

what is difference between MLL and byte code?

MLL -> contains instructions in 0's and 1's

Bytecode -> It contains instructions neither in HLL nor in MLL

what is architectural neutral?

Write code once in any platform and run the code in any other platform without worrying its architecture.

Architectural neutral -> Write Once Run Anywhere(WORA)

what is jit?

JIT -> Just In Time Compiler(reference to JDK Architecture)

jvm comes between the platform to make independent...where c stuck...
on which level. briefly explain please :

6

07_10_2022_OA_Discussion_jordan - Notepad

File Edit View

jvm comes between the platform to make independent...where c sticks...
on which level. briefly explain please


C language -----> compiler-----> .obj file(contains instructions in MLL)
JavaLanguage----> JavaCompiler -->.classfile(contains instruction neither in MLL nor in HLL)

.obj file -> windows(run)
-> linux(no output)
-> mac(no output)

Architectural Neutral/Platform independence/WORA

.classfile -> JVM(windows)
-> JVM(linux)
-> JVM(mac)

can u explain about the how the jvm works?



File Edit View

.classfile -> JVM(windows)

-> JVM(linux)

-> JVM(mac)

can u explain about the how the jvm works?

.class file(byte code) -> JVM (reads bytecode in interpretation style)

sir jvm is platform dependent ?

yes jvm is platform dependent.

sir wht is obj oriented lang?

Obj oriented language means writing the code using the principles of OOps.

eg: inheritance,polymorphism,abstraction,...

If we compiled our app in jdk18 and uploaded it in the cloud. Will it cause problems in the future after it is not supported?



07_10_2022_OA_Discussion_072022 - Notepad
File Edit View

sir wht is obj oriented lang?

Obj oriented language means writing the code using the principles of OOps.
eg: inheritance, polymorphism, abstraction,...

Q>

If we compiled our app in jdk18 and uploaded it in the cloud. Will it cause problems in the future after it is not supported?

No probs becoz java provides backward compatibility.

Q> jvm contains java compiler or java compiler is separate?

JDK => Compiler + JRE

|=> JVM + library tools

Developers(JDK) -> write the code ,test the code and run the code.

Enduser(JRE) -> just run the code

5

Q> can you explain how java works as interpreter in depth?

java ----> .classfile -----> JVM(interpreter)

| -> line by line execution.

Q> Is it source code or bytecode?

java(source code/HLL)

| compiler

| .classfile(bytecode/neither MLL nor HLL)

| JVM

| output

01

java -version

Q> Sir Java LTS version automatically updates or we need to uninstall the version and install the latest version of LTS?
uninstall and install(suggested to just install jdk11(LTS))

Q> Can we see file containing Machine Level Code Sir like how u showed for Byte Code?
yes possible, but not in java(becoz output file is not generated in java)

Q> sir what is jar?
jar -> collection of .class files

==

The screenshot shows a Windows desktop environment. A Notepad window is open in the foreground, displaying the text '07_10_2022_OA_Discussion_order - Notepad' in the title bar. The menu bar includes 'File', 'Edit', and 'View'. The main text area contains the following content:

```
java -version

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Q> sir what is jar?
jar -> collection of .class files

==
```

The Windows taskbar is visible at the bottom, showing the Start button, search icon, and several pinned application icons. The system tray on the right indicates the date and time as '07-10-2022 22:50'.

Q> sir what is jar?

jar -> Zipping of .class files is called as "jar" file
It stands for Java Archive file

Q> is .class file is a complete code??

class file is not complete file, internally it becomes complete with the help of JVM.

Q> what is flash memory sir?

It is ROM data(Read Only memory).

It is a information w.r.t vendors(linux,unix,fedora,windows,mac)

12

The screenshot displays the Embarcadero Official Spring Security masterclass page. The page is organized into a header with navigation links (Product, Solutions, Resources, Open Source, Enterprise, Pricing), a main content area with a list of course modules, and a footer with navigation links (About, Packages, Languages). A large green '13' is overlaid on the page.

Course Modules:

Module	Duration	Last Update
Introduction to Spring Security	1h 15m	1 month ago
Spring Security Fundamentals	1h 15m	1 month ago
Spring Security Advanced Topics	1h 15m	1 month ago
Spring Security Integration	1h 15m	1 month ago
Spring Security Best Practices	1h 15m	1 month ago
Spring Security Troubleshooting	1h 15m	1 month ago
Spring Security Security Audit	1h 15m	1 month ago
Spring Security Security Policy	1h 15m	1 month ago
Spring Security Security Architecture	1h 15m	1 month ago
Spring Security Security Implementation	1h 15m	1 month ago
Spring Security Security Testing	1h 15m	1 month ago
Spring Security Security Deployment	1h 15m	1 month ago
Spring Security Security Monitoring	1h 15m	1 month ago
Spring Security Security Incident Response	1h 15m	1 month ago
Spring Security Security Compliance	1h 15m	1 month ago
Spring Security Security Governance	1h 15m	1 month ago
Spring Security Security Risk Management	1h 15m	1 month ago
Spring Security Security Awareness	1h 15m	1 month ago
Spring Security Security Training	1h 15m	1 month ago
Spring Security Security Certification	1h 15m	1 month ago
Spring Security Security Research	1h 15m	1 month ago
Spring Security Security Innovation	1h 15m	1 month ago
Spring Security Security Future	1h 15m	1 month ago

Navigation Links:

- About
- Packages
- Languages

*13_10_2022_class_notes - Notepad

FileEditView

1. OOPS(basic introduction)

2. Identifier/variables

a. rules to write an identifier

3. Reserved words

4. Data types and its chart.

yesterday topic of discussion

1. JShell

2. main method(public static void main(String[] args))

3. command line arguments execution using IDE and command prompt.

14

100%

Windows (C#)

UJT-8

25°C
Rain to stop

Ln 17, Col 1

19:39
13-10-2022

413_10_2022_oops_notes - Notepad

File Edit View

2. COMMUNICATING ARGUMENTS EFFECTUALLY USING THE 5W AND COMMUNICATING PRINCIPLES

Nitin Manjanath

100%

Windows (C#)

10:42 AM

13-10-2022

oops

It stands for Object Orientation Principles.

Object -> real time instance.

eg: Car, Student, Employee

Every object in realtime will have 2 parts

what it has

what it does

eg: Car

name

noOfWheels

model

speed

15

File Edit View

*13_10_2022_cous Jones - Notepad

what it does

eg: Car

brandName
noOfWheels
model
speed
move
accelerate
brake

Java code

class Car

25°C Rain to stop

Ln 35, Col 5

Windows Explorer

13/10/2022 19:45

Notepad

13/10/2022 19:45

13.10.2022, Saturday - Hyderabad

File Edit View

class Car

{

//HAS part of an Object is represented as a "variable".

String brandName;

int noOfWheels;

//DOES part of an object is represented through "methods"

public void move()

{

//logic of moving a vehicle

}

public void accelerate()

{

//logic of accelerating a vehicle

}

}

25°C

Rain to stop

Windows Explorer

13.10.2022

5:54 PM

Nitin Darjapuri

Identifier

=====

It is a name in java program.

It can be a classname, methodname, **variable name**.

```
class Test{  
    public static void main(String[] args){  
        int x= 10;  
    }  
}
```

—



Untitled - Paint

File View

Clipboard

Image

Tools

Brushes

Shapes

Size

Colors

```
class Test
{
    public static void main(String[] args)
    {
        int x= 10;
    }
}

class Test
{
    public static void main(String[] args)
    {
        System.out.println("sachin");
    }
}
```

19

27°C Rain to stop

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ENG IN 2029 13-10-2022

Nan Majumdar

Rules(syntax for compiler + jvm) for writing an identifier

Rule1: The only allowed characters in java identifiers are
a to z, A to Z, 0 to 9, _(underscore), \$

Rule2: If we use any other characters it would result in
`int ^* = 10;`(invalid)
`int total = 10;`(valid)
`int total# = 35;`(invalid)

Rule3: Identifiers are not allowed to start with digits
`int telusko1 = 100;`(valid)
`int 1telusko = 100;`(invalid) ¹

20



Rule4: Java identifiers are case sensitive, meaning number and Number is different.

```
class Demo{  
    int number=10;  
    int Number=20;  
    int nUmber= 30;  
    int NUMBER = 40;  
}
```

Rule5: There is no lenght limit on java identifiers, but still it is a good practise to keep the length of the identifier not more than 15characters.
int priorityOfThreadWithMinValue = 1;

21



Rule6: We can't use reserve words as a identifiers.

eg: int if = 10; //CE

Rule7: Predefined class names can be used as identifiers

eg#1

```
String Runnable = "sachin";  
System.out.println(Runnable); //sachin
```

eg#2

```
int String = 10;  
System.out.println(String); //10
```

Note: Even though predefined class names can be used as an identifiers, it is not a good practise to keep



Note: Even though predefined class names can be used as an identifiers, it is not a good practice.

.....

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107 - 139

cyacall:ba:phnath\maccb\111 / 10

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Reservewordchart - Paint

File View

Clipboard Image Tools Brushes Shapes Size Colors

Reserved words for data types: (8)

- 1) byte
- 2) short
- 3) int
- 4) long
- 5) float
- 6) double
- 7) char
- 8) boolean

Reserved words for flow control: (11)

- 1) if
- 2) else
- 3) switch
- 4) case
- 5) default
- 6) for
- 7) do
- 8) while
- 9) break
- 10) continue
- 11) return

Keywords for modifiers: (11)

- 1) public
- 2) private
- 3) protected
- 4) static
- 5) final
- 6) abstract
- 7) synchronized
- 8) native
- 9) strictfp (1.2 version)
- 10) transient
- 11) volatile

Class related keywords: (6)

- 1) class
- 2) package
- 3) import
- 4) extends
- 5) implements
- 6) interface

Keywords for exception handling: (6)

- 1) try
- 2) catch
- 3) finally
- 4) throw
- 5) throws
- 6) assert (1.4 version)

Object related keywords: (4)

void -> keyword associated with method
unused keywords: goto, constant

100% 20:45 13.10.2022

Nari Marjanovic

Reserved words for flow control:(11)

- 1) if
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- 3) switch
- 4) case
- 5) default
- 6) for
- 7) do
- 8) while
- 9) break
- 10) continue
- 11) return

Object related keywords:(4)

- 1) new
- 2) instanceof
- 3) super
- 4) this

Class related keywords:(6)

- 1) class
- 2) package
- 3) import
- 4) extends
- 5) implements
- 6) interface

void -> keyword associated with method
unused keywords: goto, constant

27

System.out.println(int);

ReservedWords

It is a built in words/keywords which has already a predefined meaning to it.
refer: ReservedWords.png

Note:

Literal Any constant value which can be assigned to a variable is called literal

int data =10;

literal -> 10

data -> variableName/identifier

int -> datatype/reservedword



Reserved Words

It is a built in words/keywords which has already a predefined meaning to it.
refer: Reservedwords.png

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int data = 10;

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Note: for boolean datatypes the only values allowed for a variable is "true,false", other than this if we try to keep any values it would result in "CompileTimeError".

13.10.2022, 21:06:06 - Notepad

File Edit View

literal -> 10

data -> variableName/identifier

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Which of the following list contain only reserved words ?

1. final,finally,finalize

ans. finalize is not a reserved word, it is a method in Object class.

2. break,continue,return,exit

ans. exit is not a reserved word, it is a method in System class

3. byte,short,integer,long

ans. Integer is not a reserved word, it is a predefined class

4. throw,throws,thrown

ans.

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Windows [CTRL]

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13.10.2022

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Cloudy

13.10.2022, 21:06:06 - Notepad

File Edit View

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13.10.2022, 21:06:06 - Notepad

File Edit View

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ans.

10%

Windows [CTRL]

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24°C

Cloudy

ans. throw is not a reserve word, it is a userdefined variable.

Datatypes

Every variable has a type, every expression has a type and all types are strictly typed/define in java becoz java is strictly typed / statically typed language.

Compiler role -> Compiler will check the value stored can be handled by datatype or not

This checking which is done by compiler is called "TypeChecking/StrictlyTyped checking".

Primitive datatypes

a. Numeric values

=> to store number

a. whole number

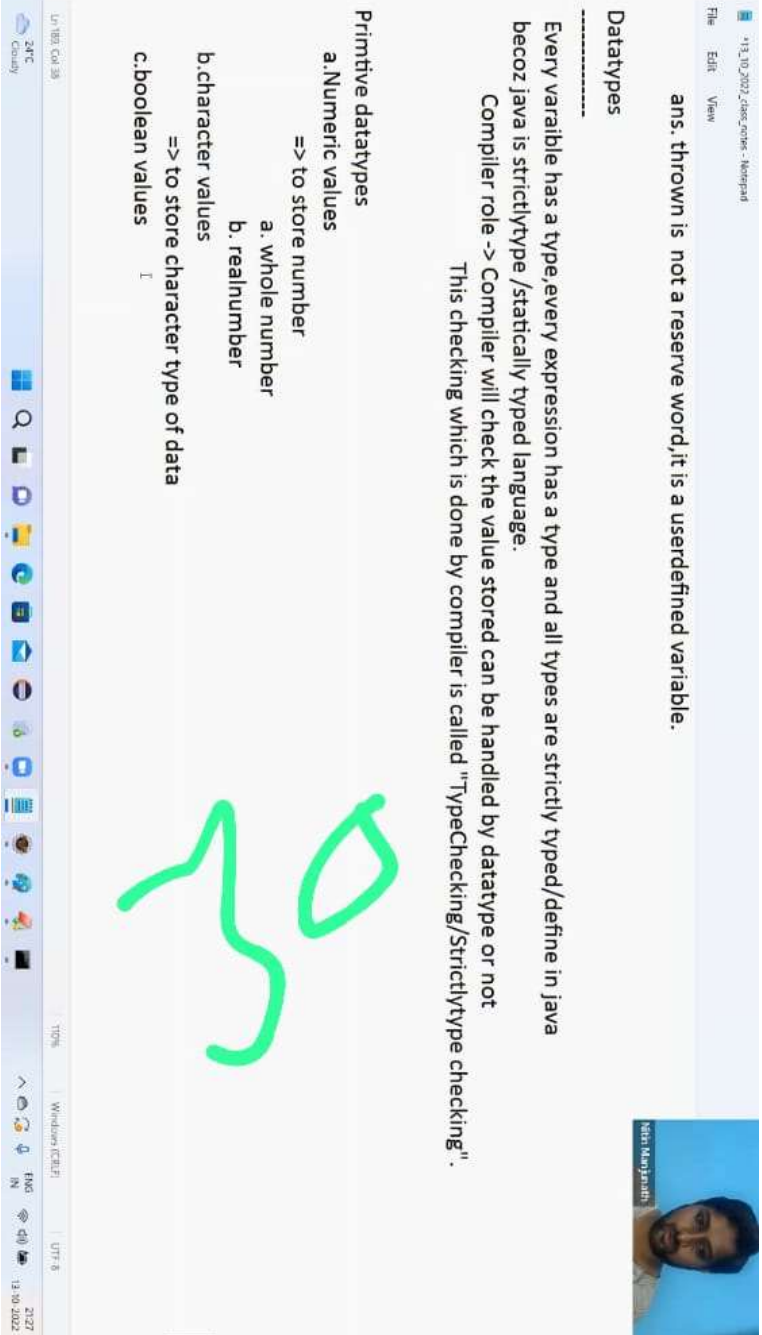
b. real number

b. character values

=> to store character type of data

c. boolean values

or



13.10.2022, 21:32: Notepad

File Edit View

Compiler role -> Compiler will check the value stored can be handled by datatype or not
This checking which is done by compiler is called "TypeChecking/StrictlyType check"

Primitive datatypes
=====

meaning -> data which is commonly used and supported by any language to store directly.

a. Numeric values
=> to store number
 a. whole number
 b. realnumber

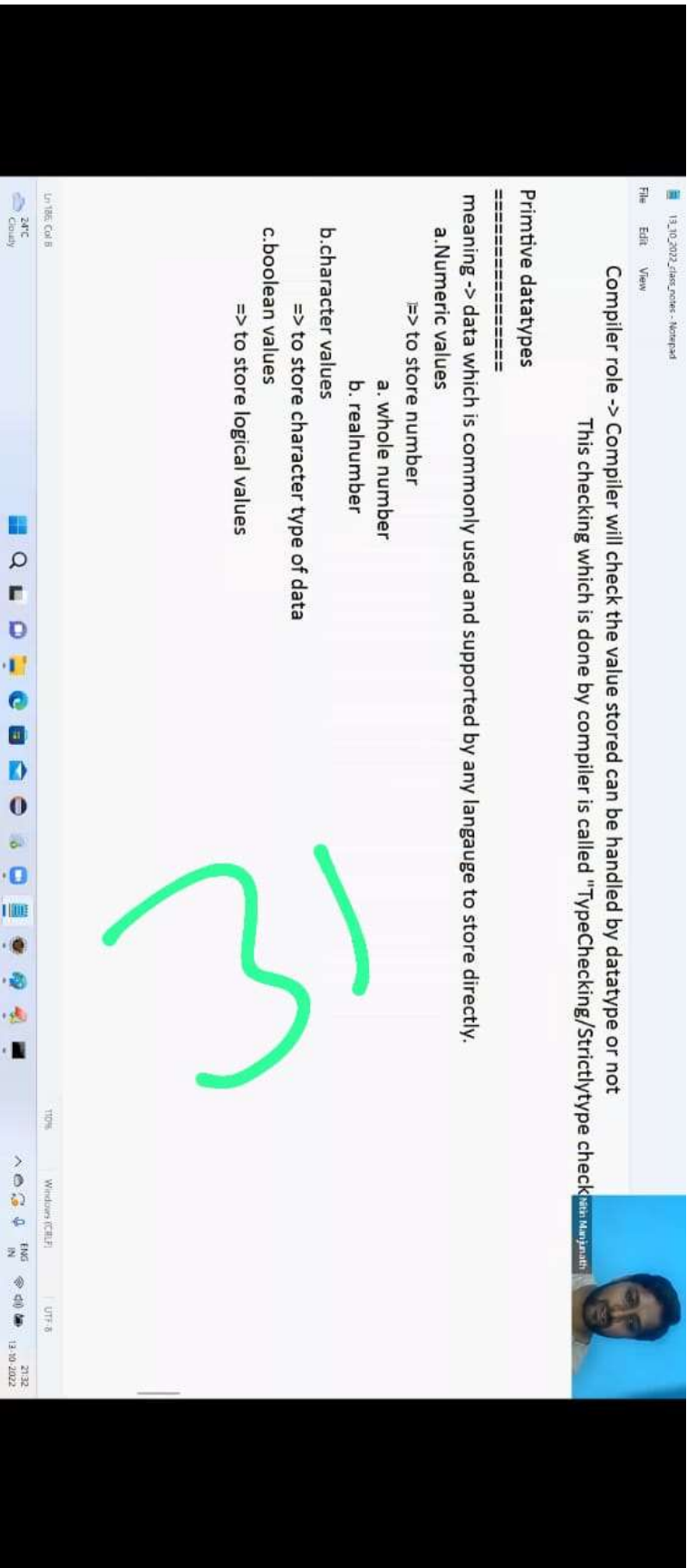
b. character values
=> to store character type of data

c. boolean values
=> to store logical values

3

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24°C Cloudy



13.10.2022, 21:38 - Notepad

File Edit View

c.boolean values

=> to store logical values

Number data

To store whole numbers we have 4 datatypes

a. byte

b. short

c. int

d. long

datatype information like

a. size of datatype(how much memory is allocated on the ram for that datatype by JVM)

b. minvalue what it can keep

c. maxvalue what it can keep

marks=35

1

35

Nar Karjanein

Ln 205, Col 30

24°C Coooly

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Windows [CTRL]

UTP 5

21:38


13.10.2022

symbol: variable MIN_RANGE
location: class Byte
Test.java:7: error: cannot find symbol
System.out.println("MAXVALUE of byte is :: "+Byte.MAX_RANGE);
^
symbol: variable MAX_RANGE
location: class Byte
2 errors

D:\>javap java.lang.Byte
Compiled from "Byte.java"
public final class java.lang.Byte extends java.lang.Number implements java.lang.Comparable<java.lang.Byte> {
 public static final byte MIN_VALUE;
 public static final byte MAX_VALUE;
 public static final java.lang.Class<java.lang.Byte> TYPE;
 public static final int SIZE;
 public static final int BYTES;
 public static java.lang.String toString(byte);
 public static java.lang.Byte valueOf(byte);
 public static byte parseByte(java.lang.String, int) throws java.lang.NumberFormatException;
 public static byte parseByte(java.lang.String) throws java.lang.NumberFormatException;
 public static java.lang.Byte valueOf(java.lang.String, int) throws java.lang.NumberFormatException;
 public static java.lang.Byte valueOf(java.lang.String) throws java.lang.NumberFormatException;
 public static java.lang.Byte decode(java.lang.String) throws java.lang.NumberFormatException;
 public java.lang.Byte(byte);
 public java.lang.Byte(java.lang.String) throws java.lang.NumberFormatException;
 public byte byteValue();
}

21:37
13-10-2022
24°C
Cloudy

Neti Manjanna



13.10.2022, 2:06 PM - Notepad

File Edit View

Number data

To store whole numbers we have 4 datatypes

- a. byte
- b. short
- c. int
- d. long

datatype information like

- a. size of datatype(how much memory is allocated on the ram for that datatype by JVM)
- b. minvalue what it can keep
- c. maxvalue what it can keep

Byte:

- size -> 8 bits
- minvalue -> -128
- maxvalue -> 127

marks=35

100% Windows Explorer UTF-8

27°C Cloudy

27:38 13.10.2022

Vishal Karpurath

Note: for boolean datatypes the only values allowed for a variable is "true,false", other than this if we try to keep any values it would result in "CompileTimeError".
=> All reserved words names would start with "lower case".
=> In java all Classnames/Interface names would start with "upper case".

Which of the following list contain only reserved words/keywords/built-in words?

1. final, finally, finalize
ans. finalize is not a reserved word, it is a method in Object class.
2. break, continue, return, exit
ans. exit is not a reserved word, it is a method in System class
3. byte, short, Integer, long
ans. Integer is not a reserved word, it is a predefined class
4. throw, throws, thrown
ans. thrown is not a reserved word, it is a user-defined variable.

36

Datatypes

Ln 162, Col 76



File Edit View

eg:

byte marks=35 //valid

byte marks = 135; //CE: possible loss of precision

byte marks = -1; //valid

byte a = true; //CE: incompatible types

byte b = "niñn"; //CE: incompatible types

When to use byte datatype?

it is commonly used when we handle the data which is coming from stream, network

stream -> java.io package

" " -> means String data

' ' -> char data

1

Handwritten green mark resembling a stylized 'L' or '7'.



Ln 278, Col 19
Run/Debug



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UTF-8

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13-10-2022

13.10.2022, 21:51 - Notepad

File Edit View

byte:

size -> 8 bits

minvalue -> -128

maxvalue -> 127

eg:

byte marks=35 //valid

byte marks = 135; //CE: possible loss of precision

byte marks = -1; //valid

byte a = true; //CE: incompatible types

byte b = "nitin"; //CE: incompatible types

When to use byte datatype?

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' ' -> char data

38

Nitin Marjapat

13.10.2022, 21:55, notepad

File Edit View

When to use byte datatype?
it is commonly used when we handle the data which is coming from stream, network.
stream -> java.io package
" " -> means String data
' ' -> char data

short
System.out.println("Size of short is :: "+Short.SIZE);
System.out.println("MINVALUE of short is :: "+Short.MIN_VALUE);
System.out.println("MAXVALUE of short is :: "+Short.MAX_VALUE); 1

size : 16bits(2 byte)
minvalue: -32768
maxvalue: +32767

short data=137;//valid
short data = true; //CE: incompatible types
short data = "sachin"; //CE: incompatible types

39

Nishu Marjani

Ln 238, Col 1

27°C Baran coming

100% Windows [CTRL] UTF-8 21:55 13.10.2022

File Edit View

*13_10_2022_cms_notes - Notepad

int:
System.out.println("Size of int is :: "+Integer.SIZE);
System.out.println("MINVALUE of int is :: "+Integer.MIN_VALUE);
System.out.println("MAXVALUE of int is :: "+Integer.MAX_VALUE);

size: 32bits(4 bytes)
minvalue:-2147483648
maxvalue: 2147483647

eg: int data = 323445;
int result = true;//ce:incompatible types
int result ="pass";//ce:incompatible types

Note: This data is not at all used in java and this data type is best suited only if u have old processors like 80

int:
System.out.println("Size of int is :: "+Integer.SIZE);
System.out.println("MINVALUE of int is :: "+Integer.MIN_VALUE);
System.out.println("MAXVALUE of int is :: "+Integer.MAX_VALUE);

size: 32bits(4 bytes)
minvalue:-2147483648
maxvalue: 2147483647

eg: int data = 323445;
int result = true;//ce:incompatible types
int result ="pass";//ce:incompatible types

41

Note: The most commonly used datatype for storing whole number is "int" only and by default if we specify any literal of number type compiler will try to keep it as "int" only, but we can keep either in **short** or **byte** also.

Ln 294, Col 106
27°C
Ran coming

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13_10_2022_21st_lecture - Notepad
File Edit View

note: The most commonly used datatype for storing whole number is "int" only and by default if we specify number type compiler will try to keep it as "int" only, but we can keep either in short or byte also.

long

```
System.out.println("Size of long is :: "+Long.SIZE);  
System.out.println("MINVALUE of long is :: "+Long.MIN_VALUE);  
System.out.println("MAXVALUE of long is :: "+Long.MAX_VALUE);
```

size: 64bits(8bytes)

minvalue:-9223372036854775808

maxvalue:9223372036854775807

eg: long data = 10;

Note:

When int is not enough to hold the big values, then we use long data type.

When we work with large files, data would come to java program in terms of GB's.

long size = file.length();



File Edit View

11.10.2022, Saturday - Notepad

eg: long data = 10;
long data = 9223372036854775807;

Notepad

If the data goes beyond the range of int, then to keep the data inside long data type we need to explicitly suffix the data with 'L' or 'l' otherwise it would result in "CompileTimeError".

eg: long firstData=9223372036854775807L; //CE

long secondData=9223372036854775807L; //CE

long firstData=9223372036854775807L;

long secondData=9223372036854775807L;

long data = 10L;

long number = 5L;

Note:

When int is not enough to hold the big values, then we use long data type.

When we work with large files, data would come to java program in terms of GB's.

long size = file.length();

Ln 226, Col 1

23°C

Bar coming

100%

Windows Explorer

UTZ 6

22:19

13.10.2022