'Singular-Leitfaden'
using the power of SINGULAR to generate online-textbooks

Installed on a web-server, the computer algebra system Singular can generate 'books on demand' which meet the reader's interest better than a classical textbook can do.

This is presented and explained for lectures on linear algebra, where texts and exercises with randomly choosen parameters are organized in their logical context. Facilities for the teacher include the possibility to easily generate sets of exercises and worksheets for examinations.

Requests via HTML-forms make things platform-independent. The diagram below indicates what is done:

USER   WWW   WEB-SERVER

HTML -Form

Browser ·········· POST-requests ··········▸ CGI-Script
                    Transmission of Texts

„Leitfaden"

                        read in

                                    S
Metadata   read in   I
                                    N
                                    G   instruct   Text-
                read in   U   Processing
                        on   L
                      demand   A
Singular-   R
Scripts

                                                       further
                                                       Latex-
                                                       Sources

- decoding POST-request
- checking permissions
- setting environment
- organizing content
- generating random exercises
- writing latex sources
- calling latex, . . .
- cleaning up