Fundamentals of Programming

Laboratory 1
Part 2

How to install Java?

- Go to **http://java.sun.com/**
- Find a link to **Java SE** on open the **Downloads** tab
- Click on the **Java Development Kit** (JDK) alone or on the **JDK+NetBeans** bundle
- Click **Download** in section **JDK 6 Update 24 with NetBeans 6.9.1**
- Select your **Platform** (Windows) and accept the **License Agreement,** press **Continue**
- Download the **jdk-6u24-nb-6_9_1-windows-ml.exe** file

Note: If you can, copy the file onto a flash disk. It will save you the download when doing homework

Set up system paths (1)

Go to: **Control Panel → System → System Properties**.

Select the **Advanced** tab then **Environment Variables** button.

Scroll in the **System Variables** list until you see the **Path** entry, select this and click **Edit**.

The **Edit System Variable** window will be displayed.

In Windows Vista, Windows 7 and some Windows XP versions you need to log on as administrator to make changes!

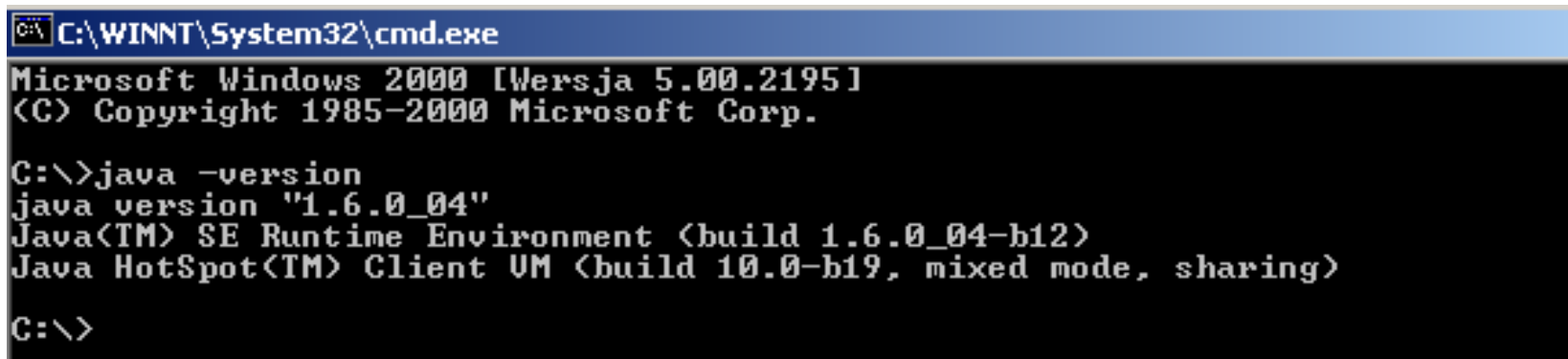# Set up system paths (2)

Click in the **Variable value** field.

Add the path of the location of your Java installation to the end of the text:

… ; **C:\Program Files\Java\jdk1.6.0_24\bin**

Notice that semicolons are used to separate paths.

Test the system paths

- Click on the **Start Menu**, select **Run** window and type **cmd**
- A DOS window should be displayed.
- Type **java –version** and press Enter key.


```
C:\WINNT\System32\cmd.exe

Microsoft Windows 2000 [Wersja 5.00.2195]
(C) Copyright 1985-2000 Microsoft Corp.

C:\>java -version
java version "1.6.0_04"
Java(TM) SE Runtime Environment (build 1.6.0_04-b12)
Java HotSpot(TM) Client VM (build 10.0-b19, mixed mode, sharing)

C:\>
```

Your first program (1)

Run **notepad**. Type in the program below and save the file as **FileHello.java** in **D:\JAVA** folder:

```
/*   This program says Hello  */
class ClassHello
{
    public static void main (String [ ]  args)
    {
            System.out.print ("Hello");
    }
}
```

(make sure it's FileHello.java <u>not</u> FileHello.java.txt)

PROGRAMMING
EXERCISE

Your first program (2)

- Open a **Command prompt window** (Run **cmd**)
- In the DOS window go to the directory where you saved your program (type **d:, cd JAVA, dir**) and type:
- **javac Hello.java**
- Type **dir** to see that a new **Hello.class** file appeared
- Now type:
- **java Hello**

PROGRAMMING
EXERCISE

Your first program (3)

- Your output should look like this:

```
C:\WINNT\System32\cmd.exe

Microsoft Windows 2000 [Wersja 5.00.2195]
(C) Copyright 1985-2000 Microsoft Corp.

C:\>javac Hello.java

C:\>java Hello
Hello
C:\>
```

PROGRAMMING
EXERCISE

Compiling + interpreting

- Why the two files? ***.java** and ***.class**

- Why no ***.exe**?

- Java compiler (javac) translates your code (*.java) into a compiled java program (*.class).

- The *.class file needs a java interpreter (java) to run, but it can be run on any machine that has java installed.

Your first program

- Modify your program so that the message **''Hello, how are you today?''** is displayed.

- Save it as **HelloHowAreYou.java** and name the main class **Hello123**

- Compile and run the new version of the program

PROGRAMMING
EXERCISE

Program Template

```
import java.util.Scanner;   /*import components*/
/*  comments about program */
class ???   /* use the same class and file name */
{

        /* the line below is needed in all programs */

        public static void main  (String [ ]  args)
        {
            /*starting code for all programs goes here*/
                System.out.print („output");
                System.out.println(„output +new line");
        }

}
/* learn this template by heart */
```

PROGRAMMING
EXERCISE

Enlarged JAVA text

Using your template and modifying the contents write a program which displays to the text:

```
JJJJJ      AAAA      V     V     AAAA
    J     A     A    V    V    A     A
    J     A     A    V    V    A     A
    J     AAAAAA     V    V    AAAAAA
J   J    A     A      V V    A     A
 JJJ       A     A      V      A     A
```
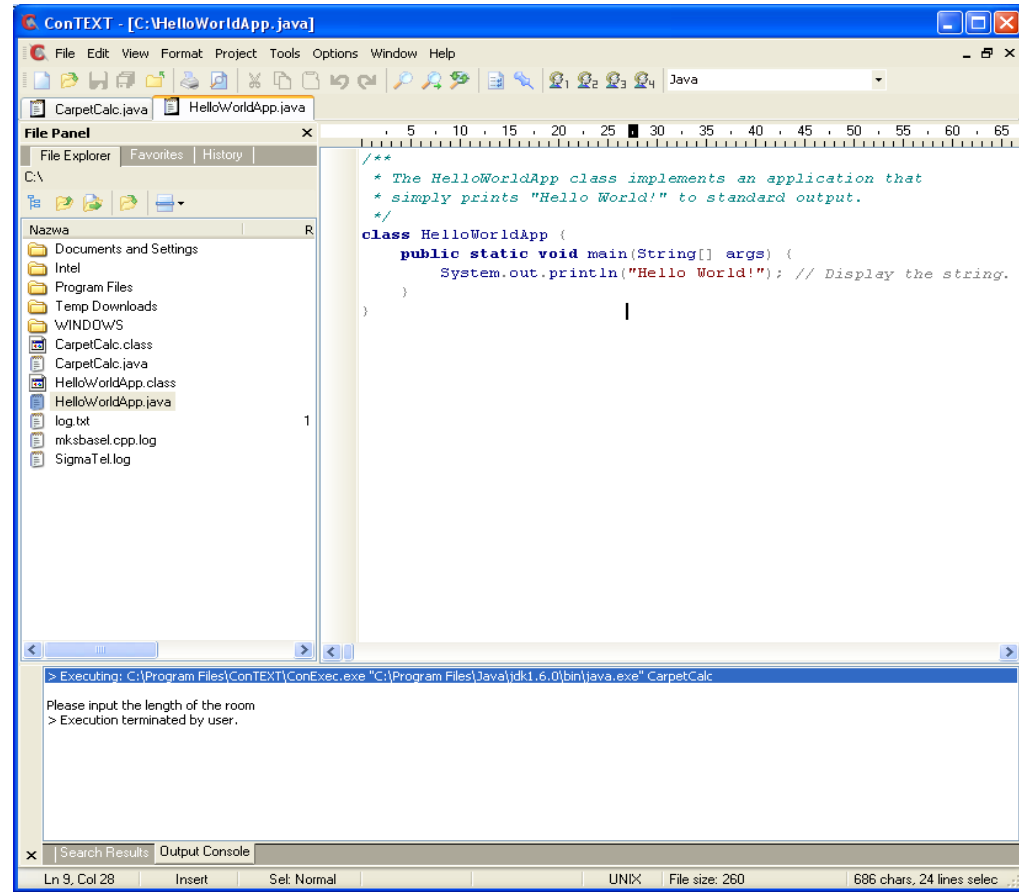
Optional task - CONTEXT

- Open your program using the CONTEXT editor

- Notice how various parts of the code are highlighted (keywords, comments, strings, etc.)

Recommended reading

Official JAVA tutorial:

http://java.sun.com/docs/books/tutorial/

„Teach yourself Java in 24 hours"
http://workbench.cadenhead.org/go/java24hours/

JAVA in two semesters (IFE library)

HOMEWORK:

- Install Java on your home PC
  (or another computer you have access to)

- Prepare a simple „Hello World" or "JAVA" program

- Compile and execute it

- Press PrtScr to take a screenshot

- Paste the screenshot of your entire desktop into a graphic file save as **YourName.jpg (not .jpg.bmp !)**

- Email the picture to me, as the subject write:
  JAVA – Group X, Homework 1

HOMEWORK
EXERCISE