

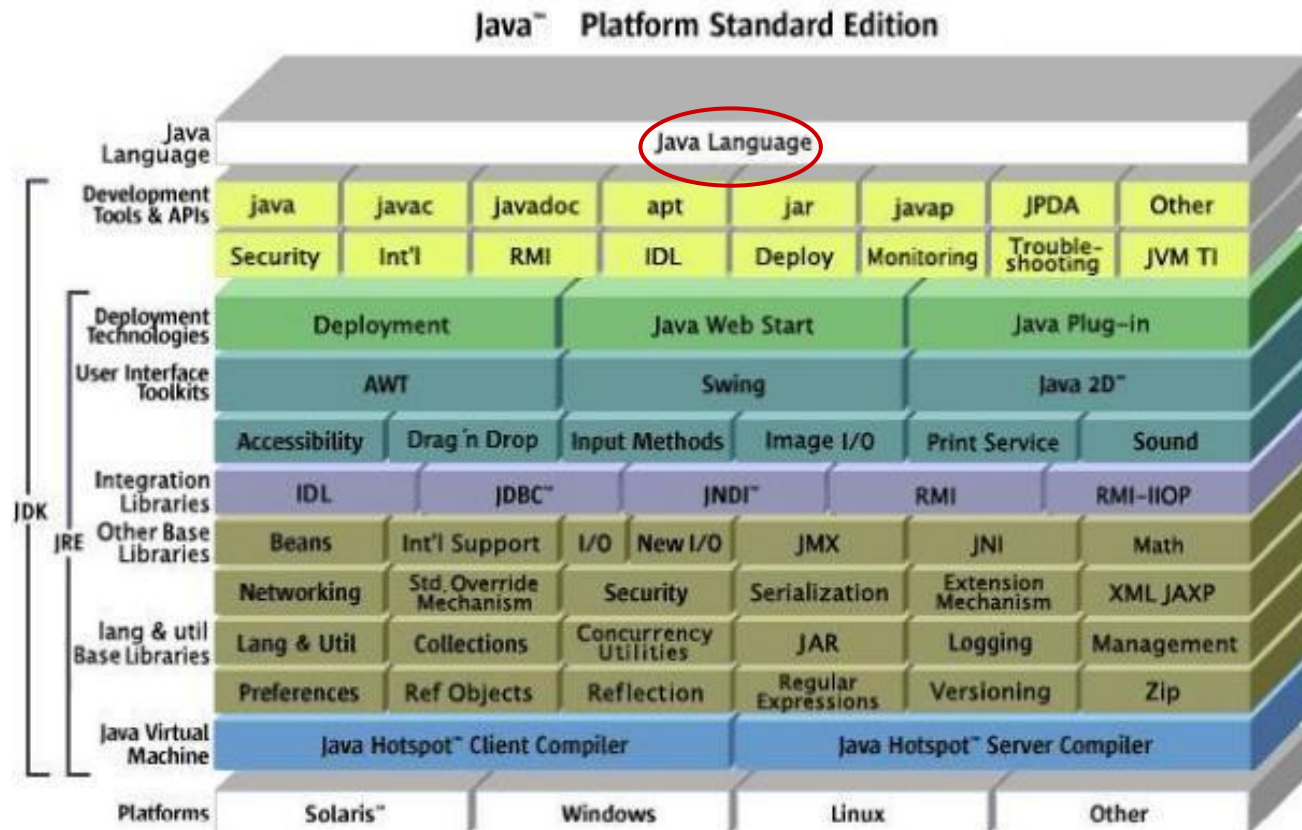
# ex1compiler

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# Språket Java



# Java-Plattformen



# Java-Dokumentation

The screenshot shows the Java Platform, Standard Edition 8 API Specification website. The page has a dark blue header with the title "Java™ Platform, Standard Ed. 8" on the left and a navigation bar on the right with links: OVERVIEW (highlighted), PACKAGE, CLASS, USE, TREE, DEPRECATED, INDEX, and HELP. Below the header, there are links for PREV, NEXT, FRAMES, and NO FRAMES. The main content area is titled "Java™ Platform, Standard Edition 8 API Specification" and contains a paragraph: "This document is the API specification for the Java™ Platform, Standard Edition." followed by a link "See: Description". Below this is a section titled "Profiles" with a bulleted list: compact1, compact2, and compact3. At the bottom, there is a table titled "Packages" with two columns: Package and Description. The first row of the table shows the package "java.applet" and its description: "Provides the classes neces an applet and the classes to communicate with its".

Java™ Platform, Standard Ed. 8

OVERVIEW PACKAGE CLASS USE TREE DEPRECATED INDEX HELP

PREV NEXT FRAMES NO FRAMES

## Java™ Platform, Standard Edition 8 API Specification

This document is the API specification for the Java™ Platform, Standard Edition.

See: [Description](#)

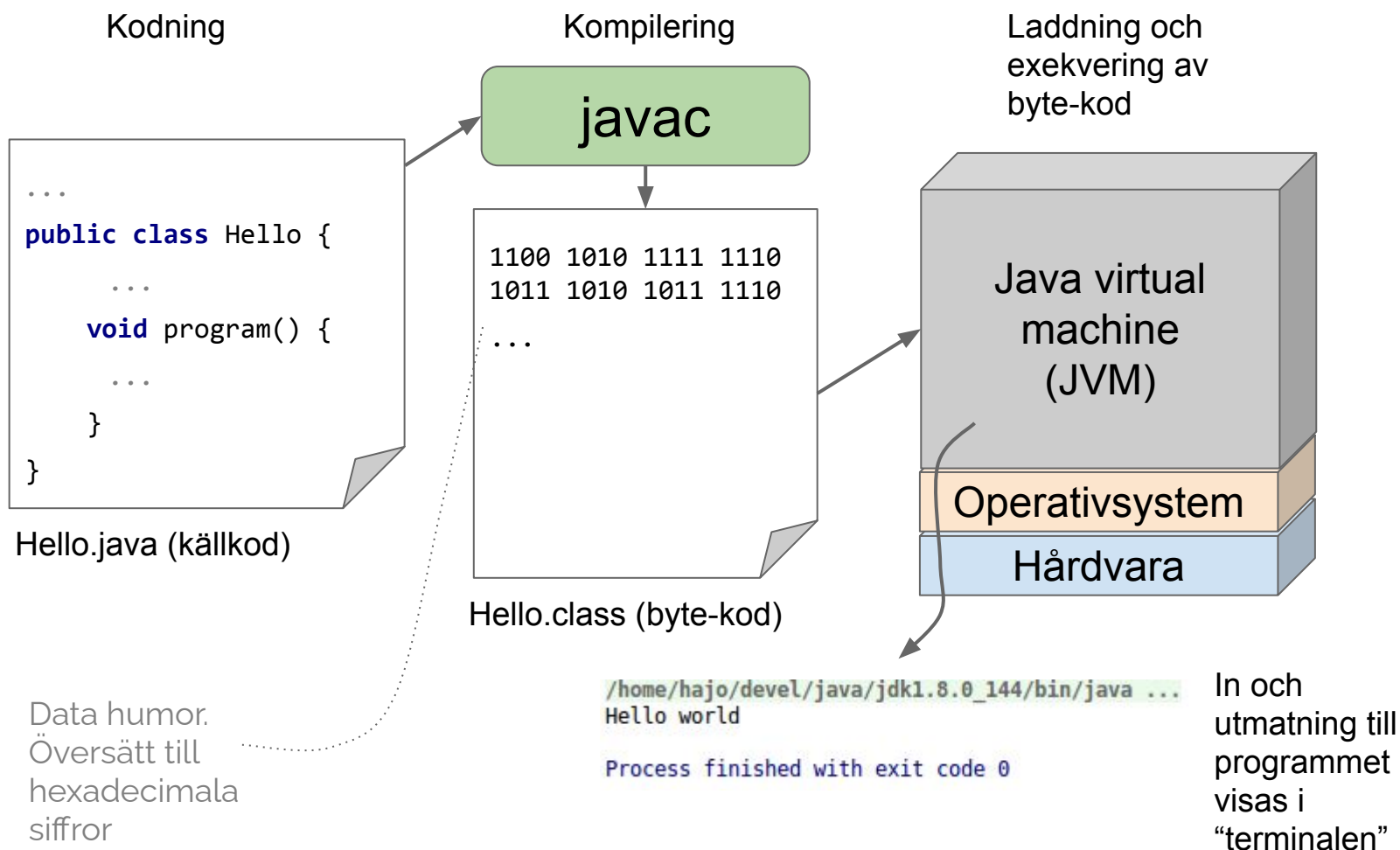
### Profiles

- compact1
- compact2
- compact3

### Packages

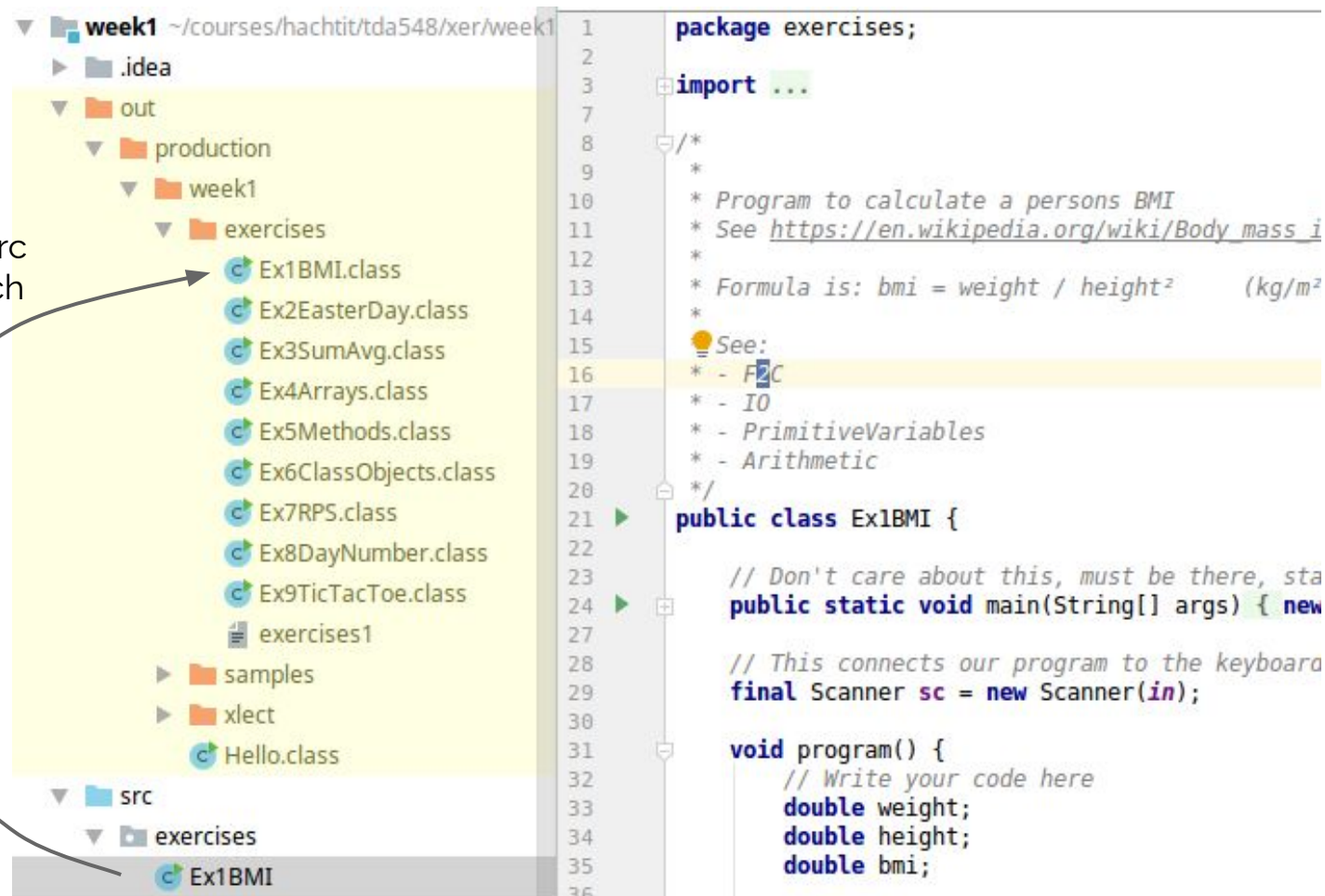
Package	Description
java.applet	Provides the classes neces an applet and the classes to communicate with its

# Kompilering och Exekvering



# Kompilering och Exekvering i IntelliJ

Källkod från src  
kompileras och  
hamnar i out



```
1 package exercises;
2
3 import ...
4
5
6
7
8 /*
9  *
10  * Program to calculate a persons BMI
11  * See https://en.wikipedia.org/wiki/Body\_mass\_index
12  *
13  * Formula is:  $bmi = weight / height^2$  (kg/m2)
14  *
15  * See:
16  * - F2C
17  * - IO
18  * - PrimitiveVariables
19  * - Arithmetic
20  */
21 public class Ex1BMI {
22
23     // Don't care about this, must be there, static
24     public static void main(String[] args) { new Ex1BMI().program(); }
25
26     // This connects our program to the keyboard
27     final Scanner sc = new Scanner(System.in);
28
29
30
31     void program() {
32         // Write your code here
33         double weight;
34         double height;
35         double bmi;
36     }
37 }
```

# Kompilatorn och Deklarationer

```
public class M2DayNumber {
    ...
    final Scanner sc = new Scanner(in);

    void program() {
        out.print("Input the year > ");
        int year = sc.nextInt();
        out.print("Input the month number > ");
        int month = sc.nextInt();
        out.print("Input the day number > ");
        int day = sc.nextInt();
        int dayNbr = getDayNbr(year, month, day);
        printResult(year, month, day, dayNbr);
    }

    int getDayNbr(int year, int month, int day) {
        int n = sumToMonth(month - 1) + day;
        if (month > 2 && isLeapYear(year)) {
            n++;
        }
        return n;
    }

    int sumToMonth(int month)
    boolean isLeapYear(int year)
    ...
}
```

Olika  
synlighets  
områden

Scope:Namn	Representerar	Typ
0:sc	variabel	Scanner
0:program	metod	void (void)
0:getDayNbr	metod	int (int, int, int)
0:sumToMont	metod	int (int)
0:isLeapYear	metod	boolean (int)
1:year	variable	int
1:month	variable	int
1:day	variable	int
1:n	variable	int
2:month	variable	int
3:year	variable	int

Kompilatorn läser texten och **kommer ihåg!**

# Kompileringsfel: Syntax

*// Syntax error*

```
void program() {  
out.println("Hello world");  
}
```



Peka för  
felmeddelande



# Namn

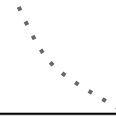
*// Declaration*

**int** nGuesses = 0;

*// Can't find any declaration for name?*

*// So compile error (bad spelling).*

**out.println(nGueses);**



Cannot resolve symbol 'nGueses'

# Synlighetsområde

```
{  
  int i = 0;  
}
```

*// Same name, but other  
// scope, OK!*

```
{  
  int i = 2;  
}
```

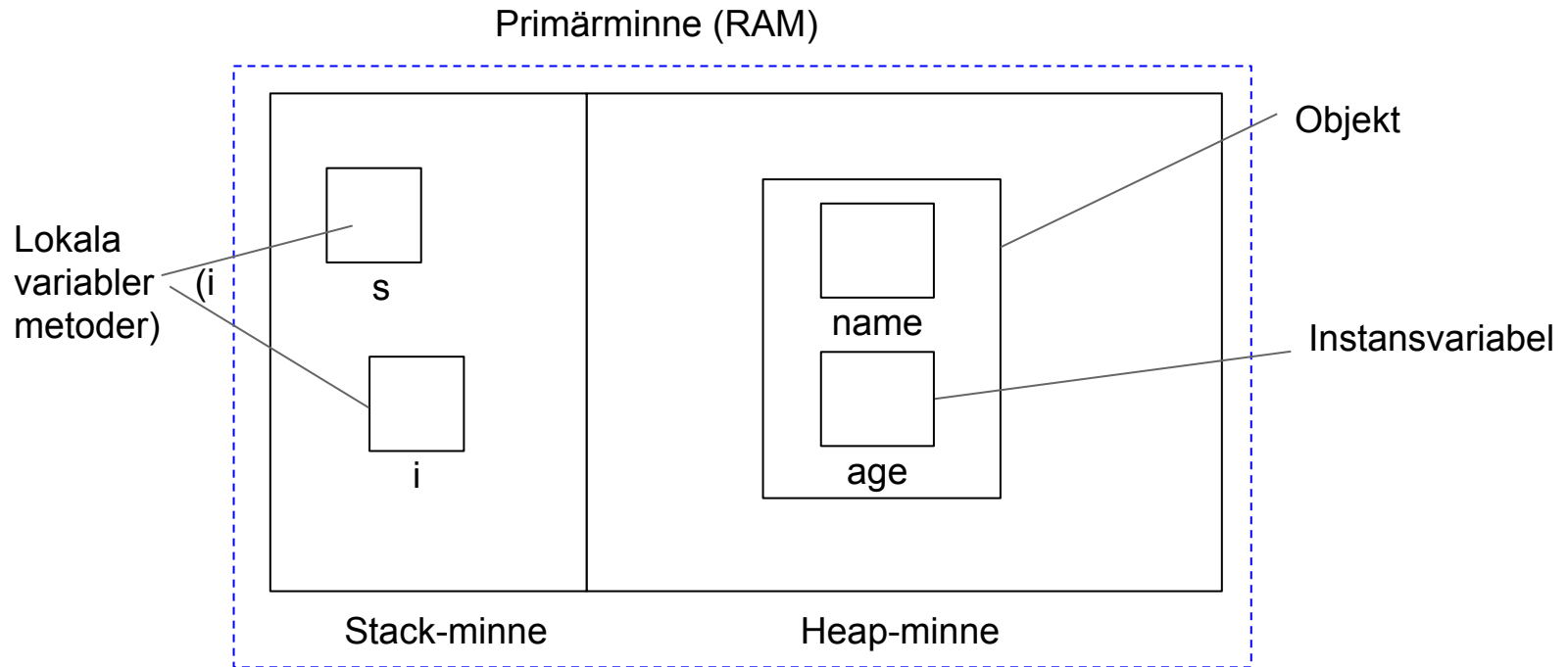
```
{  
  int i = 0;  
  {  
    int i = 2; // Name clash!  
    int j = 3;  
  }  
  j = 4; // Not visible  
}
```

# Lokala Variabler

Synlighets  
område { **void** program() {  
          **int** result, a = 1, b = 2;  
          result = add(a, b);  
          }

Synlighets  
område { **int** add( **int** a, **int** b ){  
          **int** result = a + b;  
          **return** result;  
          }

# Variabler i Minnet



# Kompilatorn hittar Fel

```
void program() {  
    final int i = 123; // Compiler remember  
    boolean b = false; // Compiler remember  
  
    i++; // Aha, i declared as final, compile error  
    i[0] = 2; // Aha, i not an array, compile error  
  
    doIt(i); // Name of a function, correct usage  
  
    out.println( b++); // Aha! Can't increment boolean  
  
    // etc.  
}  
  
int doIt(int i) { return 2 * i;}
```

# Kompilator och Värden

```
final Random rand = new Random();  
final Scanner sc = new Scanner(in);  
int i;
```

*// What value will be in i? Don't know at compile time!*

```
i = rand.nextInt(100);           // Value??
```

```
//i = rand.nextBoolean();       // Type error
```

```
i = sc.nextInt();               // Value??
```

# Java Assembler

```
0:  iconst_2
1:  istore_1
2:  iload_1
3:  sipush 1000
6:  if_icmpge 44
9:  iconst_2
10: istore_2
11: iload_2
12: iload_1
13: if_icmpge 31
16: iload_1
17: iload_2
18: irem
19: ifne 25
22: goto 38
25: ...
```