

pass args from cmd ,

& take in main method args...

-shorts come in eclipse , dunda, todays work

ide - is tool

.jar => library of java

core java main library => rt.jar

.jar = java archive

metadata rhta hai jar file main

metadatda manifest.mf file main ehta hai

.jar file=>

-metadta rhta hai

-resources

-packges(main pckg baher wala)

-may or may not contain sub packges

- contains i/f, classes ,enums,error,exceptn,type annotation

class contain

-nestes Type => type can be nested class , i/f , enum

-field

-ctor

-methods

class pckg or sub pckg main hota hai

pckg jar file main rhta hai

core java has => one jar file

=> rt.jar

java.lang.Object

java=>main pckg

lang=>sub pckg

object>Type name

main pkg in rt.jar

--

java

javax

com

jdk

org

sun

inside java main pkg

sub pkg=>

14 sub pkges

inside lang pkg

-

-it contains all fundamne0

classes need to add in java applicn

-(and extension is .class

-its compiled classes

-.class files r there

-its in jdk 8 not 21

src.zip => core java API ka source code

rt.jar => core java API : compiled java code (.class)

source code ka documentation =>

Java API docs main hai...

y java is open source

-free to use

- we can get source code(so we can modify it)

SEARCH ON BROWSER FOR docs

java API 8

frame no 1=> packg

frame no 2=classes

3=> details

work in LAB =>

see / read java.lang

System => is final class declared in java.lang pkg

3 fields (3 references)

public static InputStream in;

public static PrintStream out;

public static PrintStream err;

- standard stream objects which are associated with console

System.in => keyboard

System.out => monitor

System.err => monitor => error

--

out => is object reference of java.io.PrintStream class

which is declared as static field inside System class

--

to access it System.out

System.out.println();

--

its non static method

--

println() =>

- non static

- void

- has overloaded method

has multiple methods(same name, diff args)

- its of java.io.PrintStream class

print() =>

- non static

- void

- has overloaded method

has multiple methods(same name, diff args)

- its of java.io.PrintStream class

printf()

=>

- non static

- return type is PrintStream

- has overloaded method

has multiple methods(same name, diff args)

- its of java.io.PrintStream class

println(),print()printf()

r overloaded methods of java.io.PrintStream class

- can u write

s.o.println("hello \n");

- cursor kitna move hoga ?

var args => variable argument

sop(5+10) => 15

sop("sum "+5+10)=>sum 510

sop("sum "+(5+10))=> sum 15

data in formatted output :

go with printf()

ek ke niche ek files , kitne bhi variable ho

sir ka name , empid, slalary e.g

--

sprintf("%d20s %d 20s %d 20s f\n",name,empid,salary); => left align

aish 5 12(left , jara space deke right ko)

sprintf("-%d20s %d 20s %d 20s f\n",name,empid,salary); => right align

aish 5 12 (right chipke)

can u write helloe without ; ?

=> yes,

```
if(System.out.printf("hello")==null)
```

```
{
```

```
}
```

```
//
```

```
System.out.printf("hello")==null
```

```
System.out.printf("hello")!=null
```

```
else main print kro...
```

assignment :

printf

ke ander konse format seciifer use kr skte ?

use and all dekho...

Data Type :

c lang :

1. fundamental data type(void,char,int,float,double)

2. derived(array,function,pointer)

3. user defined (ye khmne khud kia hai)

(structure,union)

what we understand by

char ch;

1. which type of data to store (nature)

2. size

3. operation on type(+,-)(not %)(internally treated as integer)

4. allows tells how much data will be there (range)

(9.37 am) see recording alone

data types in java:

--

1.primitive(also called as value type)

8 types r in java

1. boolean not specified(intenally it occupies 1 bit)

2.byte 1

3.char (unicode)2

4.short 2

5.int 4

6.float 4

7.double 8

8.long 8

(value) store krte hai

- everything is signed in java , nothing unsigned,

its simple lang.

2.non primitive(referne type)

(refernec store krte hai)

--

1.interface

2.class

3.enum

4.array

string is class ,

it comes under class type

Assignment:

diff betwn ASCII & unicode

-in java ,on any platform , size is same, so

no sizeof() operator in java

jo dia hai wohi hai , sare platform main

- in java local variable ko default value nhi rhta

-only fields ko rhta hai

in c++ local ko garbage value rhta hai,

in java , no garbage thing is there

in java primitive types r not classes,

so somewhere we can't use it

for parsing like concept

so we require wrapper classes

all wrapper classes are final

char default value

is `'\u0000'`

it means => blank

variable :

- find it => variable vs file

- variable is temporary container stores data in RAM

true/false => boolean literal

= constant / literal

125 => integral literal

=> value constant right hai

- can't change

- java is statically type checked language

kuch bhi use krne ke pahile , type batana pdta hai...

-

variable delcre krte wakt value dene ka process => initialization kehte hai...

```
int num1=10;//iniln
```

```
int num2=num1; // initln
```

```
int num3;
```

```
num3=num2;// assginment
```

```
num3=4; // assignment
```

assingment : data type nhi hai , alredy delcred hai with some value or empty

then we r assignng it after that

(no dat ttype)

```
num3=5; // assignmemnt // upr dekho
```

type of source , type of desintaion is diff

use type casting

```
int n=5;
```

```
double d=(int) n;
```

```
int//narrow
```

```
double // wider
```

narrow ko wide main => widening

, not data loss

, no need of type casting

automatic promotion

```
double d=5.5;
```

```
int x=(int) d;
```

```
// narrowing
```

big value in small

no automatic type cast

so do type cast

-explicitly type cast krna hoga / its mandatory

data loss hoga

c++ main automatic hota ,

java main error dega

cuz data loss hota hia

oracle kehta hia

type cast kro intentionally

or type change kro...

else data loss hoga , wo aap khud kr rhe hoo

(data recover nhi hota)

so loss

krna hai to

ubatcr krke store krke rkho

else

type chnge kr skte hoo

else data loss

narrowing, widening main , dono bhi primitive the...

int n=123 ; //

convert it in string

primitve => non primitive

u cant go like wudeing, narrwoing

use wrapper classes...

use toString method ...

its integer class ki menthod hai static

String str=Integer.toString(n);

(ctrl + 1) // short trick

OR

String str=String.valueOf(n);

// ye bhi numeric ko string main convert krta hai...

process of conversion , primitive into non-primitive type , called boxing

-its heavy process

-phir isko object banao

then convert kro...

so heavy

solution hai in java

but baad main padane wale hai sir

convert string into number (primitive type)

-

int no=Integer.parseInt(str);

parseInt() // static method of Integer class

// conversion of non primitive into primitive => unboxing

//

assignment : chk all uper wala

boxing , unboxing main, method use krte hai

narrowing, widening main type cast krte hai

NumberFormatException => jab apparse call krte hai ,

and jab string doesnot contain parseable value, tab aata hai ye exception

...

code point => har character ko unicode value rhta hai

```
char c="A";
```

```
int n=c;
```

```
sop(n);
```

```
String s="A"
```

```
sop(s.codePointAt(0));
```

Evening

stressor => i come here, improve it

dabbler

achiever => mentor => follow steps jisne ye crosss kia hai , unka

arguments => method call

parameter => method declaran

command line agrumnets :

javac -version

ls -l

java program 1 2 3

--
pass args by command line

see errors

java program "aish"

java program "asih m"

java program aish

java program 1 2 3

java program 1 2.5f 3.7d

-

int n=Integer.parseInt(args[0]);

- cmd line se jo pass hota hai , wo as a string pass hota hai

String str=java.util.Arrays.toString(args);

saara cmd argument ek baar hi print

--

pass arguments as command line in eclipse

import java.lang.*;

by default every file main rhta hai , imported rhta hai

- cuz provides all fundamental classes

scanner - final class in util pkg

if koi bhi class , file ke bahar use krna hai to fully clasfied name as acces kro"

i.e. import it with fully classified name

--

fully qualiefied name : pkg name class name

--

2 ways

1. by fully qualified name

2. by import

e.g

1. java.util.Scanner sc=new Scanner9Ssystem.in)

2.

import java.util.*;

Scanner sc=new Scanner(System.in);

console input :represents keyboard

console output : reprsents monitor/printer

console : keyboard + monitor

not GUI

via string , char, text , cmd

we use it

CLI

CUI

stream = > flow of data

data ko read, write krna hai to stream ki jurat pdegi

keybaord se montitor => System.in

monitor se keyboard =>System.out

=>stream

-

stream is always associated with hardware

buffer

network

keyboard

monitor

standard stream object of java associated with console :

1.System.in => keyboard

2.System.out => monitor

3.System.err => monitor

Scanner => final class hai

BufferedReader class:

java.io

-

isse bhi input le sakte hai

--

```
BufferedReader r=new BufferedReader(new InputStreamReader(System.in));
```

```
String a=r.readLine();
```

```
int i=Integer.parseInt(r.readLine());
```

isme r.readInt() ; // aisa kuch nhi

sirf readLine() hai,isse convert kro jisme chahiye

ye string main deta hai value

3 .option :

to take user input

```
import javax.swing.JOptionPane;
```

```
String name=JOptionPane.showInputDialog("enetr name :");
```

```
int emp=Integer.parseInt(name);
```

4th way

```
Console c=System.console();
```

```
String n=c.readLine();
```

scanner resource hai :

resource hai os ke:

1.file

2.thread

3.api

4.network connec

5. hardware devices, keybaord , monitor

isko program main use krna hai to java classes se krna hoga

```
sc.close() ;// close resouce , scanner
```

OR

else

write in try block

it means with resouce

--

here scanner api hai , wo keyboard ko use kr rha hai

so usko ye resouce close krna pdega

so next isko access kr paye

so close krna pdega.

else resouce leak hoga

so two scanner likh skte hai ?

phila wala close na krte hue ?

kya hoga , aur koi resouce use krega ,

or nhi...

will try kya hota hai lets see...

day

src(.java files)

program.java

bin(.class files)

=>

after complation

day

src(.java files)

program.java

bin(.class files)

- program.class file

compile in day

but .class bin main aan chhiye

PATH => envirmnt variable of OS

path set nhi kia , to javac OS ko nhi milega

absolute path

```
javac /desktop/files/day/src/Program.java
```

relative path

```
javac ./src/Program.java
```

=> (\) => path separat charater

```
javac -d ./bin ./src/Program.java
```

-d => javac ko bol rhe ho ,

.class file , bin folder main rkho ...

eclipse bhi internally aisa hi krta hai ...

08:12 PM

see video again :

to run :

set classpath=.\bin

(in linux export CLASSPATH=./bin)

```
java /Program
```

(isko , java ./bin/Program aisa nhi chlega ka)

by default , JVM's CL looks .class file in directory , jaha se usse compile kia ..

jaha pe .class waha pe nhi ,

jaha se compile kia waha pe...

(current dirtory main dhunta hai)

IMPORTANT:

for interview

path => OS java ka path dunda hai , ita OS's variable

classpath => its java's variable,

jvm looks for compiled .class file

Java Buzzwords / Java Language Features :

(10 hai)

(java ke struggle din , wo publish kiye the , java ko famous banane keliye ...)

-simple

-oops (not purely)

-architerture netural

-poratble

-robust

-multithreaded

-secure

-dynamic

-high performance

-distributed programming language
