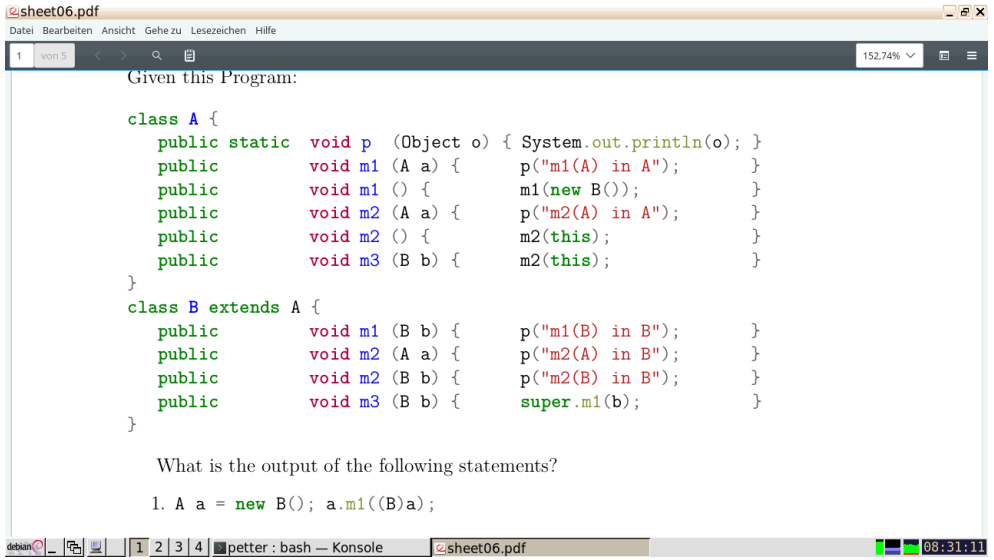
Script **generated by TTT**

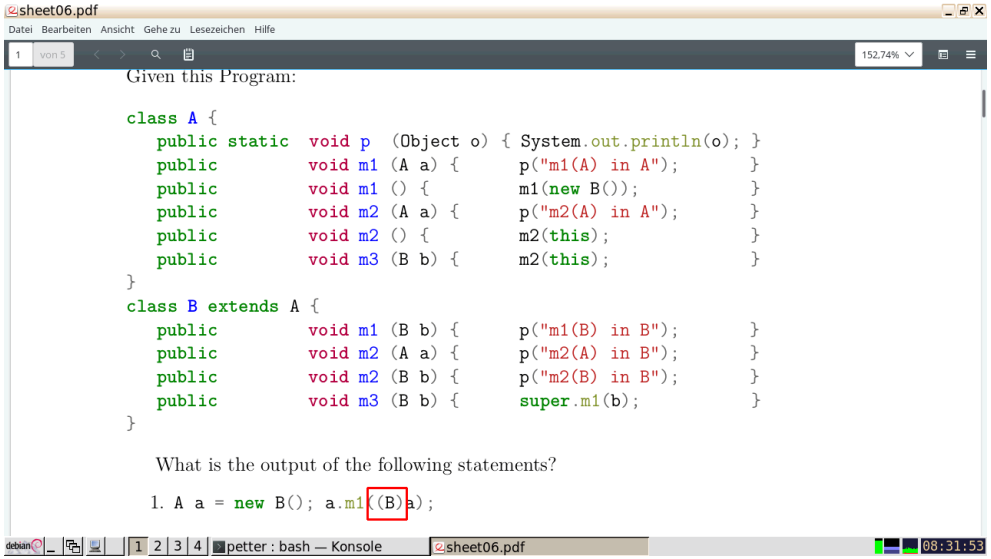
Title: Petter: Programmiersprachen_Uebung (09.12.2016)

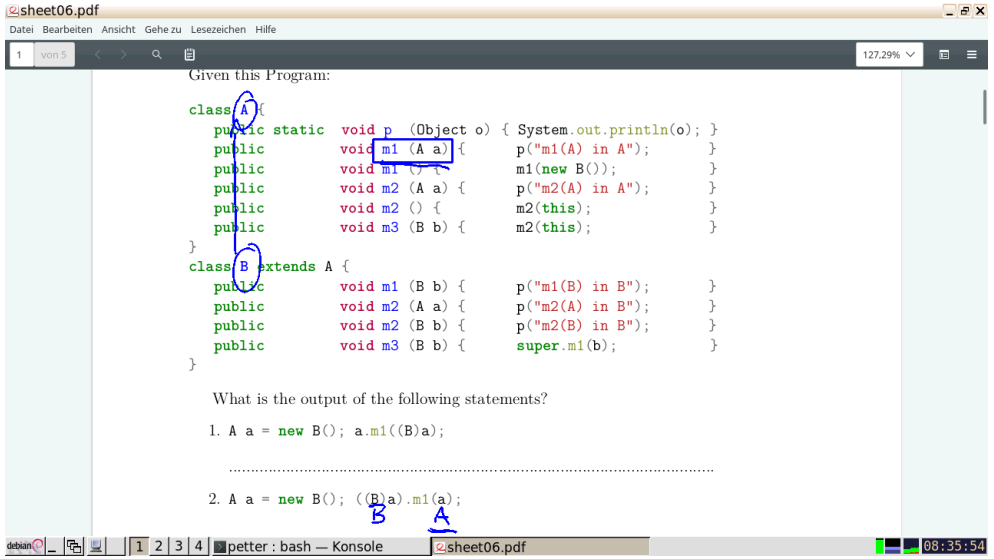
Date: Fri Dec 09 08:31:11 CET 2016

Duration: 62:14 min

Pages: 44







sheet06.pdf

Datei Bearbeiten Ansicht Gehe zu Lesezeichen Hilfe

```
    public static  void p  (Object o) { System.out.println(o); }
    public         void m1 (A a) {      p("m1(A) in A");       }
    public         void m1 () {         m1(new B());           }
    public         void m2 (A a) {      p("m2(A) in A");       }
    public         void m2 () {         m2(this);              }
    public         void m3 (B b) {      m2(this);              }
}
class B extends A {
    public         void m1 (B b) {      p("m1(B) in B");       }
    public         void m2 (A a) {      p("m2(A) in B");       }
    public         void m2 (B b) {      p("m2(B) in B");       }
    public         void m3 (B b) {      super.m1(b);           }
}
```

What is the output of the following statements?

1. `A a = new B(); a.m1((B)a);`

   .....

2. `A a = new B(); ((B)a).m1(a);`

   .....

3. `A a = new B(); ((B)a).m1((B)a);`

m1(B) in B

debian 1 2 3 4 petter : bash — Konsole sheet06.pdf 08:38:32

sheet06.pdf

Datei Bearbeiten Ansicht Gehe zu Lesezeichen Hilfe

```
    public static  void p  (Object o) { System.out.println(o); }
    public         void m1 (A a) {      p("m1(A) in A");       }
    public         void m1 () {         m1(new B());           }
    public         void m2 (A a) {      p("m2(A) in A");       }
    public         void m2 () {         m2(this);              }
    public         void m3 (B b) {      m2(this);              }
}
class B extends A {
    public         void m1 (B b) {      p("m1(B) in B");       }
    public         void m2 (A a) {      p("m2(A) in B");       }
    public         void m2 (B b) {      p("m2(B) in B");       }
    public         void m3 (B b) {      super.m1(b);           }
}
```

What is the output of the following statements?

1. `A a = new B(); a.m1((B)a);`

   .....

2. `A a = new B(); ((B)a).m1(a);`

   .....

3. `A a = new B(); ((B)a).m1((B)a);`

   .....

4. `B b = new B(); b.m1();`

m1(A) in A

debian 1 2 3 4 petter : bash — Konsole sheet06.pdf 08:40:28

sheet06.pdf

Datei Bearbeiten Ansicht Gehe zu Lesezeichen Hilfe

Given this Program:

```
class A {
    public static  void p  (Object o) { System.out.println(o); }
    public         void m1 (A a) {      p("m1(A) in A");       }
    public         void m1 () {         m1(new B());           }
    public         void m2 (A a) {      p("m2(A) in A");       }
    public         void m2 () {         m2(this);              }
    public         void m3 (B b) {      m2(this);              }
}
class B extends A {
    public         void m1 (B b) {      p("m1(B) in B");       }
    public         void m2 (A a) {      p("m2(A) in B");       }
    public         void m2 (B b) {      p("m2(B) in B");       }
    public         void m3 (B b) {      super.m1(b);           }
}
```

What is the output of the following statements?

1. `A a = new B(); a.m1((B)a);`

   .....

2. `A a = new B(); ((B)a).m1(a);`

   .....

3. `A a = new B(); ((B)a).m1((B)a);`

   .....

4. `B b = new B(); b.m1();`

   .....

5. `B b = new B(); b.m2();`

m2(A) in B

debian 1 2 3 4 petter : bash — Konsole sheet06.pdf 08:43:26

sheet06.pdf

Datei Bearbeiten Ansicht Gehe zu Lesezeichen Hilfe

```
    public static  void p  (Object o) { System.out.println(o); }
    public         void m1 (A a) {      p("m1(A) in A");       }
    public         void m1 () {         m1(new B());           }
    public         void m2 (A a) {      p("m2(A) in A");       }
    public         void m2 () {         m2(this);              }
    public         void m3 (B b) {      m2(this);              }
}
class B extends A {
    public         void m1 (B b) {      p("m1(B) in B");       }
    public         void m2 (A a) {      p("m2(A) in B");       }
    public         void m2 (B b) {      p("m2(B) in B");       }
    public         void m3 (B b) {      super.m1(b);           }
}
```

What is the output of the following statements?

1. `A a = new B(); a.m1((B)a);`

   .....

2. `A a = new B(); ((B)a).m1(a);`

   .....

3. `A a = new B(); ((B)a).m1((B)a);`

   .....

4. `B b = new B(); b.m1();`

   .....

5. `B b = new B(); b.m2();`

   .....

6. `A b = new B(); b.m2();`

m1(A) in B

debian 1 2 3 4 petter : bash — Konsole sheet06.pdf 08:46:05

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Datei Bearbeiten Ansicht Gehe zu Lesezeichen Hilfe

1 von 5 — 73,66%

Given this Program:

```
class A {
   public static  void p   (Object o) { System.out.println(o); }
   public         void m1  (A a)      {      p("m1(A) in A");      }
   public         void m1  ()         {      m1(new B());          }
   public         void m2  (A a)      {      p("m2(A) in A");      }
   public         void m2  ()         {      m2(this);             }
   public         void m3  (B b)      {      m2(this);             }
}
class B extends A {
   public         void m1  (B b)      {      p("m1(B) in B");      }
   public         void m2  (A a)      {      p("m2(A) in B");      }
   public         void m2  (B b)      {      p("m2(B) in B");      }
   public         void m3  (B b)      {      super.m1(b);          }
}
```

What is the output of the following statements?

1. `A a = new B(); a.m1((B)a);`
2. `A a = new B(); ((B)a).m1(a);`
3. `A a = new B(); ((B)a).m1((B)a);`
4. `B b = new B(); b.m1();`
5. `B b = new B(); b.m2();`
6. `A b = new B(); b.m2();`
7. `A a = new B(); a.m3((B)a);`

m1(A) in A

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Datei Bearbeiten Ansicht Gehe zu Lesezeichen Hilfe

1 von 5 — 73,66%

```
   public         void m1  (A a)      {      p("m1(A) in A");      }
   public         void m1  ()         {      m1(new B());          }
   public         void m2  (A a)      {      p("m2(A) in A");      }
   public         void m2  ()         {      m2(this);             }
   public         void m3  (B b)      {      m2(this);             }
}
class B extends A {
   public         void m1  (B b)      {      p("m1(B) in B");      }
   public         void m2  (A a)      {      p("m2(A) in B");      }
   public         void m2  (B b)      {      p("m2(B) in B");      }
   public         void m3  (B b)      {      super.m1(b);          }
}
```

What is the output of the following statements?

1. `A a = new B(); a.m1((B)a);`
2. `A a = new B(); ((B)a).m1(a);`
3. `A a = new B(); ((B)a).m1((B)a);`
4. `B b = new B(); b.m1();`
5. `B b = new B(); b.m2();`
6. `A b = new B(); b.m2();`
7. `A a = new B(); a.m3((B)a);`

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Datei Bearbeiten Ansicht Gehe zu Lesezeichen Hilfe

2 von 5 — 73,66%

Assignment 6.2 Dispatching in Java – straight from the exam 2014

Given this Java program:

```
interface I {
   default        void hoo (B b)      { A.p("hoo(B)   in I");   }
}
class A {
   public static  void p   (Object o) { System.out.println(o); }
   public         void foo (A a, B b) { p("foo(A,B) in A");     }
   public         void goo (B b)      { p("goo(B)   in A");     }
   public         void hoo (B b)      { p("hoo(B)   in A");     }
}
class B extends A {
   public         void foo (B b, A a) { p("foo(B,A) in B");     }
   public         void goo (A a)      { p("goo(A)   in B");     }
   public         void hoo (B b)      { p("hoo(B)   in B");     }
}
class C extends A implements I {
   public         void hoo (B b)      { p("hoo(B)   in C");     }
}
```

Can the following statements be compiled to code? What is their output at runtime?

1. `B b = new B(); b.hoo(b);`
2. `B b = new B(){ public void hoo(B b){ super.hoo(b);} }; b.hoo(b);`
3. `B b = new B(); ((A)b).hoo(b);`
4. `B b = new B(); ((A)b).goo((A)b);`
5. `B b = new B(); b.goo(b);`

debian 1 2 3 4 petter : bash — Konsole sheet06.pdf 08:53:47

sheet06.pdf

Datei Bearbeiten Ansicht Gehe zu Lesezeichen Hilfe

2 von 5 — 73,66%

Given this Java program:

```
interface I {
   default        void hoo (B b)      { A.p("hoo(B)   in I");   }
}
class A {
   public static  void p   (Object o) { System.out.println(o); }
   public         void foo (A a, B b) { p("foo(A,B) in A");     }
   public         void goo (B b)      { p("goo(B)   in A");     }
   public         void hoo (B b)      { p("hoo(B)   in A");     }
}
class B extends A {
   public         void foo (B b, A a) { p("foo(B,A) in B");     }
   public         void goo (A a)      { p("goo(A)   in B");     }
   public         void hoo (B b)      { p("hoo(B)   in B");     }
}
class C extends A implements I {
   public         void hoo (B b)      { p("hoo(B)   in C");     }
}
```

Can the following statements be compiled to code? What is their output at runtime?

1. `B b = new B(); b.hoo(b);`
2. `B b = new B(){ public void hoo(B b){ super.hoo(b);} }; b.hoo(b);`
3. `B b = new B(); ((A)b).hoo(b);`
4. `B b = new B(); ((A)b).goo((A)b);`
5. `B b = new B(); b.goo(b);`
6. `B b = new B(); b.foo(b,b);`

class C impl A, B

debian 1 2 3 4 petter : bash — Konsole sheet06.pdf 08:54:18

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Assignment 6.3 Multiple Dispatching in Java

Is the following code Multi-Java conform?

```
interface Base { }
interface A extends Base { }
interface B extends Base { }

class Foo {
  public void m(Base@A a) { }
  public void m(Base@B b) { }
}
```

If not, can you think of a scenario where we might encounter a run-time error?

Assignment 6.4 Multiple Dispatching in Java

Consider the following code fragment (taken from the paper MultiJava: Design, implementation, and evaluation of a Java-compatible language supporting modular open classes and symmetric multiple dispatch):

1 2 3 4 petter : bash — Konsole sheet06.pdf 09:00:13

sheet06.pdf

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3 von 5 152,74%

```
// compilation unit "Picture"
package thesis;
public abstract class Picture {
  public abstract boolean similar(Picture p);
}

// compilation unit "JPEG"
import thesis.Picture;
public class JPEG extends Picture {
  public boolean similar(Picture@JPEG j) { /* ... */ }
}

// compilation unit "GIF"
import thesis.Picture;
public class GIF extends Picture {
  public boolean similar(Picture@GIF g) { /* ... */ }
}
```

Can you think of any problem one might encounter with this piece of code?

1 2 3 4 petter : bash — Konsole sheet06.pdf 09:00:30

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```
package thesis;
public abstract class Picture {
  public abstract boolean similar(Picture p);
}

// compilation unit "JPEG"
import thesis.Picture;
public class JPEG extends Picture {
  public boolean similar(Picture@JPEG j) { /* ... */ }
}

// compilation unit "GIF"
import thesis.Picture;
public class GIF extends Picture {
  public boolean similar(Picture@GIF g) { /* ... */ }
}
```

Can you think of any problem one might encounter with this piece of code?

Assignment 6.5 Multiple Dispatching in Java

1 2 3 4 petter : bash — Konsole sheet06.pdf 09:04:06

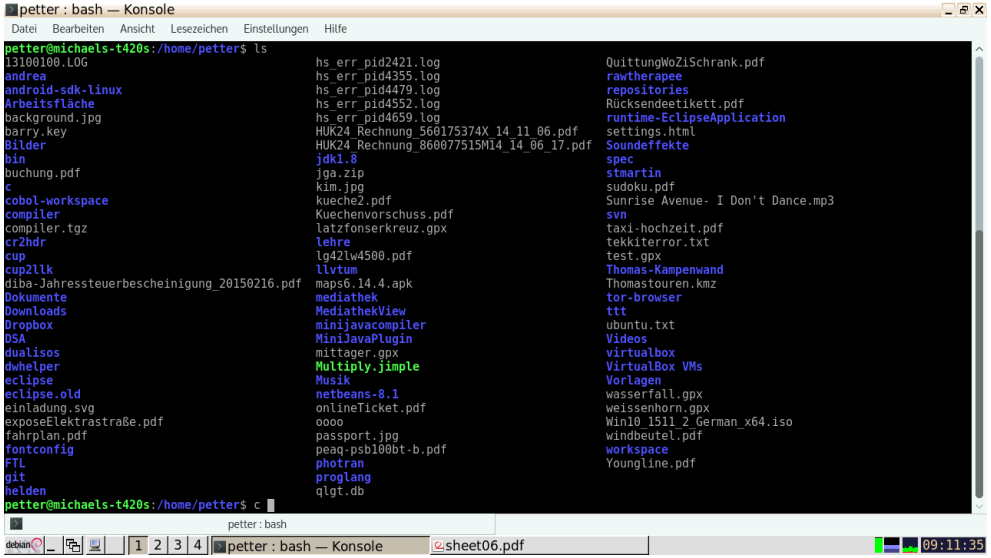
petter : bash — Konsole

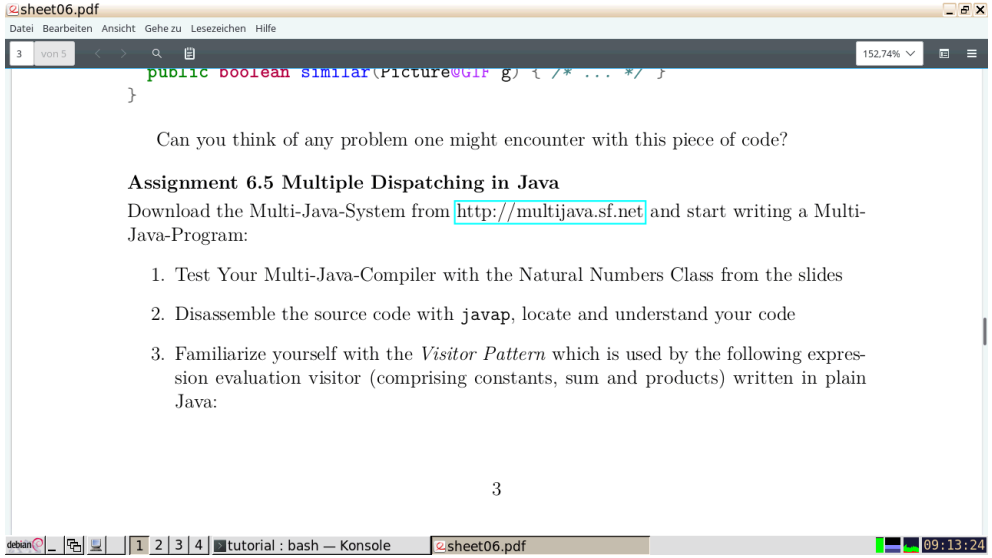
Datei Bearbeiten Ansicht Lesezeichen Einstellungen Hilfe

```
petter@michaels-t420s:/home/petter$ evince lehre/tutorial/sheet06.pdf &
[1] 2678
petter@michaels-t420s:/home/petter$ libGL error: No matching fbConfigs or visuals found
libGL error: failed to load driver: swrast
Xlib:  extension "XInputExtension" missing on display ":1".
Xlib:  extension "XInputExtension" missing on display ":1".
```

petter : bash

1 2 3 4 petter : bash — Konsole sheet06.pdf 09:05:56


petter : bash — Konsole
Datei Bearbeiten Ansicht Lesezeichen Einstellungen Hilfe
petter@michaels-t420s:/home/petter$ ls
13100100.LOG
andrea
android-sdk-linux
Arbeitsfläche
background.jpg
barry.key
Bilder
bin
buchung.pdf
c
cobol-workspace
compiler
compiler.tgz
cr2hdr
cup
cup2llk
diba-Jahressteuerbescheinigung_20150216.pdf
Dokumente
Downloads
Dropbox
DSA
dualisos
dwhelper
eclipse
eclipse.old
einladung.svg
exposeElektrastraße.pdf
fahrplan.pdf
fontconfig
FTL
git
helden
hs_err_pid2421.log
hs_err_pid4355.log
hs_err_pid4479.log
hs_err_pid4552.log
hs_err_pid4659.log
HUK24_Rechnung_560175374X_14_11_06.pdf
HUK24_Rechnung_860077515M14_14_06_17.pdf
jdk1.8
jga.zip
kim.jpg
kueche2.pdf
Kuechenvorschuss.pdf
latzfonserkreuz.gpx
lehre
lg42lw4500.pdf
llvtum
maps6_14.4.apk
mediathek
MediathekView
minijavacompiler
MiniJavaPlugin
mittager.gpx
Multiply.jimple
Musik
netbeans-8.1
onlineTicket.pdf
oooo
passport.jpg
peaq-psb100bt-b.pdf
photran
proglang
qlgt.db
QuittungWoZiSchrank.pdf
rawtherapee
repositories
Rücksendeetikett.pdf
runtime-EclipseApplication
settings.html
Soundeffekte
spec
stmartin
sudoku.pdf
Sunrise Avenue- I Don't Dance.mp3
svn
taxi-hochzeit.pdf
tekkiterror.txt
test.gpx
Thomas-Kampenwand
Thomastouren.kmz
tor-browser
ttt
ubuntu.txt
Videos
virtualbox
VirtualBox VMs
Vorlagen
wasserfall.gpx
weissenhorn.gpx
Win10_1511_2_German_x64.iso
windbeutel.pdf
workspace
Youngline.pdf
petter@michaels-t420s:/home/petter$ c
petter : bash
petter : bash — Konsole
sheet06.pdf
09:11:35


sheet06.pdf
Datei Bearbeiten Ansicht Gehe zu Lesezeichen Hilfe
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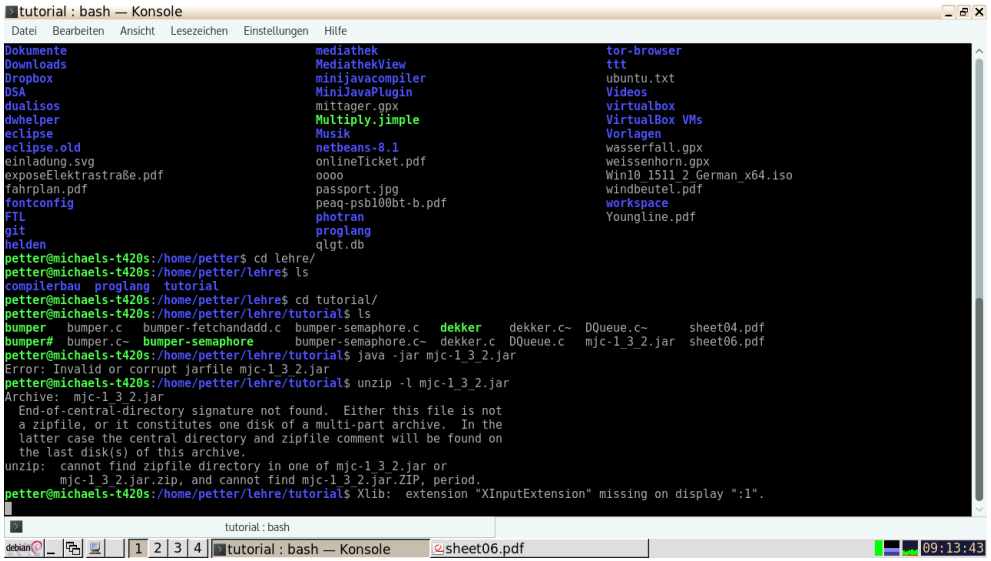
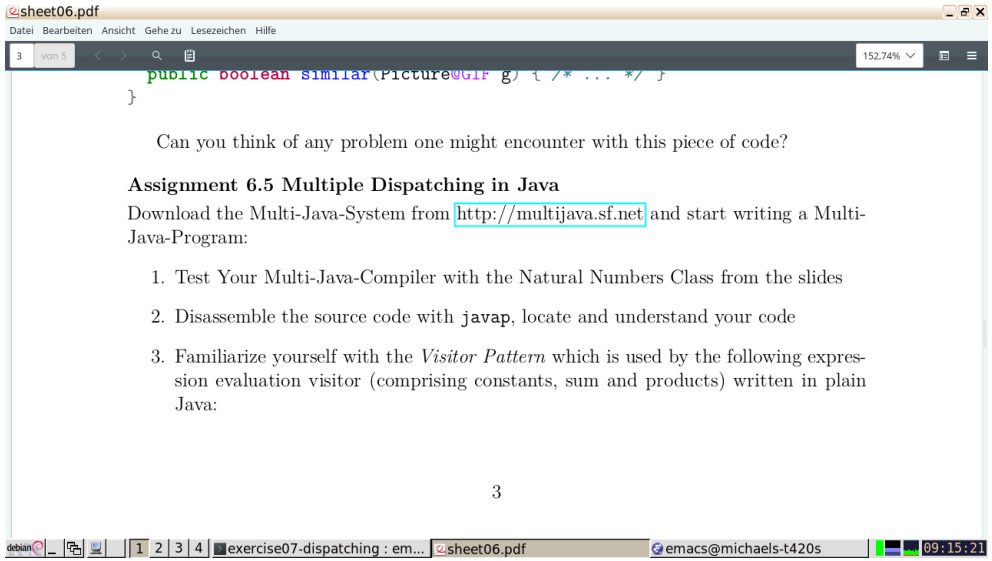
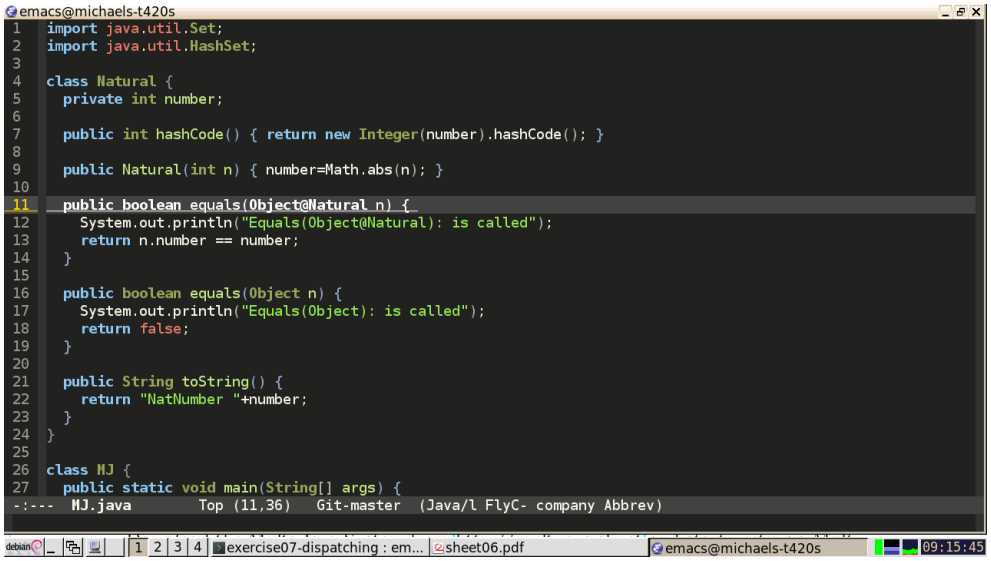
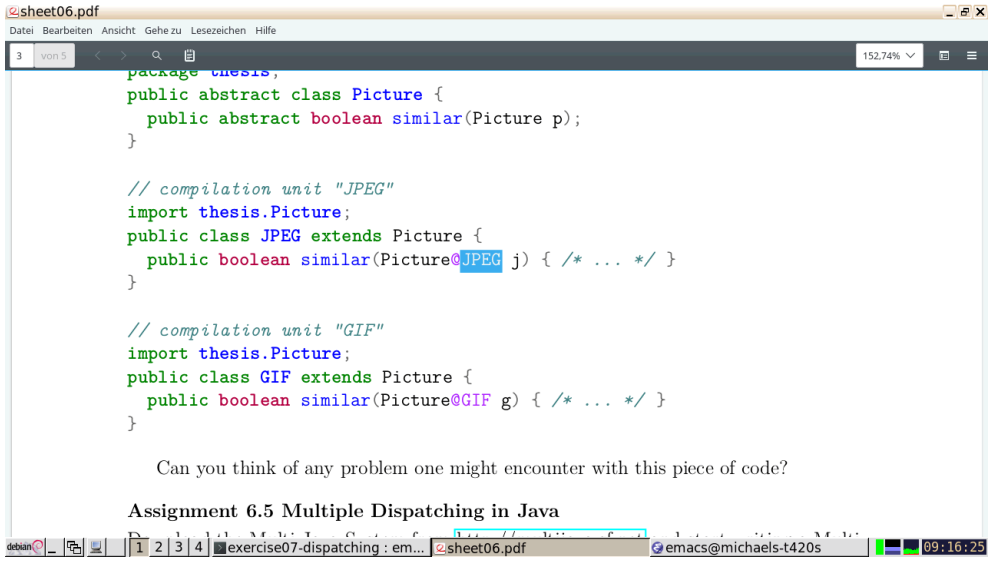
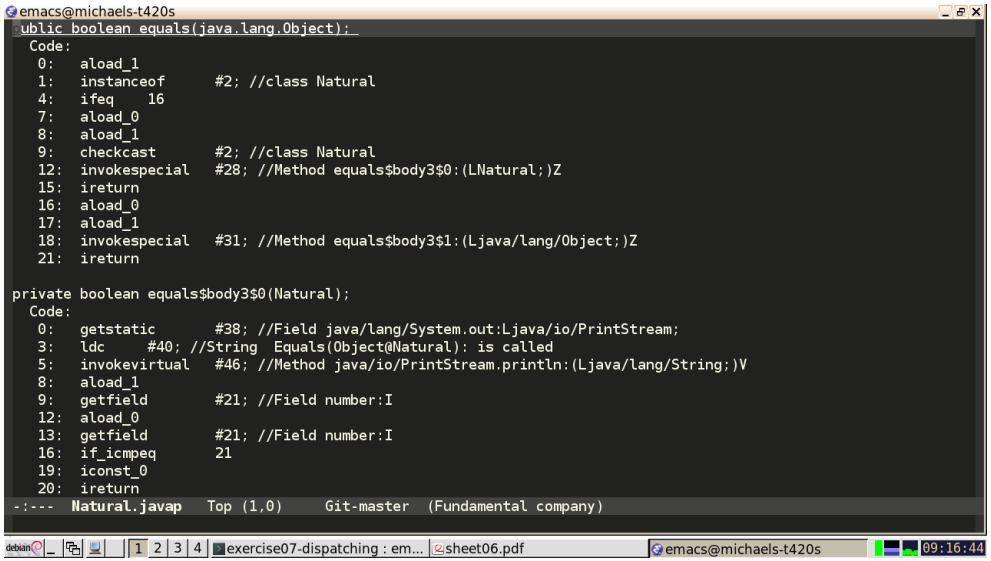
152,74%
public boolean similar(Picture@GIF g) { /* ... */ }
}
Can you think of any problem one might encounter with this piece of code?
Assignment 6.5 Multiple Dispatching in Java
Download the Multi-Java-System from http://multijava.sf.net and start writing a Multi-Java-Program:
1. Test Your Multi-Java-Compiler with the Natural Numbers Class from the slides
2. Disassemble the source code with javap, locate and understand your code
3. Familiarize yourself with the Visitor Pattern which is used by the following expression evaluation visitor (comprising constants, sum and products) written in plain Java:
3
tutorial : bash — Konsole
sheet06.pdf
09:13:24

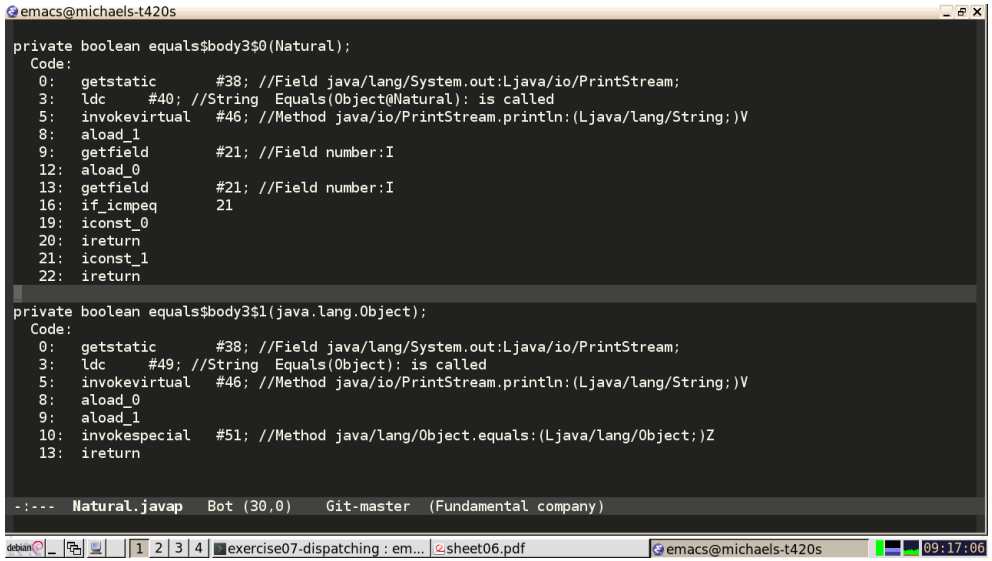

tutorial : bash — Konsole
Datei Bearbeiten Ansicht Lesezeichen Einstellungen Hilfe
Dokumente
Downloads
Dropbox
DSA
dualisos
dwhelper
eclipse
eclipse.old
einladung.svg
exposeElektrastraße.pdf
fahrplan.pdf
fontconfig
FTL
git
helden
mediathek
MediathekView
minijavacompiler
MiniJavaPlugin
mittager.gpx
Multiply.jimple
Musik
netbeans-8.1
onlineTicket.pdf
oooo
passport.jpg
peaq-psb100bt-b.pdf
photran
proglang
qlgt.db
tor-browser
ttt
ubuntu.txt
Videos
virtualbox
VirtualBox VMs
Vorlagen
wasserfall.gpx
weissenhorn.gpx
Win10_1511_2_German_x64.iso
windbeutel.pdf
workspace
Youngline.pdf
petter@michaels-t420s:/home/petter$ cd lehre/
petter@michaels-t420s:/home/petter/lehre$ ls
compilerbau proglang tutorial
petter@michaels-t420s:/home/petter/lehre$ cd tutorial/
petter@michaels-t420s:/home/petter/lehre/tutorial$ ls
bumper bumper.c bumper-fetchandadd.c bumper-semaphore.c dekker dekker.c~ DQueue.c~ sheet04.pdf
bumper# bumper.c~ bumper-semaphore bumper-semaphore.c~ dekker.c DQueue.c mjc-1_3_2.jar sheet06.pdf
petter@michaels-t420s:/home/petter/lehre/tutorial$ java -jar mjc-1_3_2.jar
Error: Invalid or corrupt jarfile mjc-1_3_2.jar
petter@michaels-t420s:/home/petter/lehre/tutorial$ unzip -l mjc-1_3_2.jar
Archive: mjc-1_3_2.jar
End-of-central-directory signature not found. Either this file is not
a zipfile, or it constitutes one disk of a multi-part archive. In the
latter case the central directory and zipfile comment will be found on
the last disk(s) of this archive.
unzip: cannot find zipfile directory in one of mjc-1_3_2.jar or
mjc-1_3_2.jar.zip, and cannot find mjc-1_3_2.jar.ZIP, period.
petter@michaels-t420s:/home/petter/lehre/tutorial$ Xlib: extension "XInputExtension" missing on display ":1".
tutorial : bash
tutorial : bash — Konsole
sheet06.pdf
09:13:43


sheet06.pdf
Datei Bearbeiten Ansicht Gehe zu Lesezeichen Hilfe
3 von 5
152,74%
public boolean similar(Picture@GIF g) { /* ... */ }
}
Can you think of any problem one might encounter with this piece of code?
Assignment 6.5 Multiple Dispatching in Java
Download the Multi-Java-System from http://multijava.sf.net and start writing a Multi-Java-Program:
1. Test Your Multi-Java-Compiler with the Natural Numbers Class from the slides
2. Disassemble the source code with javap, locate and understand your code
3. Familiarize yourself with the Visitor Pattern which is used by the following expression evaluation visitor (comprising constants, sum and products) written in plain Java:
3
exercise07-dispatching : em...
sheet06.pdf
emacs@michaels-t420s
09:15:21


emacs@michaels-t420s
1 import java.util.Set;
2 import java.util.HashSet;
3
4 class Natural {
5 private int number;
6
7 public int hashCode() { return new Integer(number).hashCode(); }
8
9 public Natural(int n) { number=Math.abs(n); }
10
11 public boolean equals(Object@Natural n) {
12 System.out.println("Equals(Object@Natural): is called");
13 return n.number == number;
14 }
15
16 public boolean equals(Object n) {
17 System.out.println("Equals(Object): is called");
18 return false;
19 }
20
21 public String toString() {
22 return "NatNumber "+number;
23 }
24 }
25
26 class MJ {
27 public static void main(String[] args) {
-:--- MJ.java Top (11,36) Git-master (Java/l FlyC- company Abbrev)
1 2 3 4 exercise07-dispatching : em... sheet06.pdf emacs@michaels-t420s 09:15:45


sheet06.pdf
Datei Bearbeiten Ansicht Gehe zu Lesezeichen Hilfe
3 von 5 152,74%
public abstract class Picture {
public abstract boolean similar(Picture p);
}
// compilation unit "JPEG"
import thesis.Picture;
public class JPEG extends Picture {
public boolean similar(Picture@JPEG j) { /* ... */ }
}
// compilation unit "GIF"
import thesis.Picture;
public class GIF extends Picture {
public boolean similar(Picture@GIF g) { /* ... */ }
}
Can you think of any problem one might encounter with this piece of code?
Assignment 6.5 Multiple Dispatching in Java
1 2 3 4 exercise07-dispatching : em... sheet06.pdf emacs@michaels-t420s 09:16:25


emacs@michaels-t420s
ublic boolean equals(java.lang.Object);
Code:
0: aload_1
1: instanceof #2; //class Natural
4: ifeq 16
7: aload_0
8: aload_1
9: checkcast #2; //class Natural
12: invokespecial #28; //Method equals$body3$0:(LNatural;)Z
15: ireturn
16: aload_0
17: aload_1
18: invokespecial #31; //Method equals$body3$1:(Ljava/lang/Object;)Z
21: ireturn
private boolean equals$body3$0(Natural);
Code:
0: getstatic #38; //Field java/lang/System.out:Ljava/io/PrintStream;
3: ldc #40; //String Equals(Object@Natural): is called
5: invokevirtual #46; //Method java/io/PrintStream.println:(Ljava/lang/String;)V
8: aload_1
9: getfield #21; //Field number:I
12: aload_0
13: getfield #21; //Field number:I
16: if_icmpeq 21
19: iconst_0
20: ireturn
-:--- Natural.javap Top (1,0) Git-master (Fundamental company)
1 2 3 4 exercise07-dispatching : em... sheet06.pdf emacs@michaels-t420s 09:16:44


emacs@michaels-t420s
private boolean equals$body3$0(Natural);
Code:
0: getstatic #38; //Field java/lang/System.out:Ljava/io/PrintStream;
3: ldc #40; //String Equals(Object@Natural): is called
5: invokevirtual #46; //Method java/io/PrintStream.println:(Ljava/lang/String;)V
8: aload_1
9: getfield #21; //Field number:I
12: aload_0
13: getfield #21; //Field number:I
16: if_icmpeq 21
19: iconst_0
20: ireturn
21: iconst_1
22: ireturn
private boolean equals$body3$1(java.lang.Object);
Code:
0: getstatic #38; //Field java/lang/System.out:Ljava/io/PrintStream;
3: ldc #49; //String Equals(Object): is called
5: invokevirtual #46; //Method java/io/PrintStream.println:(Ljava/lang/String;)V
8: aload_0
9: aload_1
10: invokespecial #51; //Method java/lang/Object.equals:(Ljava/lang/Object;)Z
13: ireturn
-:--- Natural.javap Bot (30,0) Git-master (Fundamental company)
1 2 3 4 exercise07-dispatching : em... sheet06.pdf emacs@michaels-t420s 09:17:06

emacs@michaels-t420s

```
public boolean equals(java.lang.Object);
  Code:
    0:   aload_1
    1:   instanc of      #2; //class Natural
    4:   ifeq    16
    7:   aload_0
    8:   aload_1
    9:   checkcast       #2; //class Natural
    12:  invokespecial   #28; //Method equals$body3$0:(LNatural;)Z
    15:  ireturn
    16:  aload_0
    17:  aload_1
    18:  invokespecial   #31; //Method equals$body3$1:(Ljava/lang/Object;)Z
    21:  ireturn

private boolean equals$body3$0(Natural);
  Code:
    0:   getstatic       #38; //Field java/lang/System.out:Ljava/io/PrintStream;
    3:   ldc     #40; //String  Equals(Object@Natural): is called
    5:   invokevirtual   #46; //Method java/io/PrintStream.println:(Ljava/lang/String;)V
    8:   aload_1
    9:   getfield        #21; //Field number:I
    12:  aload_0
    13:  getfield        #21; //Field number:I
    16:  if_icmpeq       21
    19:  iconst_0
    20:  ireturn
-:---  Natural.javap   Top (4,15)    Git-master  (Fundamental company)
```

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```
public boolean similar(Picture@GIF g) { /* ... */ }
}
```

Can you think of any problem one might encounter with this piece of code?

Assignment 6.5 Multiple Dispatching in Java

Download the Multi-Java-System from http://multijava.sf.net and start writing a Multi-Java-Program:

1. Test Your Multi-Java-Compiler with the Natural Numbers Class from the slides
2. Disassemble the source code with `javap`, locate and understand your code
3. Familiarize yourself with the *Visitor Pattern* which is used by the following expression evaluation visitor (comprising constants, sum and products) written in plain Java:

3

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Can you think of any problem one might encounter with this piece of code?

Assignment 6.5 Multiple Dispatching in Java

Download the Multi-Java-System from http://multijava.sf.net and start writing a Multi-Java-Program:

1. Test Your Multi-Java-Compiler with the Natural Numbers Class from the slides
2. Disassemble the source code with `javap`, locate and understand your code
3. Familiarize yourself with the *Visitor Pattern* which is used by the following expression evaluation visitor (comprising constants, sum and products) written in plain Java:

3

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4 von 5 152,74%

```
abstract class Exp {

  public abstract int accept(EvalVisitorJava v);

  static class Const extends Exp {
    int value;

    public Const(int val) { value=val; }

    public int accept(EvalVisitorJava v) { return v.visit(this); }
  }

  static abstract class BinExp extends Exp {
    Exp left;
    Exp right;

    public BinExp(Exp l, Exp r) {
```

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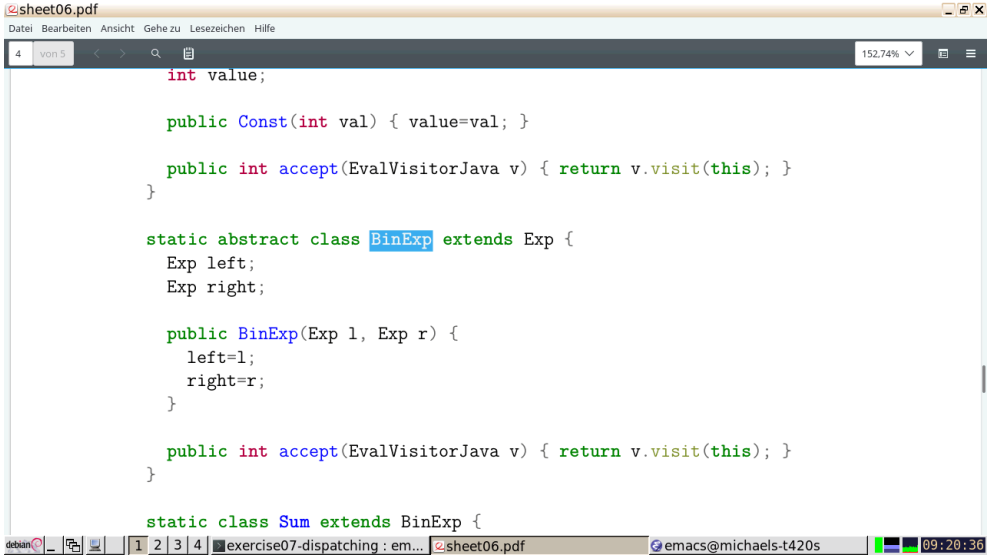
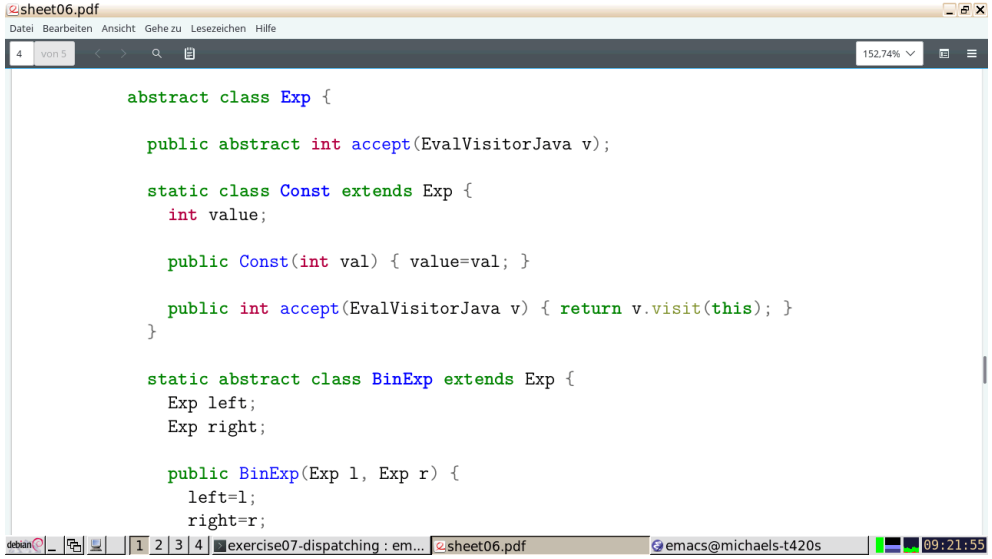

sheet06.pdf
Datei Bearbeiten Ansicht Gehe zu Lesezeichen Hilfe
4 von 5
152,74%
int value;
public Const(int val) { value=val; }
public int accept(EvalVisitorJava v) { return v.visit(this); }
}
static abstract class BinExp extends Exp {
Exp left;
Exp right;
public BinExp(Exp l, Exp r) {
left=l;
right=r;
}
public int accept(EvalVisitorJava v) { return v.visit(this); }
}
static class Sum extends BinExp {
1 2 3 4 exercise07-dispatching : em... sheet06.pdf emacs@michaels-t420s 09:20:36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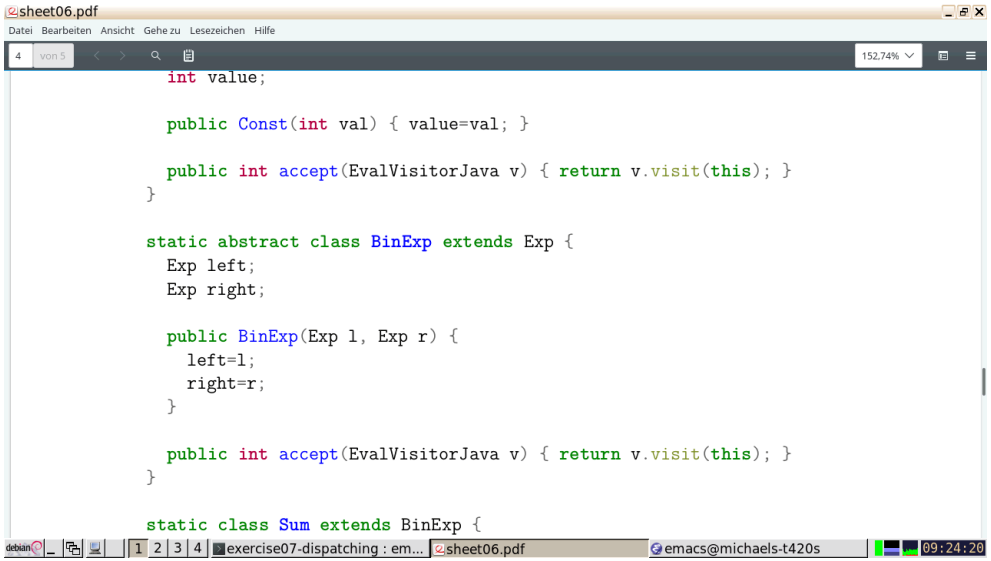
4 von 5
152,74%
abstract class Exp {
public abstract int accept(EvalVisitorJava v);
static class Const extends Exp {
int value;
public Const(int val) { value=val; }
public int accept(EvalVisitorJava v) { return v.visit(this); }
}
static abstract class BinExp extends Exp {
Exp left;
Exp right;
public BinExp(Exp l, Exp r) {
left=l;
right=r;
1 2 3 4 exercise07-dispatching : em... sheet06.pdf emacs@michaels-t420s 09:21:55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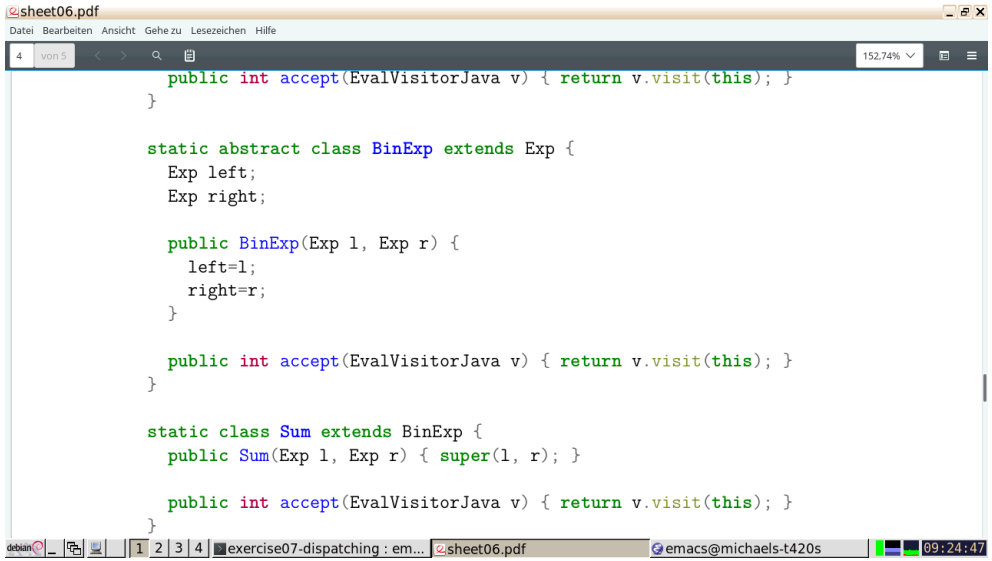
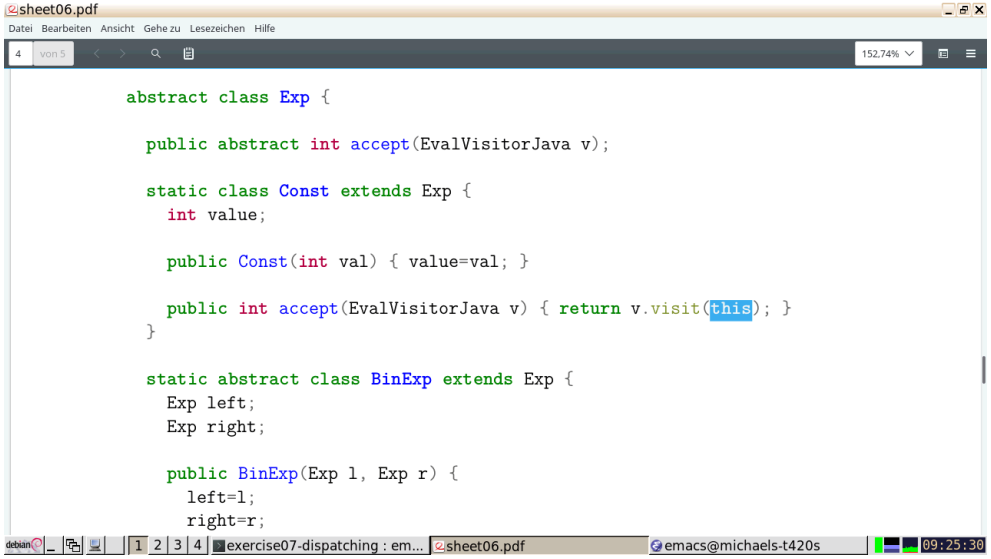
4 von 5
152,74%
int value;
public Const(int val) { value=val; }
public int accept(EvalVisitorJava v) { return v.visit(this); }
}
static abstract class BinExp extends Exp {
Exp left;
Exp right;
public BinExp(Exp l, Exp r) {
left=l;
right=r;
}
public int accept(EvalVisitorJava v) { return v.visit(this); }
}
static class Sum extends BinExp {
1 2 3 4 exercise07-dispatching : em... sheet06.pdf emacs@michaels-t420s 09:24:20


sheet06.pdf
Datei Bearbeiten Ansicht Gehe zu Lesezeichen Hilfe
4 von 5
152,74%
public int accept(EvalVisitorJava v) { return v.visit(this); }
}
static abstract class BinExp extends Exp {
Exp left;
Exp right;
public BinExp(Exp l, Exp r) {
left=l;
right=r;
}
public int accept(EvalVisitorJava v) { return v.visit(this); }
}
static class Sum extends BinExp {
public Sum(Exp l, Exp r) { super(l, r); }
public int accept(EvalVisitorJava v) { return v.visit(this); }
}
1 2 3 4 exercise07-dispatching : em... sheet06.pdf emacs@michaels-t420s 09:24:47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Datei Bearbeiten Ansicht Gehe zu Lesezeichen Hilfe
4 von 5
152,74%
abstract class Exp {
public abstract int accept(EvalVisitorJava v);
static class Const extends Exp {
int value;
public Const(int val) { value=val; }
public int accept(EvalVisitorJava v) { return v.visit(this); }
}
static abstract class BinExp extends Exp {
Exp left;
Exp right;
public BinExp(Exp l, Exp r) {
left=l;
right=r;
exercise07-dispatching : em...
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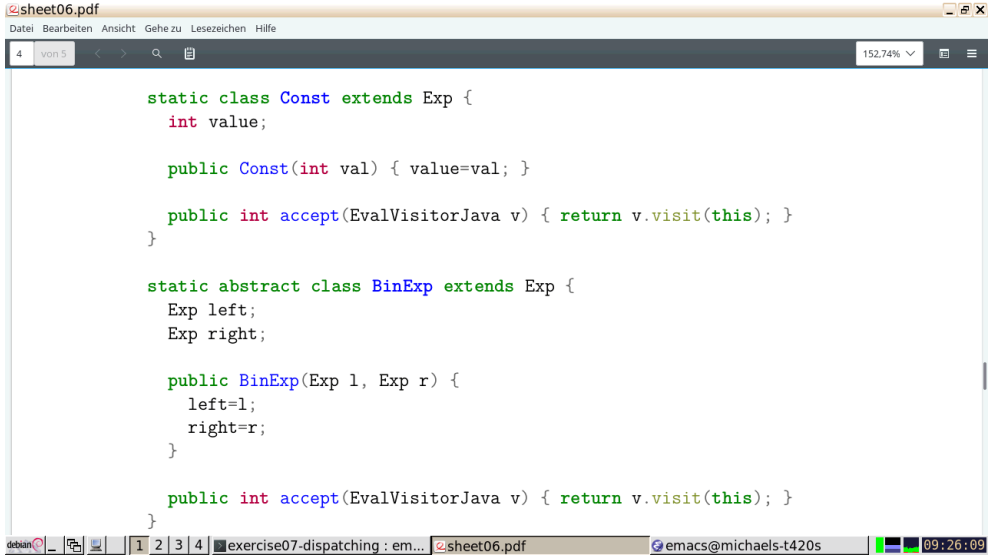
09:25:30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Datei Bearbeiten Ansicht Gehe zu Lesezeichen Hilfe
4 von 5
152,74%
static class Const extends Exp {
int value;
public Const(int val) { value=val; }
public int accept(EvalVisitorJava v) { return v.visit(this); }
}
static abstract class BinExp extends Exp {
Exp left;
Exp right;
public BinExp(Exp l, Exp r) {
left=l;
right=r;
}
public int accept(EvalVisitorJava v) { return v.visit(this); }
}
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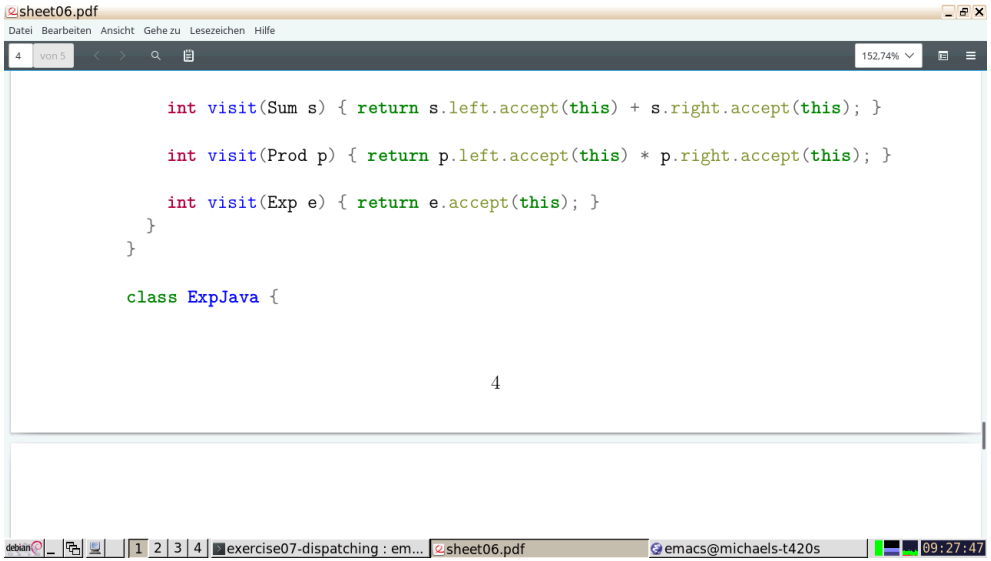
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4 von 5
152,74%
int visit(Sum s) { return s.left.accept(this) + s.right.accept(this); }
int visit(Prod p) { return p.left.accept(this) * p.right.accept(this); }
int visit(Exp e) { return e.accept(this); }
}
}
class ExpJava {
4
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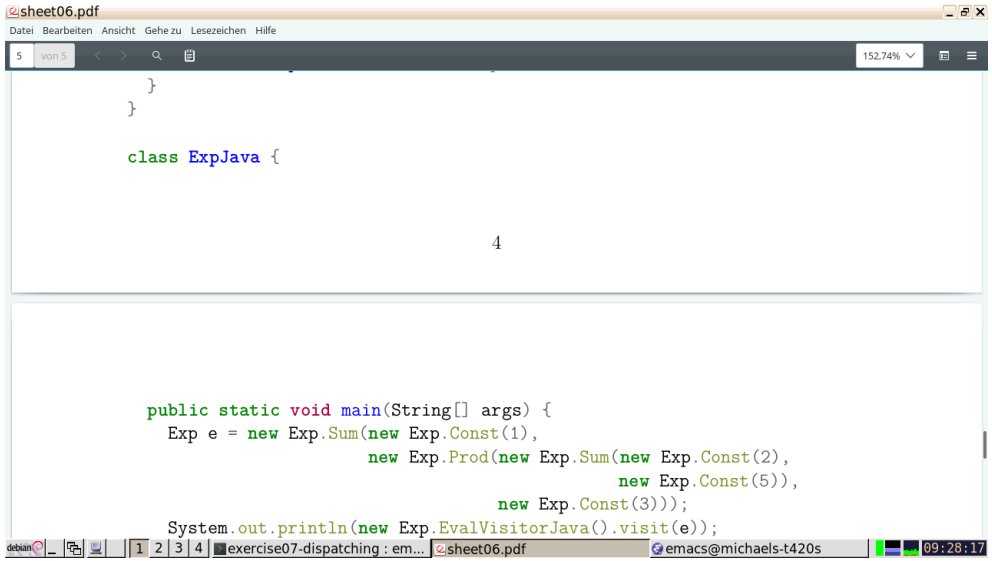
09:27:47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Datei Bearbeiten Ansicht Gehe zu Lesezeichen Hilfe
5 von 5
152,74%
}
}
class ExpJava {
4
public static void main(String[] args) {
Exp e = new Exp.Sum(new Exp.Const(1),
new Exp.Prod(new Exp.Sum(new Exp.Const(2),
new Exp.Const(5)),
new Exp.Const(3)));
System.out.println(new Exp.EvalVisitorJava().visit(e));
exercise07-dispatching : em...
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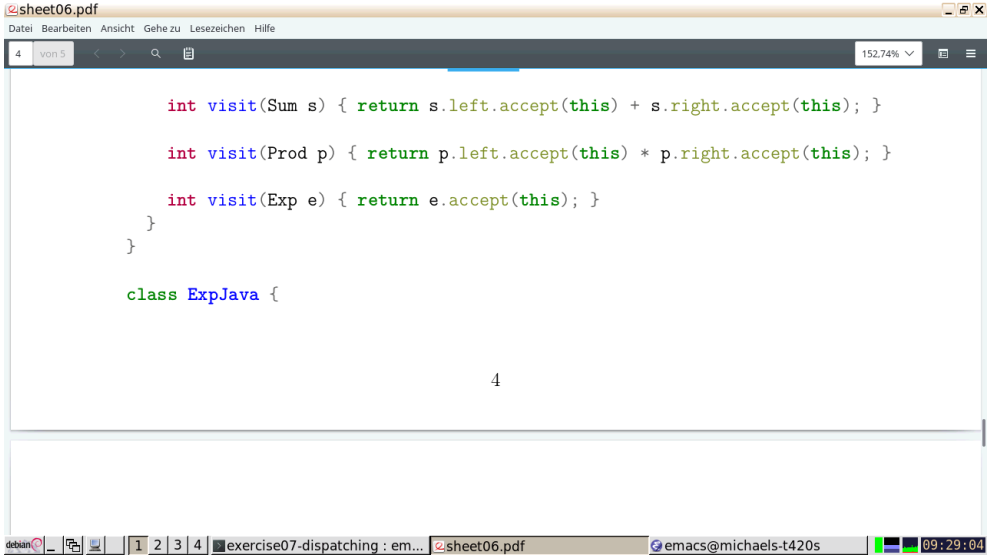
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Datei Bearbeiten Ansicht Gehe zu Lesezeichen Hilfe
4 von 5
152,74%
int visit(Sum s) { return s.left.accept(this) + s.right.accept(this); }
int visit(Prod p) { return p.left.accept(this) * p.right.accept(this); }
int visit(Exp e) { return e.accept(this); }
}
}
class ExpJava {
4
exercise07-dispatching : em...
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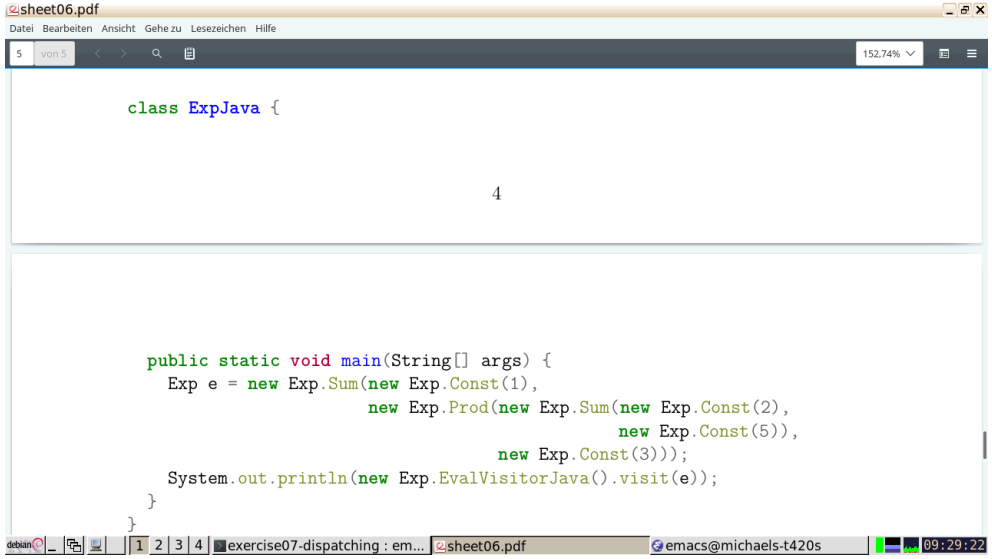
09:29:04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Datei Bearbeiten Ansicht Gehe zu Lesezeichen Hilfe
5 von 5
152,74%
class ExpJava {
4
public static void main(String[] args) {
Exp e = new Exp.Sum(new Exp.Const(1),
new Exp.Prod(new Exp.Sum(new Exp.Const(2),
new Exp.Const(5)),
new Exp.Const(3)));
System.out.println(new Exp.EvalVisitorJava().visit(e));
}
}
exercise07-dispatching : em...
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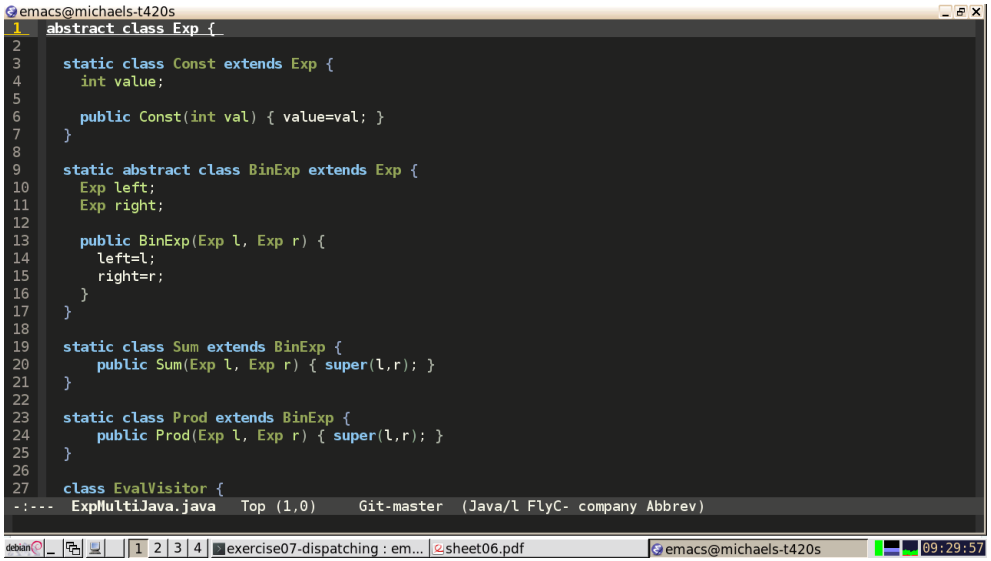
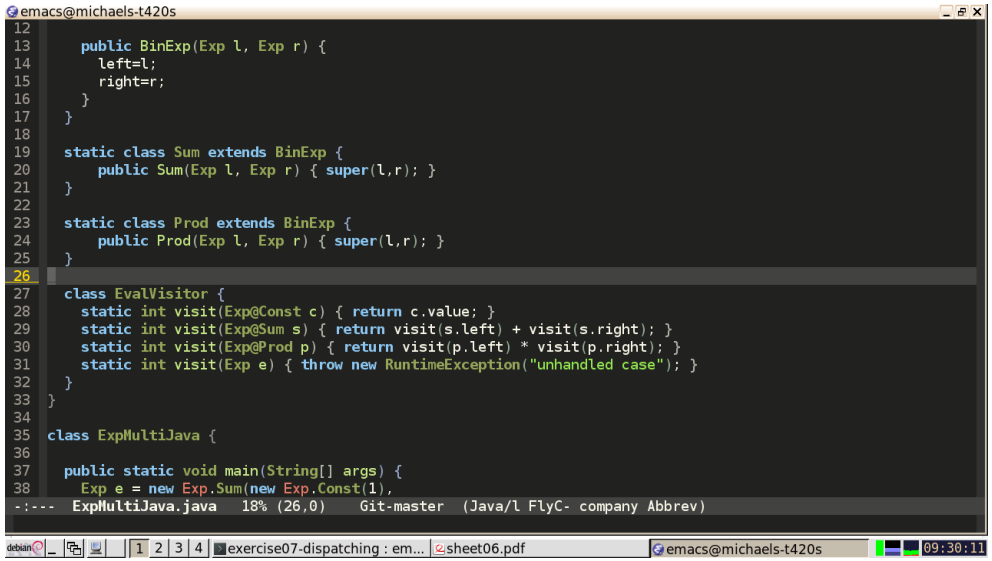
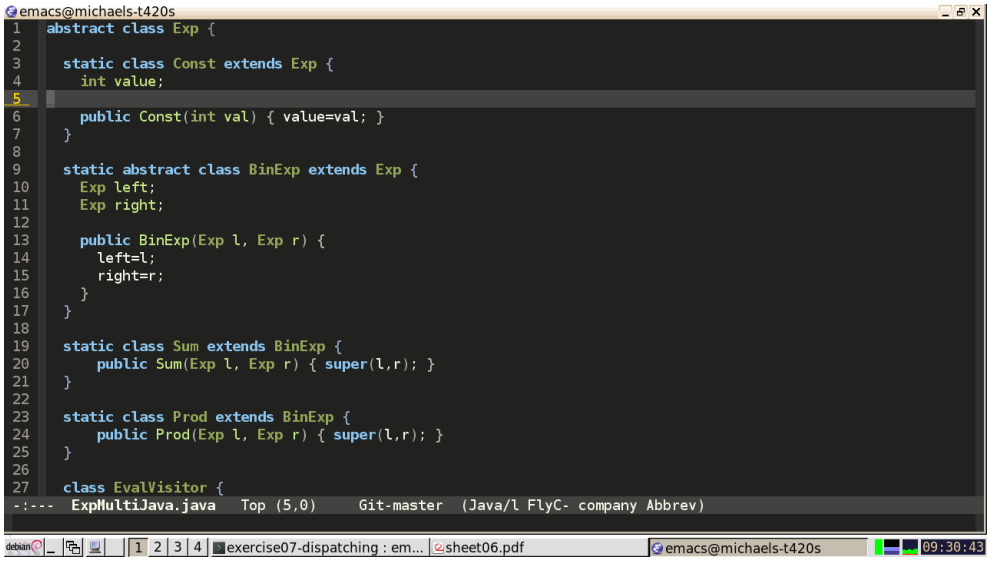
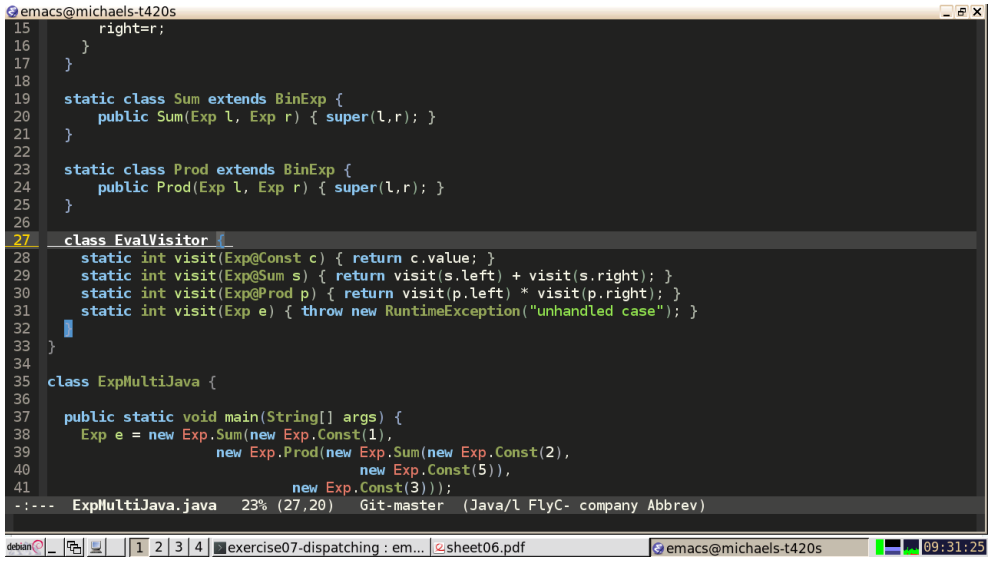
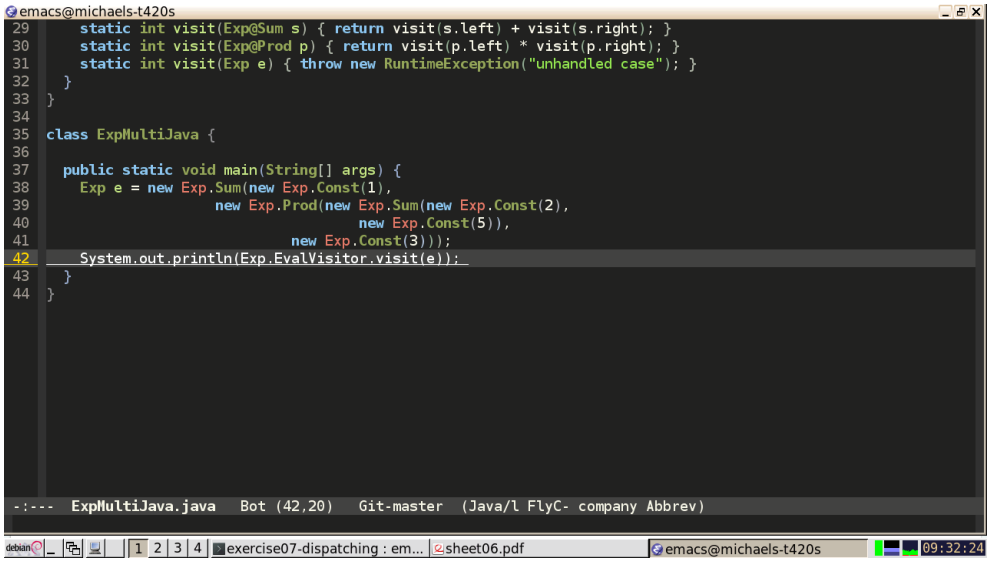
09:29:22

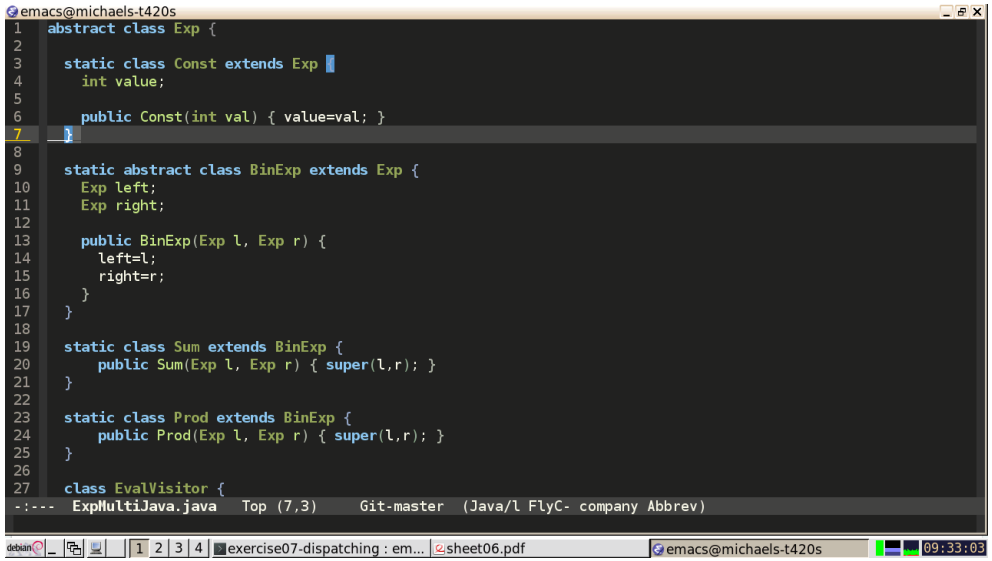

emacs@michaels-t420s
abstract class Exp {
static class Const extends Exp {
int value;
public Const(int val) { value=val; }
}
static abstract class BinExp extends Exp {
Exp left;
Exp right;
public BinExp(Exp l, Exp r) {
left=l;
right=r;
}
}
static class Sum extends BinExp {
public Sum(Exp l, Exp r) { super(l,r); }
}
static class Prod extends BinExp {
public Prod(Exp l, Exp r) { super(l,r); }
}
class EvalVisitor {
-:--- ExpMultiJava.java Top (1,0) Git-master (Java/l FlyC- company Abbrev)
exercise07-dispatching : em...
sheet06.pdf
emacs@michaels-t420s
09:29:57

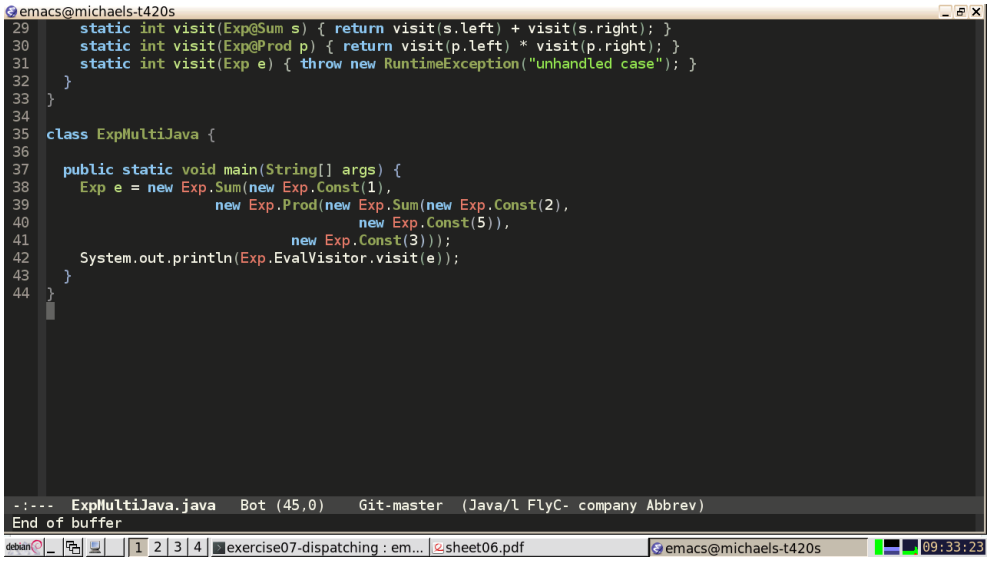

emacs@michaels-t420s
public BinExp(Exp l, Exp r) {
left=l;
right=r;
}
}
static class Sum extends BinExp {
public Sum(Exp l, Exp r) { super(l,r); }
}
static class Prod extends BinExp {
public Prod(Exp l, Exp r) { super(l,r); }
}
class EvalVisitor {
static int visit(Exp@Const c) { return c.value; }
static int visit(Exp@Sum s) { return visit(s.left) + visit(s.right); }
static int visit(Exp@Prod p) { return visit(p.left) * visit(p.right); }
static int visit(Exp e) { throw new RuntimeException("unhandled case"); }
}
}
class ExpMultiJava {
public static void main(String[] args) {
Exp e = new Exp.Sum(new Exp.Const(1),
-:--- ExpMultiJava.java 18% (26,0) Git-master (Java/l FlyC- company Abbrev)
exercise07-dispatching : em...
sheet06.pdf
emacs@michaels-t420s
09:30:11


emacs@michaels-t420s
abstract class Exp {
static class Const extends Exp {
int value;
public Const(int val) { value=val; }
}
static abstract class BinExp extends Exp {
Exp left;
Exp right;
public BinExp(Exp l, Exp r) {
left=l;
right=r;
}
}
static class Sum extends BinExp {
public Sum(Exp l, Exp r) { super(l,r); }
}
static class Prod extends BinExp {
public Prod(Exp l, Exp r) { super(l,r); }
}
class EvalVisitor {
-:--- ExpMultiJava.java Top (5,0) Git-master (Java/l FlyC- company Abbrev)
1 2 3 4 exercise07-dispatching : em... sheet06.pdf emacs@michaels-t420s 09:30:43


emacs@michaels-t420s
right=r;
}
}
static class Sum extends BinExp {
public Sum(Exp l, Exp r) { super(l,r); }
}
static class Prod extends BinExp {
public Prod(Exp l, Exp r) { super(l,r); }
}
class EvalVisitor {
static int visit(Exp@Const c) { return c.value; }
static int visit(Exp@Sum s) { return visit(s.left) + visit(s.right); }
static int visit(Exp@Prod p) { return visit(p.left) * visit(p.right); }
static int visit(Exp e) { throw new RuntimeException("unhandled case"); }
}
}
class ExpMultiJava {
public static void main(String[] args) {
Exp e = new Exp.Sum(new Exp.Const(1),
new Exp.Prod(new Exp.Sum(new Exp.Const(2),
new Exp.Const(5)),
new Exp.Const(3)));
-:--- ExpMultiJava.java 23% (27,20) Git-master (Java/l FlyC- company Abbrev)
1 2 3 4 exercise07-dispatching : em... sheet06.pdf emacs@michaels-t420s 09:31:25


emacs@michaels-t420s
static int visit(Exp@Sum s) { return visit(s.left) + visit(s.right); }
static int visit(Exp@Prod p) { return visit(p.left) * visit(p.right); }
static int visit(Exp e) { throw new RuntimeException("unhandled case"); }
}
}
class ExpMultiJava {
public static void main(String[] args) {
Exp e = new Exp.Sum(new Exp.Const(1),
new Exp.Prod(new Exp.Sum(new Exp.Const(2),
new Exp.Const(5)),
new Exp.Const(3)));
System.out.println(Exp.EvalVisitor.visit(e));
}
}
-:--- ExpMultiJava.java Bot (42,20) Git-master (Java/l FlyC- company Abbrev)
1 2 3 4 exercise07-dispatching : em... sheet06.pdf emacs@michaels-t420s 09:32:24


emacs@michaels-t420s
abstract class Exp {
static class Const extends Exp {
int value;
public Const(int val) { value=val; }
}
static abstract class BinExp extends Exp {
Exp left;
Exp right;
public BinExp(Exp l, Exp r) {
left=l;
right=r;
}
}
static class Sum extends BinExp {
public Sum(Exp l, Exp r) { super(l,r); }
}
static class Prod extends BinExp {
public Prod(Exp l, Exp r) { super(l,r); }
}
class EvalVisitor {
-:--- ExpMultiJava.java Top (7,3) Git-master (Java/l FlyC- company Abbrev)
1 2 3 4 exercise07-dispatching : em... sheet06.pdf emacs@michaels-t420s 09:33:03


emacs@michaels-t420s
29 static int visit(Exp@Sum s) { return visit(s.left) + visit(s.right); }
30 static int visit(Exp@Prod p) { return visit(p.left) * visit(p.right); }
31 static int visit(Exp e) { throw new RuntimeException("unhandled case"); }
32 }
33 }
34
35 class ExpMultiJava {
36
37 public static void main(String[] args) {
38 Exp e = new Exp.Sum(new Exp.Const(1),
39 new Exp.Prod(new Exp.Sum(new Exp.Const(2),
40 new Exp.Const(5)),
41 new Exp.Const(3)));
42 System.out.println(Exp.EvalVisitor.visit(e));
43 }
44 }
-:--- ExpMultiJava.java Bot (45,0) Git-master (Java/l FlyC- company Abbrev)
End of buffer
1 2 3 4
exercise07-dispatching : em...
sheet06.pdf
emacs@michaels-t420s
09:33:23