



Institution
Semester:
Course:
Exercise No. 4:
Last Name:
First Name:
Date:
Approval:

China Jiliang University
WS 2013/14
Java Web Applications
Applet, Servlet, JSP Programming

4 Applet, Servlet, JSP Programming

4.1 Goal

Goal of this lab assignment is:

- Introduce the AWT (Abstract Windowing Toolkit) and GUI Development,
- Introduce the concept of Servlet programming, understand cookies and session tracking,
- Introduce the concept of Java Server Pages, extend Java Exception Handling to JSP.

4.2 Applet Programming Tasks

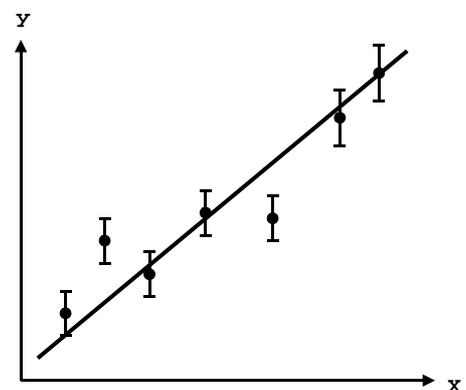
4.2.1 HelloWorld as an Applet

- Modify the HelloWorld program from assignment 1, so that the message will be written (drawn) to the screen and simultaneously to the Java console.
- Allow parameter input (numerical and non numerical) from the HTML-page; display those parameters on the screen.
- Exception handling: Check for not existing parameters (null reference).
- Write the necessary HTML-pages to test the respective applet versions.

4.2.2 Plotting Data

Develop an applet-program that reads a series of measured values (x/y-pairs) from a file or the parameter list and:

- displays x/y axes,
- displays the (scaled) data points in an x/y-graph,
- fits a straight line " $y = ax + b$ " to the data points using least-squares fitting and displays the straight line,
- displays the data points with error bars assuming a systematic error of $\pm 10\%$.



4.3 Servlet Programming Tasks

4.3.1 User handling during an e-commerce session

Write a Java Servlet that fulfils the following functions:

∅ **New customer:**

- a) Welcome this visitor with the message "Welcome to our shop" (or similar).
- b) Offer a form (HTML) to register this new customer asking for the necessary information. Minimum input should be:
 - first name, last name and address;
 - preferred product line (using the shop); allow at least four different categories.The client sends an HTTP POST or HTTP GET request with the complete set of data from this HTML form.
- c) Echo the accepted data back to the client in the form of an HTML table. The user (client) should receive a non-editable version of the updated information.

∅ **Known (old) customer:**

Welcome this visitor with the message "Welcome 'first name' 'last name' " followed by basic information about former visits to the shop, like:
last visit,
number of visits (since),
session ID, ...

∅ **Focused advertising:**

Send the known visitor customer-oriented advertisements (banner, e.g. appropriate images that are opened in a separate small window).

4.4 JSP Programming Tasks

4.4.1 Main Java Server Page

Design a Java Server Page that fulfils the following requirements:

- ∅ Receive the data sent by the form developed in exercise 1 (registration of customers),
- ∅ Process the data (check for valid data),
- ∅ Return the data to the client in form of an MS-word document,
- ∅ Throw an exception in the case that the received data is invalid,
- ∅ Use the "page" directive to define the error handling JSP.

4.4.2 Java Server Page for Exception Handling

Design a second Java Server Page "errpage.jsp" that takes care of error handling, including:

- ∅ Access the runtime exception,
- ∅ Send an appropriate message to the client, informing that an exception has been thrown.