Praktische Aspekte der Informatik

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Prototype Presentation

11.01.2017
• Show everyone what you have so far!

• Run your prototype on the projector.

• Say a few words about what you have done and what’s left to do.

• Everyone is invited to ask questions and make suggestions.

• No more than 5 Minutes per project!
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:
http://www.stack.nl/~dimitri/doxygen/starting.html
Outline

• 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
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, ...
• 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{struct} to document a struct.
\texttt{union} to document a union.
\texttt{enum} to document an enumeration type.
\texttt{fn} to document a function.
\texttt{var} to document a variable or typedef or enum value.
\texttt{def} to document a \#define.
\texttt{typedef} to document a type definition.
\texttt{file} to document a file.
\texttt{namespace} to document a namespace.
\texttt{package} to document a Java package.
\texttt{interface} to document an 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)
• Additional options
  ▪ Include formulas (LaTeX style)
  ▪ Include graphics
  ▪ Change formatting
  ▪ Create your own styles

• Example: Images
  \[ \text{\textbackslash{}image <format> <file> ["caption"]\[<sizeindication>=<size>]\] } \]