Script **generated by TTT**

Title: Lehmann: Uebung_Einf_HF (18.06.2013)

Date: Tue Jun 18 08:57:50 CEST 2013

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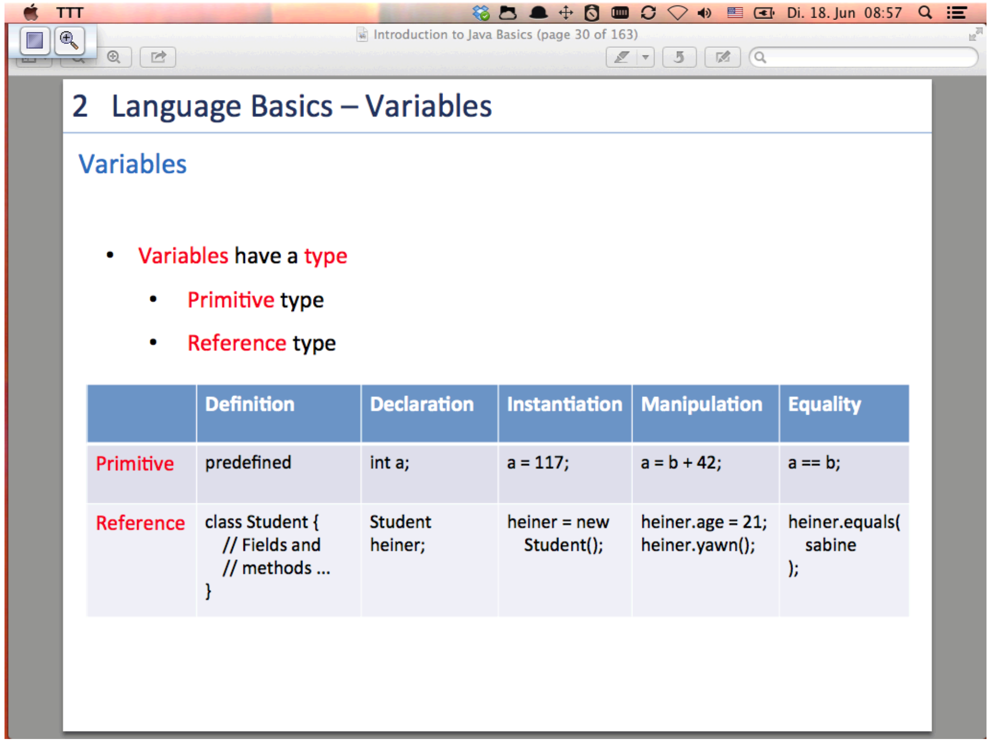
Pages: 59



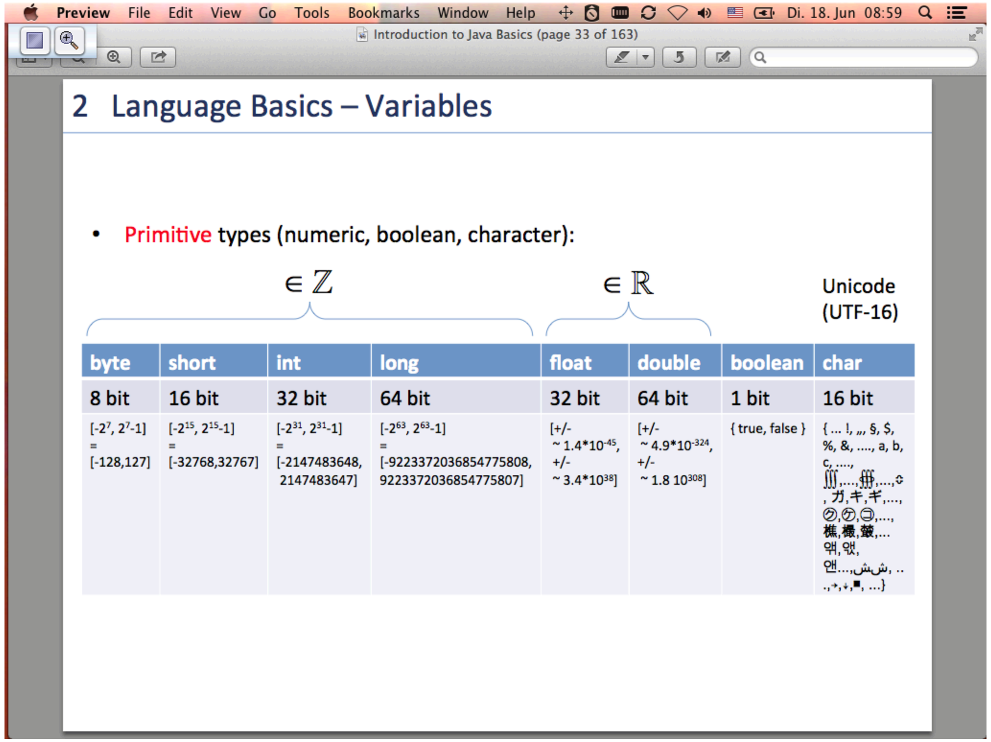
2 Language Basics – Variables

Variables

- Variables have a type
  - Primitive type
  - Reference type

	Definition	Declaration	Instantiation	Manipulation	Equality
Primitive	predefined	int a;	a = 117;	a = b + 42;	a == b;

Reference	class Student {
	// Fields and
	// methods ...
	}
		Student heiner;	heiner = new Student();	heiner.age = 21;
				heiner.yawn();
					heiner.equals(sabine);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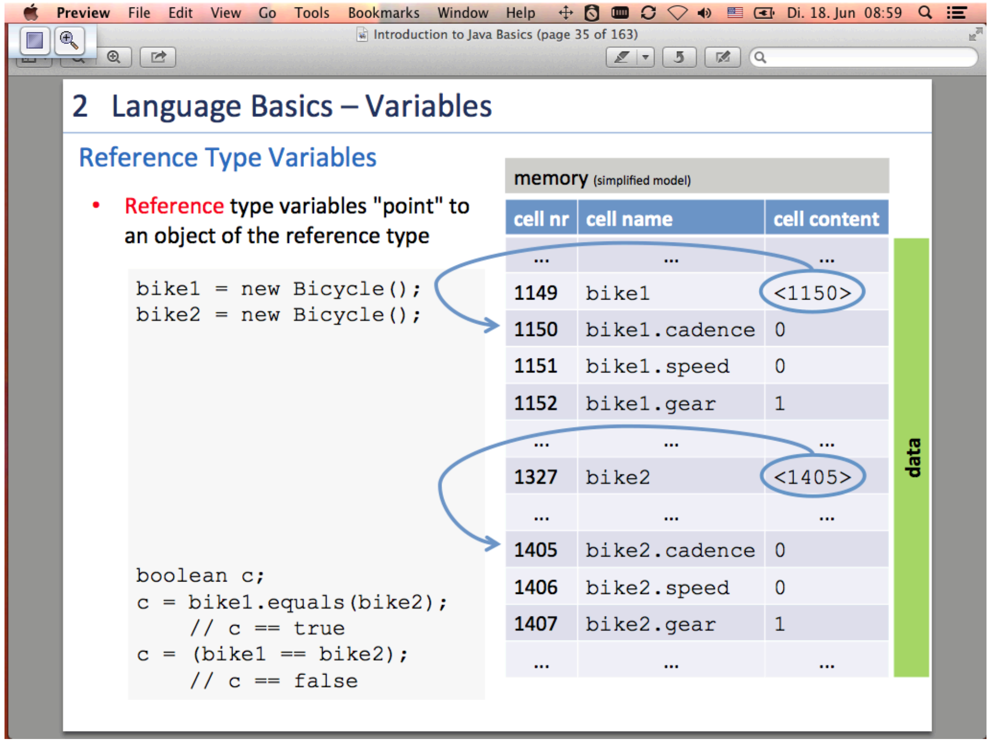
2 Language Basics – Variables

- Primitive types (numeric, boolean, character):

$\in \mathbb{Z}$ $\in \mathbb{R}$ Unicode (UTF-16)

byte	short	int	long	float	double	boolean	char
8 bit	16 bit	32 bit	64 bit	32 bit	64 bit	1 bit	16 bit
$[-2^7, 2^7-1]$ = [-128,127]	$[-2^{15}, 2^{15}-1]$ = [-32768,32767]	$[-2^{31}, 2^{31}-1]$ = [-2147483648, 2147483647]	$[-2^{63}, 2^{63}-1]$ = [-9223372036854775808, 9223372036854775807]	[+/- ~ $1.4*10^{-45}$, +/- ~ $3.4*10^{38}$]	[+/- ~ $4.9*10^{-324}$, +/- ~ $1.8\ 10^{308}$]	{ true, false }	{ ... !, „, §, $, %, &, ..., a, b, c, ..., ∭,...,ﬃ,...,≎ , ガ,キ,ギ,...., ㋗,㋘,㋙,...., 樵,樶,樷,... 얙,얛, 얜...,ﺶﺵ, .. .,→,↓,■, ...}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2 Language Basics – Variables

Reference Type Variables

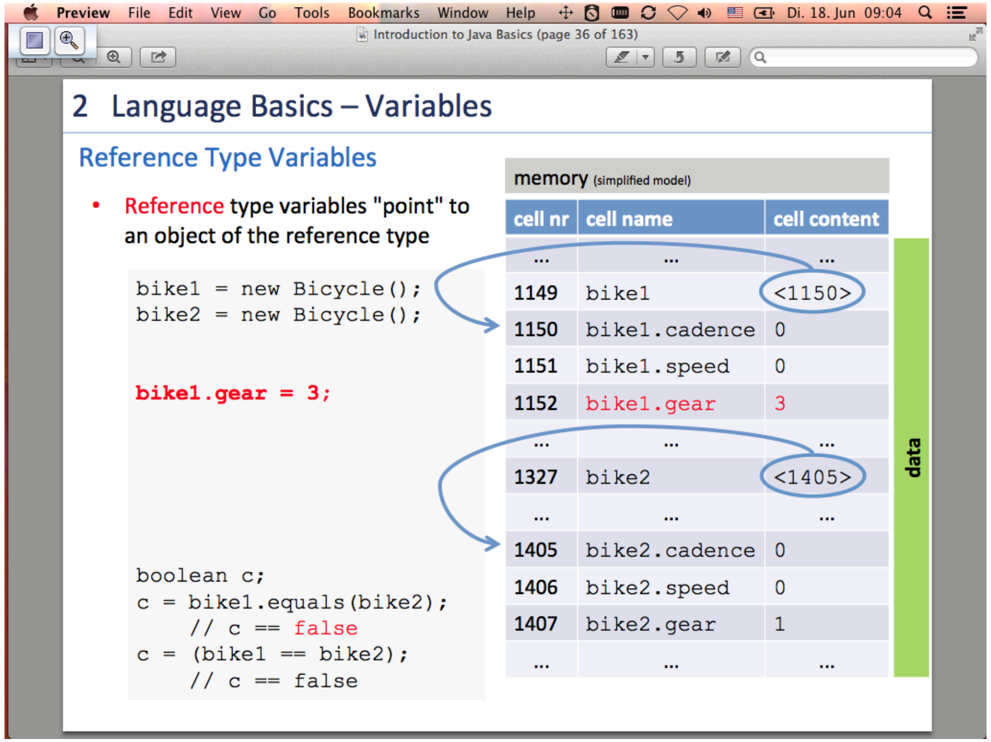
- Reference type variables "point" to an object of the reference type

```
bike1 = new Bicycle();
bike2 = new Bicycle();
```

```
boolean c;
c = bike1.equals(bike2);
    // c == true
c = (bike1 == bike2);
    // c == false
```

memory (simplified model)

cell nr	cell name	cell content
...	...	...
1149	bike1	<1150>
1150	bike1.cadence	0
1151	bike1.speed	0
1152	bike1.gear	1
...	...	...
1327	bike2	<1405>
...	...	...
1405	bike2.cadence	0
1406	bike2.speed	0
1407	bike2.gear	1
...	...	...



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2 Language Basics – Variables

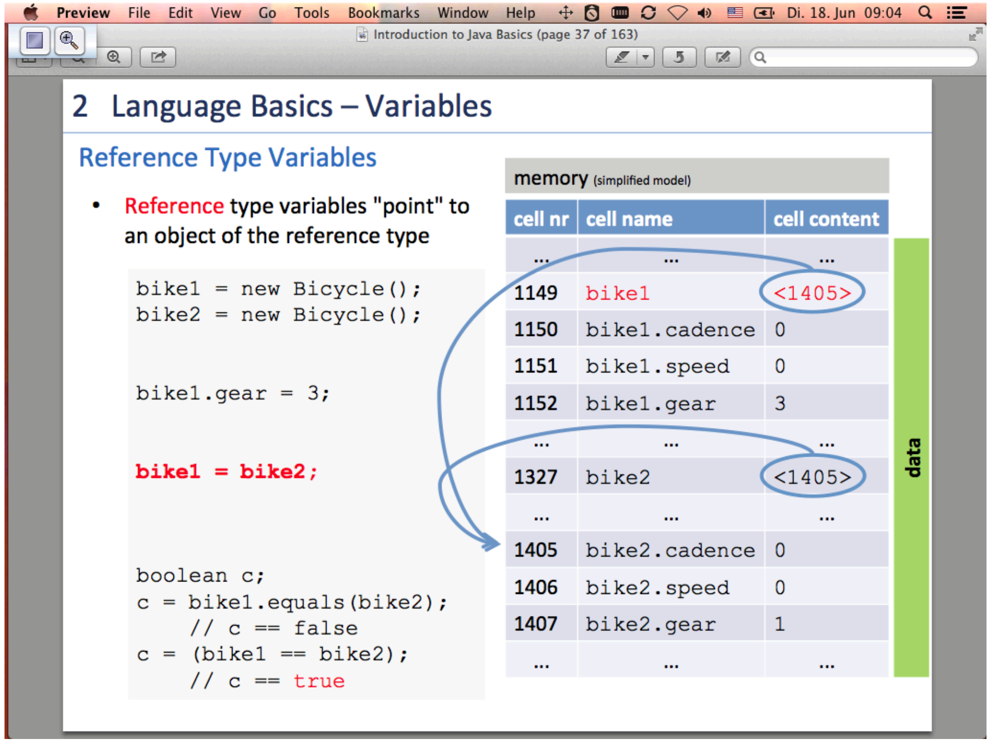
Reference Type Variables

- Reference type variables "point" to an object of the reference type

```
bike1 = new Bicycle();
bike2 = new Bicycle();


bike1.gear = 3;







boolean c;
c = bike1.equals(bike2);
    // c == false
c = (bike1 == bike2);
    // c == false
```

memory (simplified model)

cell nr	cell name	cell content
...	...	...
1149	bike1	<1150>
1150	bike1.cadence	0
1151	bike1.speed	0
1152	bike1.gear	3
...	...	...
1327	bike2	<1405>
...	...	...
1405	bike2.cadence	0
1406	bike2.speed	0
1407	bike2.gear	1
...	...	...



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2 Language Basics – Variables

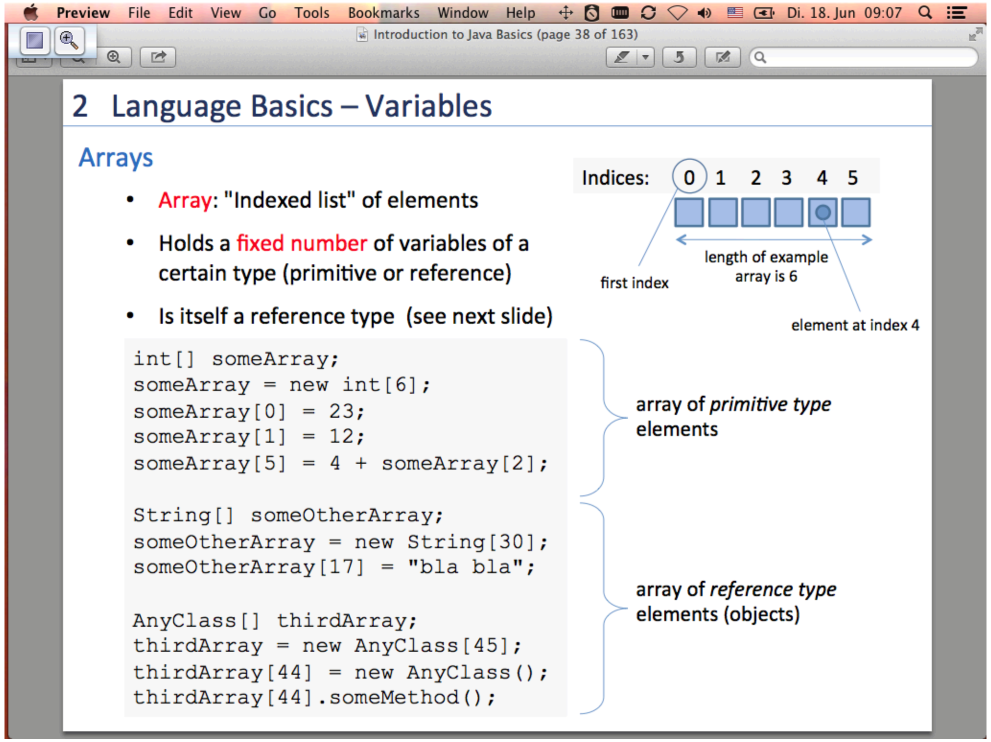
Reference Type Variables

- Reference type variables "point" to an object of the reference type

```
bike1 = new Bicycle();
bike2 = new Bicycle();


bike1.gear = 3;


bike1 = bike2;



boolean c;
c = bike1.equals(bike2);
    // c == false
c = (bike1 == bike2);
    // c == true
```

memory (simplified model)

cell nr	cell name	cell content
...	...	...
1149	bike1	<1405>
1150	bike1.cadence	0
1151	bike1.speed	0
1152	bike1.gear	3
...	...	...
1327	bike2	<1405>
...	...	...
1405	bike2.cadence	0
1406	bike2.speed	0
1407	bike2.gear	1
...	...	...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Indices: 0 1 2 3 4 5
first index
length of example array is 6
element at index 4

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2 Language Basics – Variables

Arrays

- Array: "Indexed list" of elements
- Holds a fixed number of variables of a certain type (primitive or reference)
- Is itself a reference type (see next slide)

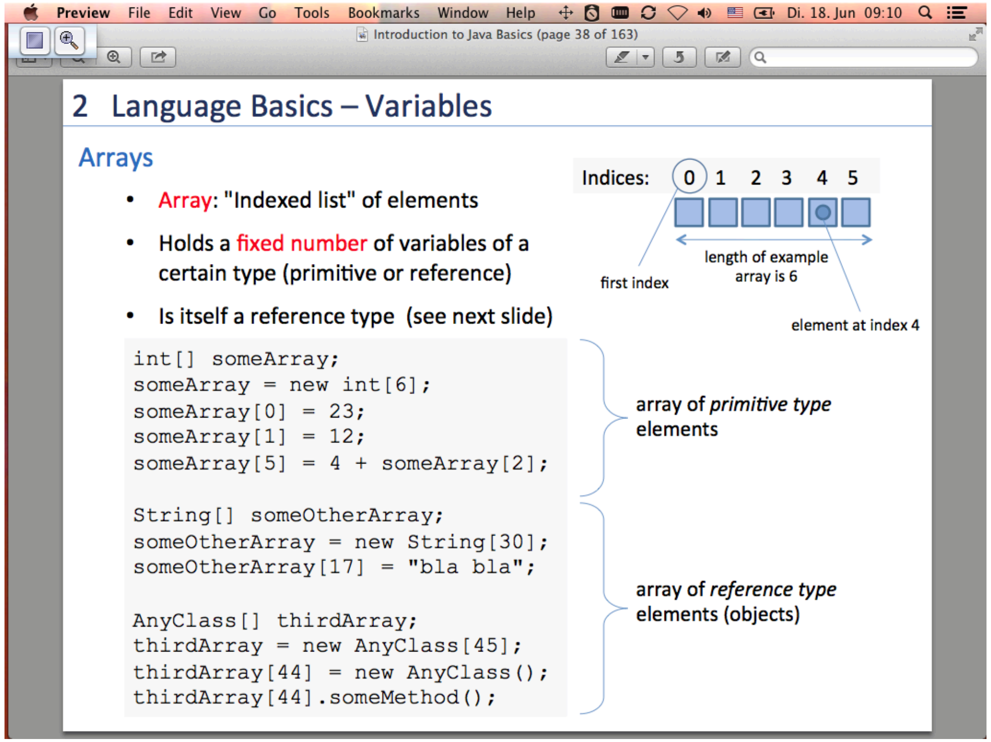
```
int[] someArray;
someArray = new int[6];
someArray[0] = 23;
someArray[1] = 12;
someArray[5] = 4 + someArray[2];

String[] someOtherArray;
someOtherArray = new String[30];
someOtherArray[17] = "bla bla";

AnyClass[] thirdArray;
thirdArray = new AnyClass[45];
thirdArray[44] = new AnyClass();
thirdArray[44].someMethod();
```

array of *primitive type* elements

array of *reference type* elements (objects)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Indices: 0 1 2 3 4 5
first index
length of example array is 6
element at index 4

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2 Language Basics – Variables

Arrays

- Array: "Indexed list" of elements
- Holds a fixed number of variables of a certain type (primitive or reference)
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int[] someArray;
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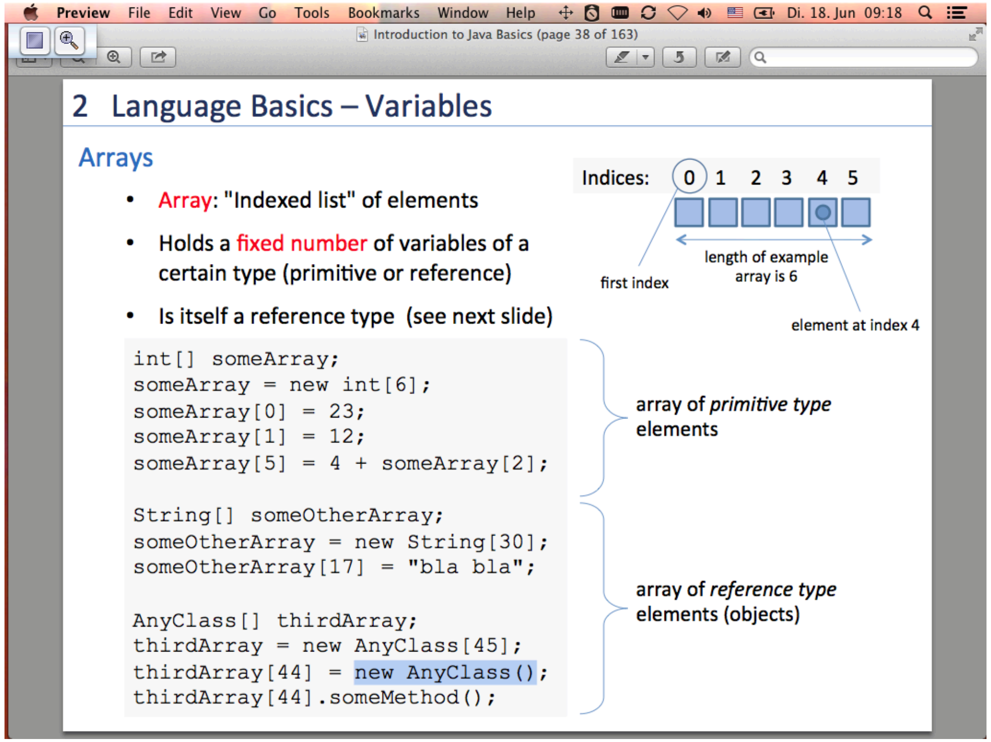
thirdArray = new AnyClass[45];
thirdArray[44] = new AnyClass();
thirdArray[44].someMethod();

array of *primitive type* elements

array of *reference type* elements (objects)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2 Language Basics – Variables

Arrays

- Array: "Indexed list" of elements
- Holds a fixed number of variables of a certain type (primitive or reference)
- Is itself a reference type (see next slide)

Indices: 0 1 2 3 4 5

first index

length of example array is 6

element at index 4

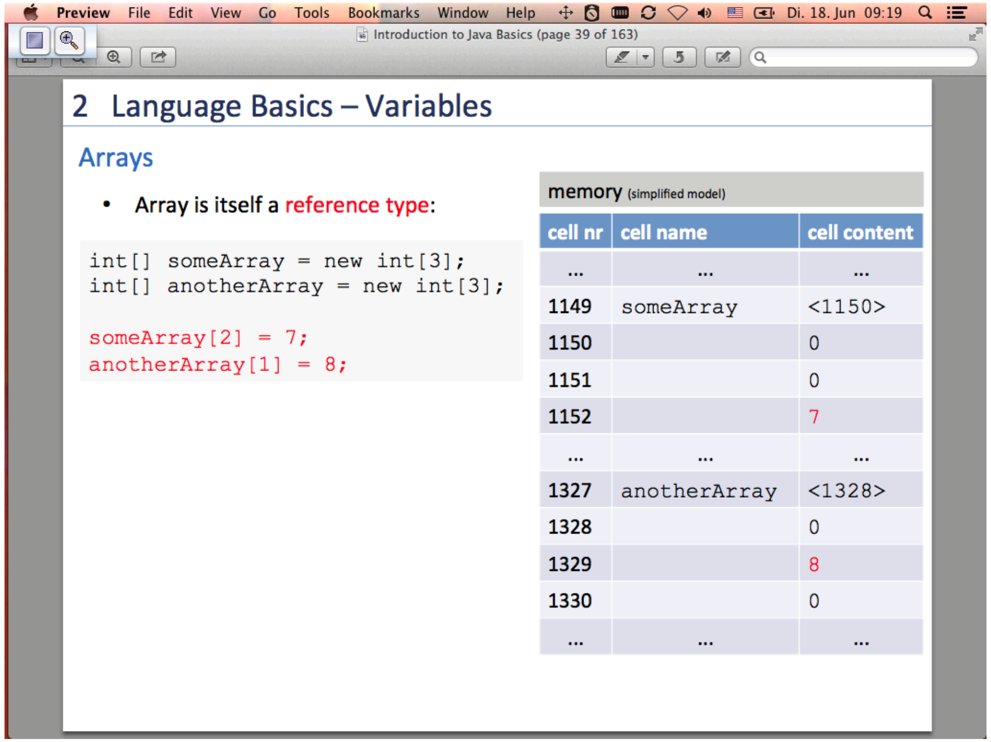
```
int[] someArray;
someArray = new int[6];
someArray[0] = 23;
someArray[1] = 12;
someArray[5] = 4 + someArray[2];

String[] someOtherArray;
someOtherArray = new String[30];
someOtherArray[17] = "bla bla";

AnyClass[] thirdArray;
thirdArray = new AnyClass[45];
thirdArray[44] = new AnyClass();
thirdArray[44].someMethod();
```

array of *primitive type* elements

array of *reference type* elements (objects)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2 Language Basics – Variables

Arrays

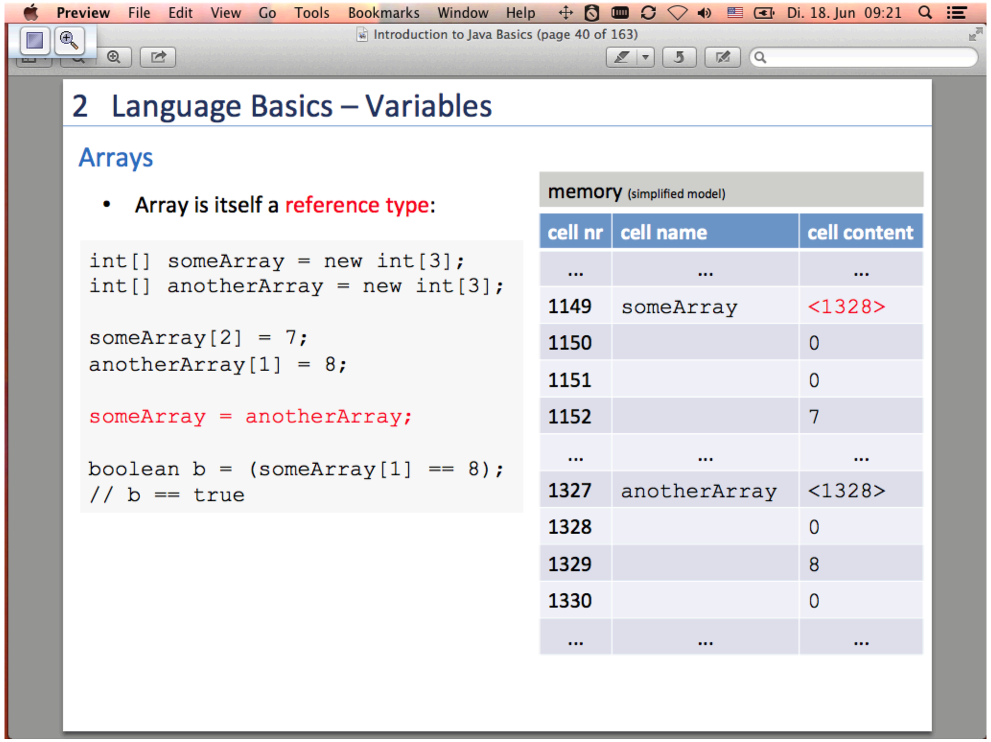
- Array is itself a reference type:

```
int[] someArray = new int[3];
int[] anotherArray = new int[3];

someArray[2] = 7;
anotherArray[1] = 8;
```

memory (simplified model)

cell nr	cell name	cell content
...	...	...
1149	someArray	<1150>
1150		0
1151		0
1152		7
...	...	...
1327	anotherArray	<1328>
1328		0
1329		8
1330		0
...	...	...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2 Language Basics – Variables

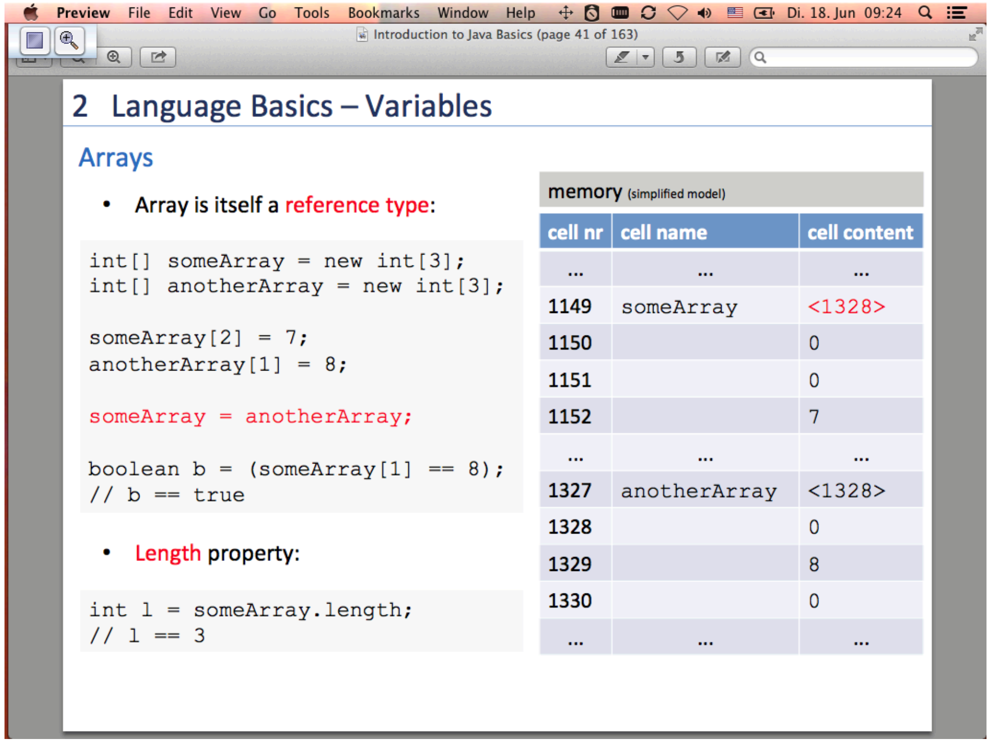
Arrays

- Array is itself a reference type:

```
int[] someArray = new int[3];
int[] anotherArray = new int[3];

someArray[2] = 7;
anotherArray[1] = 8;

someArray = anotherArray;

boolean b = (someArray[1] == 8);
// b == true
```

memory (simplified model)

cell nr	cell name	cell content
...	...	...
1149	someArray	<1328>
1150		0
1151		0
1152		7
...	...	...
1327	anotherArray	<1328>
1328		0
1329		8
1330		0
...	...	...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2 Language Basics – Variables

Arrays

- Array is itself a reference type:

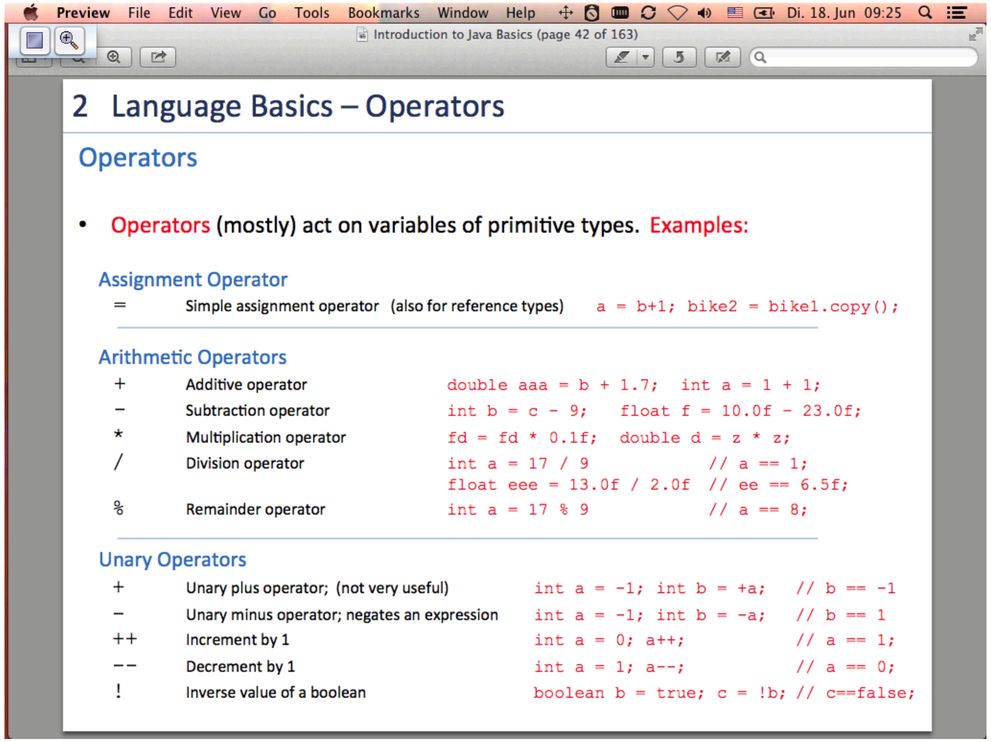
```
int[] someArray = new int[3];
int[] anotherArray = new int[3];

someArray[2] = 7;
anotherArray[1] = 8;

someArray = anotherArray;

boolean b = (someArray[1] == 8);
// b == true
```

- Length property:

```
int l = someArray.length;
// l == 3
```

memory (simplified model)

cell nr	cell name	cell content
...	...	...
1149	someArray	<1328>
1150		0
1151		0
1152		7
...	...	...
1327	anotherArray	<1328>
1328		0
1329		8
1330		0
...	...	...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2 Language Basics – Operators

Operators

- Operators (mostly) act on variables of primitive types. Examples:

Assignment Operator

=	Simple assignment operator (also for reference types)	`a = b+1; bike2 = bike1.copy();`

Arithmetic Operators

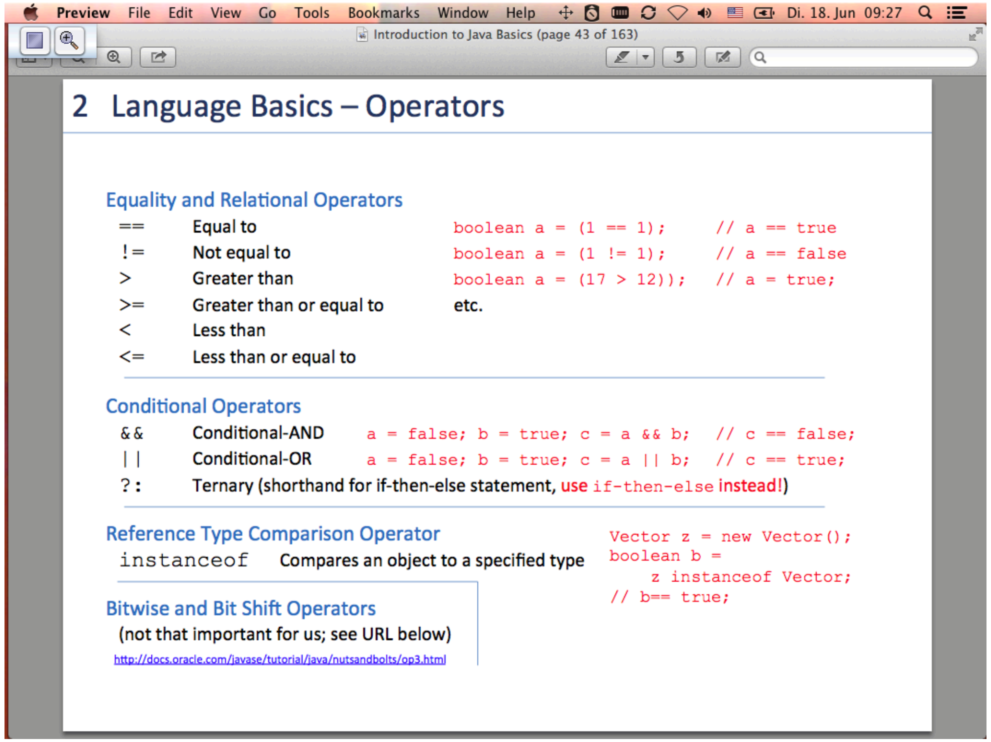
+	Additive operator	`double aaa = b + 1.7;  int a = 1 + 1;`
–	Subtraction operator	`int b = c - 9;   float f = 10.0f - 23.0f;`
*	Multiplication operator	`fd = fd * 0.1f;  double d = z * z;`

/	Division operator	`int a = 17 / 9           // a == 1;`
		`float eee = 13.0f / 2.0f  // ee == 6.5f;`

%	Remainder operator	`int a = 17 % 9           // a == 8;`

Unary Operators

+	Unary plus operator; (not very useful)	`int a = -1; int b = +a;   // b == -1`
–	Unary minus operator; negates an expression	`int a = -1; int b = -a;   // b == 1`
++	Increment by 1	`int a = 0; a++;           // a == 1;`
––	Decrement by 1	`int a = 1; a--;           // a == 0;`
!	Inverse value of a boolean	`boolean b = true; c = !b; // c==false;`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2 Language Basics – Operators

Equality and Relational Operators

==	Equal to	`boolean a = (1 == 1);     // a == true`
!=	Not equal to	`boolean a = (1 != 1);     // a == false`
>	Greater than	`boolean a = (17 > 12));   // a = true;`
>=	Greater than or equal to	etc.
<	Less than	
<=	Less than or equal to	

Conditional Operators

&&	Conditional-AND	`a = false; b = true; c = a && b;  // c == false;`
||	Conditional-OR	`a = false; b = true; c = a || b;  // c == true;`
?:	Ternary (shorthand for if-then-else statement, use `if-then-else` instead!)	

Reference Type Comparison Operator

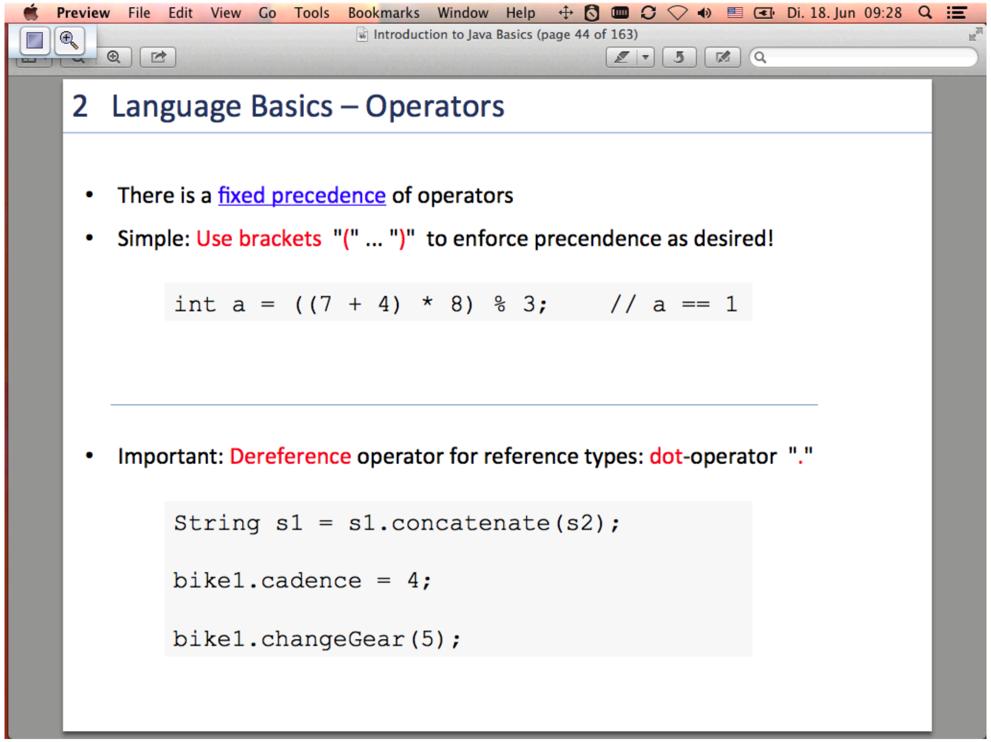
`instanceof` Compares an object to a specified type

```
Vector z = new Vector();
boolean b =
    z instanceof Vector;
// b== true;
```

Bitwise and Bit Shift Operators

(not that important for us; see URL below)

http://docs.oracle.com/javase/tutorial/java/nutsandbolts/op3.html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2 Language Basics – Operators

- There is a fixed precedence of operators
- Simple: Use brackets "(" ... ")" to enforce precendence as desired!

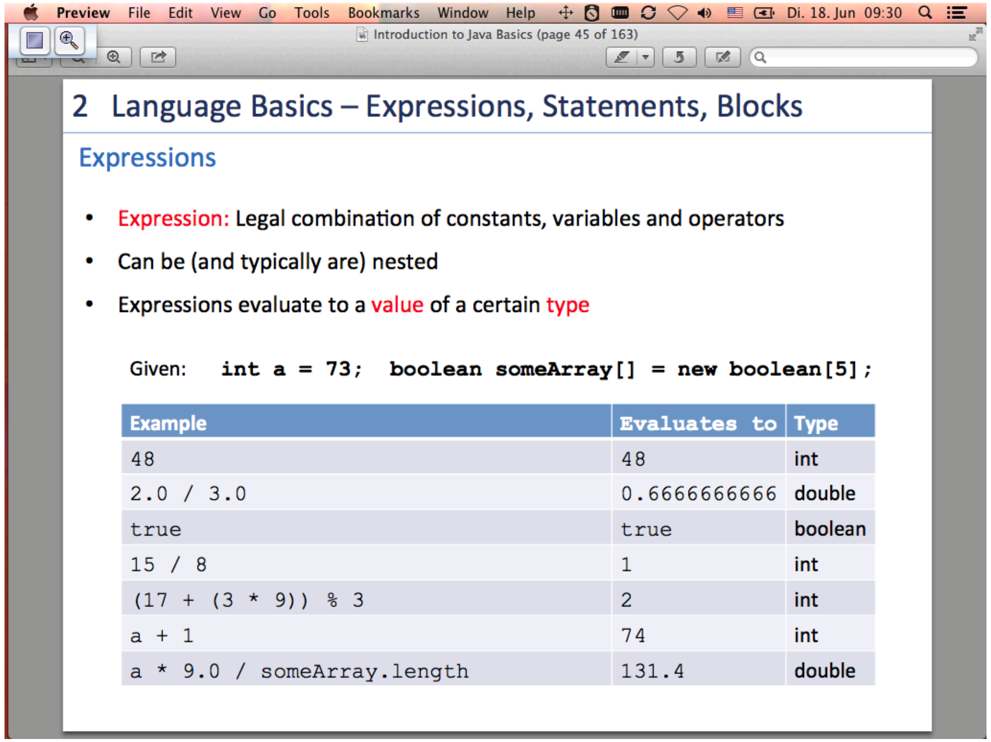
```
int a = ((7 + 4) * 8) % 3;    // a == 1
```

- Important: Dereference operator for reference types: dot-operator "."

```
String s1 = s1.concatenate(s2);

bike1.cadence = 4;

bike1.changeGear(5);
```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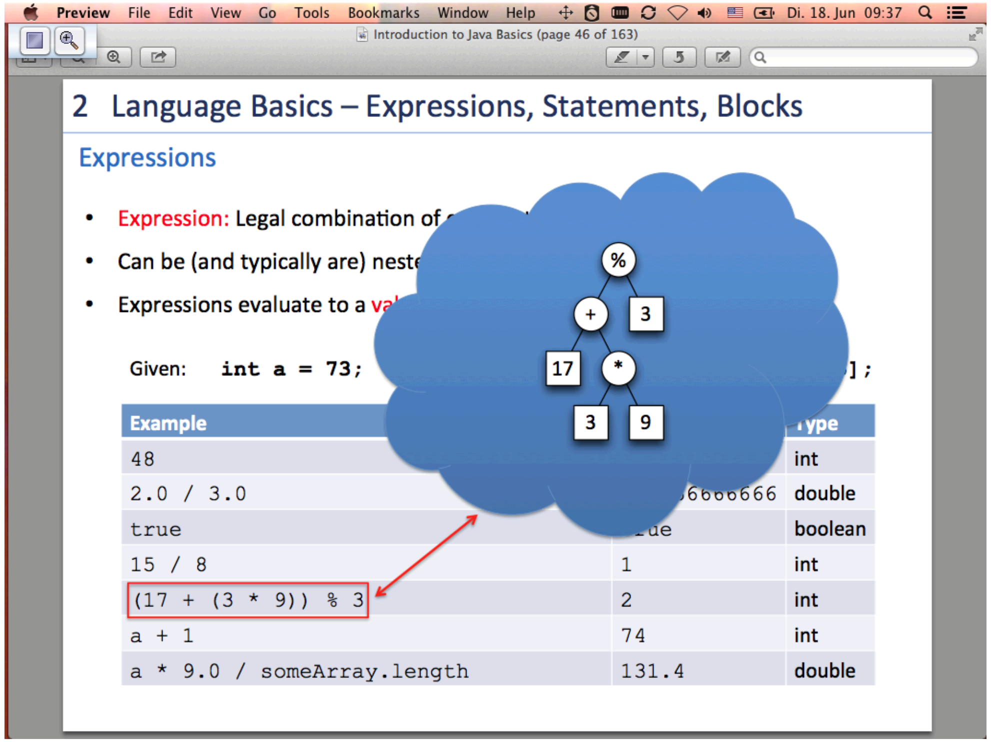
2 Language Basics – Expressions, Statements, Blocks

Expressions

- Expression: Legal combination of constants, variables and operators
- Can be (and typically are) nested
- Expressions evaluate to a value of a certain type

Given: `int a = 73;  boolean someArray[] = new boolean[5];`

Example	Evaluates to	Type
48	48	int
2.0 / 3.0	0.6666666666	double
true	true	boolean
15 / 8	1	int
(17 + (3 * 9)) % 3	2	int
a + 1	74	int
a * 9.0 / someArray.length	131.4	double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%
+
3
17
*
3
9

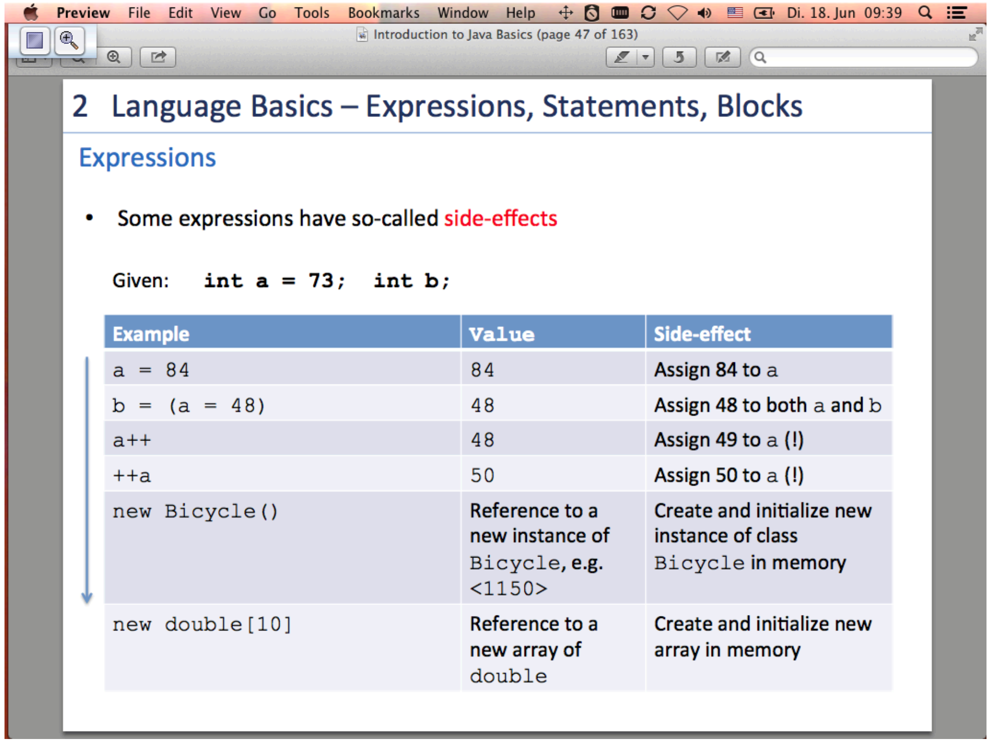
2 Language Basics – Expressions, Statements, Blocks

Expressions

- Expression: Legal combination of
- Can be (and typically are) neste
- Expressions evaluate to a va

Given: `int a = 73;` `];`

Example		ype
`48`		int
`2.0 / 3.0`	`6666666`	double
`true`	`ue`	boolean
`15 / 8`	`1`	int
`(17 + (3 * 9)) % 3`	`2`	int
`a + 1`	`74`	int
`a * 9.0 / someArray.length`	`131.4`	double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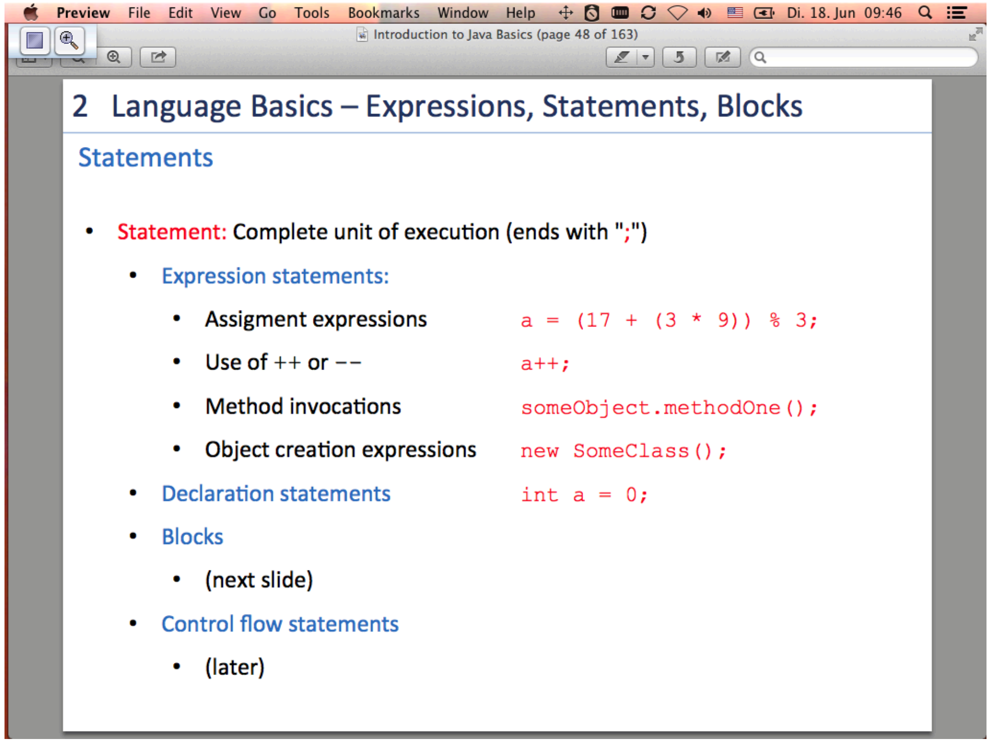
2 Language Basics – Expressions, Statements, Blocks

Expressions

- Some expressions have so-called side-effects

Given: `int a = 73;` `int b;`

Example	Value	Side-effect
`a = 84`	`84`	Assign 84 to `a`
`b = (a = 48)`	`48`	Assign 48 to both `a` and `b`
`a++`	`48`	Assign 49 to `a` (!)
`++a`	`50`	Assign 50 to `a` (!)
`new Bicycle()`	Reference to a new instance of `Bicycle`, e.g. `<1150>`	Create and initialize new instance of class `Bicycle` in memory
`new double[10]`	Reference to a new array of `double`	Create and initialize new array in memory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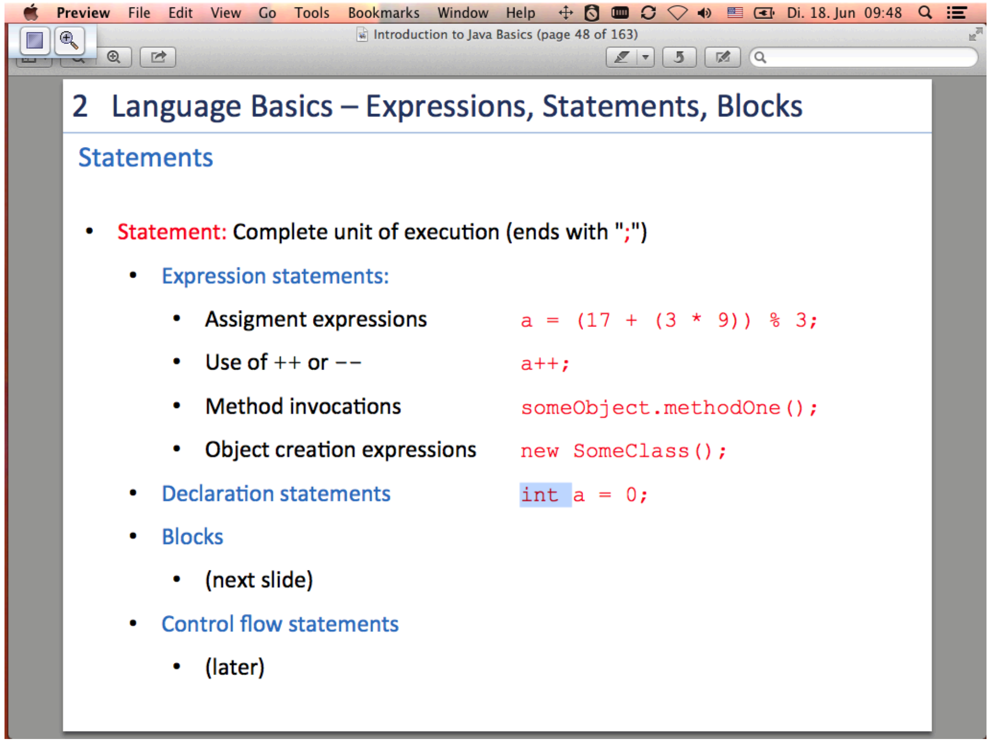
2 Language Basics – Expressions, Statements, Blocks

Statements

- Statement: Complete unit of execution (ends with ";")
  - Expression statements:
    - Assigment expressions `a = (17 + (3 * 9)) % 3;`
    - Use of ++ or -- `a++;`
    - Method invocations `someObject.methodOne();`
    - Object creation expressions `new SomeClass();`
  - Declaration statements `int a = 0;`
  - Blocks
    - (next slide)
  - Control flow statements
    - (later)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2 Language Basics – Expressions, Statements, Blocks

Statements

- Statement: Complete unit of execution (ends with ";")
  - Expression statements:
    - Assigment expressions `a = (17 + (3 * 9)) % 3;`
    - Use of ++ or -- `a++;`
    - Method invocations `someObject.methodOne();`
    - Object creation expressions `new SomeClass();`
  - Declaration statements `int a = 0;`
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    - (next slide)
  - Control flow statements
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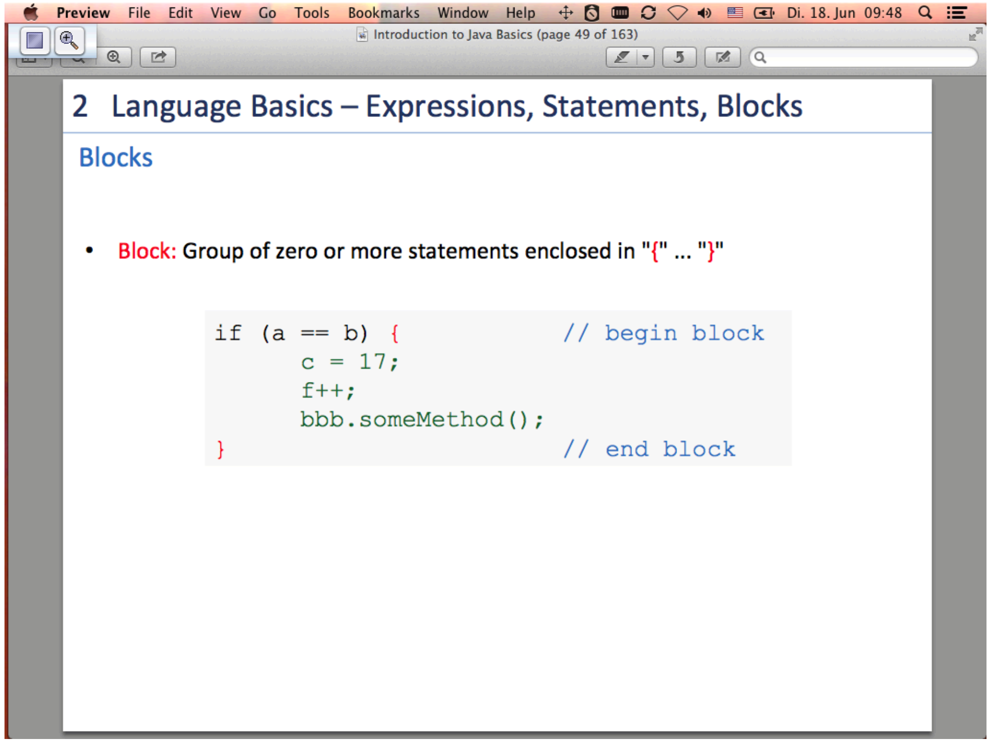
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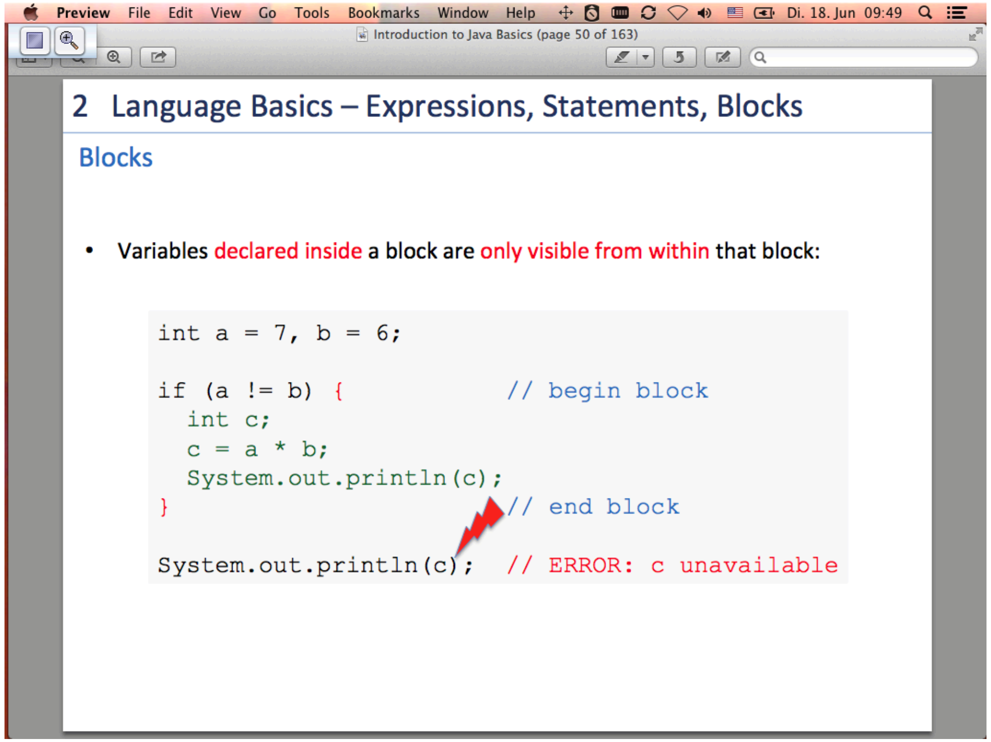
2 Language Basics – Expressions, Statements, Blocks

Blocks

- Block: Group of zero or more statements enclosed in "{" ... "}"

```
if (a == b) {              // begin block
      c = 17;
      f++;
      bbb.someMethod();
}                          // end block
```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2 Language Basics – Expressions, Statements, Blocks

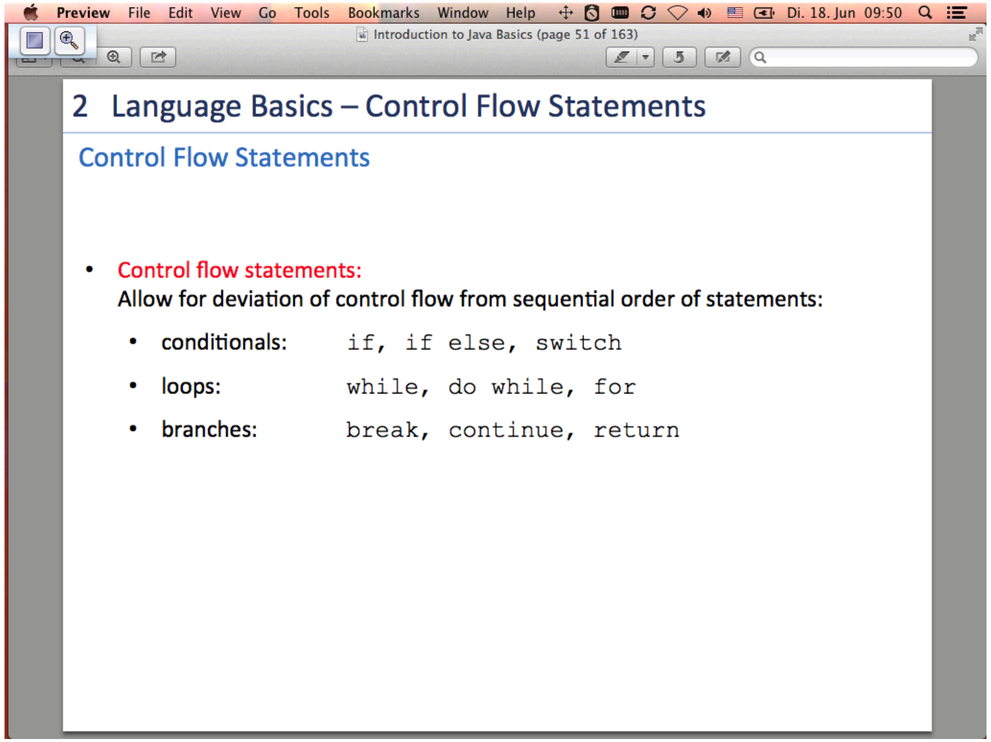
Blocks

- Variables declared inside a block are only visible from within that block:

```
int a = 7, b = 6;

if (a != b) {              // begin block
  int c;
  c = a * b;
  System.out.println(c);
}                          // end block

System.out.println(c);     // ERROR: c unavailable
```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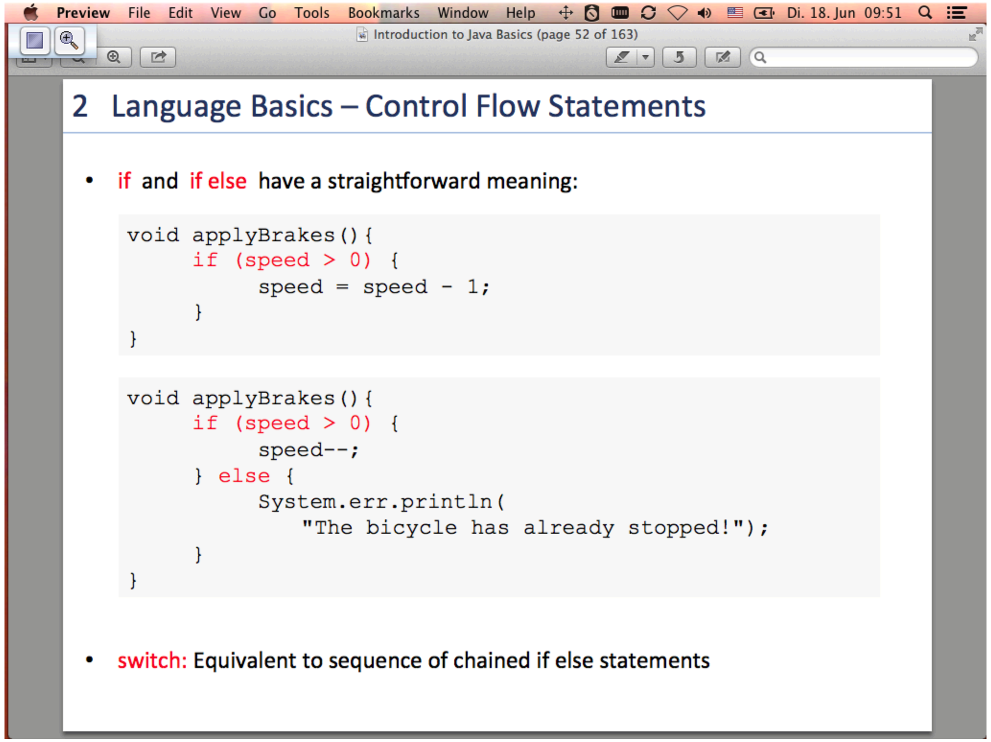
2 Language Basics – Control Flow Statements

Control Flow Statements

- Control flow statements:
  Allow for deviation of control flow from sequential order of statements:
  - conditionals: `if, if else, switch`
  - loops: `while, do while, for`
  - branches: `break, continue, return`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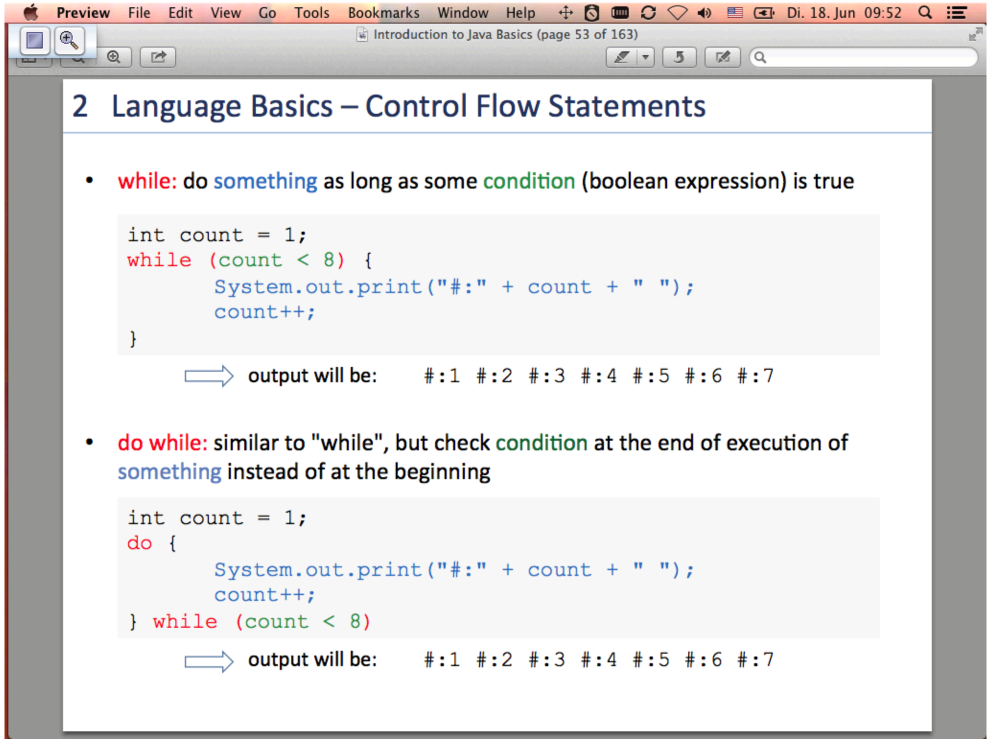
2 Language Basics – Control Flow Statements

- if and if else have a straightforward meaning:

```
void applyBrakes(){
     if (speed > 0) {
          speed = speed - 1;
     }
}
```

```
void applyBrakes(){
     if (speed > 0) {
          speed--;
     } else {
          System.err.println(
             "The bicycle has already stopped!");
     }
}
```

- switch: Equivalent to sequence of chained if else statements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2 Language Basics – Control Flow Statements

- while: do something as long as some condition (boolean expression) is true

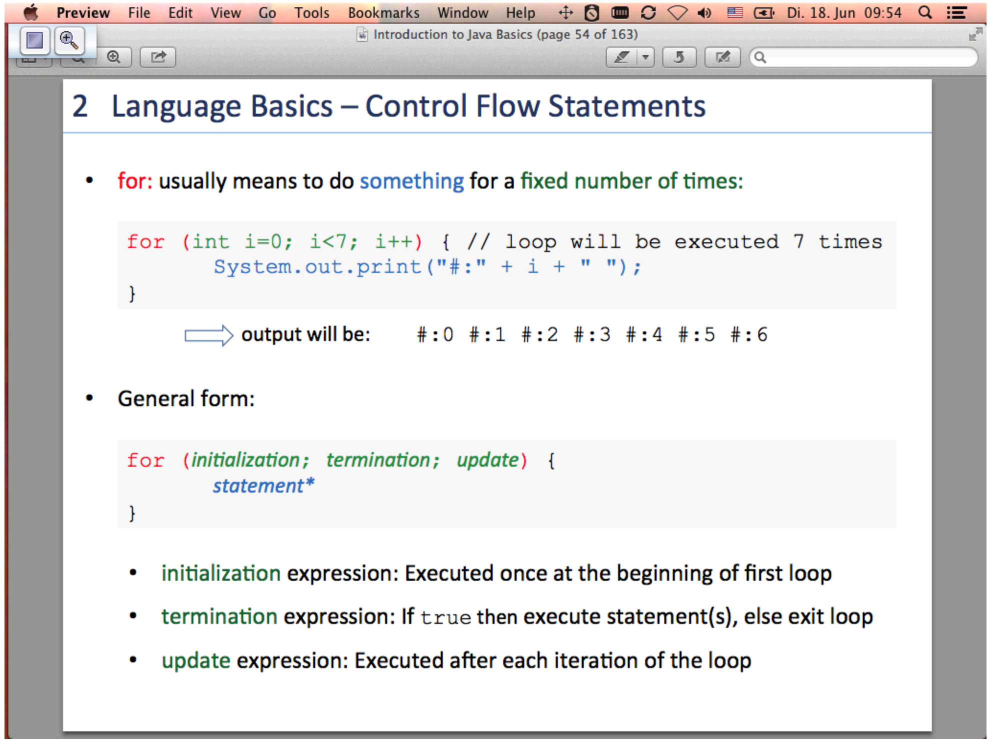
```
int count = 1;
while (count < 8) {
        System.out.print("#:" + count + " ");
        count++;
}
```

⇒ output will be: `#:1 #:2 #:3 #:4 #:5 #:6 #:7`

- do while: similar to "while", but check condition at the end of execution of something instead of at the beginning

```
int count = 1;
do {
        System.out.print("#:" + count + " ");
        count++;
} while (count < 8)
```

⇒ output will be: `#:1 #:2 #:3 #:4 #:5 #:6 #:7`


Preview File Edit View Go Tools Bookmarks Window Help
Di. 18. Jun 09:54
Introduction to Java Basics (page 54 of 163)

2 Language Basics – Control Flow Statements

- for: usually means to do something for a fixed number of times:

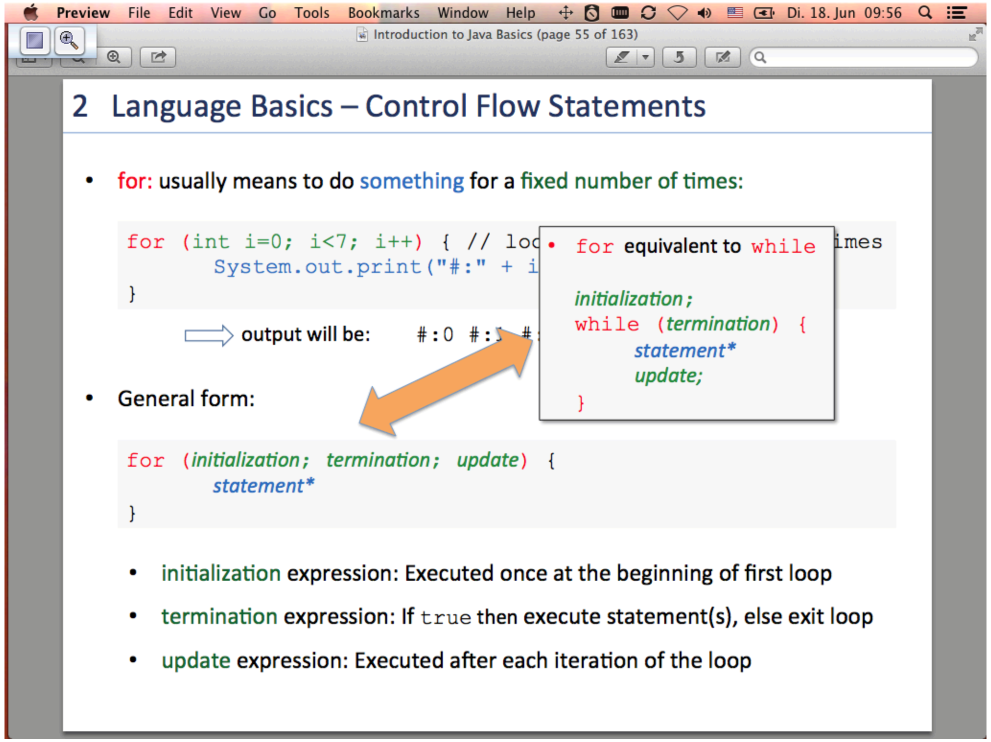
```
for (int i=0; i<7; i++) { // loop will be executed 7 times
        System.out.print("#:" + i + " ");
}
```

⇒ output will be: `#:0 #:1 #:2 #:3 #:4 #:5 #:6`

- General form:

```
for (initialization; termination; update) {
        statement*
}
```

  - initialization expression: Executed once at the beginning of first loop
  - termination expression: If `true` then execute statement(s), else exit loop
  - update expression: Executed after each iteration of the loop


Preview File Edit View Go Tools Bookmarks Window Help
Di. 18. Jun 09:56
Introduction to Java Basics (page 55 of 163)

2 Language Basics – Control Flow Statements

- for: usually means to do something for a fixed number of times:

```
for (int i=0; i<7; i++) { // loo                       imes
        System.out.print("#:" + i
}
```

⇒ output will be: `#:0 #:`

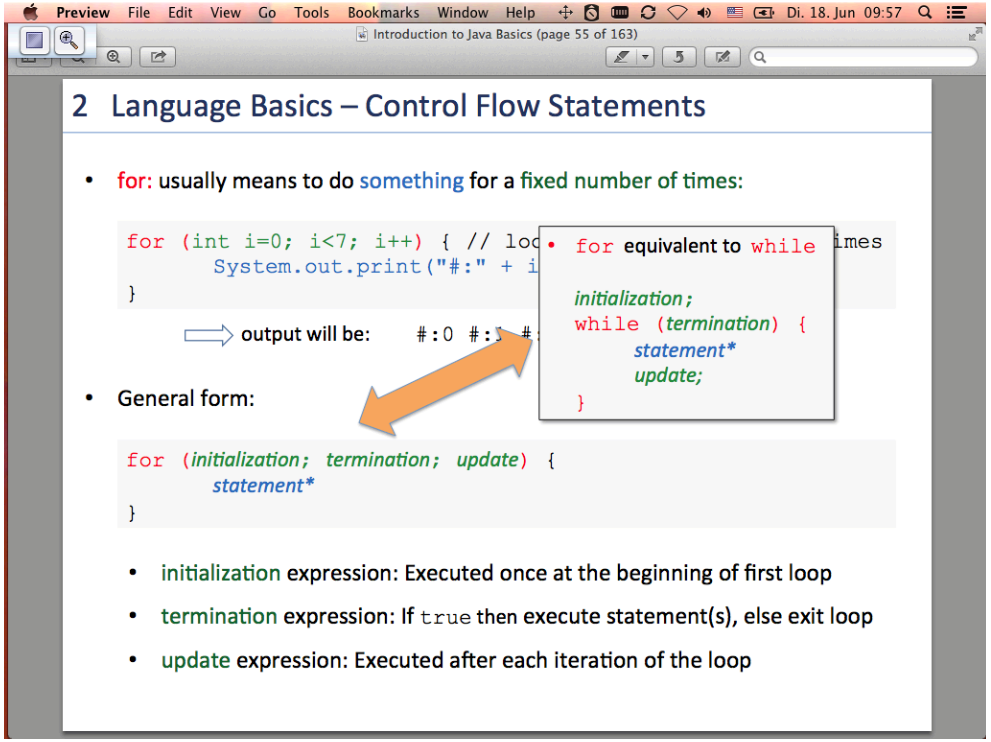
- `for` equivalent to `while`

```
initialization;
while (termination) {
        statement*
        update;
}
```

- General form:

```
for (initialization; termination; update) {
        statement*
}
```

  - initialization expression: Executed once at the beginning of first loop
  - termination expression: If `true` then execute statement(s), else exit loop
  - update expression: Executed after each iteration of the loop


Preview File Edit View Go Tools Bookmarks Window Help
Di. 18. Jun 09:57
Introduction to Java Basics (page 55 of 163)

2 Language Basics – Control Flow Statements

- for: usually means to do something for a fixed number of times:

for (int i=0; i<7; i++) { // loo   imes
        System.out.print("#:" + i
}

⇒ output will be: #:0 #:

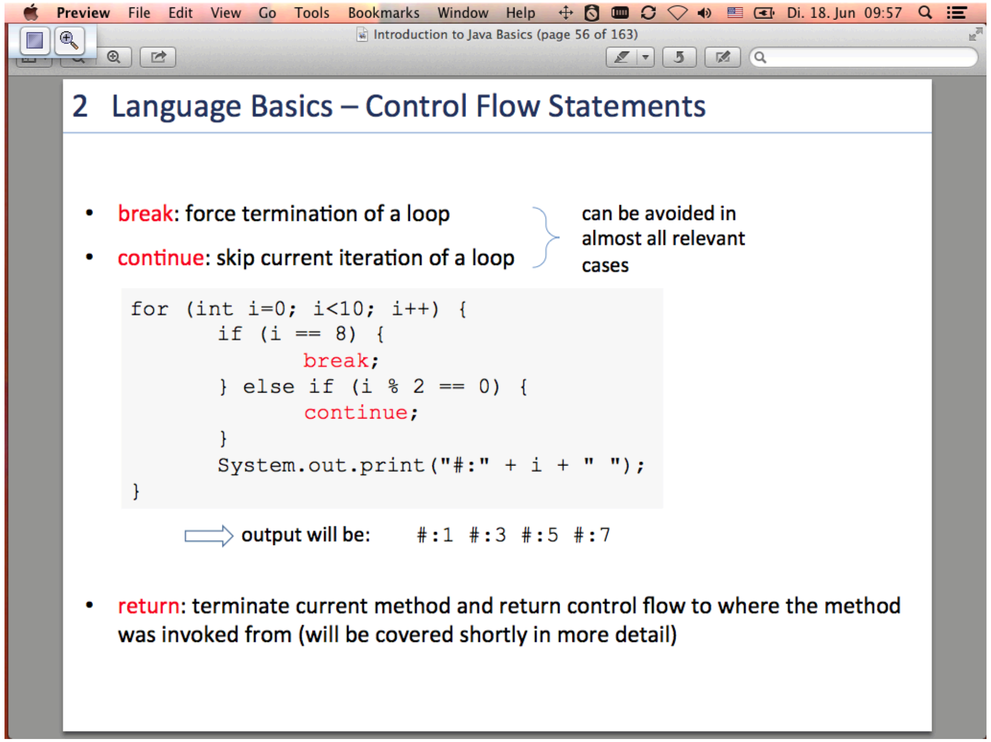
- for equivalent to while

initialization;
while (termination) {
        statement*
        update;
}

- General form:

for (initialization; termination; update) {
        statement*
}

  - initialization expression: Executed once at the beginning of first loop
  - termination expression: If true then execute statement(s), else exit loop
  - update expression: Executed after each iteration of the loop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Di. 18. Jun 09:57
Introduction to Java Basics (page 56 of 163)

2 Language Basics – Control Flow Statements

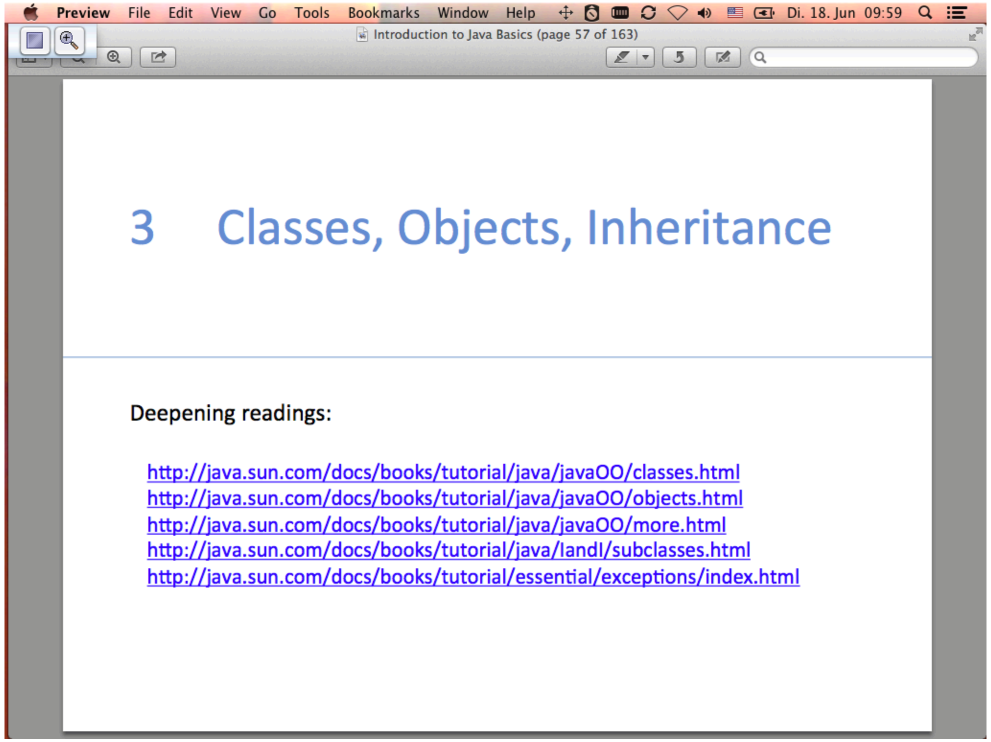
- break: force termination of a loop
- continue: skip current iteration of a loop

} can be avoided in almost all relevant cases

```
for (int i=0; i<10; i++) {
        if (i == 8) {
                break;
        } else if (i % 2 == 0) {
                continue;
        }
        System.out.print("#:" + i + " ");
}
```

⇨ output will be: `#:1 #:3 #:5 #:7`

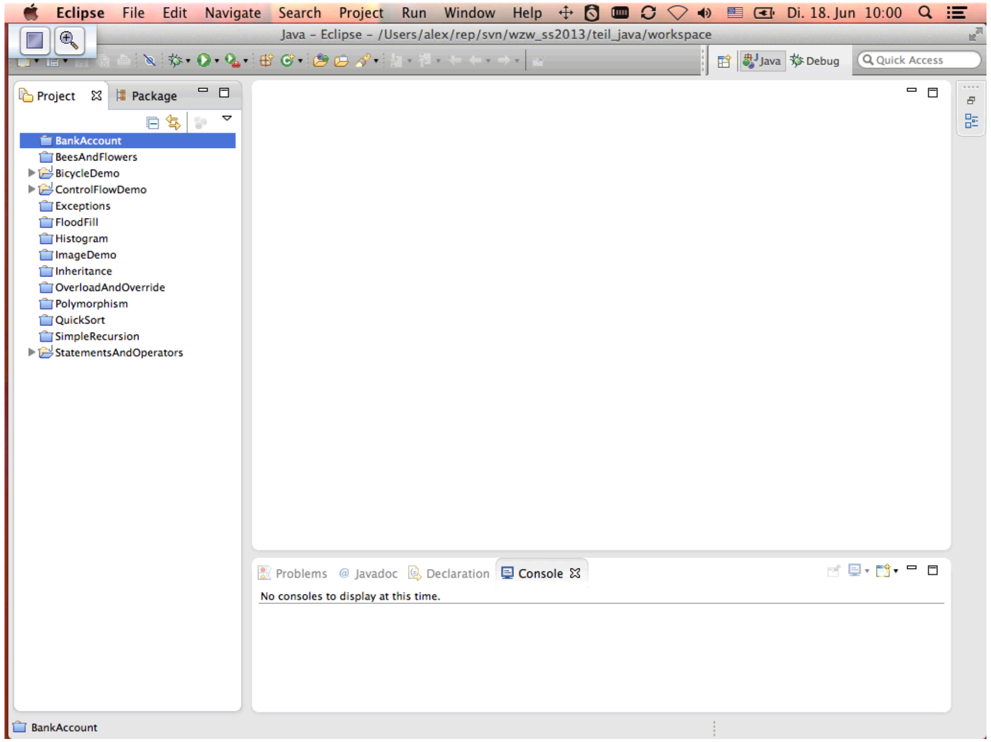
- return: terminate current method and return control flow to where the method was invoked from (will be covered shortly in more detail)


Preview File Edit View Go Tools Bookmarks Window Help
Di. 18. Jun 09:59
Introduction to Java Basics (page 57 of 163)

3 Classes, Objects, Inheritance

Deepening readings:

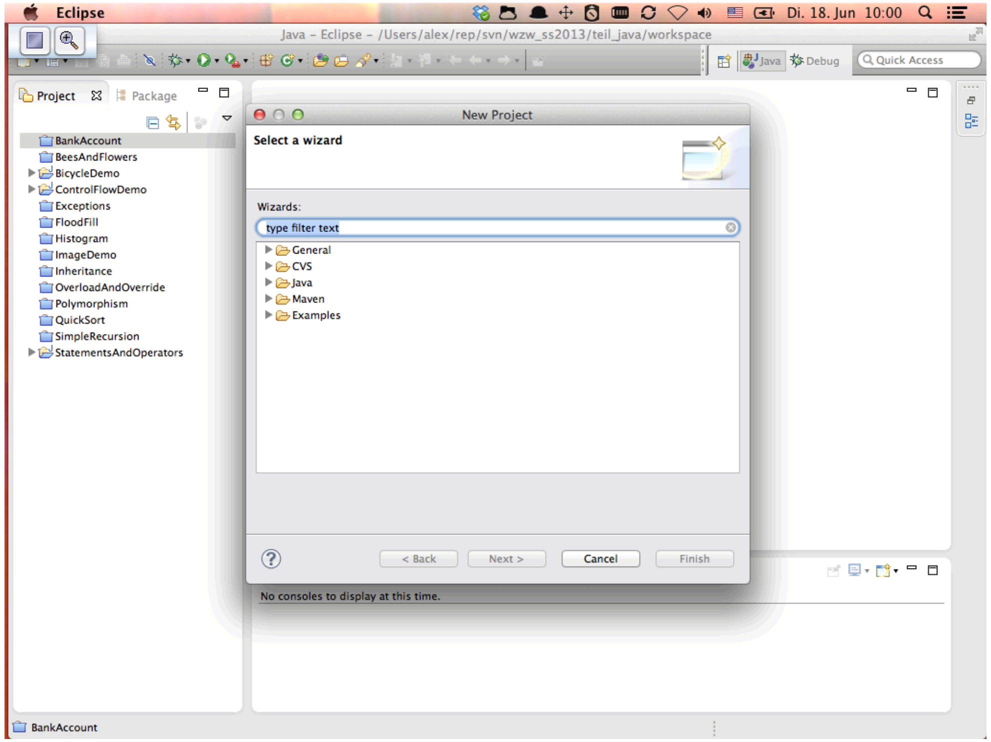
http://java.sun.com/docs/books/tutorial/java/javaOO/classes.html
http://java.sun.com/docs/books/tutorial/java/javaOO/objects.html
http://java.sun.com/docs/books/tutorial/java/javaOO/more.html
http://java.sun.com/docs/books/tutorial/java/IandI/subclasses.html
http://java.sun.com/docs/books/tutorial/essential/exceptions/index.html


Eclipse File Edit Navigate Search Project Run Window Help
Di. 18. Jun 10:00
Java – Eclipse – /Users/alex/rep/svn/wzw_ss2013/teil_java/workspace
Java
Debug
Quick Access
Project
Package
Problems
Javadoc
Declaration
Console

BankAccount
BeesAndFlowers
BicycleDemo
ControlFlowDemo
Exceptions
FloodFill
Histogram
ImageDemo
Inheritance
OverloadAndOverride
Polymorphism
QuickSort
SimpleRecursion
StatementsAndOperators

No consoles to display at this time.

BankAccount



BankAccount
BeesAndFlowers
BicycleDemo
ControlFlowDemo
Exceptions
FloodFill
Histogram
ImageDemo
Inheritance
OverloadAndOverride
Polymorphism
QuickSort
SimpleRecursion
StatementsAndOperators

Select a wizard

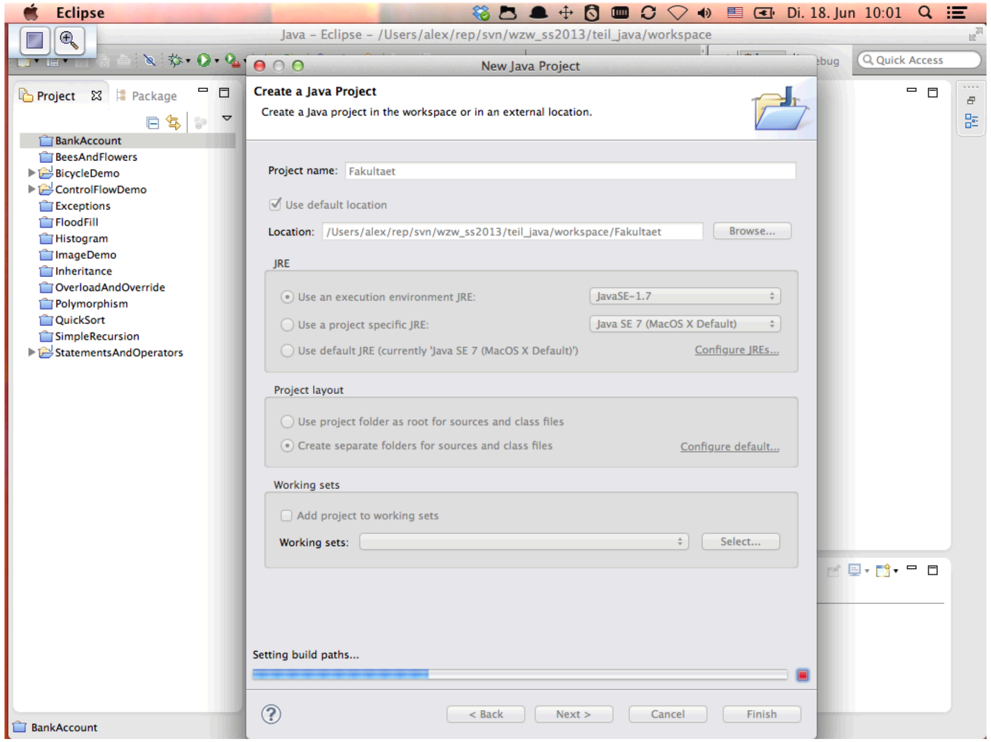
Wizards:

type filter text

- General
- CVS
- Java
- Maven
- Examples

No consoles to display at this time.

BankAccount



New Java Project

Create a Java Project

Create a Java project in the workspace or in an external location.

Project name: Fakultaet

☑ Use default location

Location: /Users/alex/rep/svn/wzw_ss2013/teil_java/workspace/Fakultaet

JRE

● Use an execution environment JRE: JavaSE-1.7

○ Use a project specific JRE: Java SE 7 (MacOS X Default)

○ Use default JRE (currently 'Java SE 7 (MacOS X Default)') Configure JREs...

Project layout

○ Use project folder as root for sources and class files

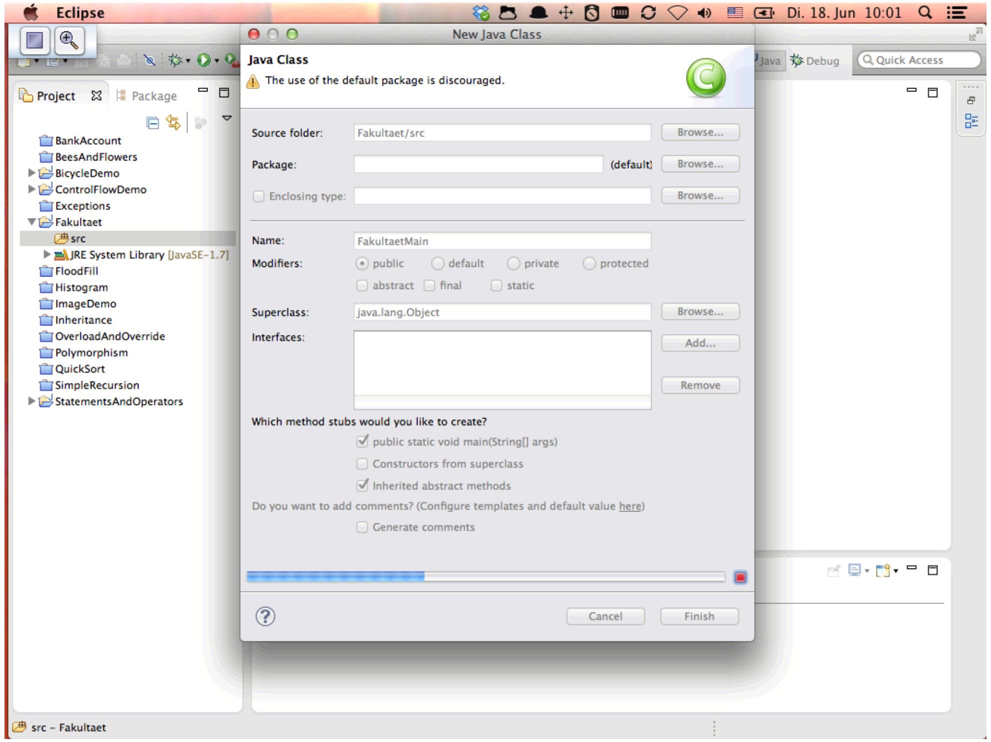
● Create separate folders for sources and class files Configure default...

Working sets

□ Add project to working sets

Working sets:

Setting build paths...



New Java Class

Java Class

The use of the default package is discouraged.

Source folder: Fakultaet/src

Package: (default)

□ Enclosing type:

Name: FakultaetMain

Modifiers: ● public ○ default ○ private ○ protected

□ abstract □ final □ static

Superclass: java.lang.Object

Interfaces:

Which method stubs would you like to create?

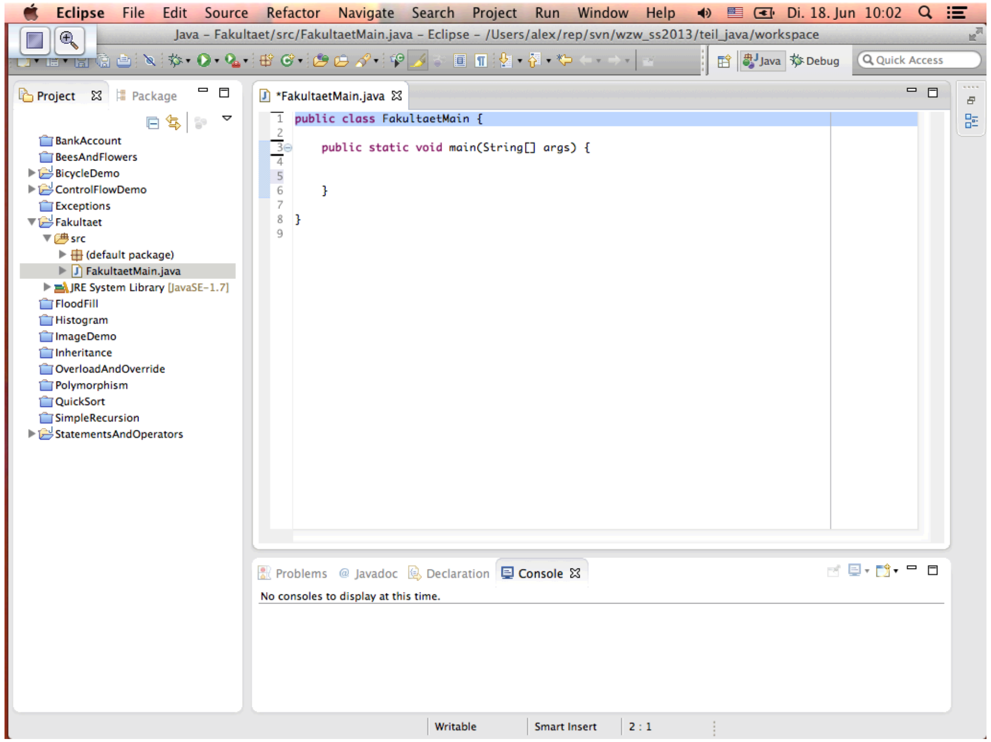
☑ public static void main(String[] args)

□ Constructors from superclass

☑ Inherited abstract methods

Do you want to add comments? (Configure templates and default value here)

□ Generate comments



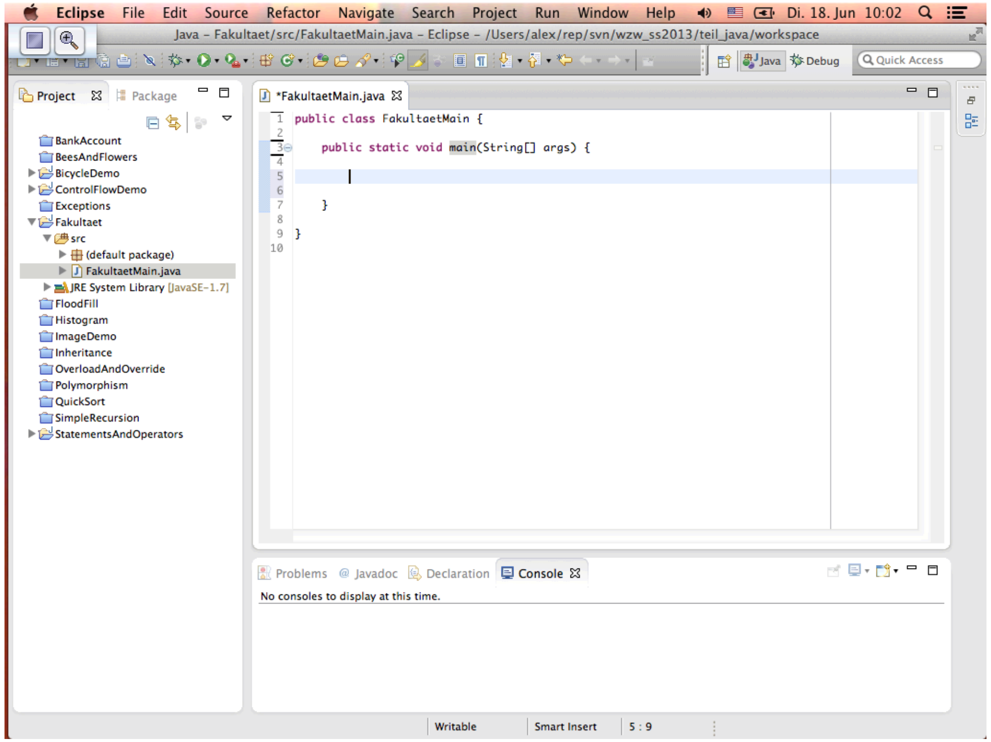
Java – Fakultaet/src/FakultaetMain.java – Eclipse – /Users/alex/rep/svn/wzw_ss2013/teil_java/workspace

*FakultaetMain.java

```
public class FakultaetMain {

	public static void main(String[] args) {
	
	
	}
}
```

Console

No consoles to display at this time.

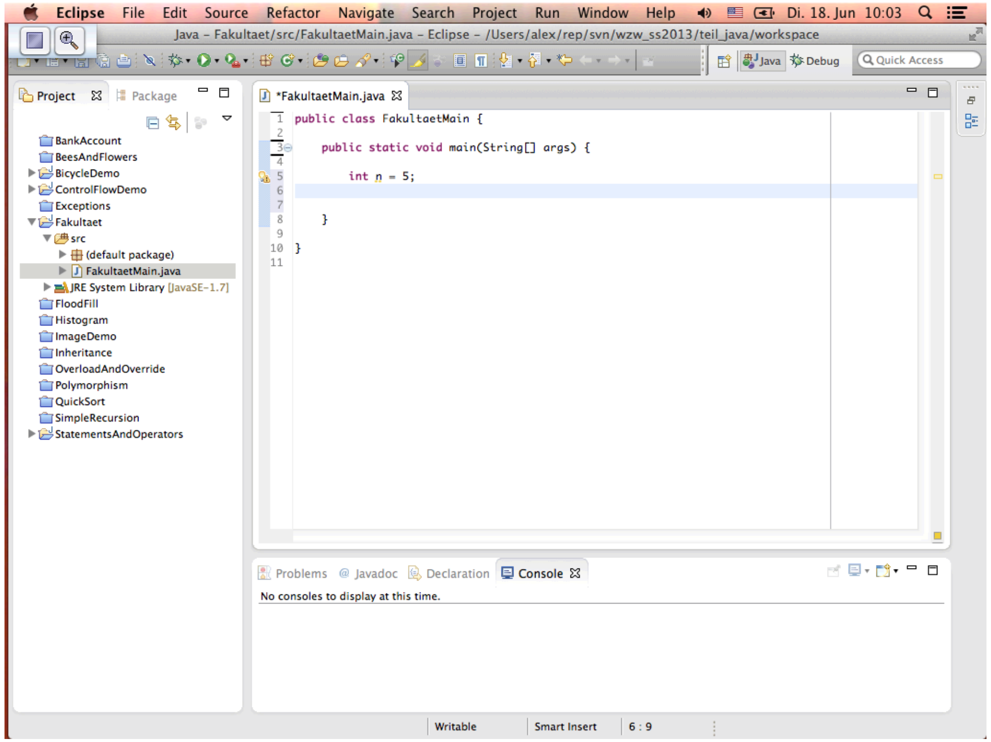


*FakultaetMain.java

```
public class FakultaetMain {

	public static void main(String[] args) {
		|
		
	}
}

```

Console

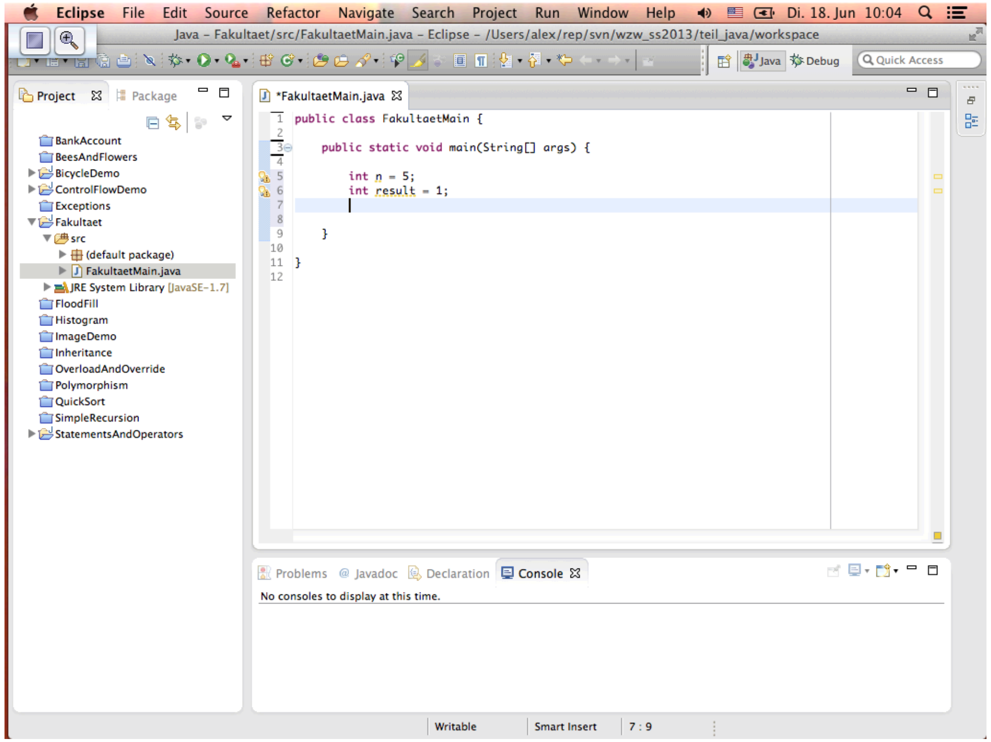
No consoles to display at this time.



```java
public class FakultaetMain {

    public static void main(String[] args) {

        int n = 5;


    }

}
```

No consoles to display at this time.

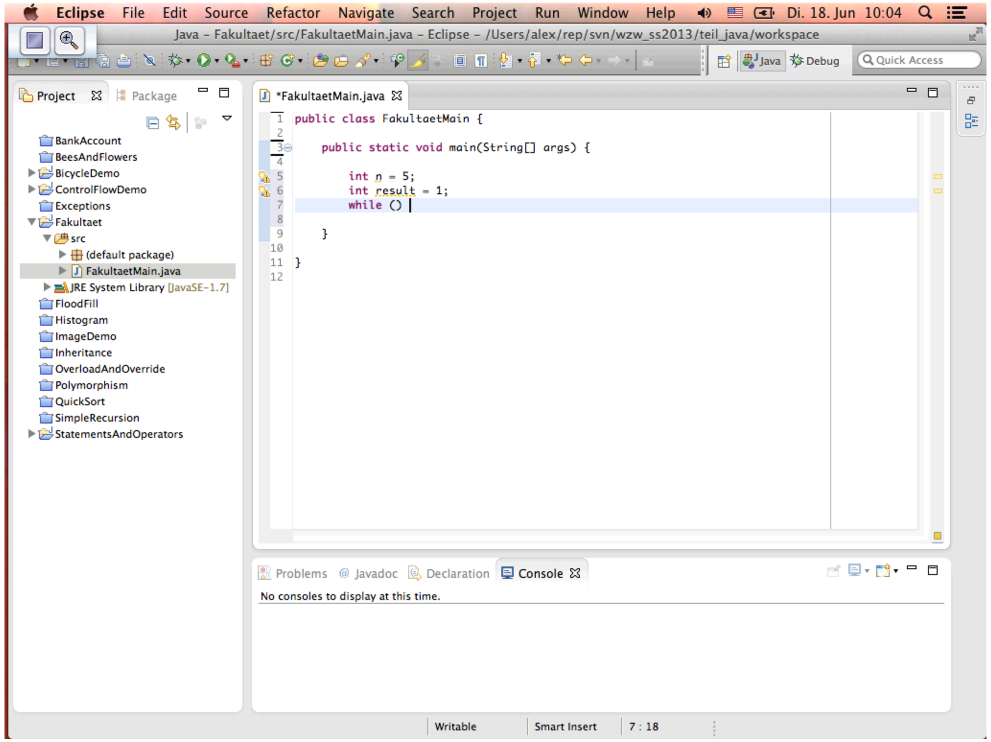
Writable | Smart Insert | 6 : 9


Eclipse File Edit Source Refactor Navigate Search Project Run Window Help
Di. 18. Jun 10:04
Java – Fakultaet/src/FakultaetMain.java – Eclipse – /Users/alex/rep/svn/wzw_ss2013/teil_java/workspace
*FakultaetMain.java
Problems
Javadoc
Declaration
Console

```java
public class FakultaetMain {

    public static void main(String[] args) {

        int n = 5;
        int result = 1;


    }

}
```

No consoles to display at this time.

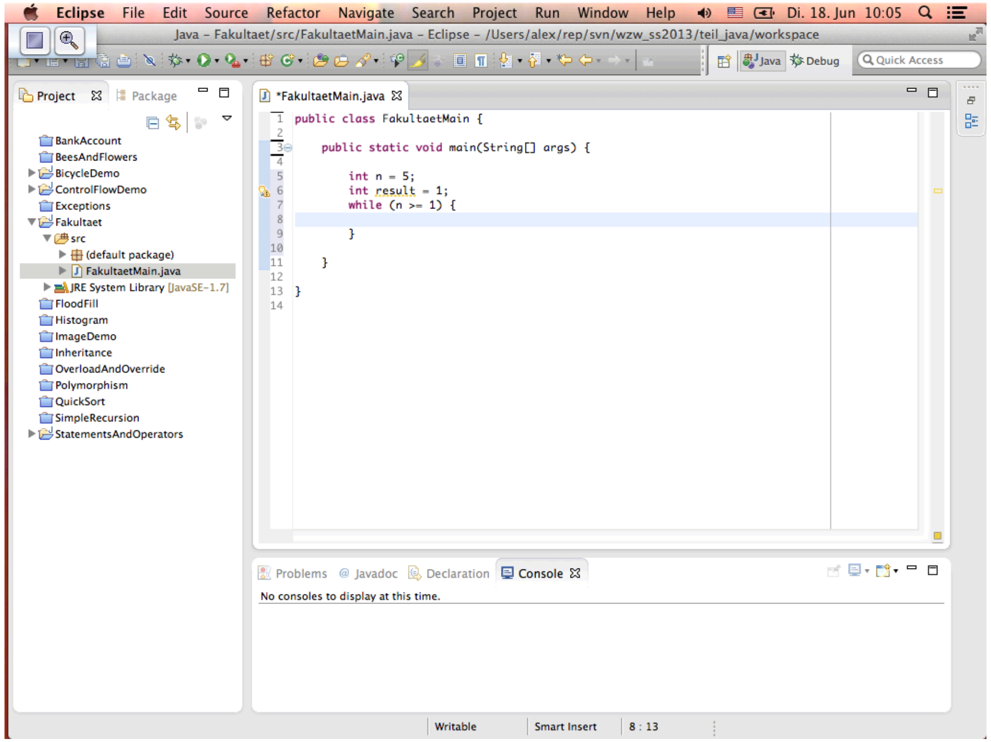
Writable | Smart Insert | 7 : 9


Eclipse File Edit Source Refactor Navigate Search Project Run Window Help
Di. 18. Jun 10:04
Java – Fakultaet/src/FakultaetMain.java – Eclipse – /Users/alex/rep/svn/wzw_ss2013/teil_java/workspace
*FakultaetMain.java
Problems
Javadoc
Declaration
Console

```java
public class FakultaetMain {

    public static void main(String[] args) {

        int n = 5;
        int result = 1;
        while () 


    }

}
```

No consoles to display at this time.

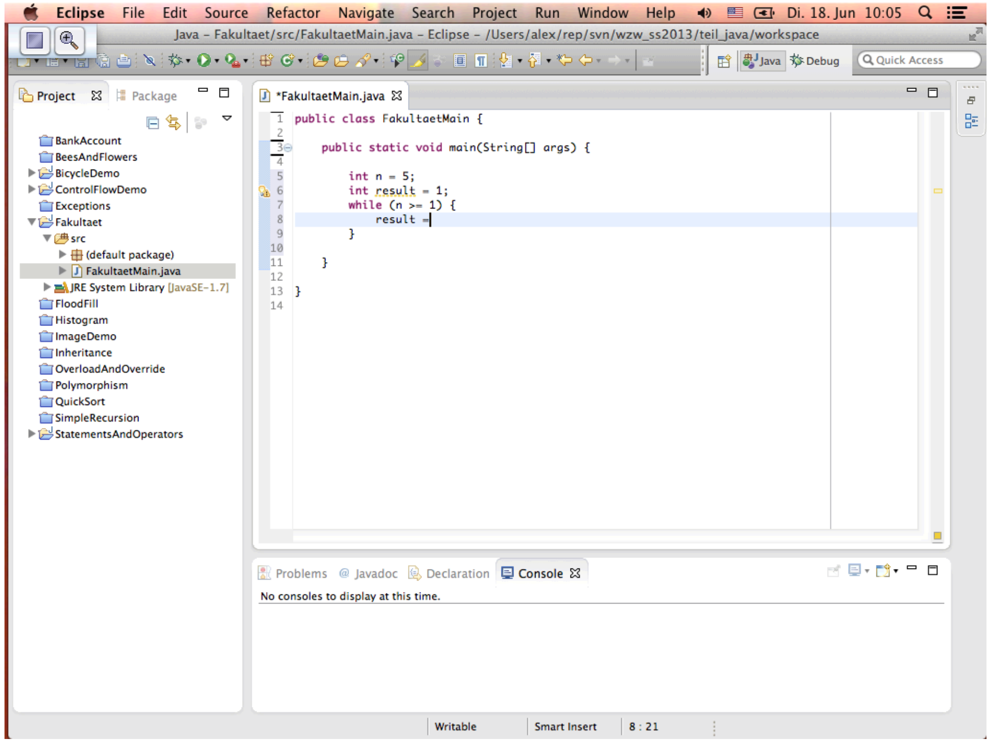
Writable | Smart Insert | 7 : 18


Eclipse File Edit Source Refactor Navigate Search Project Run Window Help
Di. 18. Jun 10:05
Java – Fakultaet/src/FakultaetMain.java – Eclipse – /Users/alex/rep/svn/wzw_ss2013/teil_java/workspace
*FakultaetMain.java
Problems
Javadoc
Declaration
Console

```java
public class FakultaetMain {

    public static void main(String[] args) {

        int n = 5;
        int result = 1;
        while (n >= 1) {


        }

    }
}
```

No consoles to display at this time.

Writable | Smart Insert | 8 : 13



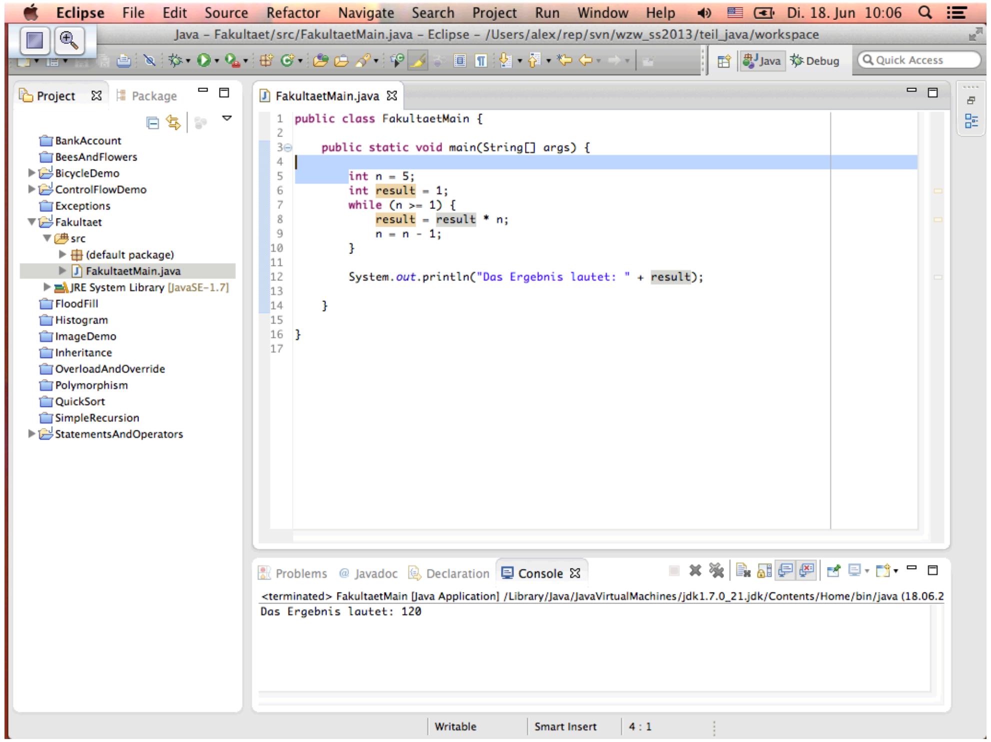
Java – Fakultaet/src/FakultaetMain.java – Eclipse – /Users/alex/rep/svn/wzw_ss2013/teil_java/workspace

*FakultaetMain.java

```java
public class FakultaetMain {

    public static void main(String[] args) {

        int n = 5;
        int result = 1;
        while (n >= 1) {
            result =
        }

    }

}
```

```
No consoles to display at this time.
```

Writable | Smart Insert | 8 : 21



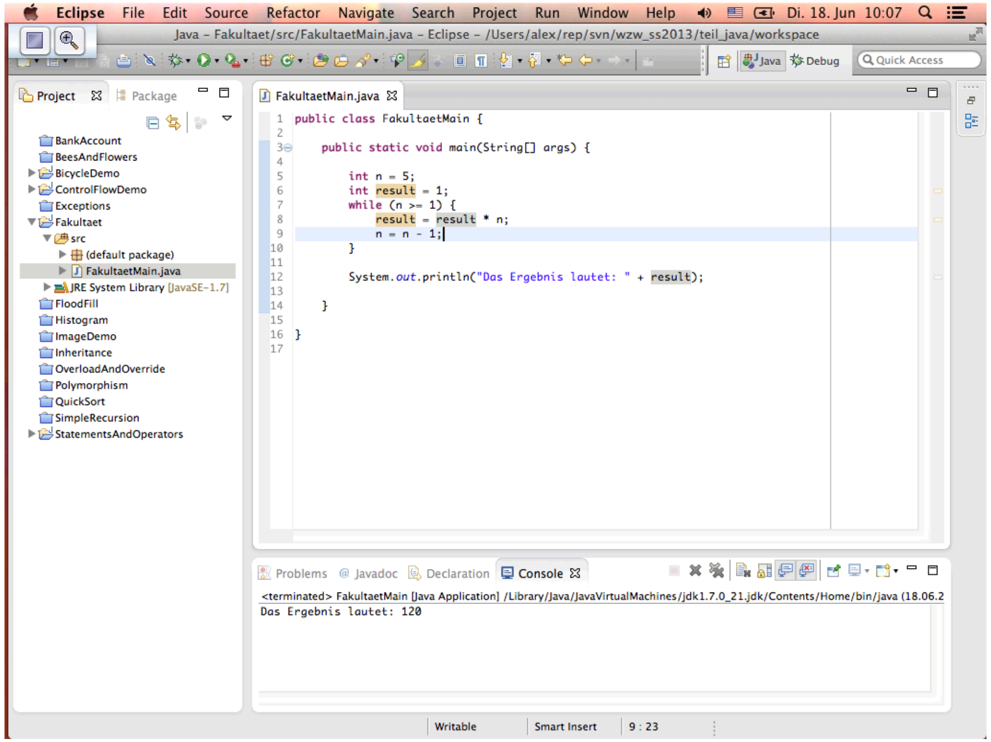
Java – Fakultaet/src/FakultaetMain.java – Eclipse – /Users/alex/rep/svn/wzw_ss2013/teil_java/workspace

FakultaetMain.java

```java
public class FakultaetMain {

    public static void main(String[] args) {

        int n = 5;
        int result = 1;
        while (n >= 1) {
            result = result * n;
            n = n - 1;
        }

        System.out.println("Das Ergebnis lautet: " + result);

    }

}
```

```
<terminated> FakultaetMain [Java Application] /Library/Java/JavaVirtualMachines/jdk1.7.0_21.jdk/Contents/Home/bin/java (18.06.2
Das Ergebnis lautet: 120
```

Writable | Smart Insert | 4 : 1



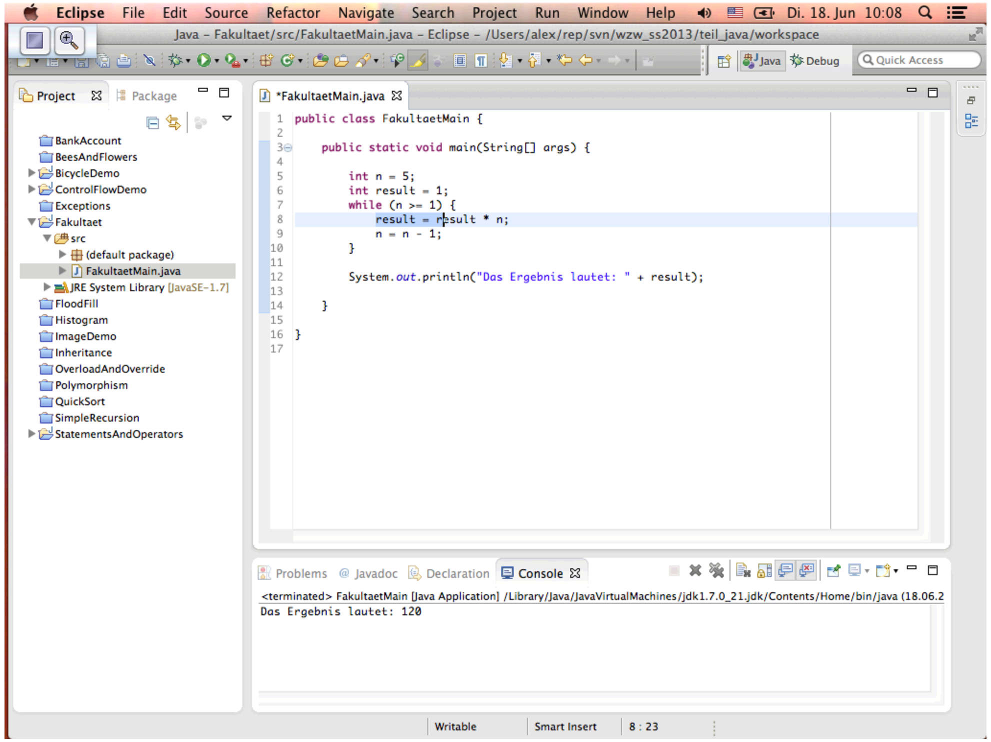
Java – Fakultaet/src/FakultaetMain.java – Eclipse – /Users/alex/rep/svn/wzw_ss2013/teil_java/workspace

FakultaetMain.java

```java
public class FakultaetMain {

    public static void main(String[] args) {

        int n = 5;
        int result = 1;
        while (n >= 1) {
            result = result * n;
            n = n - 1;
        }

        System.out.println("Das Ergebnis lautet: " + result);

    }

}
```

```
<terminated> FakultaetMain [Java Application] /Library/Java/JavaVirtualMachines/jdk1.7.0_21.jdk/Contents/Home/bin/java (18.06.2
Das Ergebnis lautet: 120
```

Writable | Smart Insert | 9 : 23



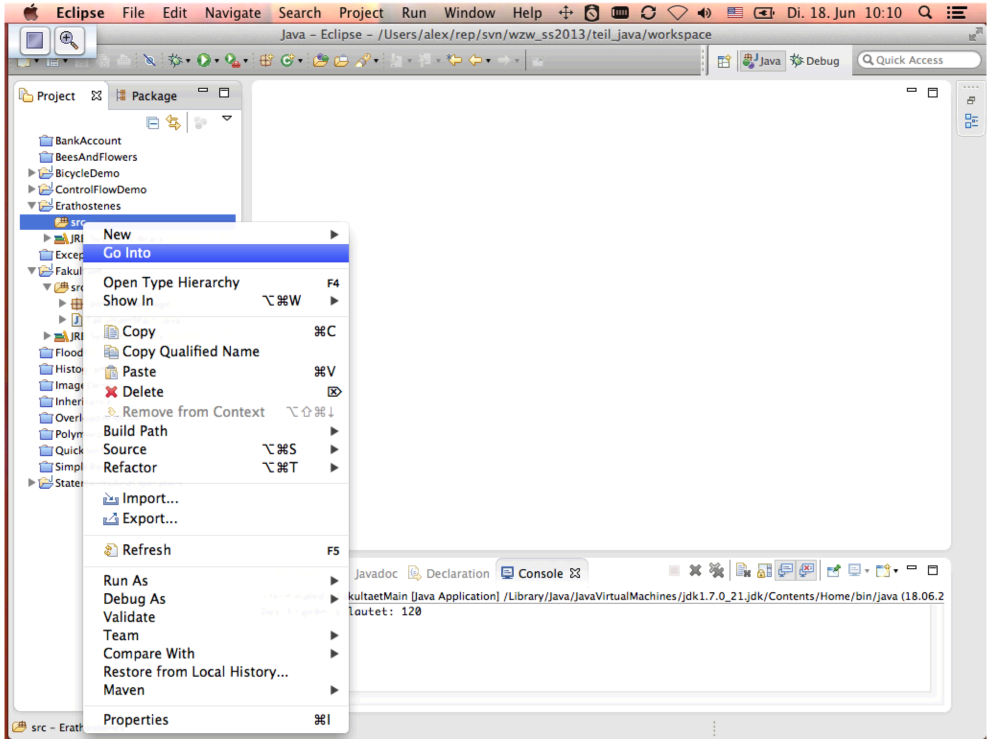
Java – Fakultaet/src/FakultaetMain.java – Eclipse – /Users/alex/rep/svn/wzw_ss2013/teil_java/workspace

*FakultaetMain.java

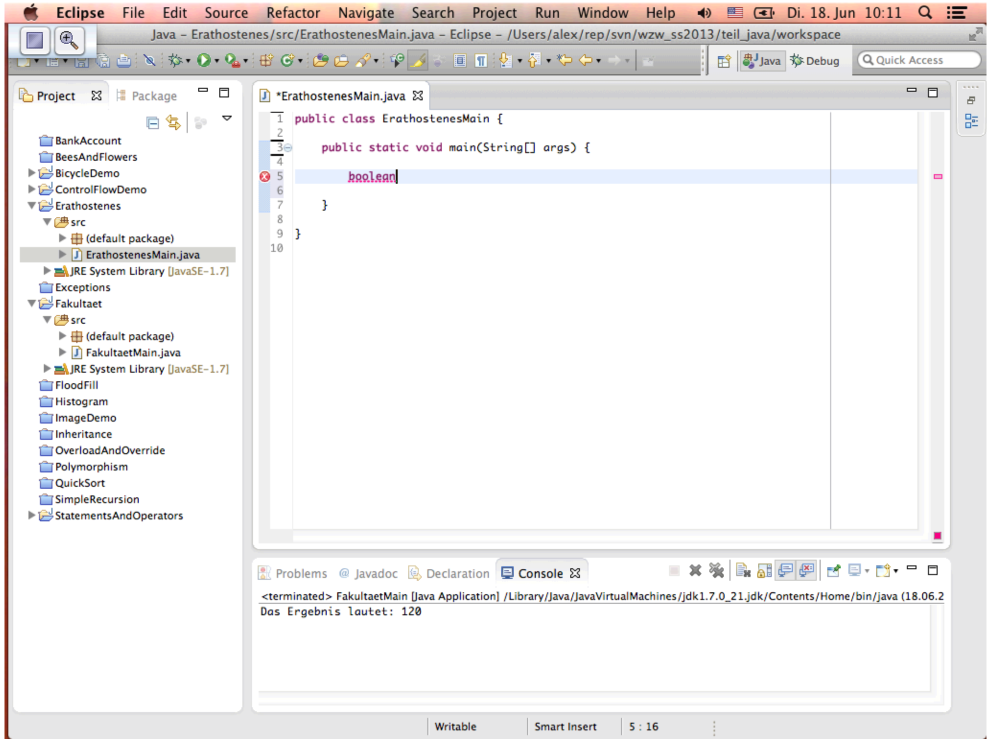
```java
public class FakultaetMain {

    public static void main(String[] args) {

        int n = 5;
        int result = 1;
        while (n >= 1) {
            result = result * n;
            n = n - 1;
        }

        System.out.println("Das Ergebnis lautet: " + result);

    }

}
```

```
<terminated> FakultaetMain [Java Application] /Library/Java/JavaVirtualMachines/jdk1.7.0_21.jdk/Contents/Home/bin/java (18.06.2
Das Ergebnis lautet: 120
```

Writable | Smart Insert | 8 : 23

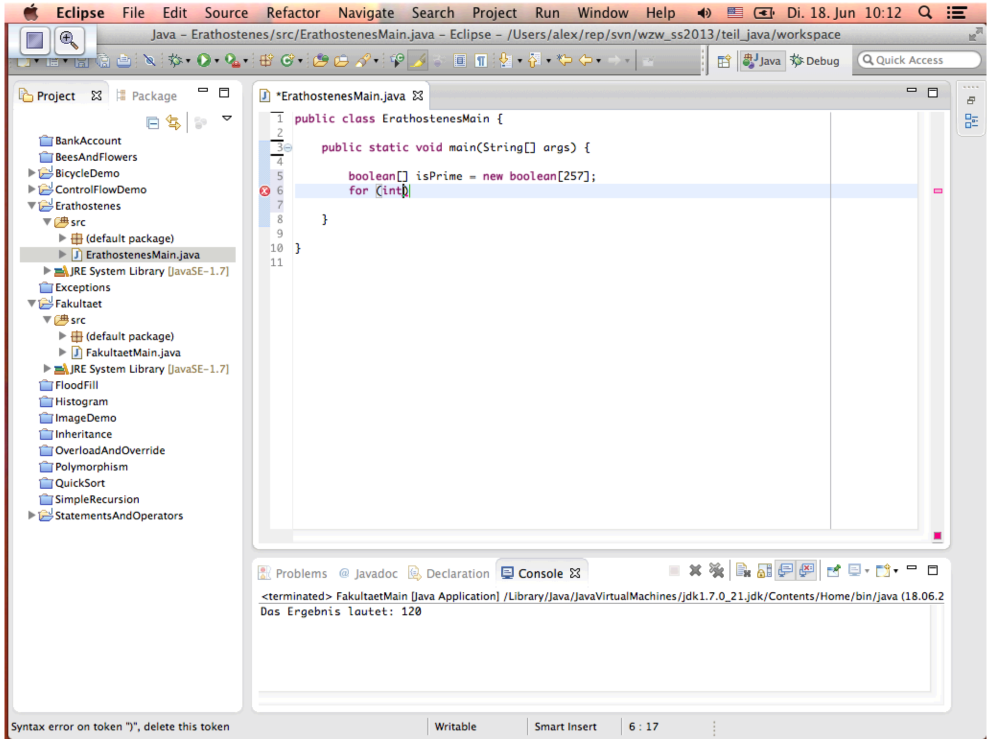


```
kultaetMain [Java Application] /Library/Java/JavaVirtualMachines/jdk1.7.0_21.jdk/Contents/Home/bin/java (18.06.2
lautet: 120
```



```java
public class ErathostenesMain {

    public static void main(String[] args) {

        boolean

    }

}
```

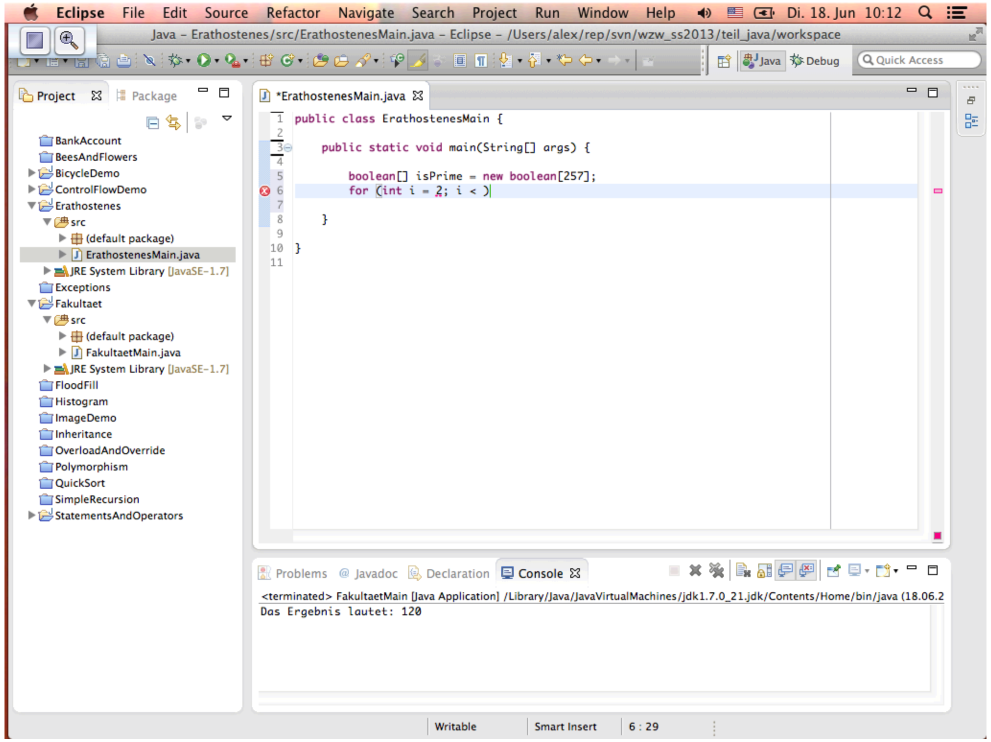
```
<terminated> FakultaetMain [Java Application] /Library/Java/JavaVirtualMachines/jdk1.7.0_21.jdk/Contents/Home/bin/java (18.06.2
Das Ergebnis lautet: 120
```


Eclipse File Edit Source Refactor Navigate Search Project Run Window Help
Di. 18. Jun 10:12
Java – Erathostenes/src/ErathostenesMain.java – Eclipse – /Users/alex/rep/svn/wzw_ss2013/teil_java/workspace
Project
Package
*ErathostenesMain.java
Problems
Javadoc
Declaration
Console
Writable
Smart Insert
6 : 17

```java
public class ErathostenesMain {

    public static void main(String[] args) {

        boolean[] isPrime = new boolean[257];
        for (int)

    }

}
```

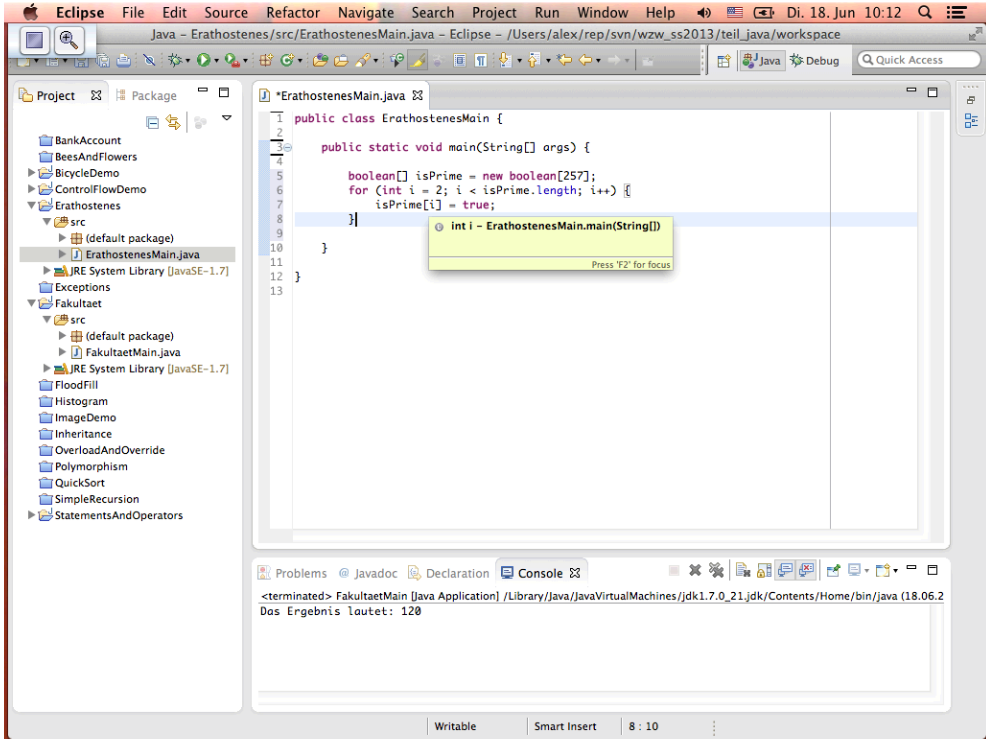
```
<terminated> FakultaetMain [Java Application] /Library/Java/JavaVirtualMachines/jdk1.7.0_21.jdk/Contents/Home/bin/java (18.06.2
Das Ergebnis lautet: 120
```

Syntax error on token ")", delete this token


Eclipse File Edit Source Refactor Navigate Search Project Run Window Help
Di. 18. Jun 10:12
Java – Erathostenes/src/ErathostenesMain.java – Eclipse – /Users/alex/rep/svn/wzw_ss2013/teil_java/workspace
Project
Package
*ErathostenesMain.java
Problems
Javadoc
Declaration
Console
Writable
Smart Insert
6 : 29

```java
public class ErathostenesMain {

    public static void main(String[] args) {

        boolean[] isPrime = new boolean[257];
        for (int i = 2; i < )

    }

}
```

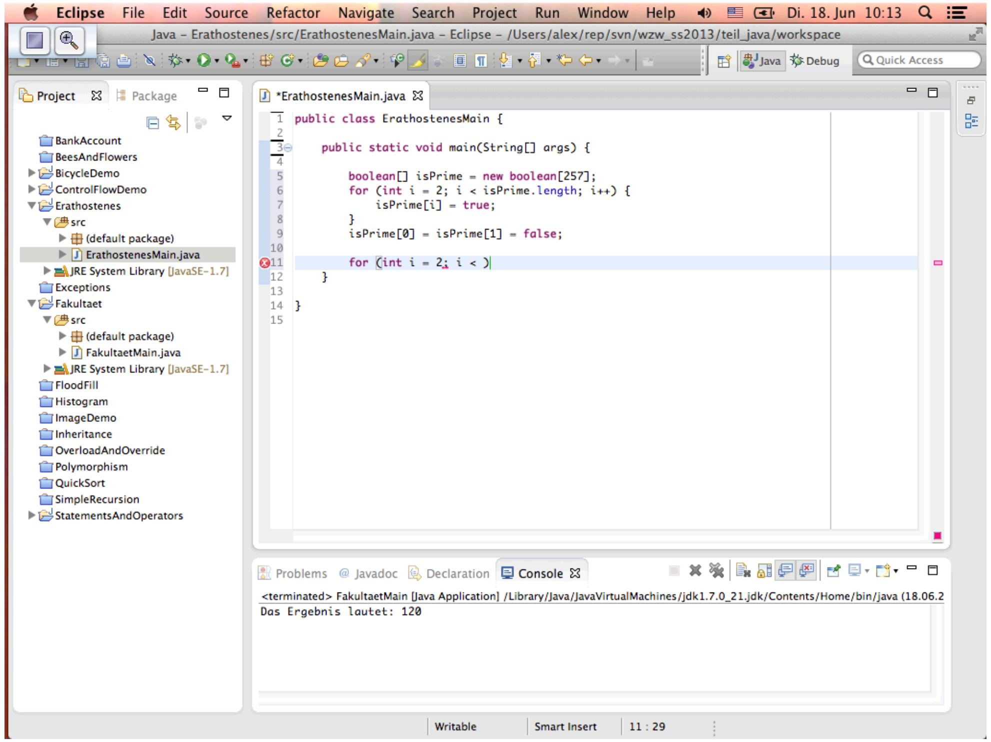
```
<terminated> FakultaetMain [Java Application] /Library/Java/JavaVirtualMachines/jdk1.7.0_21.jdk/Contents/Home/bin/java (18.06.2
Das Ergebnis lautet: 120
```



```java
public class ErathostenesMain {

    public static void main(String[] args) {

        boolean[] isPrime = new boolean[257];
        for (int i = 2; i < isPrime.length; i++) {
            isPrime[i] = true;
        }

    }

}
```

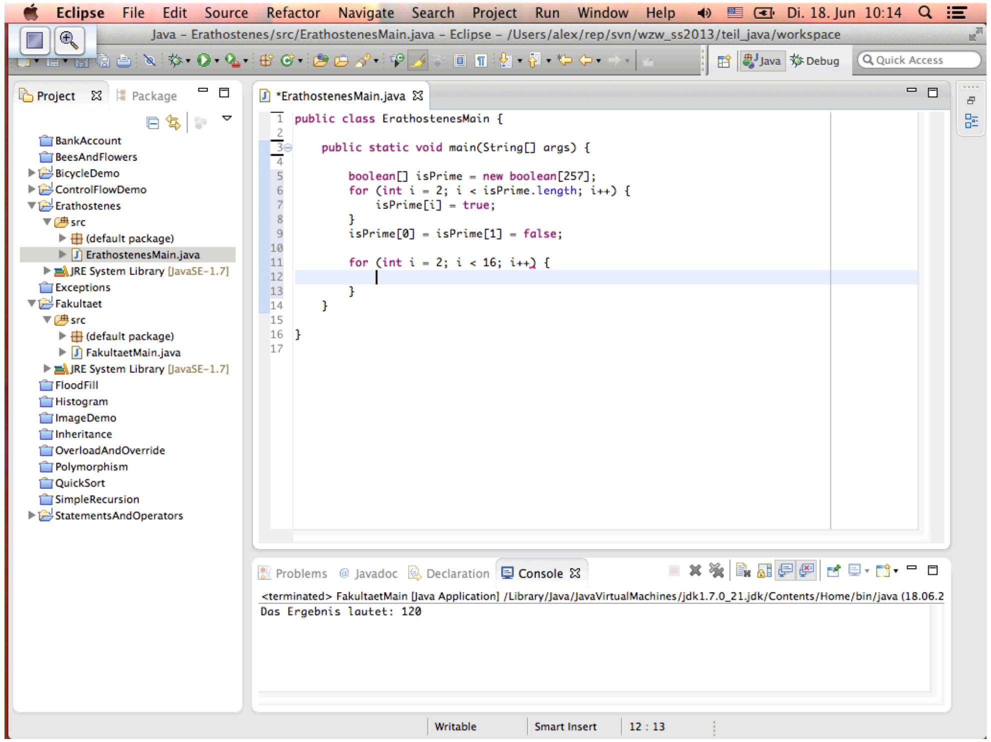
int i – ErathostenesMain.main(String[])

```
<terminated> FakultaetMain [Java Application] /Library/Java/JavaVirtualMachines/jdk1.7.0_21.jdk/Contents/Home/bin/java (18.06.2
Das Ergebnis lautet: 120
```


Eclipse File Edit Source Refactor Navigate Search Project Run Window Help
Di. 18. Jun 10:13
Java – Erathostenes/src/ErathostenesMain.java – Eclipse – /Users/alex/rep/svn/wzw_ss2013/teil_java/workspace
*ErathostenesMain.java
Problems
Javadoc
Declaration
Console
Writable
Smart Insert
11 : 29

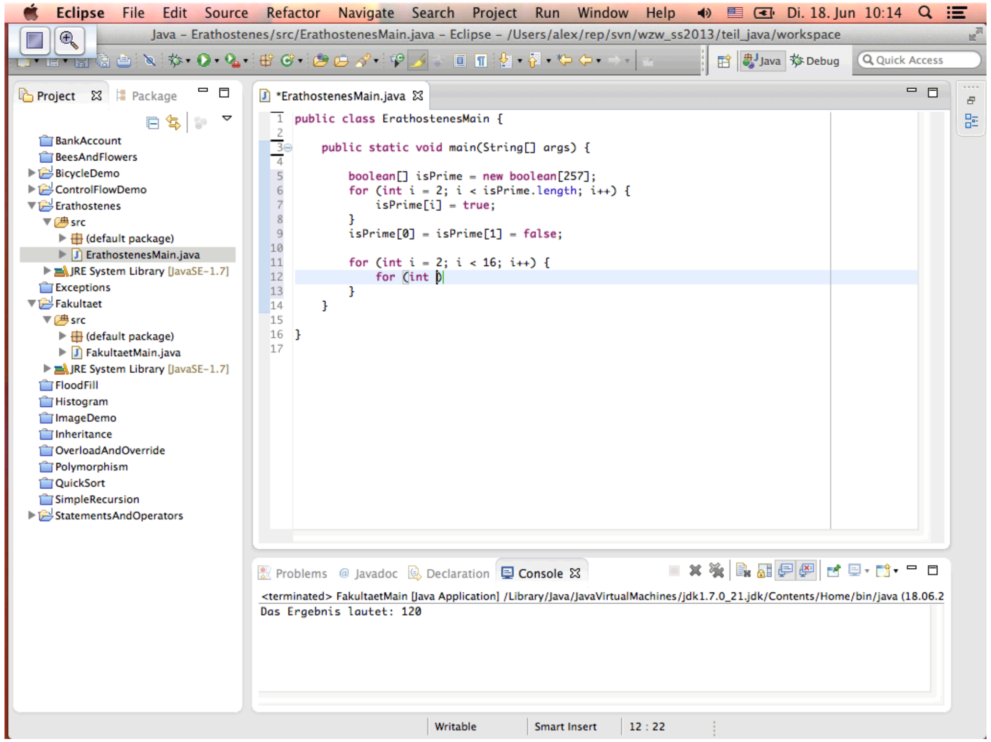
```java
public class ErathostenesMain {

    public static void main(String[] args) {

        boolean[] isPrime = new boolean[257];
        for (int i = 2; i < isPrime.length; i++) {
            isPrime[i] = true;
        }
        isPrime[0] = isPrime[1] = false;

        for (int i = 2; i < )
    }

}
```

```
<terminated> FakultaetMain [Java Application] /Library/Java/JavaVirtualMachines/jdk1.7.0_21.jdk/Contents/Home/bin/java (18.06.2
Das Ergebnis lautet: 120
```


Eclipse File Edit Source Refactor Navigate Search Project Run Window Help
Di. 18. Jun 10:14
Java – Erathostenes/src/ErathostenesMain.java – Eclipse – /Users/alex/rep/svn/wzw_ss2013/teil_java/workspace
*ErathostenesMain.java
Problems
Javadoc
Declaration
Console
Writable
Smart Insert
12 : 13

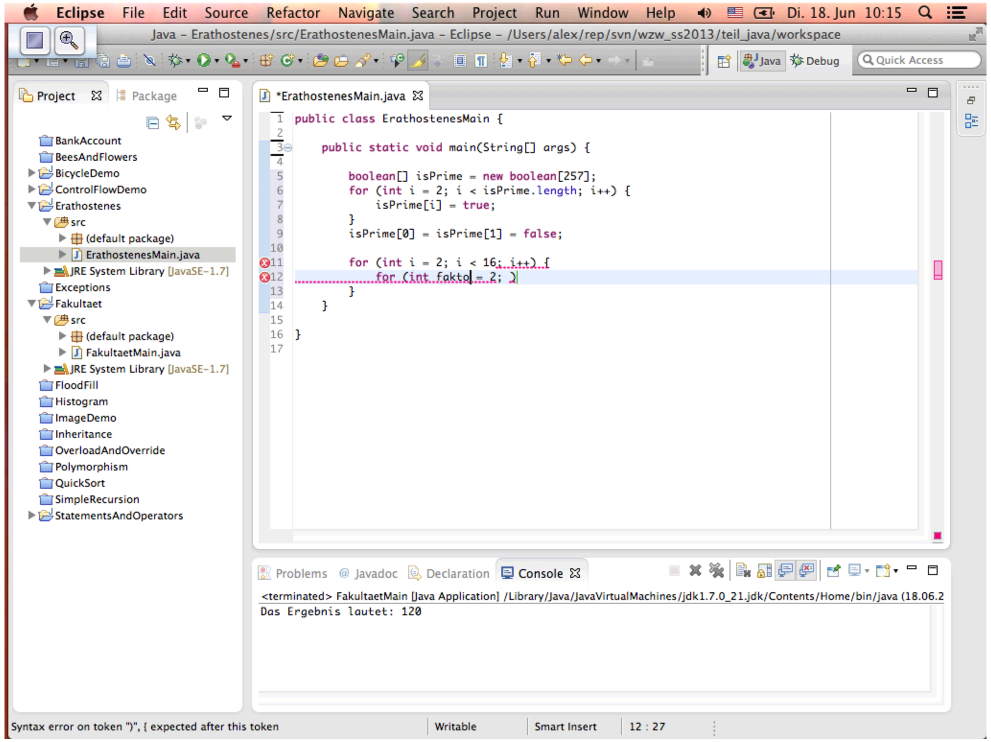
```java
public class ErathostenesMain {

    public static void main(String[] args) {

        boolean[] isPrime = new boolean[257];
        for (int i = 2; i < isPrime.length; i++) {
            isPrime[i] = true;
        }
        isPrime[0] = isPrime[1] = false;

        for (int i = 2; i < 16; i++) {

        }
    }

}
```

```
<terminated> FakultaetMain [Java Application] /Library/Java/JavaVirtualMachines/jdk1.7.0_21.jdk/Contents/Home/bin/java (18.06.2
Das Ergebnis lautet: 120
```


Eclipse File Edit Source Refactor Navigate Search Project Run Window Help
Di. 18. Jun 10:14
Java – Erathostenes/src/ErathostenesMain.java – Eclipse – /Users/alex/rep/svn/wzw_ss2013/teil_java/workspace
*ErathostenesMain.java
Problems
Javadoc
Declaration
Console
Writable
Smart Insert
12 : 22

```java
public class ErathostenesMain {

    public static void main(String[] args) {

        boolean[] isPrime = new boolean[257];
        for (int i = 2; i < isPrime.length; i++) {
            isPrime[i] = true;
        }
        isPrime[0] = isPrime[1] = false;

        for (int i = 2; i < 16; i++) {
            for (int )
        }
    }

}
```

```
<terminated> FakultaetMain [Java Application] /Library/Java/JavaVirtualMachines/jdk1.7.0_21.jdk/Contents/Home/bin/java (18.06.2
Das Ergebnis lautet: 120
```


Java – Erathostenes/src/ErathostenesMain.java – Eclipse – /Users/alex/rep/svn/wzw_ss2013/teil_java/workspace
*ErathostenesMain.java
Problems
Javadoc
Declaration
Console

```java
public class ErathostenesMain {

    public static void main(String[] args) {

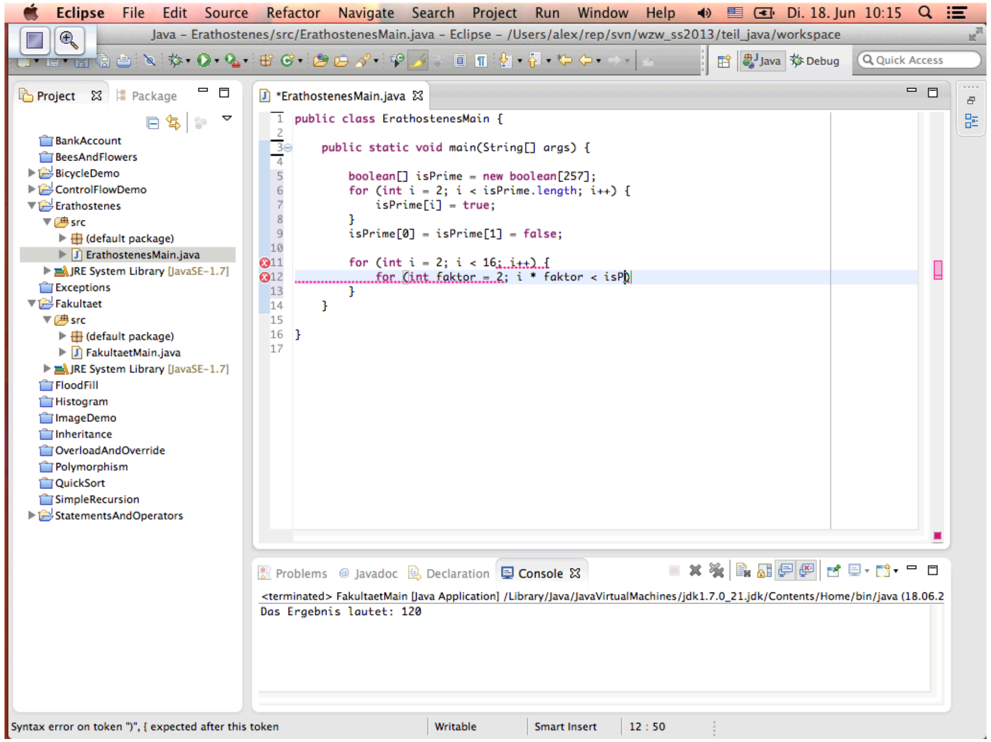
        boolean[] isPrime = new boolean[257];
        for (int i = 2; i < isPrime.length; i++) {
            isPrime[i] = true;
        }
        isPrime[0] = isPrime[1] = false;

        for (int i = 2; i < 16; i++) {
            for (int fakto = 2; )
        }
    }

}
```

```
<terminated> FakultaetMain [Java Application] /Library/Java/JavaVirtualMachines/jdk1.7.0_21.jdk/Contents/Home/bin/java (18.06.2
Das Ergebnis lautet: 120
```

Syntax error on token ")", { expected after this token   Writable   Smart Insert   12 : 27


Java – Erathostenes/src/ErathostenesMain.java – Eclipse – /Users/alex/rep/svn/wzw_ss2013/teil_java/workspace
*ErathostenesMain.java
Problems
Javadoc
Declaration
Console

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public class ErathostenesMain {

    public static void main(String[] args) {

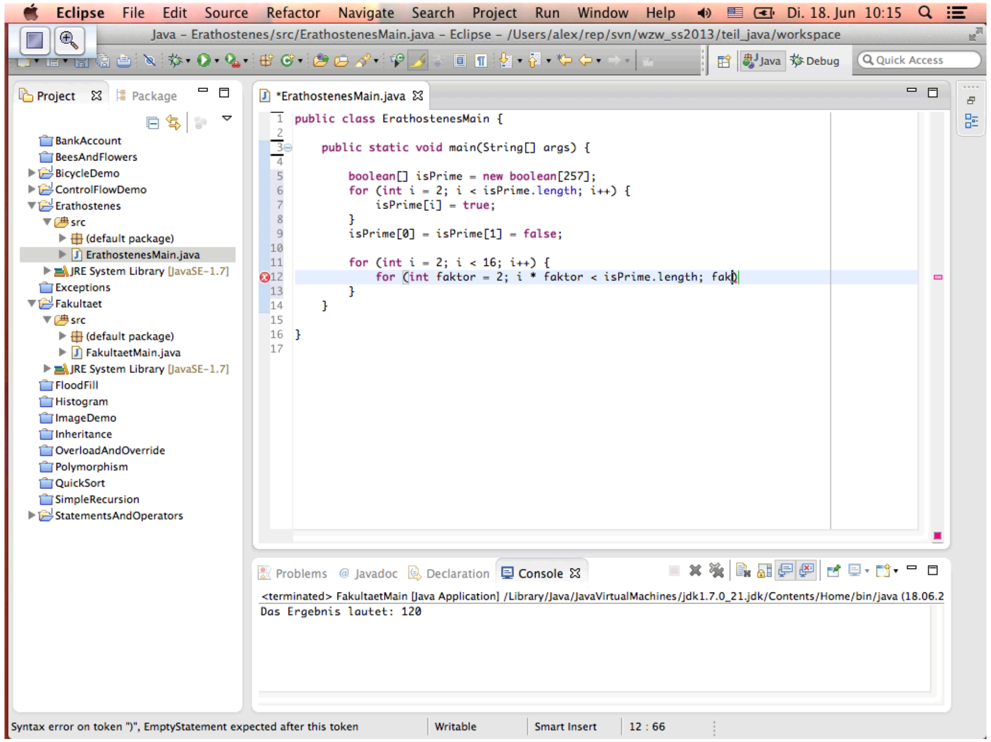
        boolean[] isPrime = new boolean[257];
        for (int i = 2; i < isPrime.length; i++) {
            isPrime[i] = true;
        }
        isPrime[0] = isPrime[1] = false;

        for (int i = 2; i < 16; i++) {
            for (int faktor = 2; i * faktor < isP)
        }
    }

}
```

```
<terminated> FakultaetMain [Java Application] /Library/Java/JavaVirtualMachines/jdk1.7.0_21.jdk/Contents/Home/bin/java (18.06.2
Das Ergebnis lautet: 120
```

Syntax error on token ")", { expected after this token   Writable   Smart Insert   12 : 50


Java – Erathostenes/src/ErathostenesMain.java – Eclipse – /Users/alex/rep/svn/wzw_ss2013/teil_java/workspace
*ErathostenesMain.java
Problems
Javadoc
Declaration
Console

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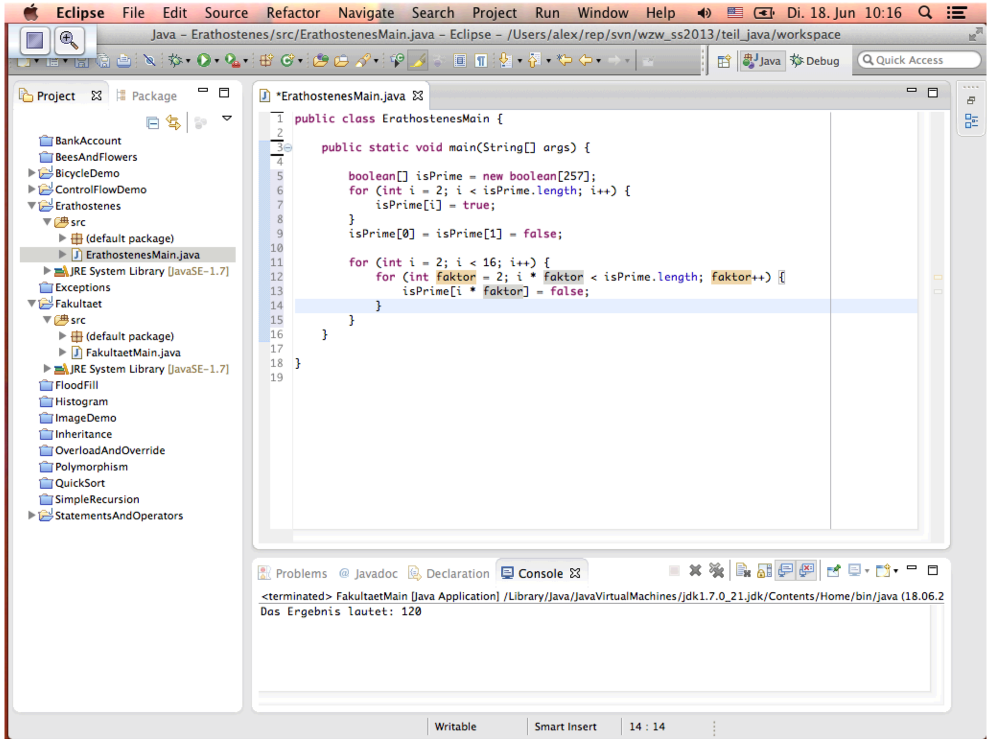
        boolean[] isPrime = new boolean[257];
        for (int i = 2; i < isPrime.length; i++) {
            isPrime[i] = true;
        }
        isPrime[0] = isPrime[1] = false;

        for (int i = 2; i < 16; i++) {
            for (int faktor = 2; i * faktor < isPrime.length; fak)
        }
    }

}
```

```
<terminated> FakultaetMain [Java Application] /Library/Java/JavaVirtualMachines/jdk1.7.0_21.jdk/Contents/Home/bin/java (18.06.2
Das Ergebnis lautet: 120
```

Syntax error on token ")", EmptyStatement expected after this token   Writable   Smart Insert   12 : 66


Java – Erathostenes/src/ErathostenesMain.java – Eclipse – /Users/alex/rep/svn/wzw_ss2013/teil_java/workspace
*ErathostenesMain.java
Problems
Javadoc
Declaration
Console

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public class ErathostenesMain {

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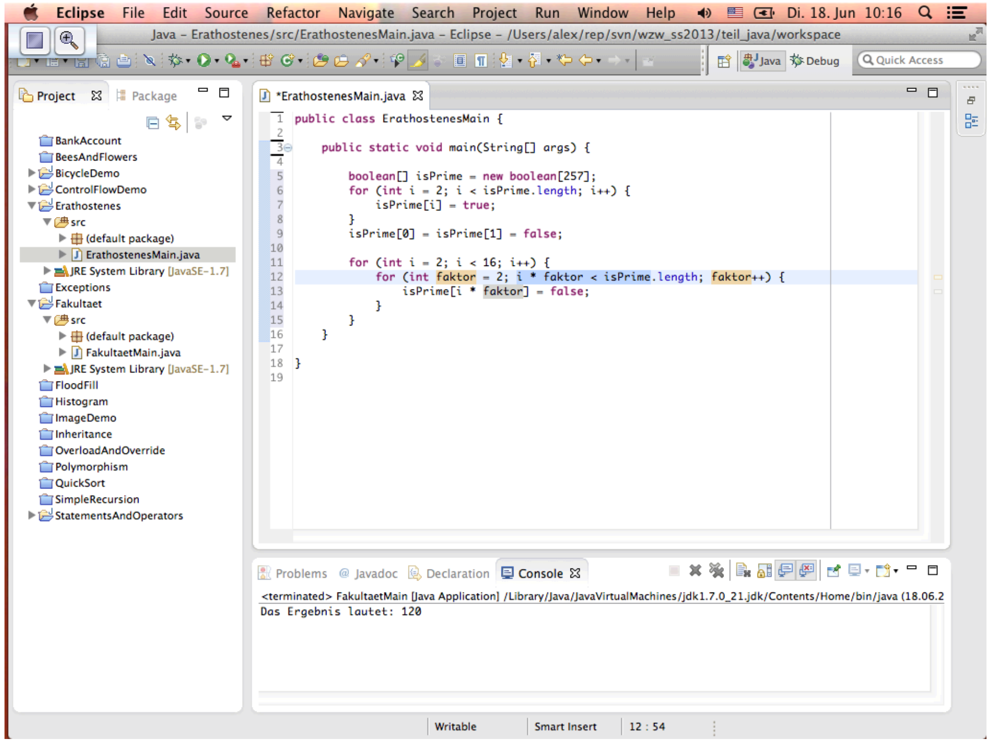
        boolean[] isPrime = new boolean[257];
        for (int i = 2; i < isPrime.length; i++) {
            isPrime[i] = true;
        }
        isPrime[0] = isPrime[1] = false;

        for (int i = 2; i < 16; i++) {
            for (int faktor = 2; i * faktor < isPrime.length; faktor++) {
                isPrime[i * faktor] = false;
            }
        }
    }

}
```

```
<terminated> FakultaetMain [Java Application] /Library/Java/JavaVirtualMachines/jdk1.7.0_21.jdk/Contents/Home/bin/java (18.06.2
Das Ergebnis lautet: 120
```

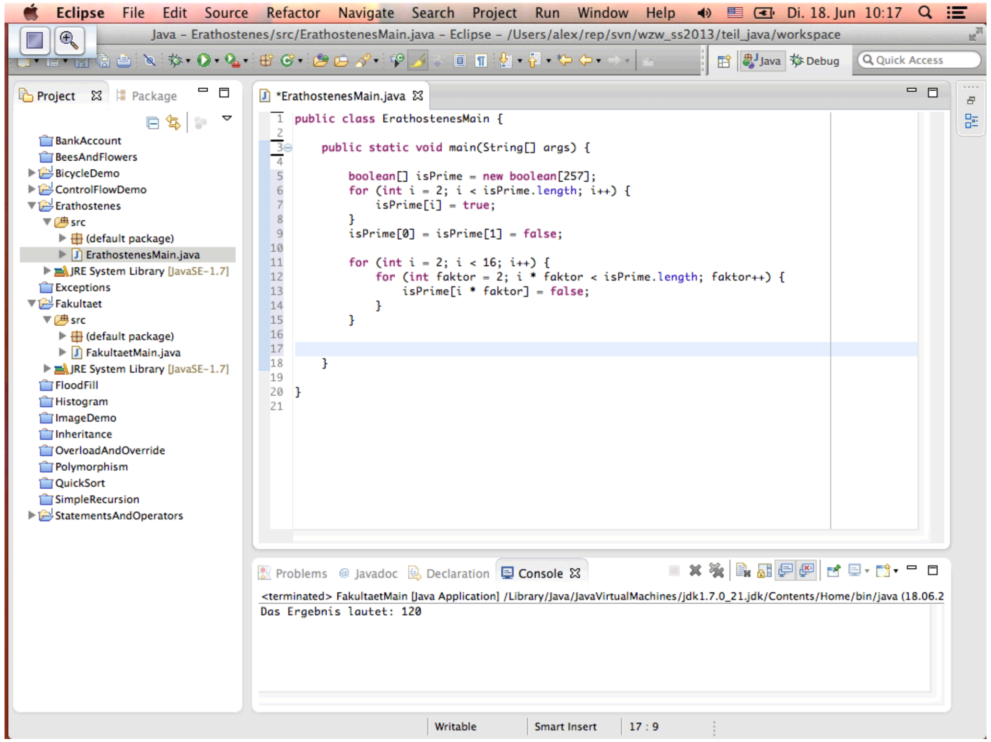
Writable   Smart Insert   14 : 14



```java
public class ErathostenesMain {

    public static void main(String[] args) {

        boolean[] isPrime = new boolean[257];
        for (int i = 2; i < isPrime.length; i++) {
            isPrime[i] = true;
        }
        isPrime[0] = isPrime[1] = false;

        for (int i = 2; i < 16; i++) {
            for (int faktor = 2; i * faktor < isPrime.length; faktor++) {
                isPrime[i * faktor] = false;
            }
        }
    }

}
```

```
<terminated> FakultaetMain [Java Application] /Library/Java/JavaVirtualMachines/jdk1.7.0_21.jdk/Contents/Home/bin/java (18.06.2
Das Ergebnis lautet: 120
```

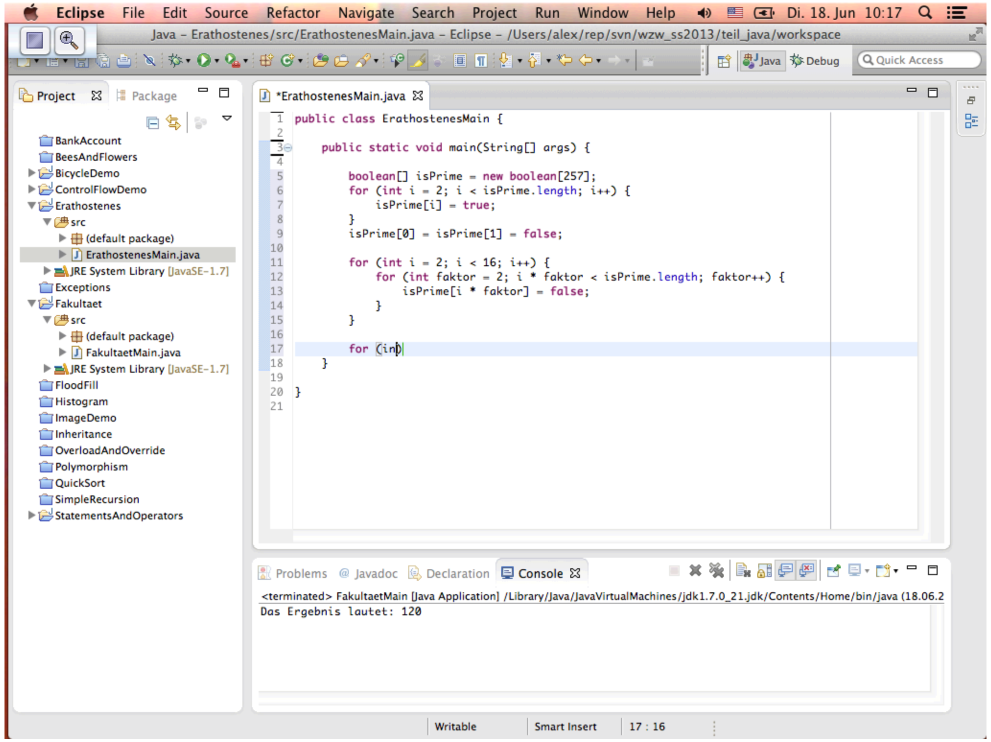
Writable   Smart Insert   12 : 54



```java
public class ErathostenesMain {

    public static void main(String[] args) {

        boolean[] isPrime = new boolean[257];
        for (int i = 2; i < isPrime.length; i++) {
            isPrime[i] = true;
        }
        isPrime[0] = isPrime[1] = false;

        for (int i = 2; i < 16; i++) {
            for (int faktor = 2; i * faktor < isPrime.length; faktor++) {
                isPrime[i * faktor] = false;
            }
        }


    }

}
```

```
<terminated> FakultaetMain [Java Application] /Library/Java/JavaVirtualMachines/jdk1.7.0_21.jdk/Contents/Home/bin/java (18.06.2
Das Ergebnis lautet: 120
```

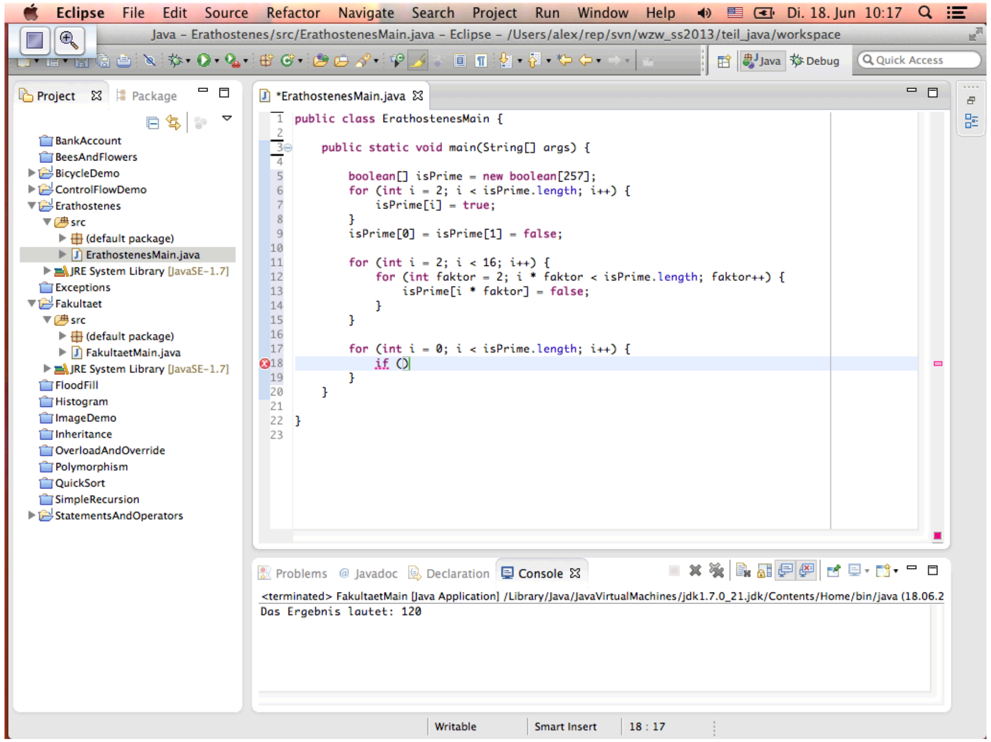
Writable   Smart Insert   17 : 9



```java
public class ErathostenesMain {

    public static void main(String[] args) {

        boolean[] isPrime = new boolean[257];
        for (int i = 2; i < isPrime.length; i++) {
            isPrime[i] = true;
        }
        isPrime[0] = isPrime[1] = false;

        for (int i = 2; i < 16; i++) {
            for (int faktor = 2; i * faktor < isPrime.length; faktor++) {
                isPrime[i * faktor] = false;
            }
        }

        for (in
    }

}
```

```
<terminated> FakultaetMain [Java Application] /Library/Java/JavaVirtualMachines/jdk1.7.0_21.jdk/Contents/Home/bin/java (18.06.2
Das Ergebnis lautet: 120
```

Writable   Smart Insert   17 : 16



```java
public class ErathostenesMain {

    public static void main(String[] args) {

        boolean[] isPrime = new boolean[257];
        for (int i = 2; i < isPrime.length; i++) {
            isPrime[i] = true;
        }
        isPrime[0] = isPrime[1] = false;

        for (int i = 2; i < 16; i++) {
            for (int faktor = 2; i * faktor < isPrime.length; faktor++) {
                isPrime[i * faktor] = false;
            }
        }

        for (int i = 0; i < isPrime.length; i++) {
            if ()
        }
    }

}
```

```
<terminated> FakultaetMain [Java Application] /Library/Java/JavaVirtualMachines/jdk1.7.0_21.jdk/Contents/Home/bin/java (18.06.2
Das Ergebnis lautet: 120
```

Writable   Smart Insert   18 : 17