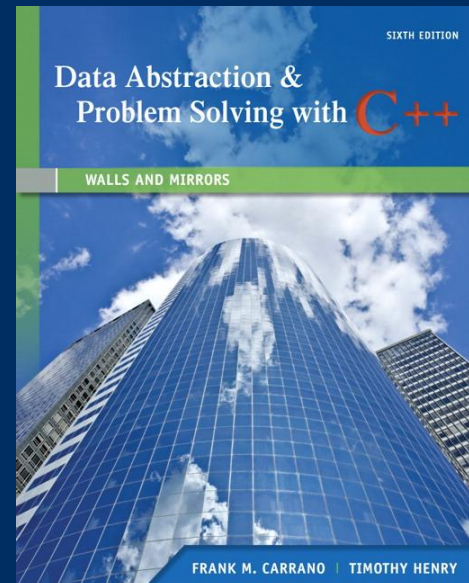


Doxygen Documentation

CS 302 - Data Structures

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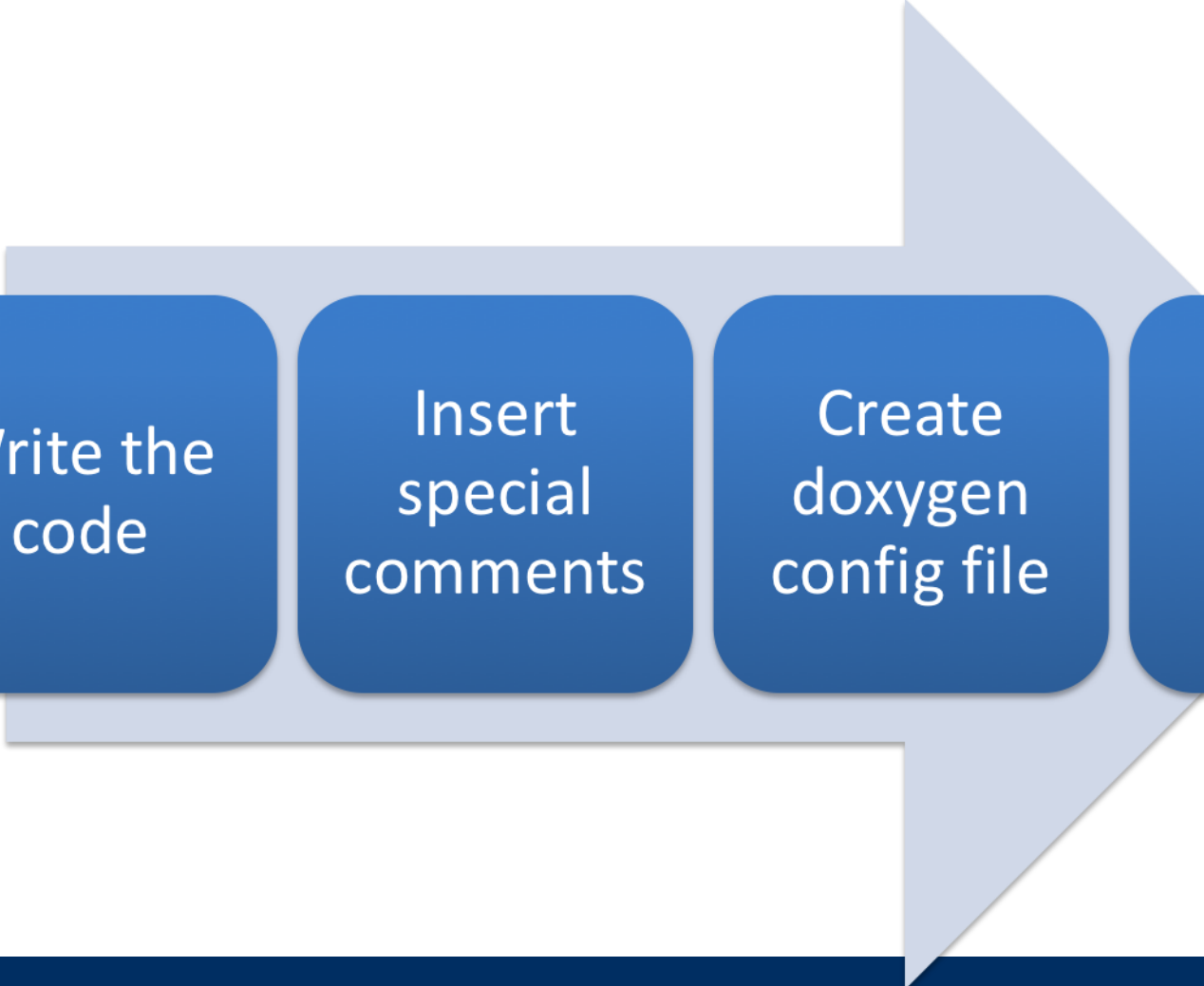
- <https://www.youtube.com/watch?v=gZhQrjCipRc>
- Imagine the data
 - collecting,
 - storing,
 - Processing,
 - Analyzing,
 - Decision Making



Doxygen

- Document generator
- Free (GNU General Public License)
- Supports C++, C, C#, Objective-C, Java, Python, IDL, VHDL, Fortran, and D
- Output
 - HTML
 - Latex
 - RTF
 - XML
 - Man Page

- Already installed in the ECC
- Debian or Ubuntu
 - `sudo apt-get install doxygen`
 - `sudo apt-get install doxygen-gui`
- <http://www.stack.nl/~dimitri/doxygen/download.html>
- Install Latex
 - `sudo apt-get install texlive-latex-base`
 - `sudo apt-get install texlive-fonts-recommended`



Write the
code

Insert
special
comments

Create
doxygen
config file

Run
doxygen

- Brief Comment Before
 - Add an extra " / "

```
/// This method does something  
void DoSomething();
```

- Detailed Comment Before
 - Add an extra “ * ”

```
/** This is a method that does so  
 * much that I must write an epic  
 * novel just to describe how much  
 * it truly does. */  
    void DoNothing();
```

- Brief Comment After
 - Add an extra “ /< ”

```
void DoSomething(); ///< Brief comment
```


- Detailed Comment After
 - Add an extra “ *< ”

```
void DoNothing(); /**< This is a
    * method that does so
    * much that I must write an epic
    * novel just to describe how much
    * it truly does. */
```

- Put “ \ ” or “ @ ” before the tags
- Most used tags
 - file
 - author
 - brief
 - date
 - see
 - param
 - return
 - code

- Include following lines in .h file

```
/**
```

```
@file className.h
```

```
@author yourName
```

```
@date date
```

```
*/
```

Write this above the function implementation. (In .cpp files)

*/***

<A short one line description>

<Longer description>

<May span multiple lines or paragraphs as needed>

@param Description of method's or function's input parameter

@param ...

@ pre Preconditions

@ post Post conditions

@ exception

@ note Algorithm

@return Description of the return value

**/*

<http://en.wikipedia.org/wiki/Doxygen>

- Generate a configuration file
 - `doxygen -g <config-file>`
 - Default file: Doxyfile
- Edit configuration file as you see fit
- Generate the documentation
 - `doxygen <config-file>`

- Main things to set

PROJECT_NAME =MyProject

OUTPUT_DIRECTORY =./doc

INPUT =./src./include

FILE_PATTERNS =*.cpp*.hpp

GENERATE_HTML = YES

EXTRACT_ALL = YES

The screenshot shows the 'Doxygen GUI frontend +' window. It has a title bar with standard window controls. The main content area is divided into two steps:

Step 1: Specify the working directory from which doxygen will run

A text input field contains the path `/home/dev/Desktop/lab07-queue`, which is circled in red. To its right is a 'Select...' button.

Step 2: Configure doxygen using the Wizard and/or Expert tab, then switch to the Run tab to generate the documentation

Below this, there are three tabs: 'Wizard' (selected), 'Expert', and 'Run'. Under the 'Wizard' tab, there is a 'Topics' list on the left with items: 'Project', 'Mode', 'Output', and 'Diagrams'. The main area on the right is titled 'Provide some information about the project you are documenting' and contains several fields:

- 'Project name' field with the text 'Lab 7|', circled in red.
- 'Project synopsis' field (empty).
- 'Project version or id' field (empty).
- 'Project logo' field with a 'Select...' button and a small image placeholder.

Below this section, there is another section titled 'Specify the directory to scan for source code'.

- 'Source code directory' field with the path `/home/dev/Desktop/lab07-queue`, circled in red, and a 'Select...' button.
- A checkbox labeled 'Scan recursively' which is currently unchecked.

Below that, there is a section titled 'Specify the directory where doxygen should put the generated documentation'.

- 'Destination directory' field with the path `/home/dev/Desktop/lab07-queue/doxygen`, circled in red, and a 'Select...' button.

At the bottom of the window, there are two buttons: 'Previous' and 'Next'.

Type doxywizard in terminal to open following window.

The screenshot shows the 'Doxygen GUI frontend' window. It has a title bar with standard window controls. The main content area is divided into two sections. The top section, 'Step 1: Specify the working directory from which doxygen will run', contains a text box with the path '/home/dev/Desktop/lab07-queue' and a 'Select...' button. The bottom section, 'Step 2: Configure doxygen using the Wizard and/or Expert tab, then switch to the Run tab to generate the documentation', contains three tabs: 'Wizard' (selected), 'Expert', and 'Run'. On the left side of the 'Wizard' tab is a 'Topics' list with 'Project', 'Mode', 'Output', and 'Diagrams'. The main area of the 'Wizard' tab is titled 'Provide some information about the project you are documenting' and contains several input fields: 'Project name:' (with 'Lab 7' entered and circled in red), 'Project synopsis:', 'Project version or id:', and 'Project logo:' (with a 'Select...' button). Below this is a section titled 'Specify the directory to scan for source code' with a 'Source code directory:' field (containing '/home/dev/Desktop/lab07-queue') and a 'Select...' button, followed by an unchecked checkbox for 'Scan recursively'. The final section is 'Specify the directory where doxygen should put the generated documentation' with a 'Destination directory:' field (containing '/dev/Desktop/lab07-queue/doxygen') and a 'Select...' button. At the bottom are 'Previous' and 'Next' buttons.

Doxygen GUI frontend +

Step 1: Specify the working directory from which doxygen will run

/home/dev/Desktop/lab07-queue Select...

Step 2: Configure doxygen using the Wizard and/or Expert tab, then switch to the Run tab to generate the documentation

Wizard Expert Run

Topics

- Project
- Mode
- Output
- Diagrams

Provide some information about the project you are documenting

Project name: Lab 7

Project synopsis:

Project version or id:

Project logo: Select...

Specify the directory to scan for source code

Source code directory: /home/dev/Desktop/lab07-queue Select...

☐ Scan recursively

Specify the directory where doxygen should put the generated documentation

Destination directory: /dev/Desktop/lab07-queue/doxygen Select...

Previous Next

Usage (Option 2): doxywizard (GUI)

The screenshot shows the 'Doxygen GUI frontend' window. It is divided into two main sections: 'Step 1' and 'Step 2'.

Step 1: Specify the working directory from which doxygen will run

A text field contains the path `/home/dev/Desktop/lab07-queue`, followed by a 'Select...' button.

Step 2: Configure doxygen using the Wizard and/or Expert tab, then switch to the Run tab to generate the documentation

There are three tabs: 'Wizard' (selected), 'Expert', and 'Run'.

Wizard Tab:

Topics: A list of topics to document, including 'Project', 'Mode', 'Output', and 'Diagrams'.

Provide some information about the project you are documenting

Project name: `Lab 7`

Project synopsis: (empty text field)

Project version or id: (empty text field)

Project logo: (empty text field) with a 'Select...' button.

Specify the directory to scan for source code

Source code directory: `/home/dev/Desktop/lab07-queue` with a 'Select...' button.

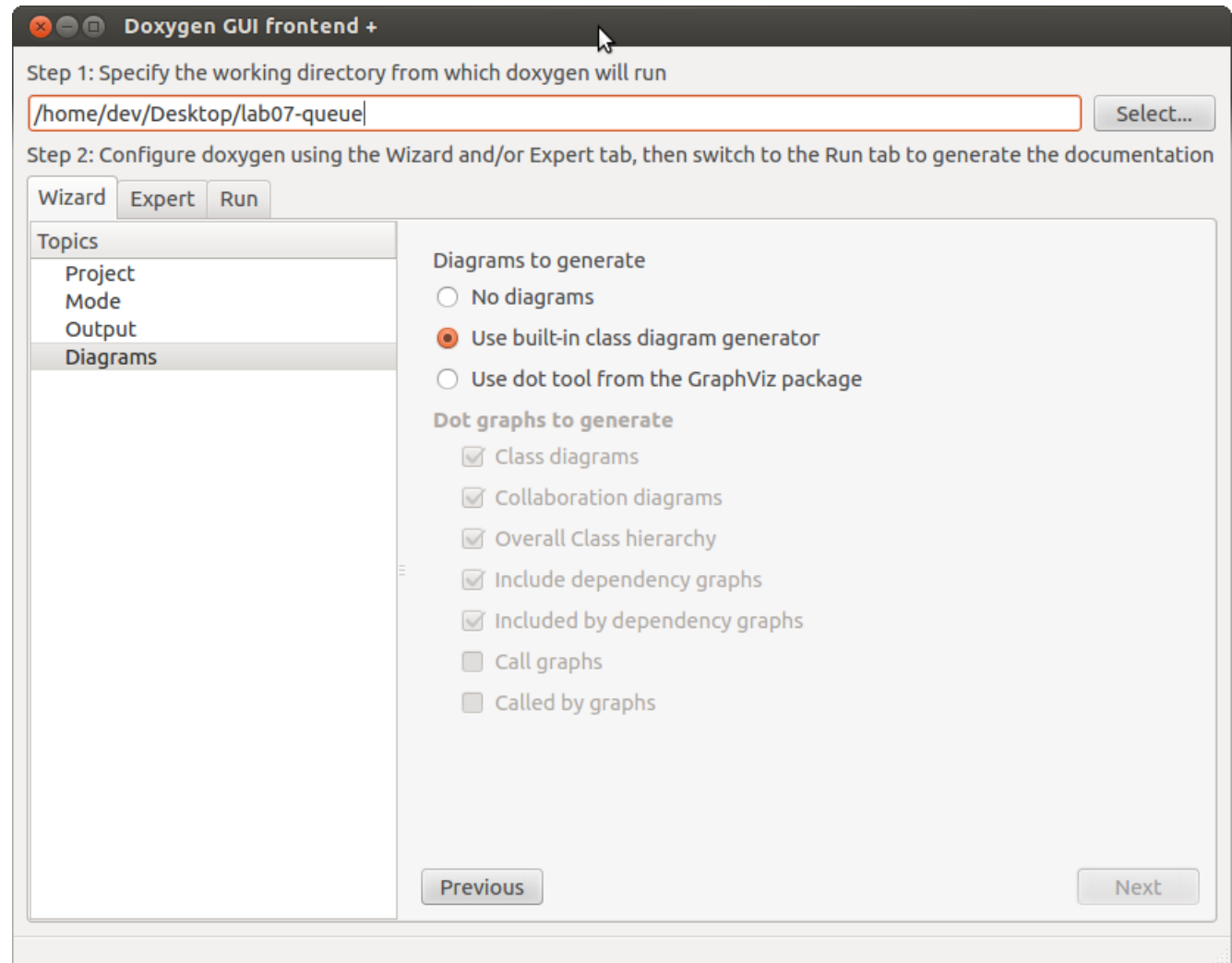
☐ Scan recursively

Specify the directory where doxygen should put the generated documentation

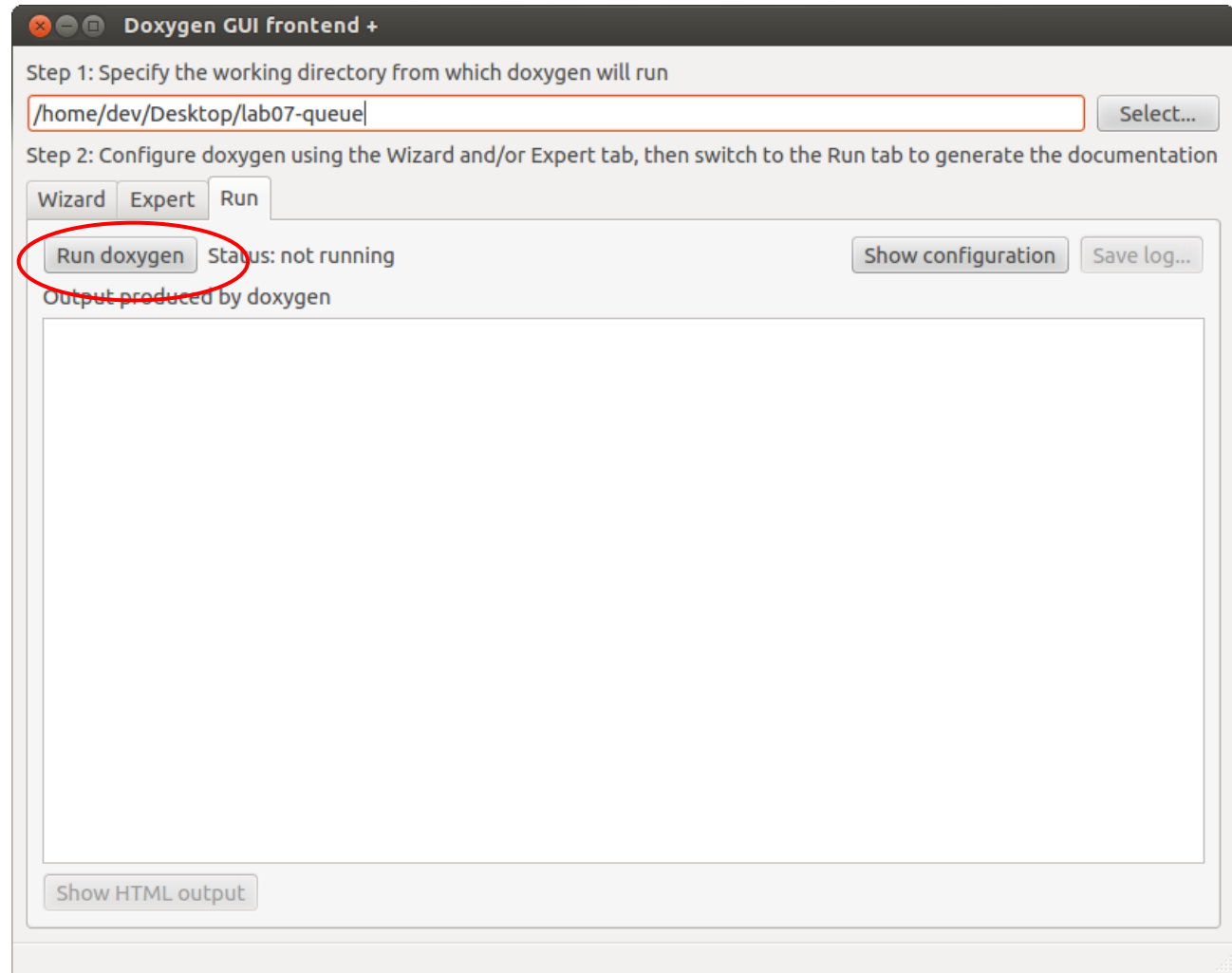
Destination directory: `/home/dev/Desktop/lab07-queue/doxygen` with a 'Select...' button.

Navigation buttons: 'Previous' and 'Next'.

Usage (Option 2): doxywizard (GUI)



Usage (Option 2): doxywizard (GUI)



- After running doxygen, doxygen folder will have two folders
 - HTML
 - LaTeX
- HTML
 - Open index.html to view documentation
- LaTeX
 - Navigate to this directory via command line and run make command
 - refman.pdf will be generated

- If make doesn't work

`pdflatex refman.tex`

or

`latex refman`

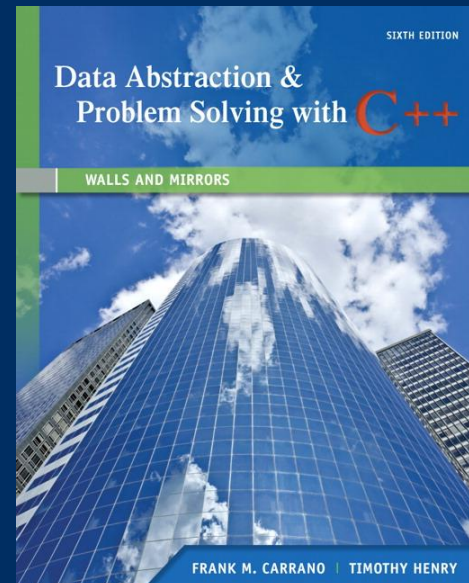
`dvips refman`

`ps2pdf refman.ps`

- Doxygen Main Page
 - <http://www.stack.nl/~dimitri/doxygen/>
- Examples
 - <http://www.yolinux.com/TUTORIALS/LinuxTutorialC++CodingStyle.html>
 - http://www-numi.fnal.gov/offline_software/srt_public_context/WebDocs/doxygen-howto.html
 - http://fnch.users.sourceforge.net/doxygen_c.html
- Email
 - mcanbaz@unr.edu

Doxygen Documentation

The End



- Design Tiny URL
 - <http://blog.wenhaolee.com/system-design-tinyurl/>
 - <https://www.geeksforgeeks.org/how-to-design-a-tiny-url-or-url-shortener/>