

Basic Fundamental Programming

Day 2: May 2021

Kiran Waghmare





Mouse



Select



Text



Draw



Stamp



Spotlight



Eraser

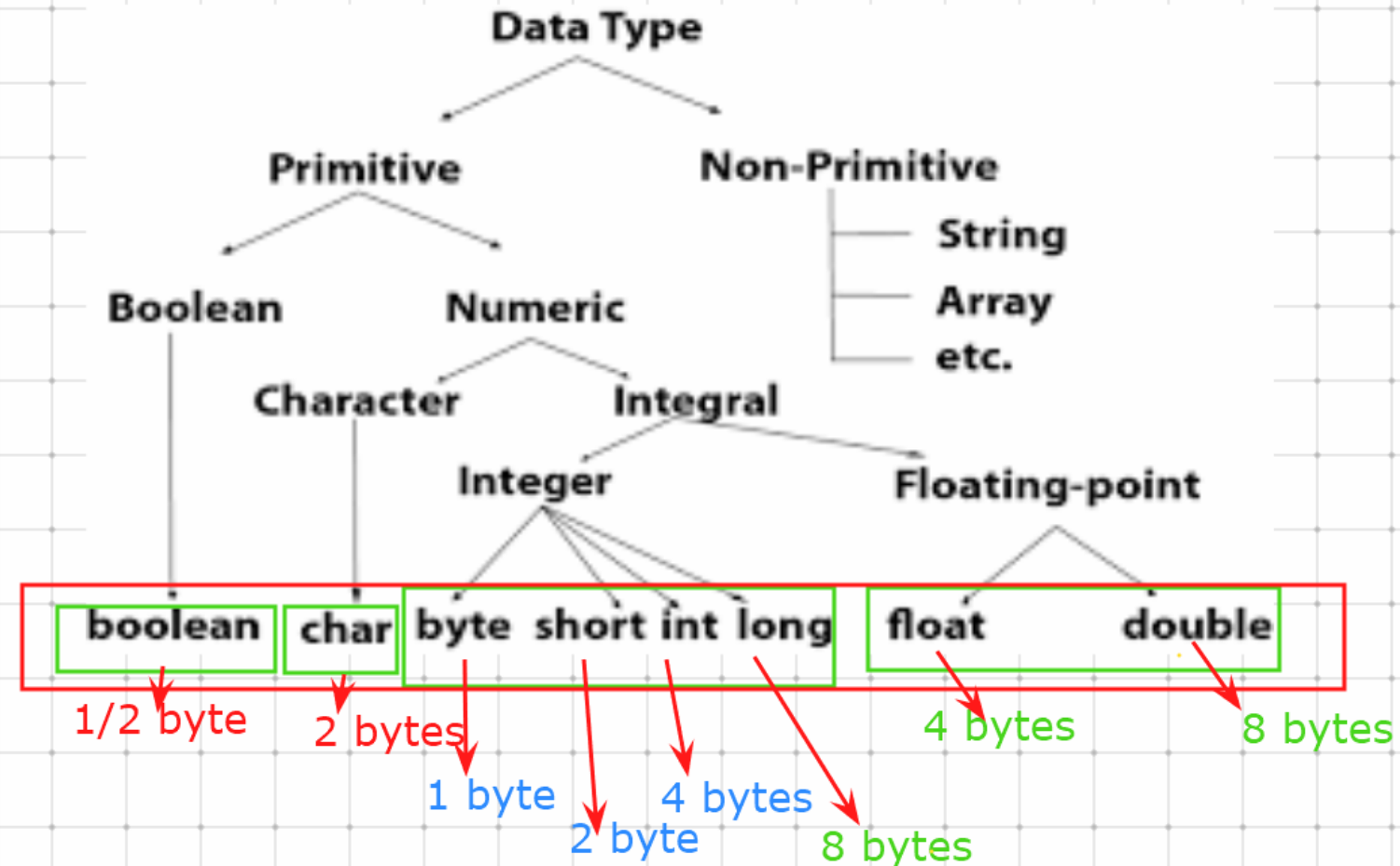


Format



Undo

Who can see what you share here? Recording On



Strongly type Programming language

OOPs-Multiple inheritance, operator overloading,
structures, unions, pointers

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May21 LB Notes.txt P1.java

```
364 Day 2: Basic Fundamenta
365 Date :06/05/2021
366 Data Types
367 -----
368
369 Byte: 1 byte
370
371
```

MSB

signbit +/- (0/1)

-23

You are screen sharing Stop

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Normal text file length : 6,407 lines : 371 Ln : 371 Col : 1 Pos : 6,408 Windows (CR LF) UTF-8 INS

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May21 LB Notes.txt P1.java

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```
388 Ex:
389 short h=125;
390 short h=141;
391 short h=32768;
392 short b=true;
393 short b="Ria";
394 -----
395 int
396 size:4 bytes
397 Range:-2147483648 to 2147483647
398
399 Ex:
400 int h=125;
401 int h=141;
402 int h=-2147483647;
403 int b=true;
404 int b="Ria";
```

The diagram illustrates the range of integer values. A horizontal line represents the number line, with a vertical tick mark at 0. To the left of 0 is the value -127, and to the right is 128. Above the line, a yellow bracket spans from -127 to 128, indicating the range of short integers. Another yellow bracket spans from -2147483648 to 2147483647, indicating the range of int values. The text 'size:4 bytes' is written above the int range bracket.

Normal text file length : 6,906 lines : 404 Ln : 398 Col : 1 Pos : 6,830 Windows (CR LF) UTF-8 INS

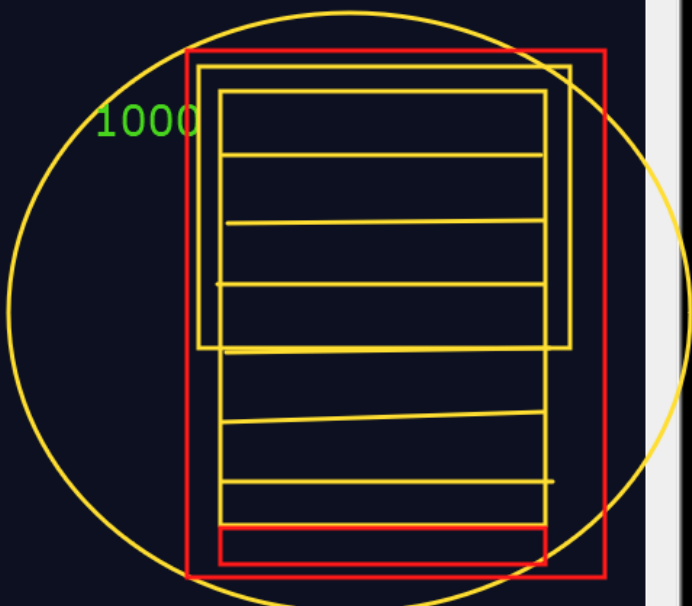
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May21 LB Notes.txt P1.java

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```
411 Default value:0
412 Wrapper Class: Long
413 -----
414
415 Float
416 Size:4
417 decimal places: 5/6
418 Range:-3.4e38 to 3.4e38
419
420 Double
421 size:8
422 decimal places: 14/15
423 Range:-1.7e308 to 1.7e308
424
425 -----
426
```



1000

Normal text file length : 7,250 lines : 426 Ln : 426 Col : 1 Pos : 7,251 Windows (CR LF) UTF-8 INS

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May21 LB Notes.txt P1.java

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Who can see what you share here? Recording On

```
1 import java.util.Scanner
2
3 public class P1
4 {
5     public static void main(String[] args)
6     {
7         int i=10;
8         long l=i;
9         float f;
10        f=i;
11        double d=i;
12
13
14        System.out.println(i);
15        System.out.println(l);
16        System.out.println(f);
17        System.out.println(d);
18
19    }
20 }
21
22
```

long (L)

int

short

byte

Widening Typecasting

double (D)

float (F)

ava source file length : 302 lines : 22 Ln : 8 Col : 18 Pos : 139 Windows (CR LF) UTF-8 INS

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May21 LB Notes.txt P1.java

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Who can see what you share here? Recording On

```
2
3 public class P1
4 {
5     public static void main(String[] args)
6     {
7         int i=10;
8         long l=i;
9         float f;
10        f=i;
11        double d=10.5673;
12        i=(int)d;
13
14
15        System.out.println(i);
16        System.out.println(l);
17        System.out.println(f);
18        System.out.println(d);
19        System.out.println(i);
20
21    }
22 }
23
```

long (L)

int

short

byte

Widening Typecasting

double (D)

float (F)

Java source file length : 347 lines : 24 Ln : 12 Col : 16 Pos : 191 Windows (CR LF) UTF-8 INS

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May21 LB Notes.txt P1.java

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Who can see what you share here? Recording On

```
2
3 public class P1
4 {
5     public static void main(String[] args)
6     {
7         int i=10;
8         long l=i;
9         float f;
10        f=i;
11        double d=10.5673;
12        i=(int)d;
13
14
15        System.out.println(i);
16        System.out.println(l);
17        System.out.println(f);
18        System.out.println(d);
19        System.out.println(i);
20
21    }
22 }
23
```

long (L)

int

short

byte

Widening Typecasting

double (D)

float (F)

Java source file length : 347 lines : 24 Ln : 12 Col : 16 Pos : 191 Windows (CR LF) UTF-8 INS

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May21 LB Notes.txt P1.java

456 System.out.println(i);
457 System.out.println(l);
458 System.out.println(f);
459
460

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Who can see what you share here? Recording

Normal text file length : 7,722 lines : 460 Ln : 460 Col : 1 Pos : 7,723 Windows (CR LF) UTF-8 INS

```
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May21 LB Notes.txt P1.java
456 System.out.println(i);
457 System.out.println(l);
458 System.out.println(f);
459
460
int i=10;
double j=10.23
double add =(double)i+j;
int

Widening Casting:
byte --> Short --> char --> int --> long ---> float ---> double

Narrowing Casting:
double-->float-->long -->int-->char-->short--->byte

int i=67;
s.o.pln((char)i);

char ch='a';
s.o.pln((int)ch);
```

Normal text file length : 7,722 lines : 460 Ln : 460 Col : 1 Pos : 7,723 Windows (CR LF) UTF-8 INS

```
File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?
May21 LB Notes.txt P1.java
456 System.out.println(i);
457 System.out.println(l);
458 System.out.println(f);
459
460
int i=10;
double j=10.23
double add =(double)i+j;
int

Widening Casting:
byte --> Short --> char --> int --> long ---> float ---> double

Narrowing Casting:
double-->float-->long -->int-->char-->short--->byte

int i=67;
s.o.pln((char)i);

char ch='a';
s.o.pln((int)ch);
```

```
File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?
May21 LB Notes.txt P1.java
471 -Array is an object
472 -Array:
473 --1.Declaration of Array
474 --2.Create an Array
475 --3.Initialize an Array
476     int i=10;
477     int j=10.....
478     index--> 0  1  2  3  4  5  6  7
479 Syntax:1.Declaration of Array
480 <data type> <array name> [];
481 or
482 <data type> [] <array name>;
483
484 Syntax:2.Create an Array
485 <array name> = new <data type>[size];
486
487
488 Array declaration and creation:
489 Syntax:
490
491 <data type> <array name>[] = new <data type>[size];
```

Normal text file length : 8,233 lines : 491 Ln : 491 Col : 52 Pos : 8,234 Windows (CR LF) UTF-8 INS

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May21 LB Notes.txt P1.java

506
507 `int a[] = new int[5];`
508
509
510
511 `int a = 10;`
512
513 `int a[]`
514
515
516
517

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Stack Memory
Single Dimensional Array

10

a

0 1 2 3 4
0 0 0 0 0

a[0]
a[1]
a[2]

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May21 LB Notes.txt P1.java

506
507 `int a[] = new int[5];`
508
509
510
511 `int a = 10;`
512
513 `int a[]`
514
515
516
517

Who can see what you share here? Recording On

Stack Memory
Single Dimensional Array

Diagram illustrating memory allocation for a single-dimensional array:

- A variable `a` is shown in a box, representing its memory location in the stack.
- An arrow points from the variable `a` to a horizontal array structure.
- The array structure is a horizontal row of five boxes, each containing the value `0`. Above the boxes are indices `0`, `1`, `2`, `3`, and `4`.
- A label `a` is placed above the array, indicating it represents the array.
- A separate box containing the value `10` is shown above the array, representing the value stored in the variable `a` (as per the code `int a = 10;`).
- Below the array, a vertical structure shows the individual elements of the array: `a[0]`, `a[1]`, `a[2]`, and three empty slots, each represented by a horizontal box.

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May21 LB Notes.txt P1.java

506
507 `int a[] = new int[5];`
508
509
510
511 `int a = 10;`
512
513 `int a[]`
514
515
516
517

Who can see what you share here? Recording On

Stack Memory
Single Dimensional Array

Diagram illustrating memory allocation for a single-dimensional array in Stack Memory:

- A variable `a` is declared and assigned the value 10.
- An array `a[]` is declared and allocated with a size of 5.
- The array `a[]` is shown as a horizontal box containing five zeros, indexed 0 to 4.
- A separate box labeled `a` points to the first element of the array (index 0).
- A vertical stack of boxes represents the array elements: `a[0]`, `a[1]`, `a[2]`, and three empty slots.

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May21 LB Notes.txt P1.java

506
507 `int a[] = new int[5];`
508
509
510
511
512 `int a = 10;`
513
514 `int a[]`
515
516
517

Stack Memory
Single Dimensional Array

Diagram illustrating memory allocation for a single-dimensional array in Java:

- A variable `a` is declared and assigned the value 10 (`int a = 10;`).
- An array `a` is declared and allocated with a size of 5 (`int a[] = new int[5];`).
- The array `a` is shown in memory, with its first three elements (`a[0]`, `a[1]`, `a[2]`) highlighted in yellow.
- The array `a` is shown in memory, with its first three elements (`a[0]`, `a[1]`, `a[2]`) highlighted in yellow.

Memory addresses for the array elements:

Index	Value	Address
<code>a[0]</code>	10	101
<code>a[1]</code>	0	105
<code>a[2]</code>	0	109
<code>a[3]</code>	0	113
<code>a[4]</code>	0	

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Normal text file length : 8,490 lines : 517 Ln : 507 Col : 20 Sel : 19 | 1 Windows (CR LF) UTF-8 INS