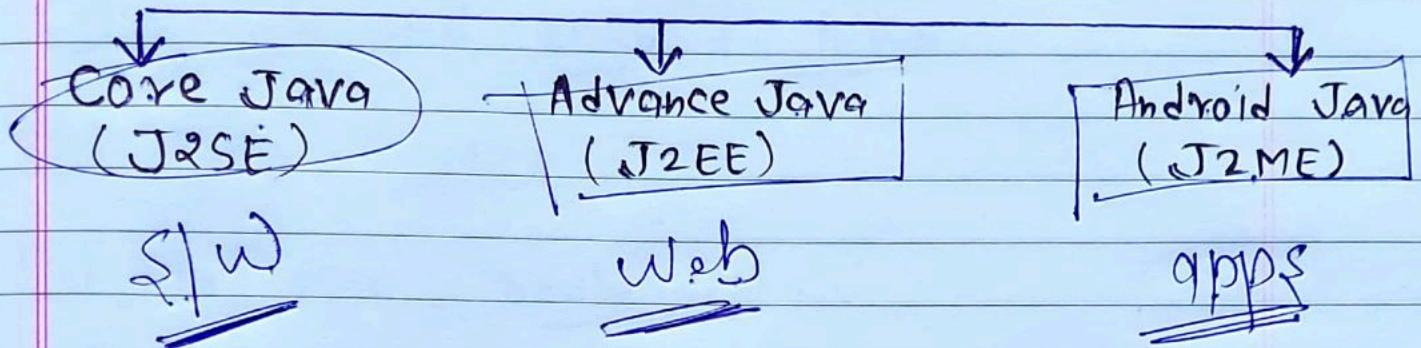


Java Full Course

* Flavours of Java :-



Core Java Syllabus :-

- Introduction to Java.
- Features of Java.

Core Java Syllabus :-

- Why Learn Java?
- Introduction to Java.
 - i) Syntax of Java
 - ii) Installation of Java (JDK)
 - iii) First Java Program
 - iv) Compilation & Execution process of Java.

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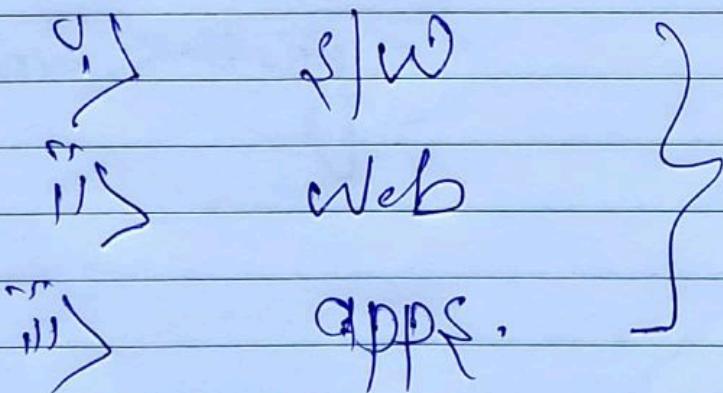


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Why Learn Java? # features

- ① Simple and easy to learn.
- ② Open Source.
- ③ Platform independent.
- ④ Secure.
- ⑤ Embedded. [C++, Java]
- ⑥ Compiled & interpreted
- ⑦ Robust
- ⑧ Large library & frameworks

Why Java so. popular



Java Full Course

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① Datatype

① Variable

① Identifier

① Keyword

① Input & Output

① Control flow :-

- Conditional Statement.
- Looping Statement.
- Transfer Statement.

① Operators

① Java methods

① Java Array

① Java String

Java Full Course

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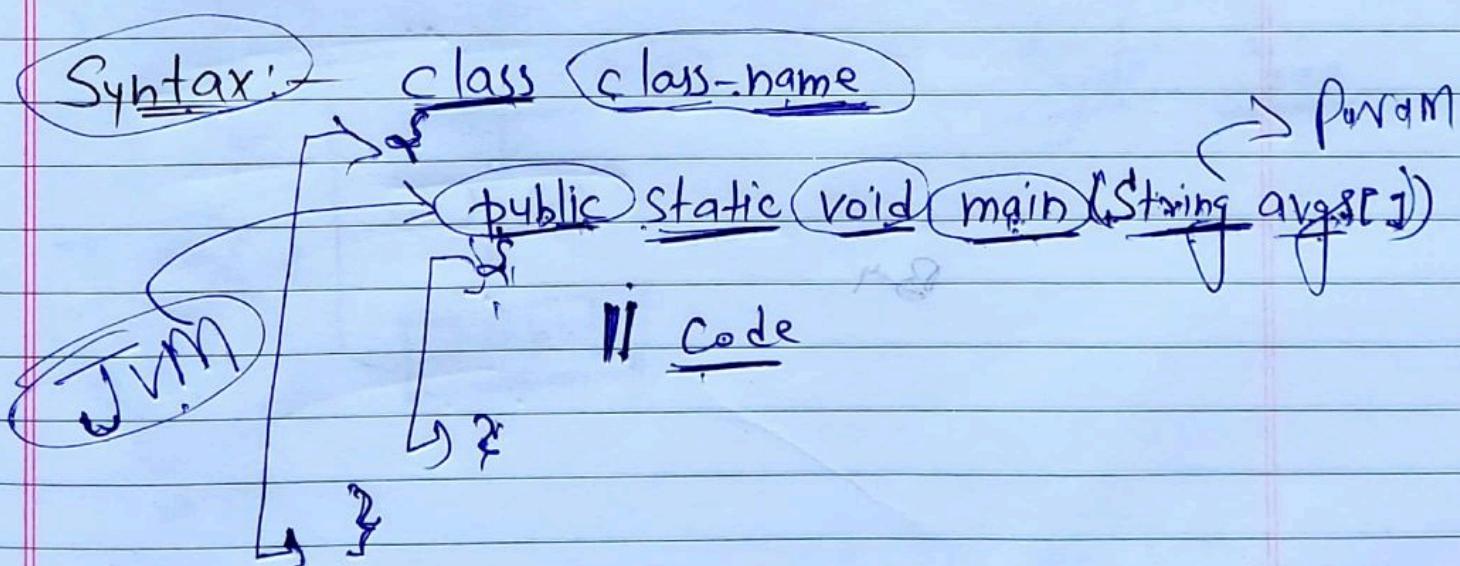
DATE: / /

Q. What is Java? full explanation.

Ans → Java is a class based, high-level, Object-oriented programming language developed by "James Gosling" and his friends in the year 1995.

Note:- ① The first version of java (JDK 1.0) was released on the year Jan - 23rd - 1996 by "Sun microsystem". [P010]

② Latest version of Java (JDK 16) on the day 16th - march - 2021. by "Oracle".



Java Comments:- ① Single line (//)
② Multi-line (/* --- */)

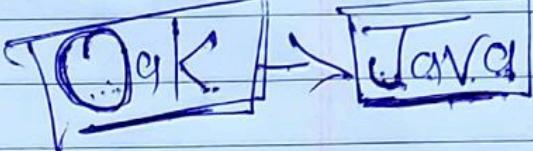
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SOURCE Code

Installation of Java (JDK 16))

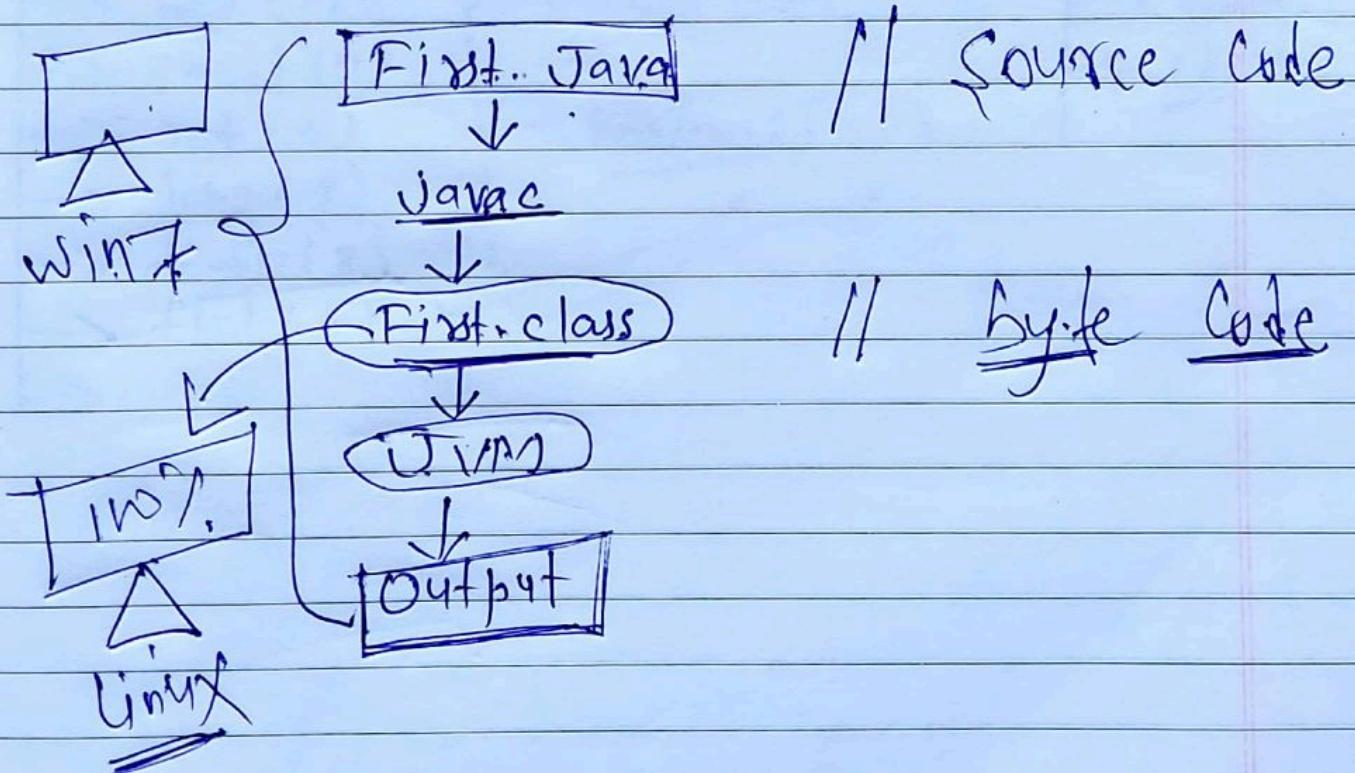
Installation of Eclipse IDE

History



Q. First Java program?

#. Compilation & Execution process of Java:-



Java Full Course

Q. What is datatype? full explanation.

Ans → Data type specifies the different types of values that are stored on the variables.

types

primary

Numeric

- Byte (1)
- short (2)
- int (4)
- long (8)
- float (4)
- double (8)

Non-numberic

- char (2)
- boolean (1 bit)

Secondary (User-defined)

- class
- interface
- Array
- String

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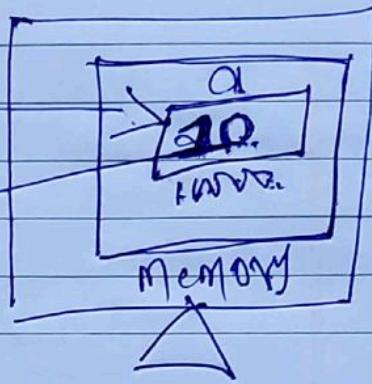
Q. What is variable? full explanation.

Ans → Variable is the name of memory location where we stored different types of values.

Ex

int a = 10;

print(a);



Types

Local

Static

instance

Java Full Course

PAGE NO.:

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DATE: / /

Q. What is Keyword? full explanation.

Ans → Keywords are the reserved word whose meaning is already defined in the java compiler.

b d f
b d f

Note :- We can't use keyword for our personal use. ~~inf~~ ~~class~~ 10;

① Keywords are the Case - Sensitive.

{ a → A
a → A }
inf → INT

Java keywords:-

50

byte	else	extends	import	switch
short	for	implements	class	case
int	do	final	interface	const *
long	while	finally	new	goto *
float	break	try	native	strictfp **
double	continue	catch	instanceof	enum ***
void	default	throw	package	assert ***
char	private	throws	return	abstract
boolean	protected	static	this	transient
if	public	volatile	super	synchronized

Note:- * (not used)

** (added in 1.2 v)

*** (1.4 v)

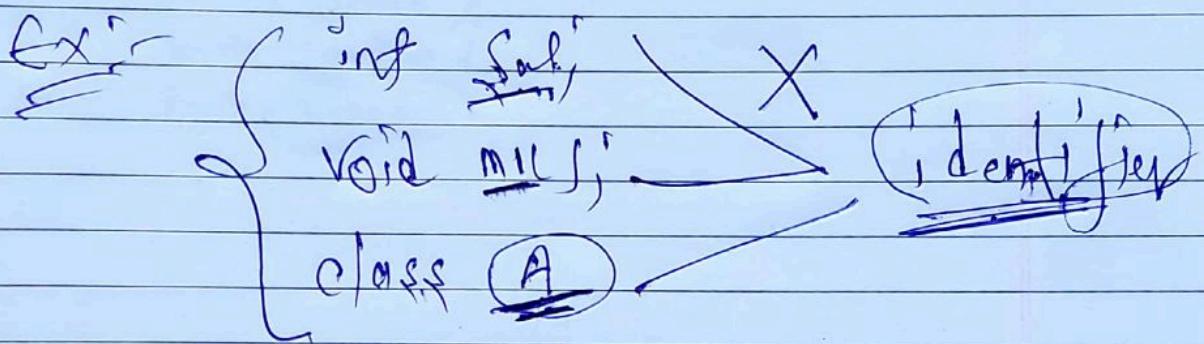
**** (5.0 v)

|| "null, true, false" used as a literals in java.
50+3 literals

Java Full Course

Q. What is identifier? full explanation.

Ans → identifiers refer to the name of variables, methods, classes and so on.



Java Full Course

DATE: / /

Input & Output:-

input → Scanner class (java.util.Scanner) *

Syntax:-

Scanner obj-name = new Scanner (System.in);

Scanner class methods

- i) nextInt() → for integer value
- ii) nextLine() → for string value
- iii) nextDouble() → for double value

Output → System class (java.lang.System)

Syntax:-

System.out.print(" ");

Q. W.A.P. to add two numbers?

Java Full Course

#. Control flow:-

① Conditional Statement

{ → if
 | → if - else
 | → else if.
 | → nested if - else

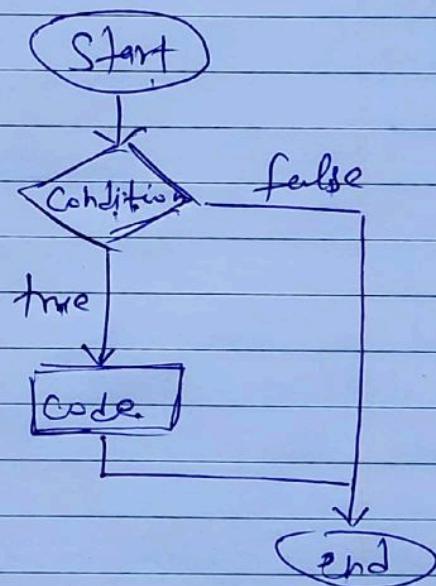
if Statement :- It is used when we want to test a single condition.

Syntax :-

if(condition)
 || code;
} ;

~~Program~~

flowchart :-

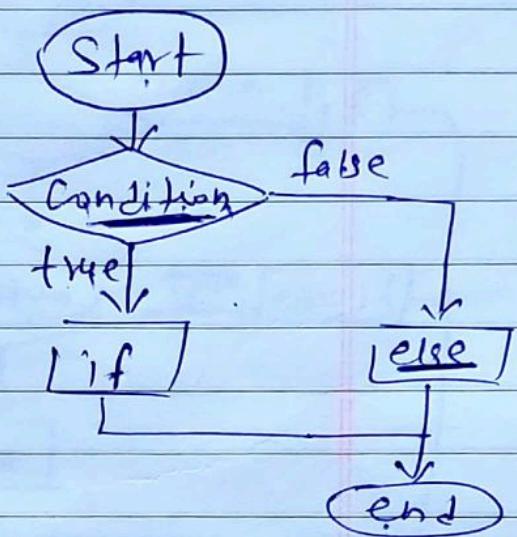


* if - else Statement :- It is used when we want to execute two statements for a single condition.

Syntax:-

```
if (condition)  
{  
    Statement 1;  
}  
else  
{  
    Statement 2;  
}
```

flowchart:-



① Example

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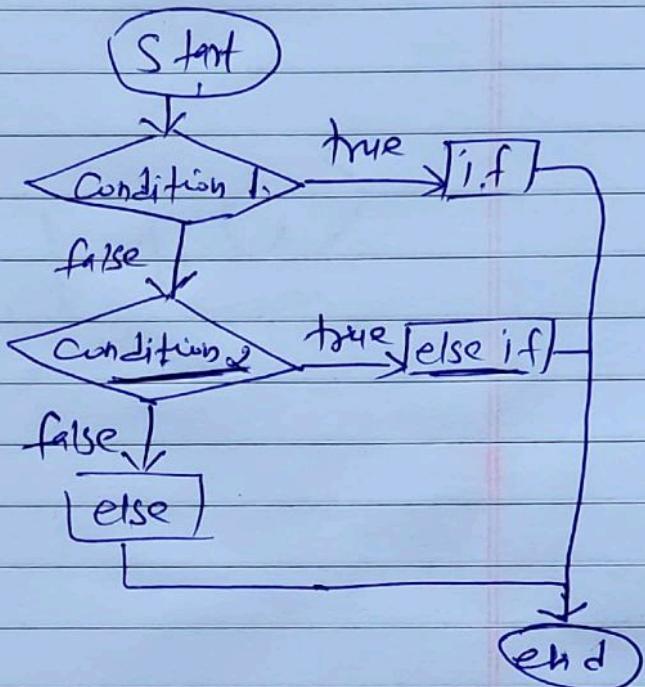
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* else-if Statement :— It is used when we have only one if block, multiple else-if blocks and at the last else block.

Syntax:-

```
if (Condition 1)
{
    Statement 1;
}
else if (Condition 2)
{
    Statement 2;
}
else
{
    Statement 3;
}
```

Flowchart :-



(4)

* nested if-else:- whenever, we define if-else block inside another if-else block called nested if-else.

Syntax:-flowchart:-

if(Condition 1) ↗

 if(Condition 2) ↗

 ↳ Code 1

 }

 else ↳ Code 1

 }

 else ↳

 if(Condition 3) ↗

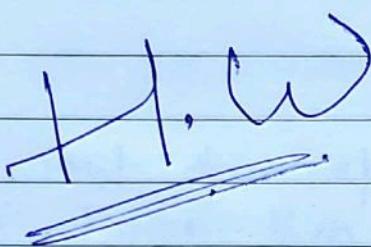
 ↳ Code 2

 }

 else ↳

 ↳ Code 2

 }



Program (a>b>c)

#. Control Flow :-(2) looping Statement

- for
- while
- do-while
- for-each

Loop:- Whenever we want to repeat certain statements several times then we should write those statements inside loop body.

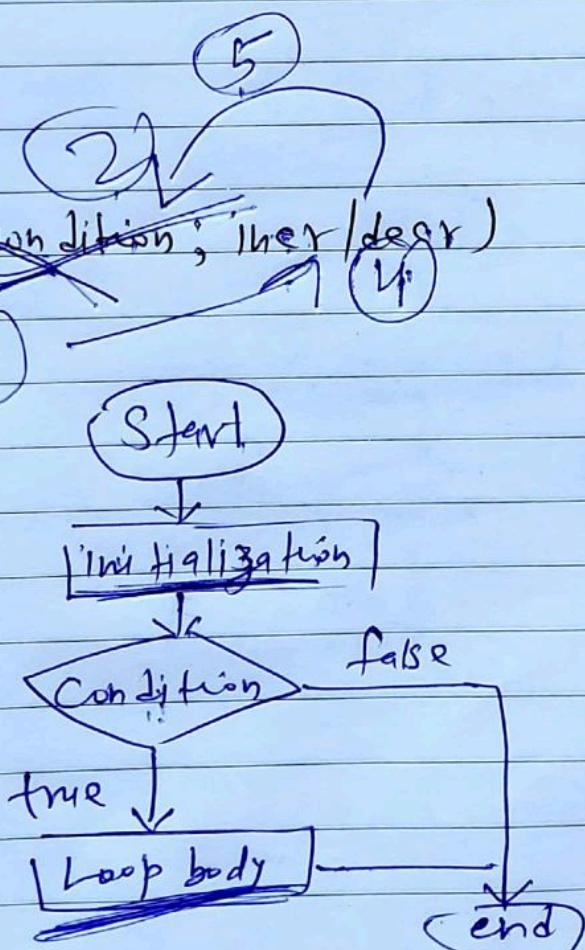
(1) for loop:

Syntax:-

~~for(initialization; condition; increment/decr)~~

3.

Flowchart:-



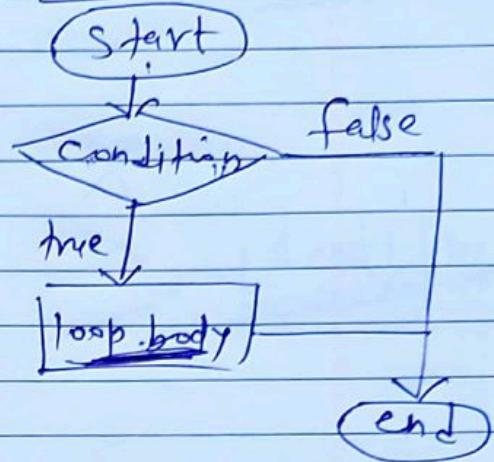
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2) while loop:-

Syntax:-

```
while(condition) {  
    // code;  
}
```

flowchart:-

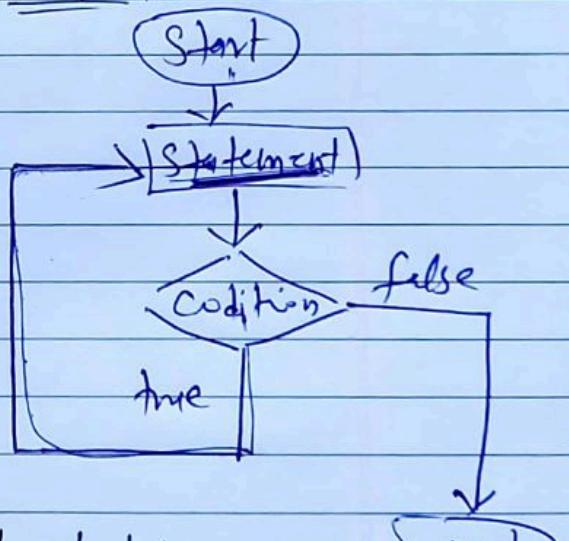


3) do-while loop :-

Syntax:-

```
do  
{  
    Statement;  
}  
while(condition);
```

flowchart:-



4) for-each loop:- open

```
for(datatype var1; var2)  
{  
    // Statement;  
}
```

flowchart:-

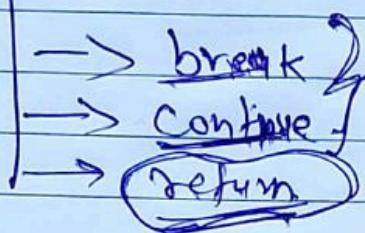
H.W

Array program

Java Full Course

#. control flow:—

③ Transfer Statement



Java Full Course

Q. What is switch Statement? full explanation.

Ans → Switch is a multiple choice decision making Selection statement, it is used when we want to select only one case out of multiple cases.

Syntax:-

Switch (exp)
{

Case 1: Statement 1;
break;

Case 2: Statement 2;
break;

Case n: Statement n;
break;

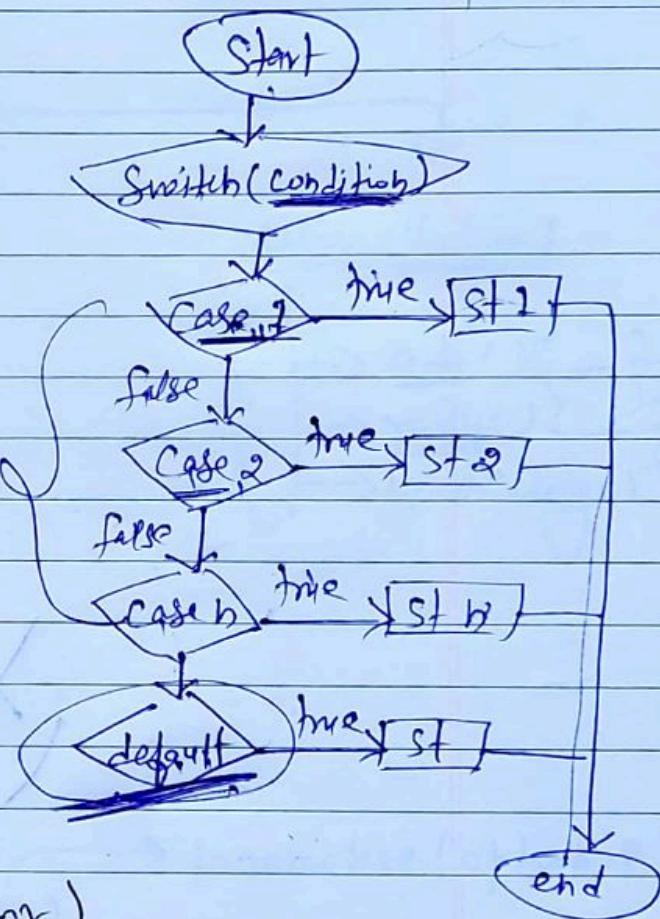
}

~~default:~~ Statement;

Output

Program (Arithmetic operator)

Flowchart :-



Java Full Course

Q. What is Operator? full explanation-

Ans → Operator is a symbol that is used to perform operations according to user requirement. / + *.

Types :-

- (1) Arithmetic operator (+, -, *, /, !)
- (2) Relational operator (=, !=, >, <, >=, <=)
- (3) Logical operator (true, false, ||, &, !)
- (4) increment / decrement

↓ ↓ ↓
pre / post pre / post
increment decrement
(++a / a++) , (a-- / --a)

- (5) Assignment operator (=, +=, -=, *=, /=)

- (6) Ternary operator (?:) (a>b>c,)

Java Full course

KLAGENOTE
Page No.....
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Q. What is method? full explanation.

Ans → Method is a group/block of code which take input from the user, process it and give output.

- Note:-
- Method runs only when it called.
 - Code reusability.

Types

pre-defined

→ print();
→ Sort();
→ nextInt();
→ Sleep();
→ Concat();

User defined

→ add();
→ multiply();
→ LengthCoding();

Syntax:-

return-type method-name(...)

parameters (optional)

// Statements:

?

Java Full Course

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Q. What is array? full explanation.

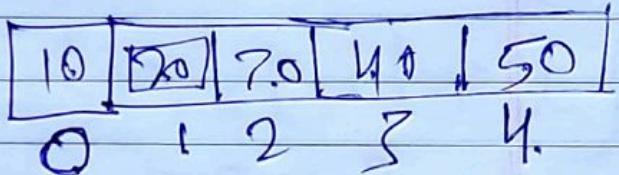
Ans → Arrays is an object in java, which contains similar type of data in a configurable memory location.

Syntax:- i) data-type [] var-name;

ii) data-type var-name [] = { 10, 20, 30 }

iii) int arr [] = new int [5];

Note :- ① Array index starts with 0.



Type
i) 1.D ARRAY
ii) 2.D ARRAY

Java Full Course

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Q. What is String? full explanation.

Ans → ① String is a pre-defined class in Java but we can also use as a datatype.

② Strings are the sequence of characters and its index starts from 0. "Ankit";

Syntax:- 1) String str = new String("ANKUSH");

2) String str = "ANKUSH";

→ Can't change

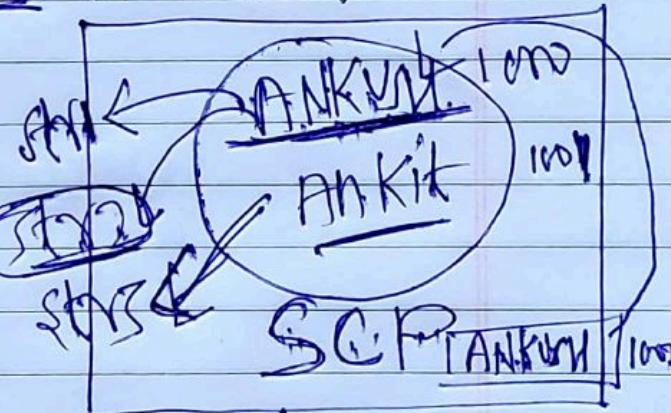
#. Why Strings are immutable in Java?

String str1 = "ANKUSH";

String str2 = "ANKUSH";

String str3 = "ANKIT";

String str4 = new String("ANKUSH");



HEAP

Java Full Course

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Q. What is Class & Object? full explanation.

Ans → Class is a group of elements having common properties and behaviours.

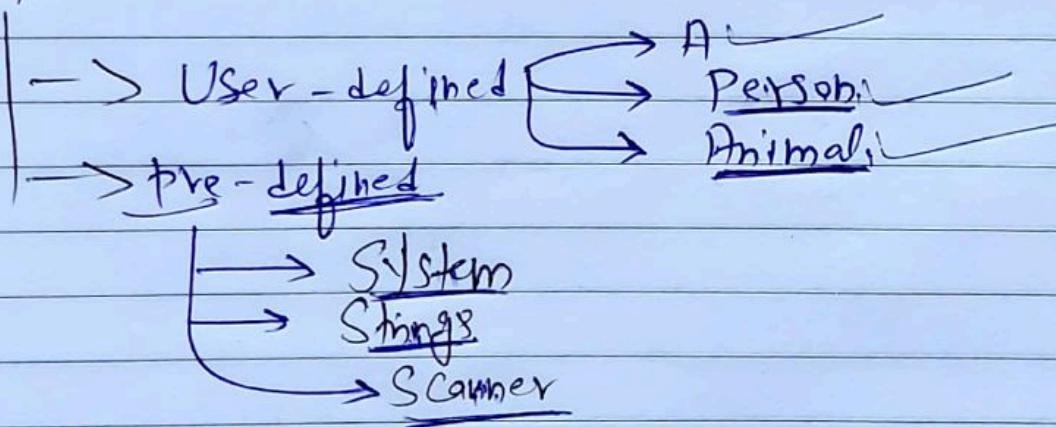
Note:-

- ① class is virtual
- ② object is real

Person P = new Person();

class person
{
 age;
 Height;
 Weight;
 +
 eat();
 Taste();
 Sleep();
}

Types:-



Date : / /

Constructor

Q. What is constructor? full explanation.

Ans → Constructor is a special type of method whose name is same as class name.

Note :- i) The main purpose of constructor is initialize the object.

ii) Every java class has a constructor.

ii> Every java class has a constructor.

iii> A Constructor is automatically called at the time of object creation.

iv> A Constructor never contain any return-type including void.

1. default Constructor

Q. What is default Constructor?

Ans → A Constructor which does not have any parameter is called default Constructor.

Syntax:- class A

{
 No any parameter

 class A()
 {
 }

 }

2. Parametrized Constructor

Q. What is parametrized constructor?

Ans → A constructor through which we can pass one or more parameters is called parametrized constructor.

Syntax:- class A

A(int x, String y)

}

3. Copy Constructor

Q. what is Copy Constructor? full detail.

Ans → Whenever we pass object reference to the constructor then it is called copy constructor.

Syntax:- class class-name
 {
 class-name (obj ref)
 }
 { }

4. - Private Constructor

Q. what is Private constructor ?

Ans → In Java , it is possible to write a constructor as a private but according to the rule we can't access private members outside of class .

Syntax :- class class-name
 {
 private class-name()
 {
 }

V.N.I

Super Keyword

Q. Super keyword ? full explanation .

Ans → Super keyword refers to the objects of Super class, it is used when we want to call the Super class variable, method & constructor through Sub class object .

Note:- i) Whenever the Super class & Sub class variable and method name both are same it can be used only .

Note:- i) Whenever the Super class & Sub class variable and method name both are same than it can be used only.

ii) To avoid the confusion between Super class and Sub classes variables and methods that have same name we should use Super keyword.

V.N.I.

this Keyword

Q. What is this keyword? full explanation.

Ans → 1) this keyword refers to the current object inside a method or constructor.

example:- class A

{

}

A r=new A();

bgr1@45

A

"") Whenever the name of instance and local variables both are same then our runtime environment JVM gets confused that which one is local variable & which one is instance variable , to avoid this problem we should use this keyword .

example:- class A
{
 int a;
 A(int a)
 {
 a=a;
 System.out.println(a);
 }
}

V.V.I Instance Vs Static Block

Q. Difference between Instance & Static block?

Ans →

Instance

Static

- | | |
|---|---|
| <p>① It deals with Object.</p> <p>② Executed at the time of object creation.</p> <p>③ No any keyword required.</p> <p>④ Static & non-static variable can be accessed inside the instance block.</p> | <p>① It deals with class.</p> <p>② Executed at the time of loaded .class file in JVM.</p> <p>③ Static keyword is required.</p> <p>④ Only static variable can be accessed inside the static block.</p> |
|---|---|

Java Full Course

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Q. What is encapsulation? full explanation.

Ans → Encapsulation is a mechanism through which we can bind the data members and member methods in a single unit.

Ex →

class Bank

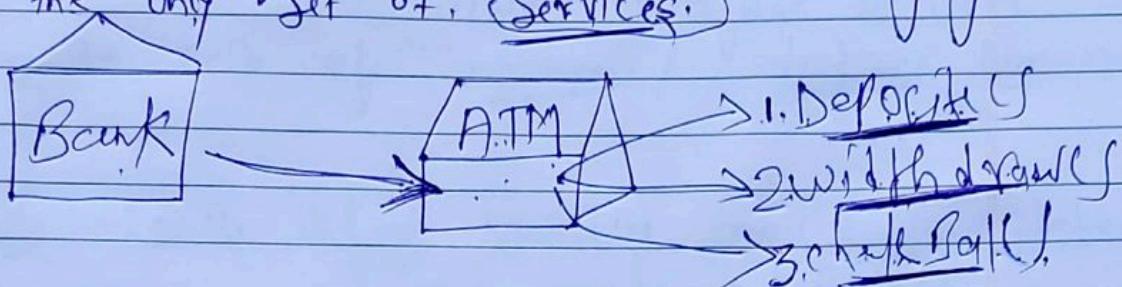
{
 private bal;
 private pwd;
 +}

 void Deposit();
 void Withdraw();
 void ChequeBook();

Full Course Java

Q. What is abstraction? full explanation.

Ans → Abstraction is nothing but hiding the essential information and highlight the only set of services.



In Java, we can achieve abstraction in two ways:-

- Abstract class (0-100%) → ①
- interface (100%) → ②

Abstract class:-

- ① If a class contains at least one abstract method is called abstract class.
- ② We can't create objects of abstract class.
- ③ It contains both abstract and non-abstract method.
- ④ Whenever the action is common but implementations are different than we should use abstract method.

Java Full Course

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Q. What is interface? full explanation.

Ans → Interface just like a class, which contains only abstract method.
To achieve interface in java by the help of implements / interface keyword.

Note:- ① By default variables are public + static + final inside a interface.

② By default methods are public and abstract.

③ From Jdk 1.8v onwards interface can have default & static methods.
 $\{ - \}$ $\{ - \}$

Inheritance

V.V.I

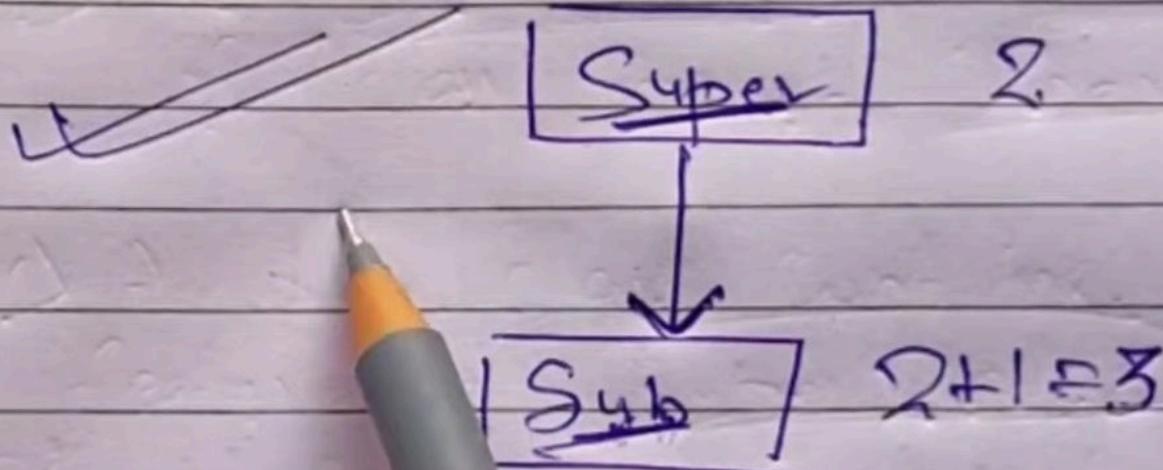
Q. What is inheritance? full explanation.

Ans When we construct a new class from existing class in such a way that the new class access all the features & properties of existing class called inheritance.

Note → In java extends keyword is used to perform inheritance.

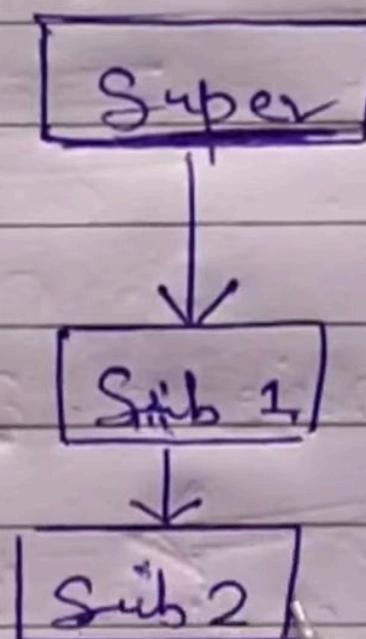
- II) It provides Code reusability.
- III) We can't access private members of class through inheritance.
- IV) A Sub class contains all the features of Super class so, we should create the object of Sub class.
- V) Method overriding only possible through inheritance.

Types :- 1) Single / Simple inheritance

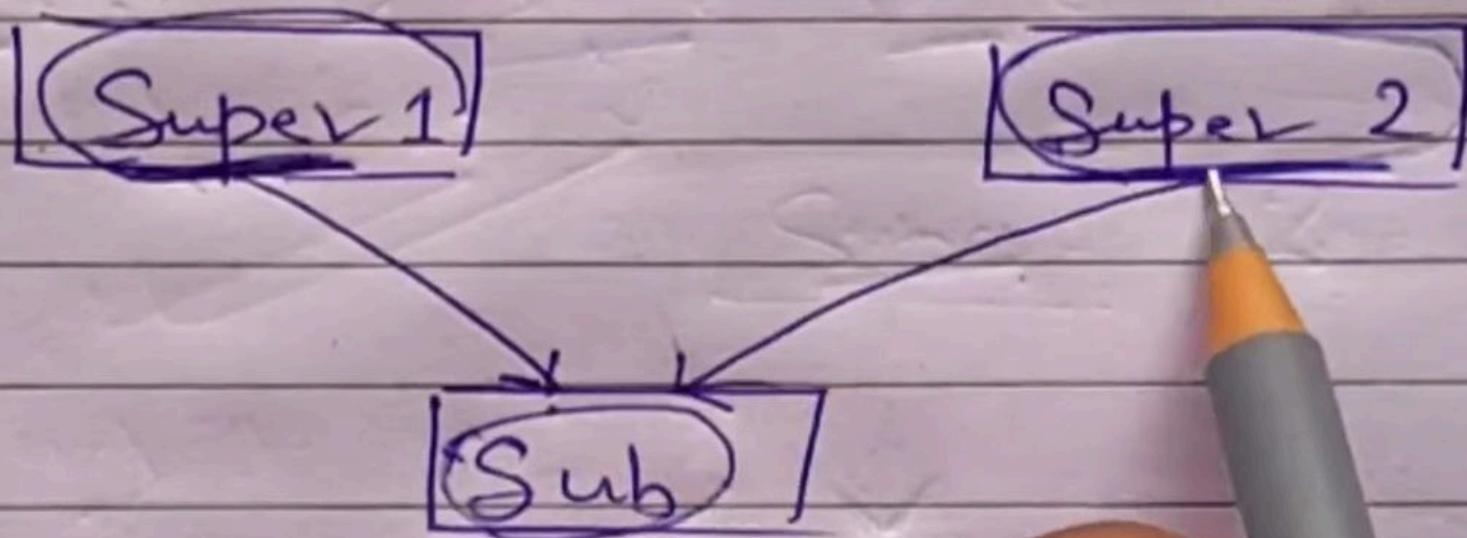


inheritance

II) Multi-level inheritance :-

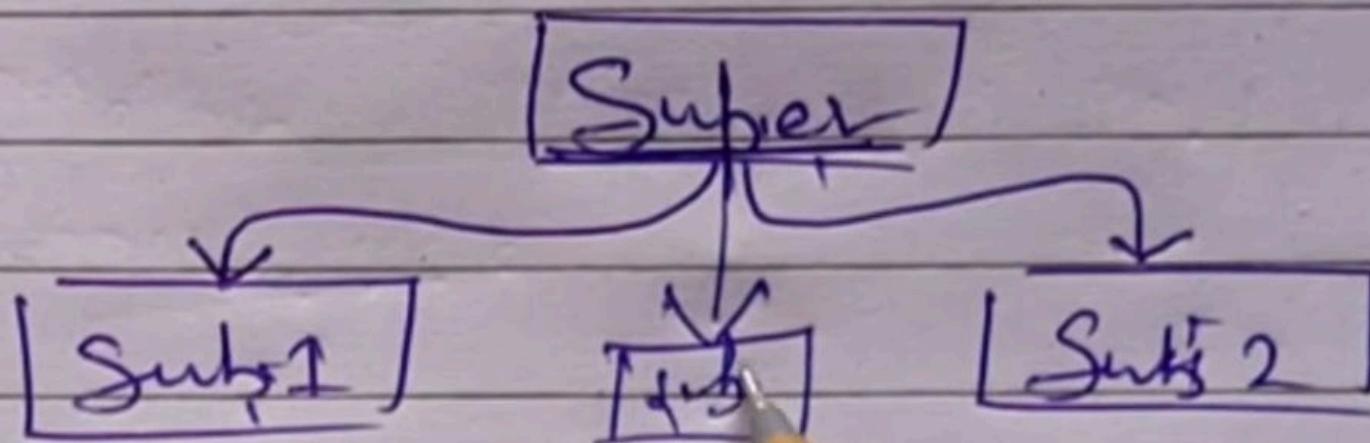


III) Multiple inheritance:-

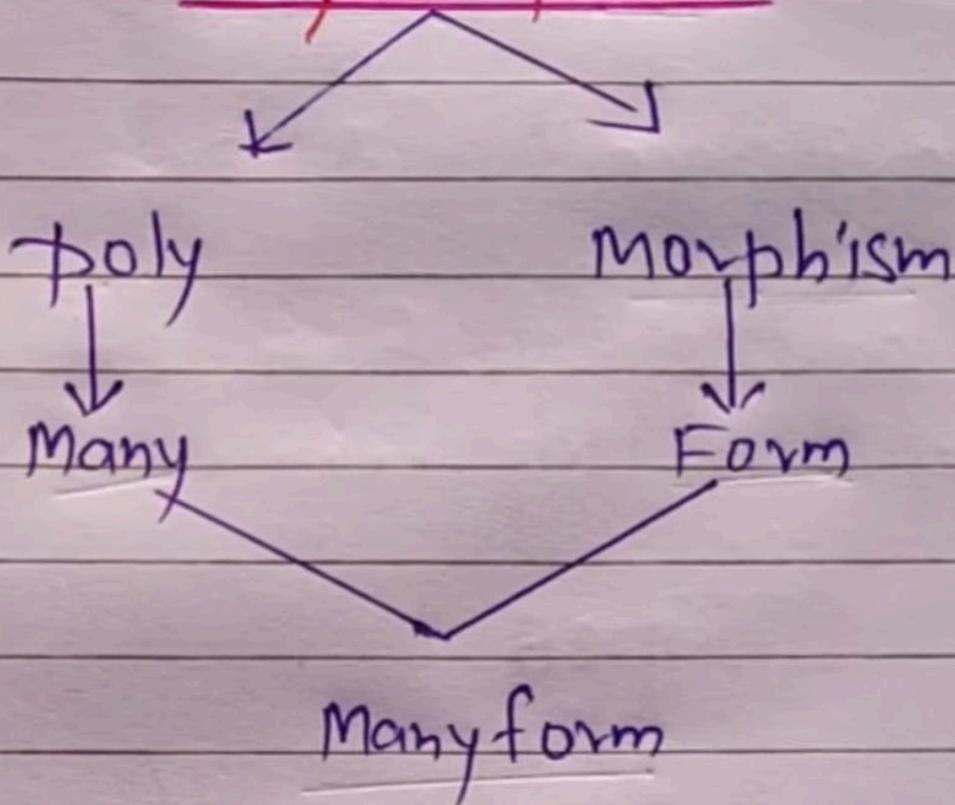


IV) hierarchical

iv) Hierarchical inheritance :-

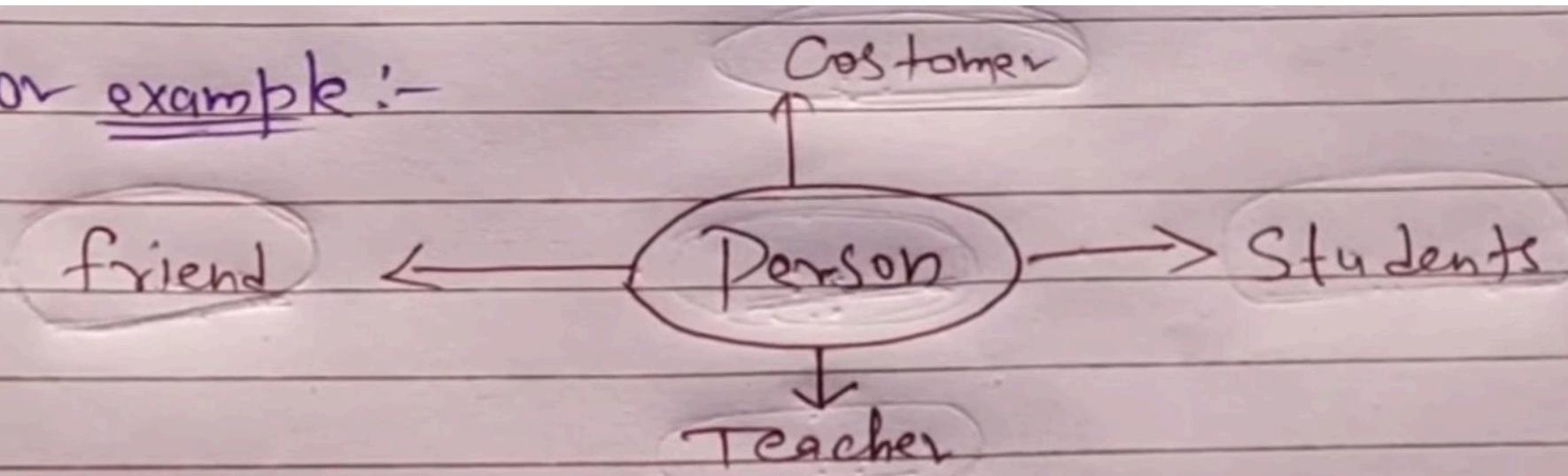


Polymorphism



Polymorphism is the greek word whose meaning is "Same object having different behaviour".

For example :-



- i) void person(Teacher)
- ii) void person(Students)
- iii) void person(friend)
- iv) void person(customer)

Polymorphism

V.V.I

Types

- Compile time polymorphism
- Runtime polymorphism

~~V.V.I~~

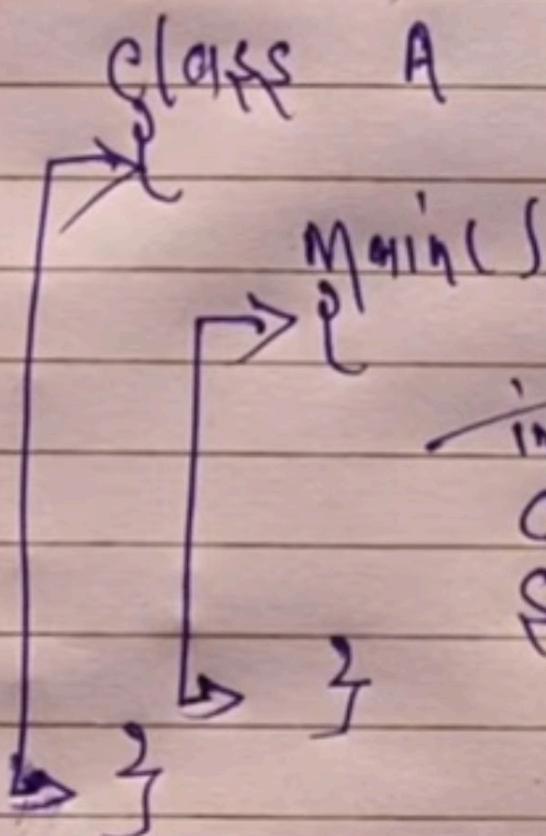
Exception Handling

Q. What is Exception? (full explanation)

Ans → An exception is unexpected/unwanted/abnormal situation that occurred at runtime called exception.

Exception Handling

Date : / /



int a=10, b=0, c;
c=a/b; → Exception
S.a.p(c);



~~V.V.I~~

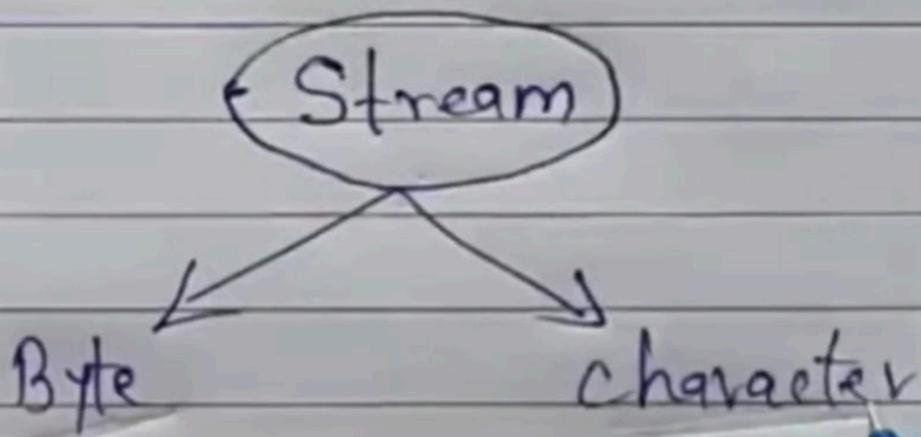
File Handling

Q. What is file handling? full explanation.

Ans File handling defines how we can read and write data on a file.

Java IO package contains all the classes through which we can perform all input & output operations in the file.

Stream:- Stream is a sequence of data.
On the basis of java.io package
all the classes devide into two
Stream.



File handling methods:-

- (I) CanRead()
- (II) CanWrite()
- (III) CreateNewFile()
- (IV) Delete()
- (V) Exists()
- (VI) Length()
- (VII) GetName()
- (VIII) GetAbsolutePath()
- (IX) MKDir()
- (X) List()
- (XI) Read()
- (XII) Write()
- (XIII) RenameTo()

V.V.I

File Handling

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File handling classes :-

- ① File
- ② FileReader
- ③ FileWriter
- ④ FileInputStream
- ⑤ FileOutputStream
- ⑥ BufferedInputStream
- ⑦ BufferedOutputStream

SUBSCRIBE

~~R.V.I~~

Package (Java)

Page No. :

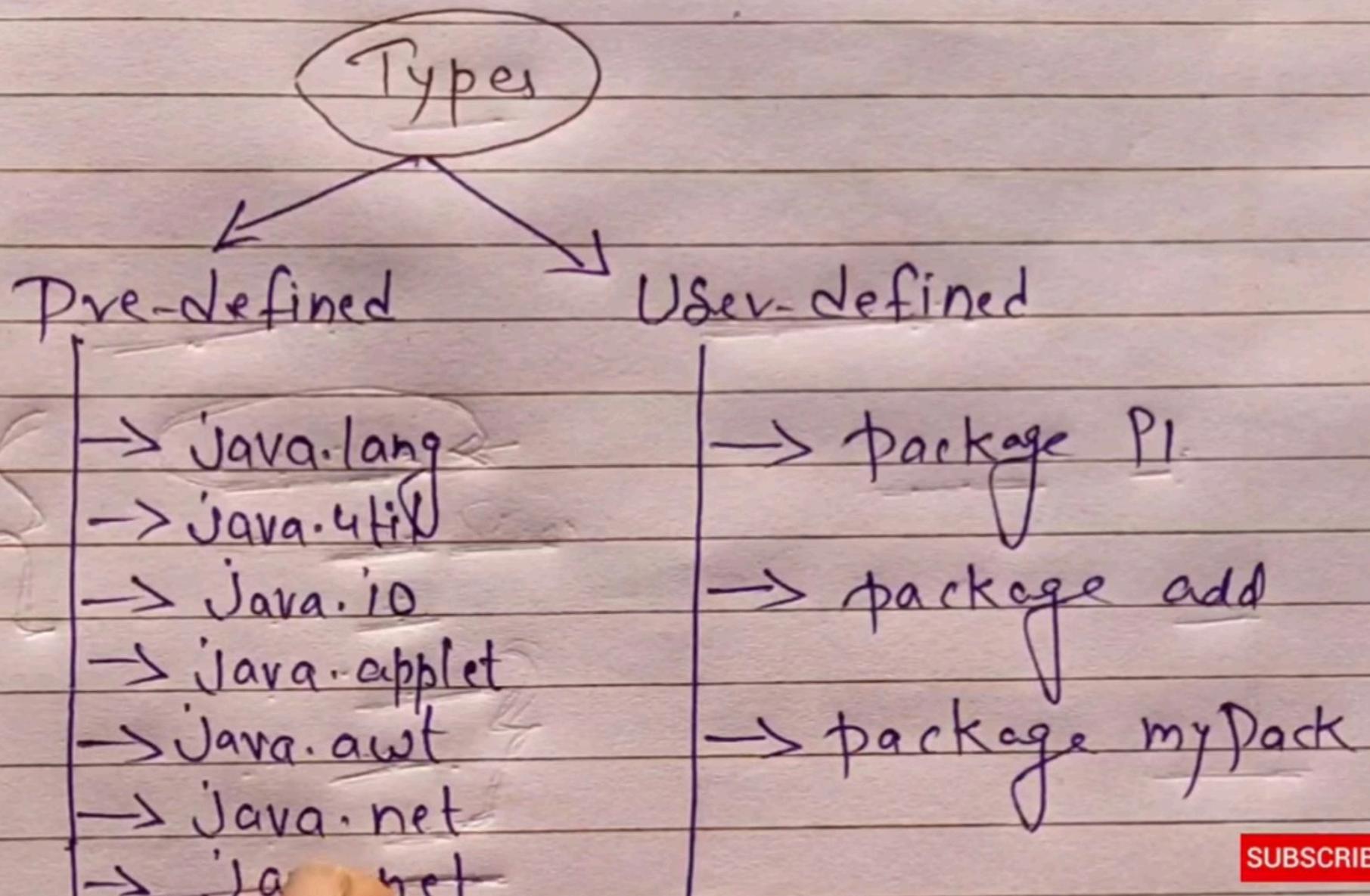
Date : / /

Q. What is package? full explanation.

Ans - A package arranges number of classes, interfaces and sub-class of sub-package of same type into a particular group.

Note:- package is nothing but folder in windows.

SUBSCRIBE



SUBSCRIBE

Access modifier	within class	within package	outside package by subclass	outside package
private	✓	✗	✗	✗
Default	✓	✓	✓	✗
protected	✓	✓	✓	✗
public	✓	✓	✓	✓

Advantage:- ① Reusability.

SUBSCRIBE

Advantage:- ① Reusability.

② Security.

③ Fast Searching.

④ Naming Conflict^{ing}. f1
A

⑤ Hiding

f2
A

Dis-advantage:-

Inte can't pass parameter to package.

SUBSCRIBE

~~V.V.T~~

Multithreading

Q. What is multithreading? With example.

Ans → Multithreading is a process to execute multiple threads at the same time without dependency of other threads called multithreading.

Raj

Rahul

Riki

30 min

10 min

main

depositors

withdrawals

cheque book

10%

10%

10%

10%

10%

10%

10%

10%

10%

10%

10%

10%

10%

10%

10%

Q. What is 'b' and ?

SUBSCRIBE

Q. What is thread?

Ans → Thread is a pre-defined class which is available in java.lang package. Thread is a basic unit of CPU and it is well known for independent execution.

Q. How to Create Thread in Java?

- Ans →
- I) By extending Thread class.
 - II) By implementing Runnable interface.

Java Full Course

Q. What is Collection? full explanation.

Ans → Java Collections are the set of pre-defined classes and interfaces that help programmer to perform different kinds of data structure operations like - "Sorting", Searching, Traversing, Storing and processing data efficiently.

