All elemental steps that will get you started for your new life as a computer science programmer.
Week H - Doxygen

1. Automatic Documentation – Why?
2. Doxygen Basic Usage
3. Advanced Usage - Outlook

Week H: Documentation with Doxygen
Take a look at the “Getting Started” manual from doxygen:

http://www.stack.nl/~dimitri/doxygen/starting.html

Check out the examples for more information.
Automatic Documentation – Why?

Help others (and yourself) to understand your code better

Comment once, use for several output formats
- Html
- Latex
- Custom output
- e.g. Qt assistant

Create different views of software
No need to maintain documentation twice
Automatic Documentation – Why?

Top down vs. bottom up

**Example: MS Visio**
- Create Model first
- Create code stub automatically

**Example: Doxygen**
- Write code
- Simultaneously update documentation

What should I use?
5
PADI – Praktische Aspekte der Informatik
**Doxygen Basic Usage**

Basic doxygen file easily created

- Use a GUI e.g. **doxywizard**

  ```bash
doxygen -g <config-file>
  ```

Modify in text editor and run

  ```bash
doxygen <config-file>
  ```
Doxygen Basic Usage

Document your code!

Several options:

- Use /*! or /** instead of /*
- Use ///! instead of //

Example:

/*!
\brief Brief description.
*
  Brief description continued.
*
  Detailed description starts here.
*/
Doxygen Basic Usage

A lot of special commands:

- \texttt{\struct} to document a C-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.
Doxygen Example Documentation

/*! \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
  {
    int EVall, /**< enum value 1 */
    int EVal2 /**< enum value 2 */
  }
  void member(); ///< a member function.
 protected:
  int value; /**< an integer value */
};
Doxygen Basic Usage

Create different output

- HTML pages
- Latex files
- Graphs/Diagrams (www.graphviz.org)
Advanced usage - Outlook

Many ways to
- Include formulas (LaTeX style)
- Include graphics
- Change formatting

Example: Including images
\image <format> <file> ["caption"] [<sizeindication>=<size>]
Sample doxygen default project file

# 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 =

# 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
[...]

# If the GENERATE_LATEX tag is set to YES (the default) Doxygen will
# generate Latex output.
GENERATE_LATEX = YES

# The LATEX_OUTPUT tag is used to specify where the Latex docs will be put.
# If a relative path is entered the value of OUTPUT_DIRECTORY will be
# put in front of it. If left blank 'latex' will be used as the default path.
LATEX_OUTPUT = latex
SVN Account Reminder

Everybody should have a SVN account by now!

If you do not have a SVN account, send me a mail!