used instead of float or Decimal when we we need exact result.

BigDecimal Consist of random precision integer unscaled value and a 32-bit integer scale.

if greater than or equal to zero the scale is the number of digit to the right of the decimal point

if less than zero, the unscaled Value of the number is multiplied by $10^{(-scale)}$.

8) How to declare Constant in Java?

→ In Java we can change the normal Variable to Constant by 'final' keyword to the begining of the Code

If you try to change the Constant in the program you get a error message this happen because you can only assign a value to a Constant once.

9) What is → i) Static
            ii) final
            iii) Access modifier (Public, private, default, Protected)

1) Static :- Static is non-access modifiers in Java and applicable for variables, nested class, blocks, methods.

To create a static member declare it with static keyword.

When member is declare with static it can be accessed before any objects of its class are created, and without reference to any obj.

When variable declare with static only one copy of variable is created and shared among all object at class level.

2) Final :- Final is the keyword used to make any variable into constant.

You can not change the constant in the program because it shows the error message. you can only assign a value to constant.

3) Access modifier :- there are four type of access modifier.

i) Private :- The access level of private mo- difier is only within the class. It can not be accessed by outside the class.

2) **Public** :- The access level of Public modifier is everywhere, it can be accessed within the class, outside the class, within the package, outside the package.

3) **Protected** :- The access level of protected modifier is within the package and outside the package through child class.
If you do not make child class it can not be accessed from outside the package.

4) **Default** :- The access level of Default modifier is only within the package. If you do not specify any access level, it will be the default.

10) Give example of :-

1) O(1) :-> Void PrintFirstElementOfArray (int arr[])
{
int n = 1000;
System.out.println("The first is : " + arr[0]);

(linear time algo)

2) $O(N)$:- for(i=0; i<n; i++){

System.out.println("Print : "+i);
}

3) (quadratic time)
   $O(N^2)$:-

4) (logarithmic time)
   $O(\log N)$:- for(int j=1; j<n; j=i+2){

System.out.println("Print "+i);
}

5) $O(N\log N)$:- for(int n){ for(int j=1; j<=n; i++){

for(int j=1; j<n; j=i*2){

System.out.println("Print : "+i+" "+i+"and"+i);
}

6) $O(\log 3)$:-