Software Development Tooling
Information, Opinion, Guidelines, and Tools

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This column marks the end of a 10-year period over which the Tools of the Trade department has been appearing in IEEE Software. As of the next issue, its editor will be writing a department nearer to the magazine’s front page, so it seemed like a good opportunity to summarize what this column has presented over the years. This was done by first organizing the material into a mind map and then laying out the results in the two figures that appear in the following pages. Both figures also appear on the column’s blog (www.spinellis.gr/tools) with hyperlinks to each column’s text and in a format that can be printed as a poster.

Figure 1 categorizes the major points of each column into information, opinion, and prescriptive guidelines. The information and opinion elements are grouped into eight broad themes: design, writing code, building, tooling, operations, working with others, professional advancement, and software process. The presented guidelines add debugging, performance, and avoiding errors into the mix. Many columns offer additional guidelines, often in a “Best Practices” section. The titles appearing at the figure’s center end with the issue and volume number in which the column appeared.

Figure 2 associates specific indicative tools with corresponding elements (such as “Continuous integration”). Search the Web for the names of a few tools appearing together, and you’ll find comparisons, extensive lists, and more related material. Not all tools appearing in the figure were mentioned in the columns, and many tools deserving a listing are missing. Nevertheless, if none of the tools in a specific category rings a bell, read the corresponding column to see how you can benefit from them.

Back in 2005, the first column in this series lamented our industry’s under-spending on tool development. Ten years and 60 installments later, it seems that the first column was overly pessimistic. We’re blessed with many powerful tools that can enhance our work’s quality and our own productivity. The real challenge is getting to use them.

Post your comments online by visiting the column’s blog: www.spinellis.gr/tools
FIGURE 1. Major points of each Tools of the Trade column. The information and opinion elements are grouped into eight broad themes: design, writing code, building, tooling, working with others, professional advancement, and software process.

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Before you start coding

Tools you want to be aware of

Unix tools

Cloud-based tools (one from each category)

Effective code editing

Efficient use of the Web

How to understand code

How to write systems software

Skring languages

Build tools

Continuous integration

Writing code and building it

Debugging & improving your code

Operations

Virtualization

System configuration management tools

Service orchestration

Version control systems

Tools of the Trade

FIGURE 2. Themes and tools. Not all tools appearing in the figure were mentioned in the columns, and many tools deserving a listing are missing.

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