Processing med betingelser&loops

Aftenens tidsplan

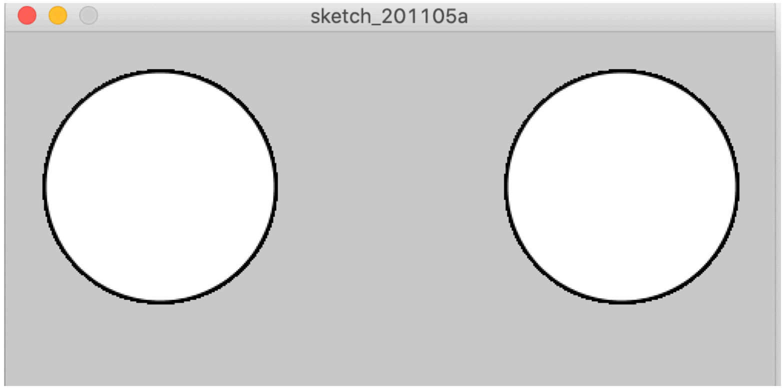
1.Slot : Start	2.Slot: Elementerne	3.Slot: øvelse	4.Slot: processing	5.slot: Øvelse	6.slot: chap	7.slot: chap	8.slot: Afrunding Og lektier
17:00 - 17:15	17:15 - 17:30	17:30 - 17:50	18:00- 18:20	18:20 - 18:30	18:30 - 19:00	19:15- 19.30	19.30

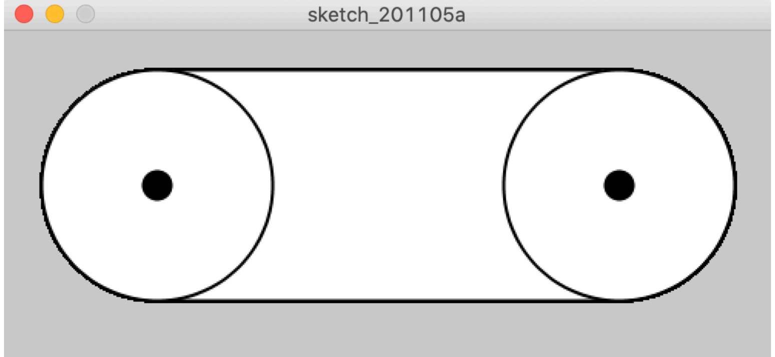
Motto

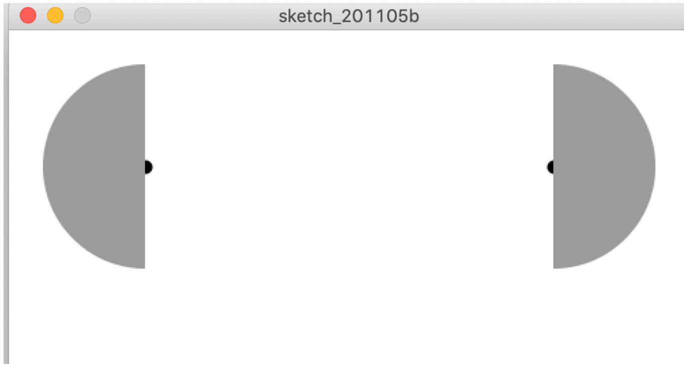
- Start low, move fast, aim high

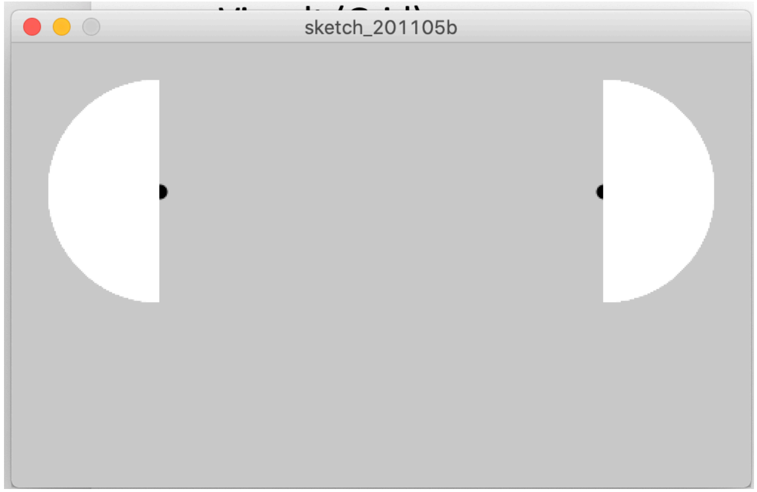
Pixels

- Visuelt (Grid)
- THE REFERENCE – (ø 2-8)
- Line(1,0,4,5)
    - Metode + argumenter
- Point, line, rectangle, ellipse
    - Location - koordinater
    - Size – width,height
    - Color – fill, stroke, strokeWeight
- Rect(2,3,w,h)
- Ellipse(1
- Arc



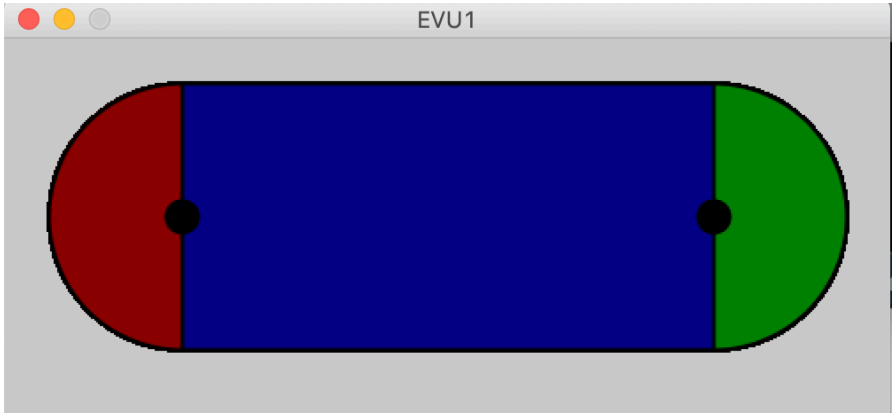


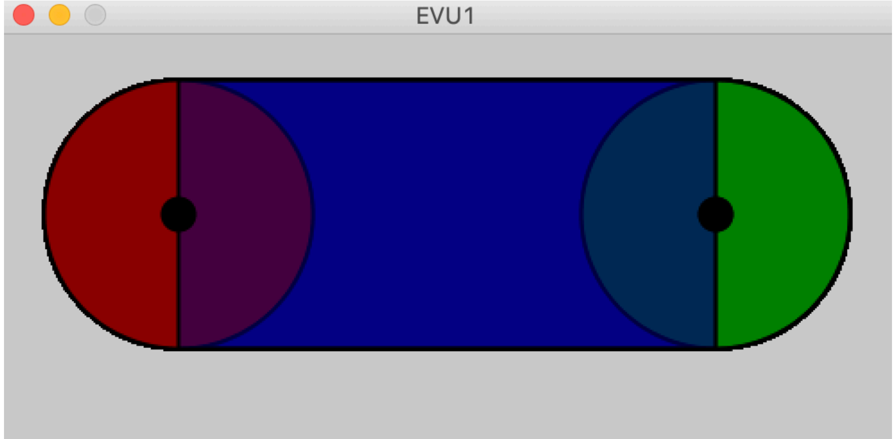


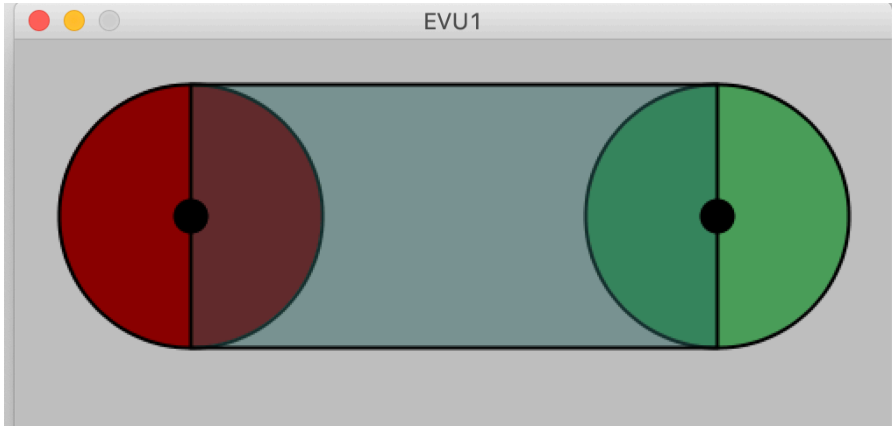


Color

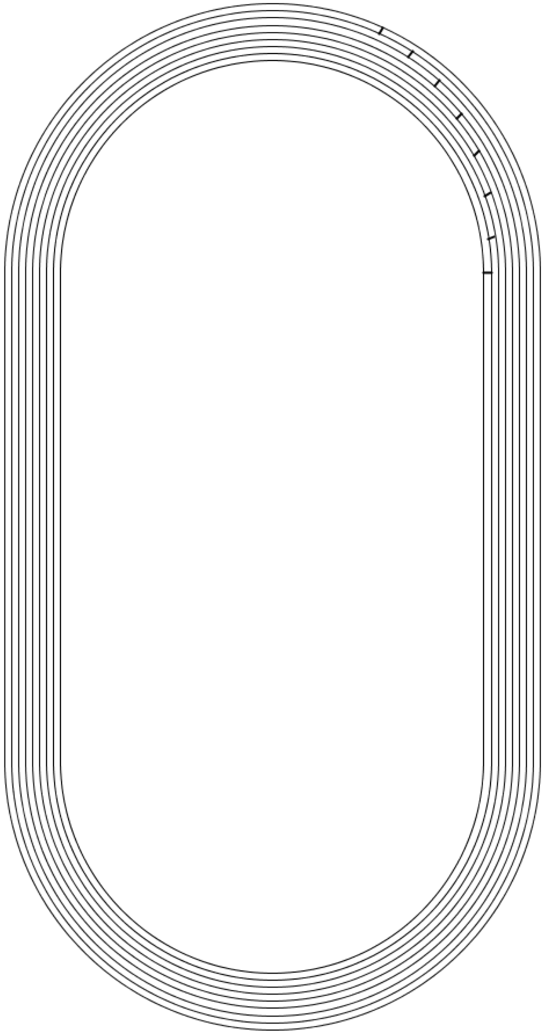
- Grayscale (0-255)
- RGB (r,g,b)
- Transparancy (r,g,b,0-255)
- HSB (h,s,b)
- HSB(0-360,0-100,0-100)

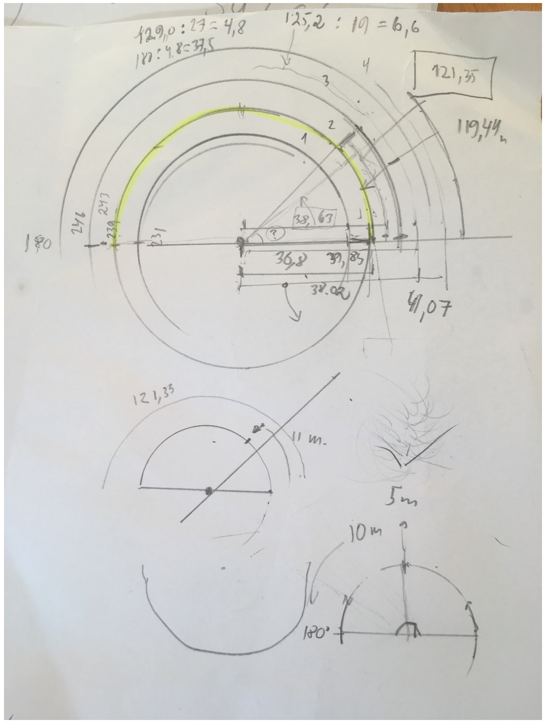






.. Og lidt matematik ...





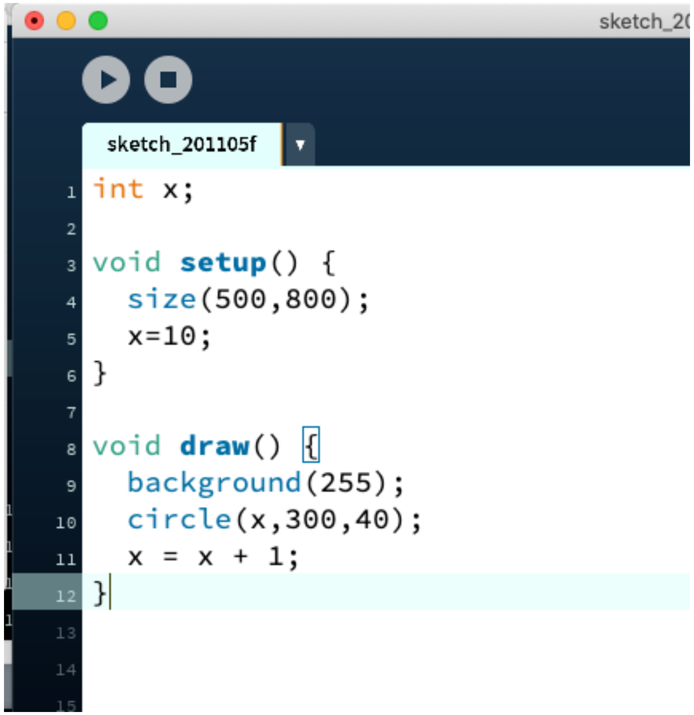
Processing - tooling

- preferences
- Sketch
- First sketch
    - **Function call**
    - Assignment
    - Control

- Functions
    - Build in
        - Size
        - Println
    - Comments //
    - Errors (ø 2-6)

Interaction

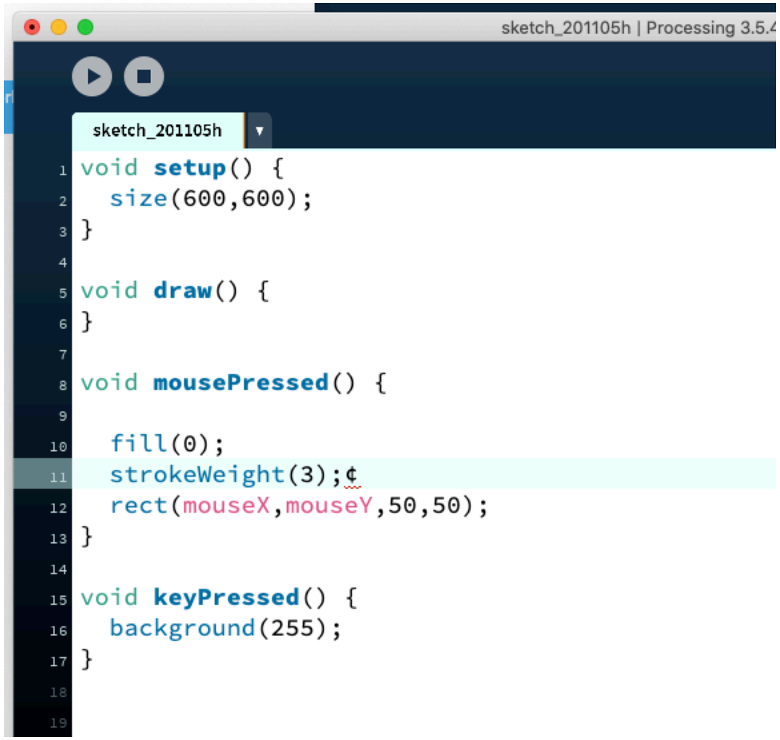
- The Flow
  - Setup
  - Draw
    - Internal loop
    - (framecounter)
  - Block of code
  - Mouse
    - mouseX,mouseY
    - Ex 3-2 (background)
    - pmouseX,pmouseY
    - Ex 3-4



```
int x;

void setup() {
  size(500,800);
  x=10;
}

void draw() {
  background(255);
  circle(x,300,40);
  x = x + 1;
}
```

Mere mus ..

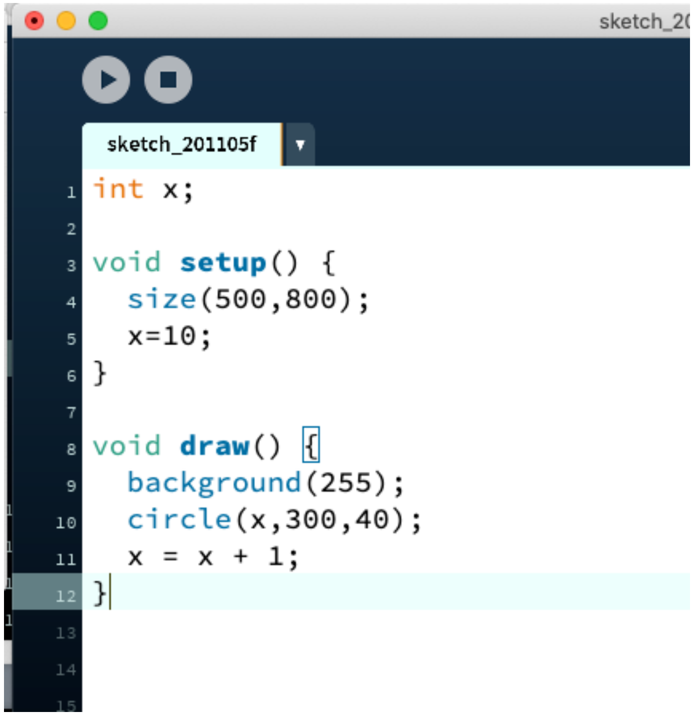
- Interaction
  - mousePressed()
  - keyPressed()



```
void setup() {
  size(600,600);
}

void draw() {
}

void mousePressed() {

  fill(0);
  strokeWeight(3);¢
  rect(mouseX,mouseY,50,50);
}

void keyPressed() {
  background(255);
}
```

Variabler & operatorer

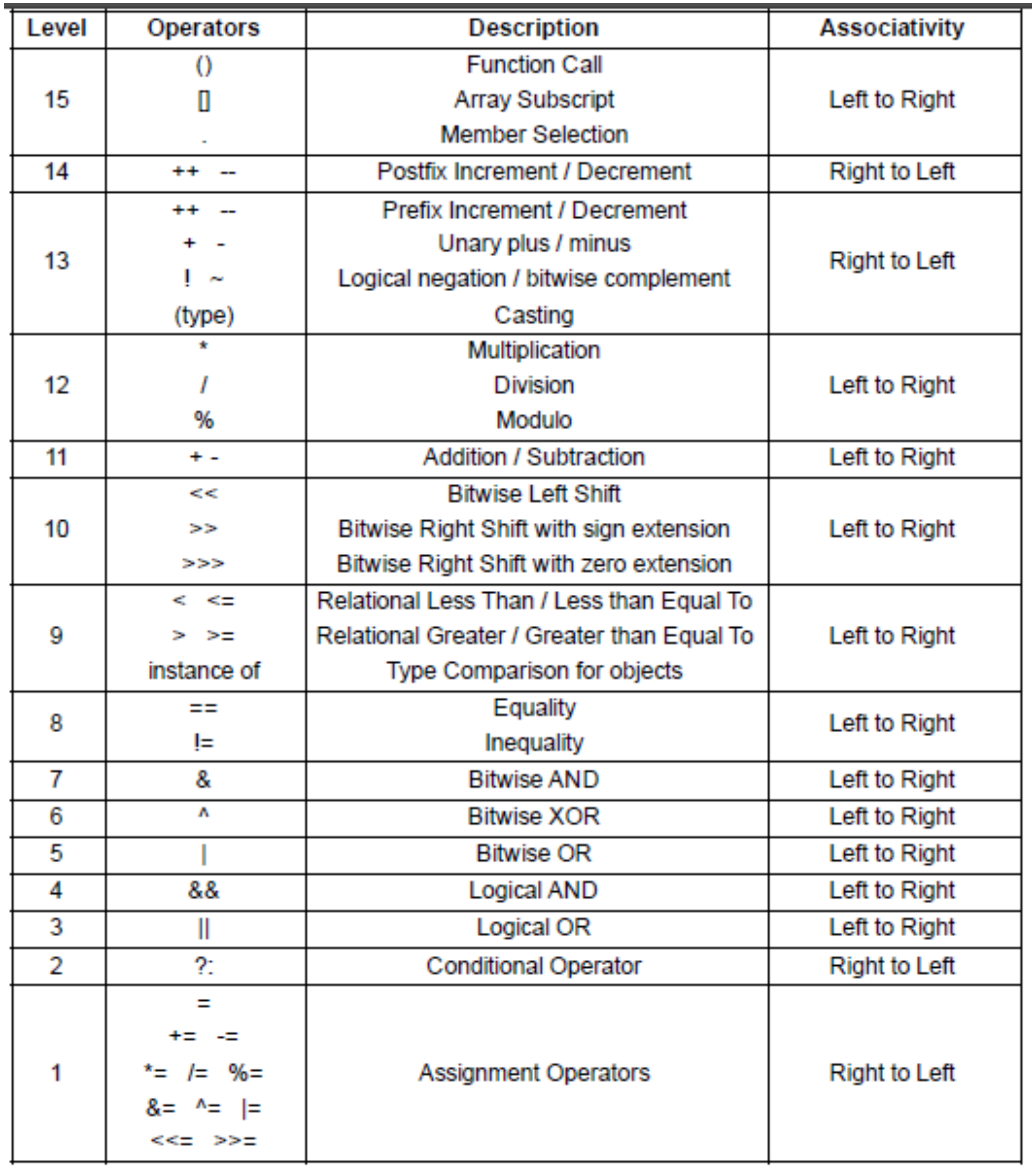
- Brugt i processing
  - Int
  - String
  - Float
  - scope
- Operators
  - Sum (+)
  - Modulo (%)
  - (constrain)
  - Order



```
int x;

void setup() {
  size(500,800);
  x=10;
}

void draw() {
  background(255);
  circle(x,300,40);
  x = x + 1;
}
```

- System Vars
  - Width, height,framecount,key
    - ex 4-5
  - Random() circle opg

Operators og bogen s. 77

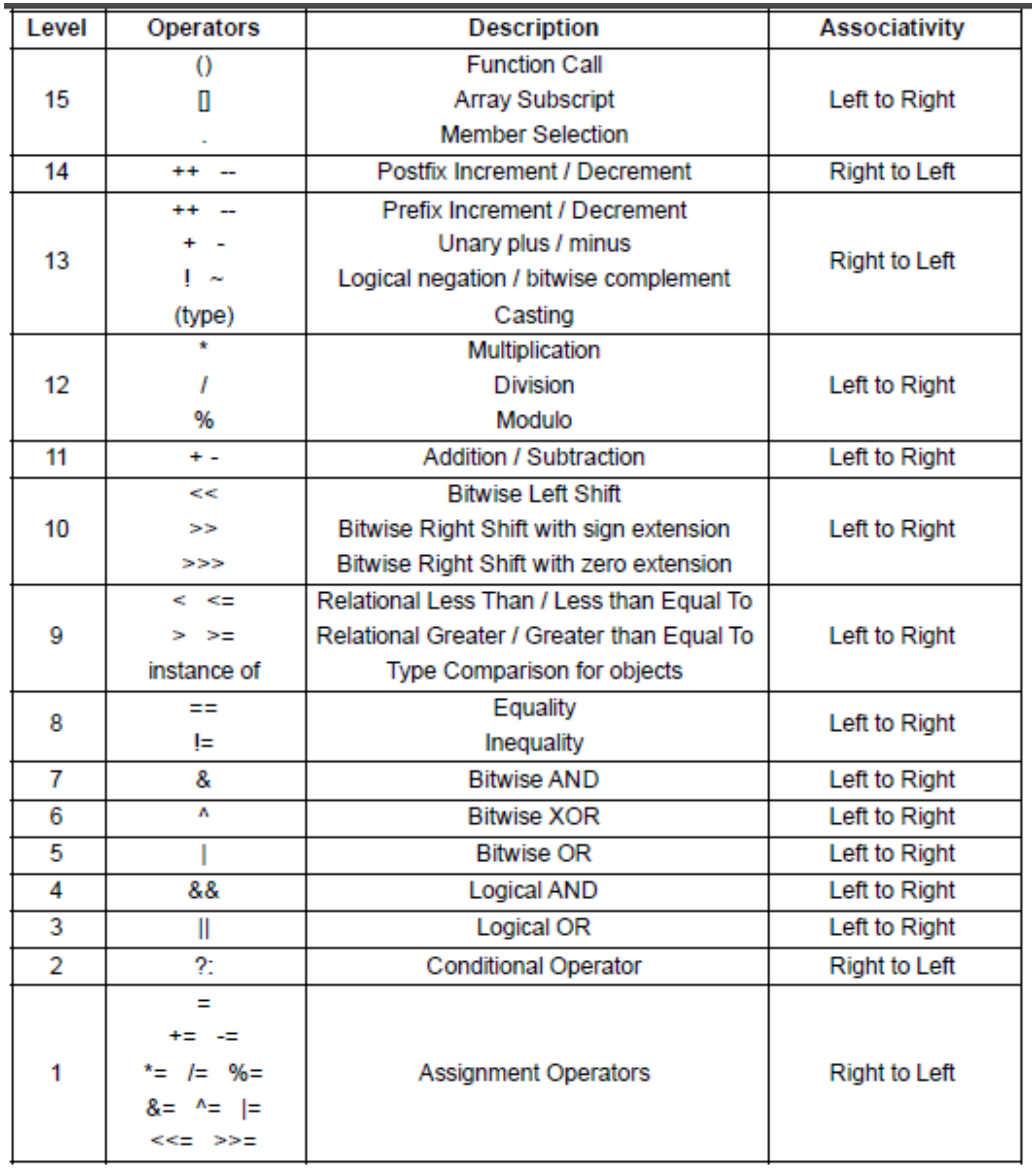


Level	Operators	Description	Associativity
15	() [] .	Function Call Array Subscript Member Selection	Left to Right
14	++ --	Postfix Increment / Decrement	Right to Left
13	++ -- + - ! ~ (type)	Prefix Increment / Decrement Unary plus / minus Logical negation / bitwise complement Casting	Right to Left
12	* / %	Multiplication Division Modulo	Left to Right
11	+ -	Addition / Subtraction	Left to Right
10	<< >> >>>	Bitwise Left Shift Bitwise Right Shift with sign extension Bitwise Right Shift with zero extension	Left to Right
9	< <= > >= instance of	Relational Less Than / Less than Equal To Relational Greater / Greater than Equal To Type Comparison for objects	Left to Right
8	== !=	Equality Inequality	Left to Right
7	&	Bitwise AND	Left to Right
6	^	Bitwise XOR	Left to Right
5	|	Bitwise OR	Left to Right
4	&&	Logical AND	Left to Right
3	||	Logical OR	Left to Right
2	?:	Conditional Operator	Right to Left
1	= += -= *= /= %= &= ^= |= <<= >>=	Assignment Operators	Right to Left

Recap på variabler

- Primitive vs Reference
- Increment
- System variabler
- Random generator
- Translation

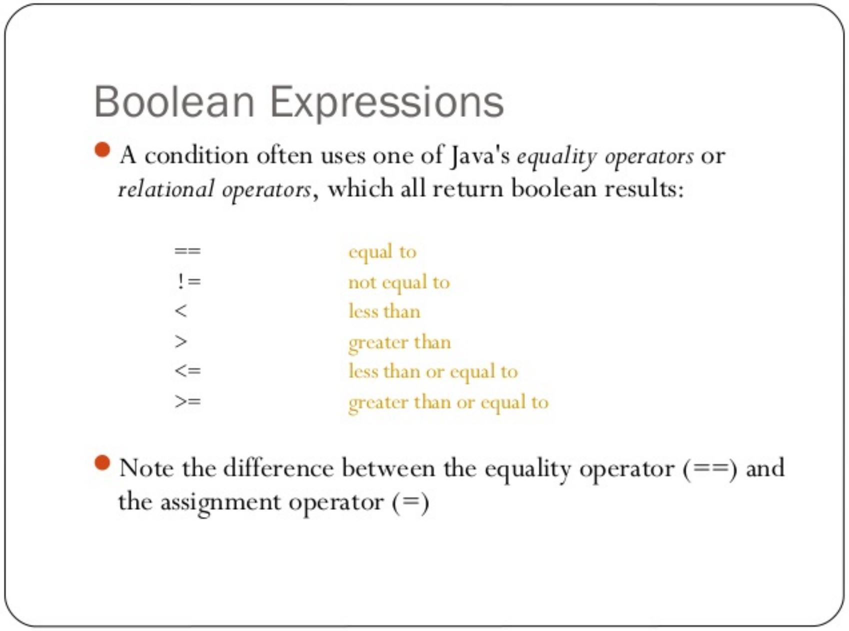
Operators og bogen s. 77



Level	Operators	Description	Associativity
15	() [] .	Function Call Array Subscript Member Selection	Left to Right
14	++ --	Postfix Increment / Decrement	Right to Left
13	++ -- + - ! ~ (type)	Prefix Increment / Decrement Unary plus / minus Logical negation / bitwise complement Casting	Right to Left
12	* / %	Multiplication Division Modulo	Left to Right
11	+ -	Addition / Subtraction	Left to Right
10	<< >> >>>	Bitwise Left Shift Bitwise Right Shift with sign extension Bitwise Right Shift with zero extension	Left to Right
9	< <= > >= instance of	Relational Less Than / Less than Equal To Relational Greater / Greater than Equal To Type Comparison for objects	Left to Right
8	== !=	Equality Inequality	Left to Right
7	&	Bitwise AND	Left to Right
6	^	Bitwise XOR	Left to Right
5	|	Bitwise OR	Left to Right
4	&&	Logical AND	Left to Right
3	||	Logical OR	Left to Right
2	?:	Conditional Operator	Right to Left
1	= += -= *= /= %= &= ^= |= <<= >>=	Assignment Operators	Right to Left

Conditionals

- Expressions and conditionals
  - If (mouseX < width/2) { … } else { … }
  - If (mouseX < width/2) else if { … } else { … }
  - Ex 5-2
  - If (mousePressed) { r = r + 1}



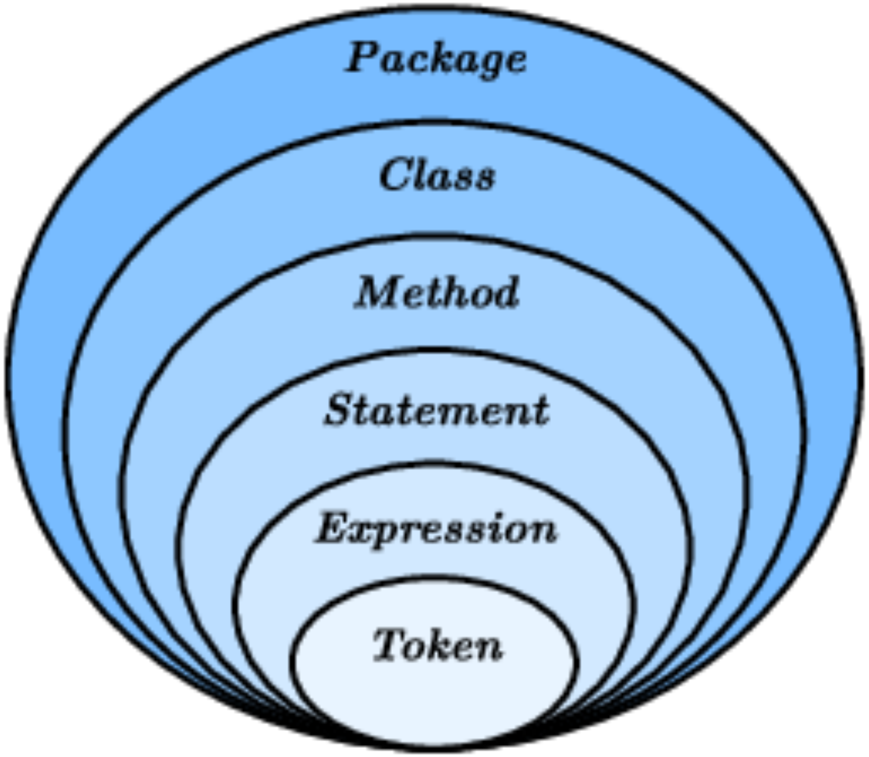
Boolean Expressions

- A condition often uses one of Java's *equality operators* or *relational operators*, which all return boolean results:

==	equal to
!=	not equal to
<	less than
>	greater than
<=	less than or equal to
>=	greater than or equal to

- Note the difference between the equality operator (==) and the assignment operator (=)

Elements of the language

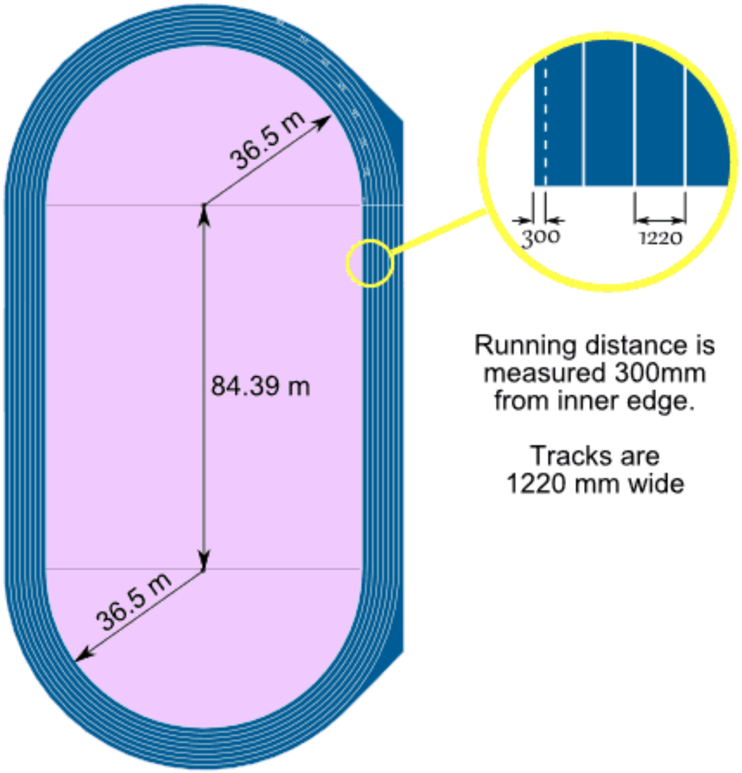


Package	java.util
Class	Scanner
Method	nextInt
Statement	hour = in.nextInt();
Expression	hour * 60
Token	hour

Øvelse - Atletikbanen

- Konstruér en 400 m atletikbane med 8 løbebaner. Buen laves vha arc-shapen

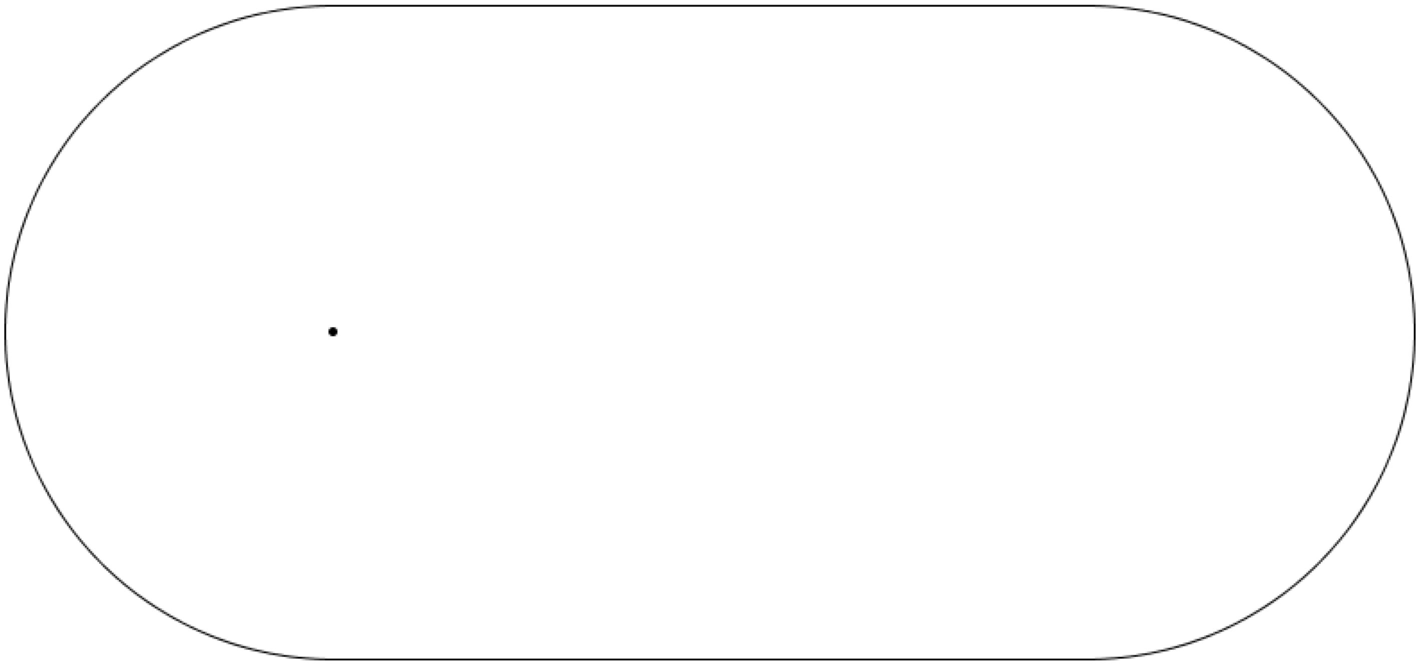
- Ekstra: Tilføj forskudt start



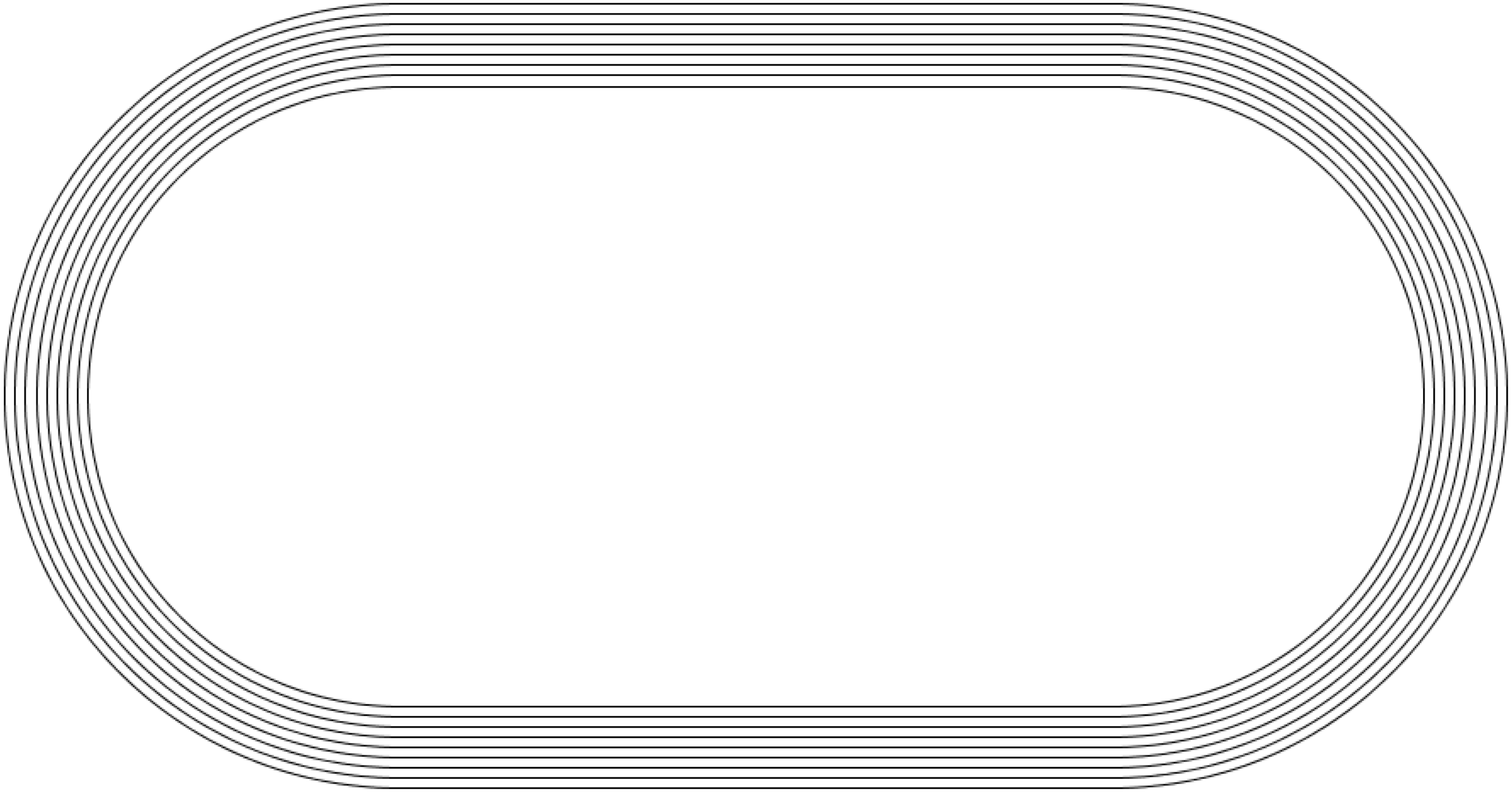
Running distance is measured 300mm from inner edge.

Tracks are 1220 mm wide

Øvelse – Atletikbanen – step 1

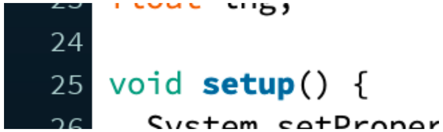


Øvelse – Atletikbanen – step 2

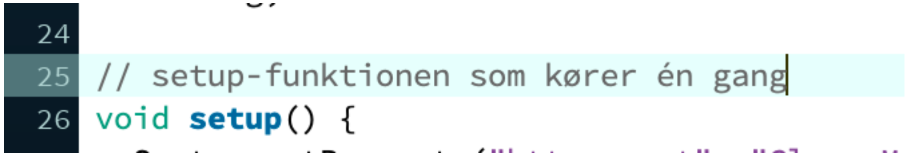


8. Øvelse - Genkend elementer i koden

- Du åbner map-koden og indføjer kommentarer
  - Ex:



```
float lng;

void setup() {
  System.setProper
```



```

// setup-funktionen som kører én gang
void setup() {
```

Fælles øvelse – recap var og cond