Praktische Aspekte der Informatik

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Documentation

Getting started with Doxygen
Warning!

The following slides are meant to give you a very superficial introduction.

If you want to learn more, have a look at:

• Why use Automatic Documentation?
• Doxygen – Basic Usage
• Doxygen – Advanced Usage
Why use Automatic Documentation?

- Help others (and future-you) understand your code

- Comment once, use several output formats
  - HTML
  - LaTeX
  - Custom output
  - … more, e.g. Qt Assistant

- Create different views of software
  - Automatically generate documentation for a user group
  - No need to maintain documentation multiple times

https://graphics.tu-bs.de/teaching/ss19/padi/
Why use Automatic Documentation?

Top-down

• Create model first
• Generate code stub from model
• e.g. MS Visio, ...

Bottom-up

• Write code first
• Update documentation while coding
• e.g. Doxygen, ...

https://graphics.tu-bs.de/teaching/ss19/padi/
Doxygen

https://graphics.tu-bs.de/teaching/ss19/padi/
• You can easily generate a basic doxygen file
  doxygen -g <config-file>

• Modify in text editor and run
  doxygen <config-file>

• Alternatively, you could use a GUI,
  e.g. doxywizard
# This tag specifies the encoding used for all characters in the config file
# that follow. The default is UTF-8 which is also the encoding used for all
# text before the first occurrence of this tag.

DOXYFILE_ENCODING = UTF-8

# The PROJECT_NAME tag is a single word (or a sequence of words surrounded
# by quotes) that should identify the project.

PROJECT_NAME = My Project

# The PROJECT_NUMBER tag can be used to enter a project or revision number.
# This could be handy for archiving the generated documentation or
# if some version control system is used.

PROJECT_NUMBER =

# The OUTPUT_DIRECTORY tag is used to specify the (relative or absolute)
# base path where the generated documentation will be put.

OUTPUT_DIRECTORY =

# The OUTPUT_LANGUAGE tag is used to specify the language in which all
# documentation generated by doxygen is written. Doxygen will use this
# information to generate all constant output in the proper language.
# The default language is English, other supported languages are:
# Afrikaans, Arabic, Brazilian, Catalan, Chinese, Chinese-Traditional,
# Croatian, Czech, Danish, Dutch, Esperanto, Farsi

OUTPUT_LANGUAGE = English

...
• Document your code!

• Several options:
  ▪ Use /*!! Or /*** instead of /*
  ▪ Use ///! or //// Instead of //
  ▪ And many more...

• Example:
  
  /*!! \brief Brief description.
  *
  * Brief description continued.
  *
  * Detailed description starts here.
  */
• There are a lot of special commands:

\texttt{\textbf{\textbackslash struct}} to document a \texttt{struct}.
\texttt{\textbf{\textbackslash union}} to document a \texttt{union}.
\texttt{\textbf{\textbackslash enum}} to document an enumeration type.
\texttt{\textbf{\textbackslash fn}} to document a \texttt{function}.
\texttt{\textbf{\textbackslash var}} to document a variable or \texttt{typedef} or \texttt{enum} value.
\texttt{\textbf{\textbackslash def}} to document a \texttt{#define}.
\texttt{\textbf{\textbackslash typedef}} to document a \texttt{type definition}.
\texttt{\textbf{\textbackslash file}} to document a \texttt{file}.
\texttt{\textbf{\textbackslash namespace}} to document a \texttt{namespace}.
\texttt{\textbf{\textbackslash package}} to document a \texttt{Java package}.
\texttt{\textbf{\textbackslash interface}} to document an \texttt{IDL} interface.

...
/*! \file structcmd.h
 * \brief A Documented file.
 * Details.
 */

/*! A test class */
class Test {

public:
 /** An enum type.
  * The documentation block cannot be put after the enum!
  */
 enum EnumType {
   ValueA, /**< enum value 1 */
   ValueB /**< enum value 2 */
    
};

protected:
 void member(); //!< A protected member function.

private:
 int value; /*!< An integer value */

};
• Create different output
  ▪ HTML pages
  ▪ Latex files

• Graphs/Diagrams ([www.graphviz.org](http://www.graphviz.org))
• Additional options
  ▪ Include formulas (LaTeX style)
  ▪ Include graphics
  ▪ Change formatting
  ▪ Create your own styles

• Example: Images

\image <format> <file> [“caption”][<sizeindication>=<size>]