3 Getting to know your Programming Environment

Objectives

At the end of the lesson, the student should be able to:

- Create a Java program using text editor and console in the Linux environment
- Differentiate between syntax-errors and runtime errors
- Create a Java program using NetBeans

Definitions

- Console
  - This is where you type in commands
  - Examples are Terminal (Linux), MSDOS Command Prompt (Windows)

Definitions

- Text Editor
  - Examples: Notepad, Wordpad, Vi

Definitions

- Integrated Development Environment or IDE
  - a programming environment integrated into a software application that provides a GUI builder, a text or code editor, a compiler and/or interpreter and a debugger.

My First Java Program

```
1  public class Hello {
2
3      /**
4       * My first Java program
5       */
6      public static void main( String[] args ){
7
8            //prints the string “Hello world” on screen
9            System.out.println(“Hello world”);
10
11     }
12 }
```

Using Text Editor and Console

- NOTE:
  - This will be demonstrated by the teacher
  - Environment used: Ubuntu Dapper
  - For Windows Environment: Refer to Appendix B in your student Manual

Using Text Editor and Console

- Step 1: Start the Text Editor
  - To start the Text Editor in Linux, click on Menu-> Accessories-> Text Editor
- Step 2: Open Terminal
  - To open Terminal in Linux, click on Menu-> System Tools-> Terminal
- Step 3: Write your the source code of your Java program in the Text Editor

Using Text Editor and Console

- Step 4: Save your Java Program
  - Filename: Hello.java
  - Folder name: MYJAVAPROGRAMS
  - To open the Save dialog box, click on the File menu found on the menubar and then click on Save.
  - If the folder MYJAVAPROGRAMS does not exist yet, create the folder

Using Text Editor and Console

- Step 5: Compiling your program
  - Go to the Terminal window
  - Go to the folder MYJAVAPROGRAMS where you saved the program
  - To compile a Java program, we type in the command:

    ```
    javac [filename]
    ```

  - So in this case, type in:

    ```
    javac Hello.java
    ```

    During compilation, javac adds a file to the disk called `[filename].class`, or in this case, `Hello.class`, which is the actual bytecode.

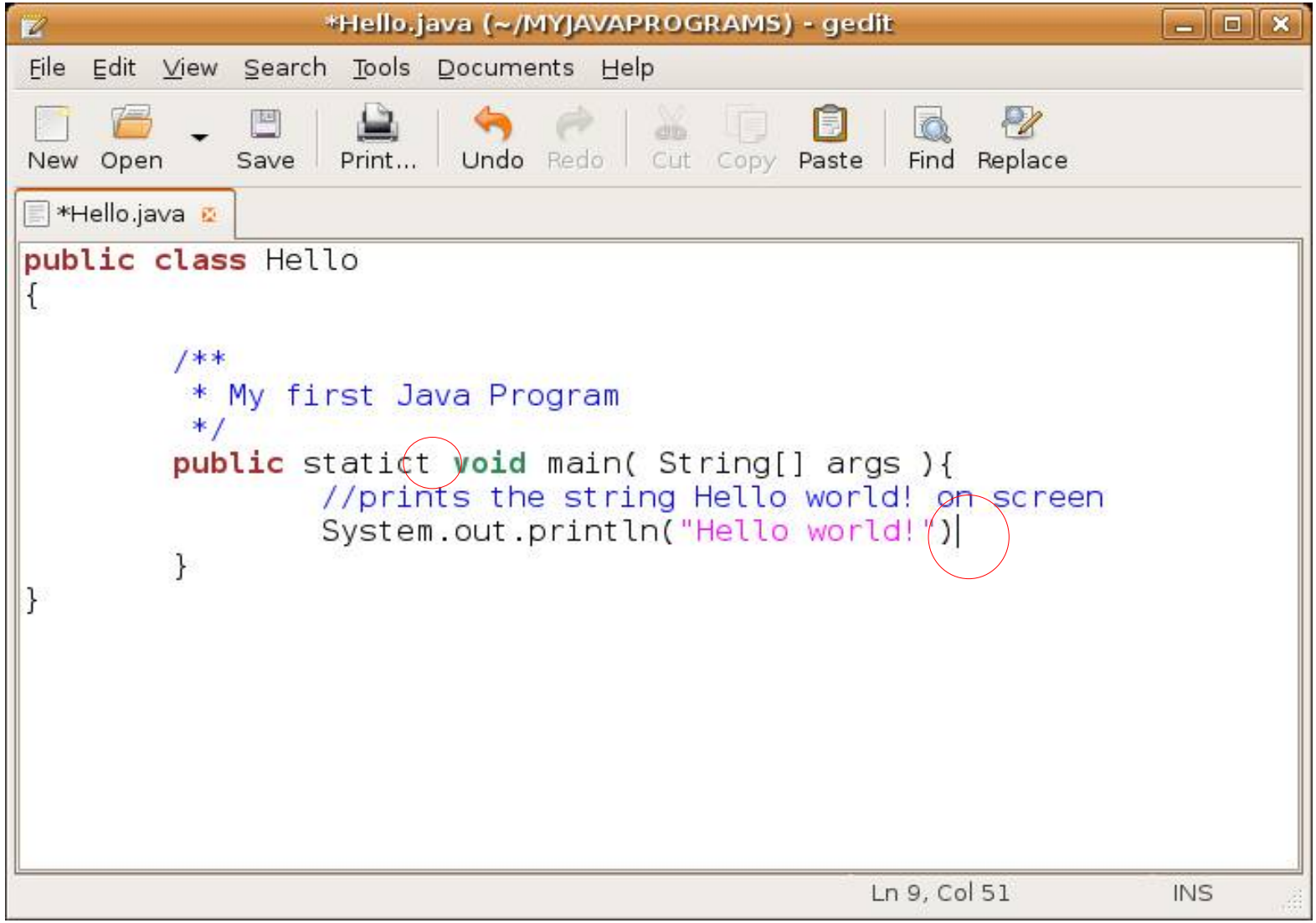
Using Text Editor and Console

- Step 6: Running the Program
  - To run your Java program, type in the command:
    ```
    java [filename without the extension]
    ```
  - so in the case of our example, type in:
    ```
    java Hello
    ```
  - You can see on the screen after running the program:
    ```
    "Hello world!"
    ```

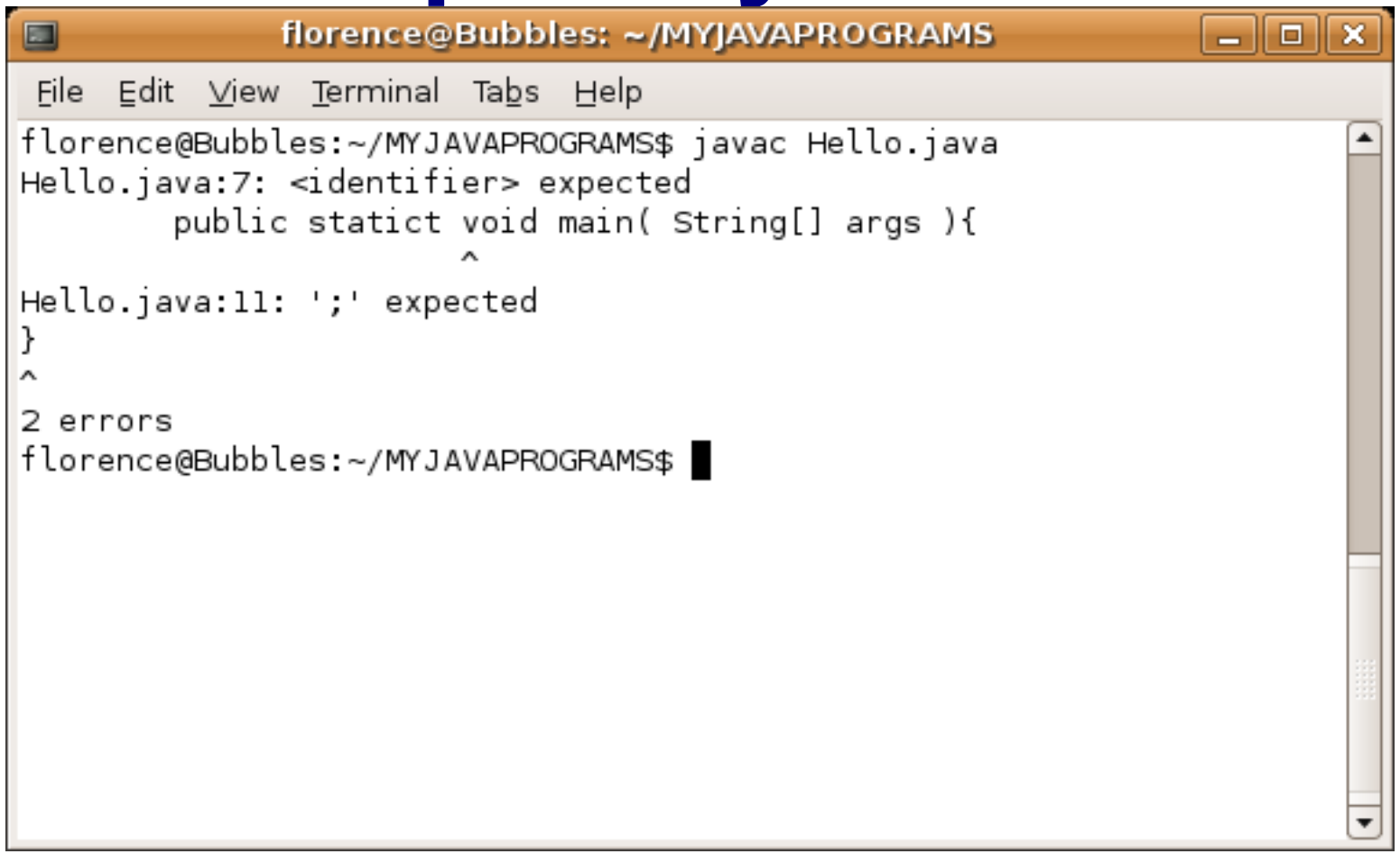
Errors : Syntax Errors

- Syntax Errors Syntax
  - errors are usually typing errors
- Common Syntax Errors:
  - misspelled a command in Java
  - forgot to write a semi-colon at the end of a statement

Example: Syntax Error



Example: Syntax Error



Errors: Runtime Errors

- Run-time Errors
  - errors that will not display until you run or execute your program
  - Even programs that compile successfully may display wrong answers if the programmer has not thought through the logical processes and structures of the program.
  - Examples:
    - You want your program to print 100 strings of “Hello world”, but it only printed 99.
    - Your program gets an input from the user, but the user inputted a character, and so your program crashes/terminates

Using NetBeans

- NOTE:
  - This will be demonstrated by the teacher
  - Environment used: Ubuntu Dapper
  - For Windows Environment: Refer to Appendix B in your student Manual

Using NetBeans

- Step 1: Run NetBeans
  - Two ways to run NetBeans:
    - Through command-line using terminal
    - By just clicking on the shortcut button found on the menu
  - To run NetBeans using command-line
    - Open terminal (see steps on how to run terminal in the previous discussion), and type: netbeans
  - The second way to run NetBeans
    - Click on shortcut on the desktop

Using NetBeans

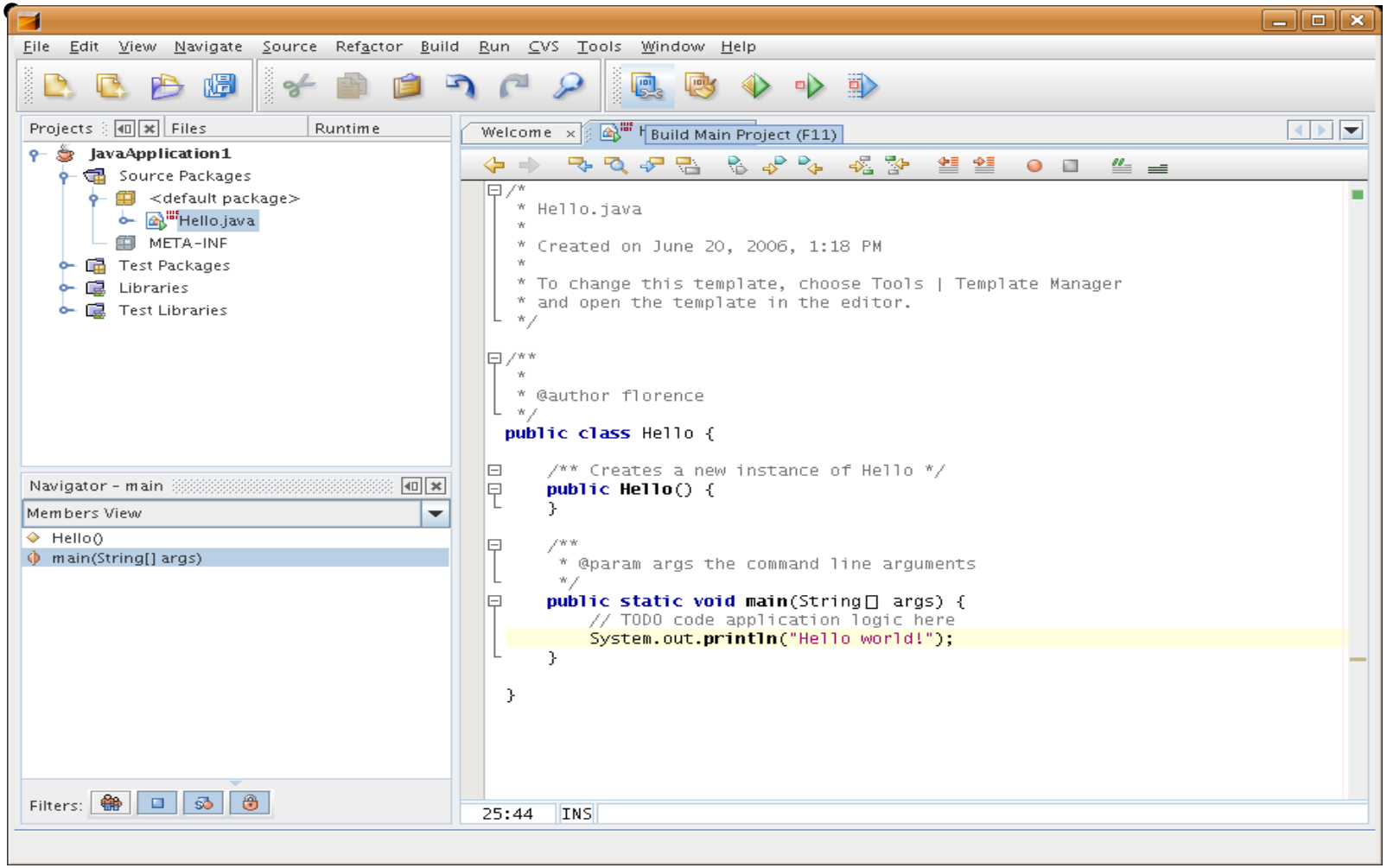
- Step 2: Make a project
  - To make a project, click on File-> New Project
  - After doing this, a New Project dialog will appear
  - On the right pane of the project dialog, click on Java Application and click on the NEXT button
  - A New Application dialog will appear. Edit the Project Name part and type in "HelloApplication"

Using NetBeans

- Step 2: Make a project (continuation)
  - Now try to change the Application Location, by clicking on the BROWSE button
  - A Select Project Location dialog will then appear. Double-click on the root folder.
  - The contents of the root folder are then displayed. Now double-click on the MYJAVAPROGRAMS folder and click on the OPEN button
  - Finally, on the Create Main Class textfield, type in Hello as the main class' name, and then click on the FINISH button

Using NetBeans

- Step 3: Type in your program



Using NetBeans

- Now, try to modify the code generated by NetBeans.
- Ignore the other parts of the program for now, as we will explain the details of the code later.
- Insert the code

```
System.out.println("Hello world!");
```

after the statement,

```
//TODO code application logic here.
```

Using NetBeans

- Step 4: Compile your program
  - To compile your program, just click on Build -> Build Main Project
  - If there are no errors in your program, you will see a build successful message on the output window
- Step 5: Run your program
  - To run your program, click on Run-> Run Main Project
  - The output of your program is displayed in the output window

Summary

- My First Java Program
- Using a Text Editor and Console
  - Write program
  - Compile program
  - Run program
- Errors
  - Syntax Errors
  - Runtime Errors
- Using NetBeans
  - Write program
  - Compile program
  - Run program