Doxygen Documentation

CS 302 - Data Structures

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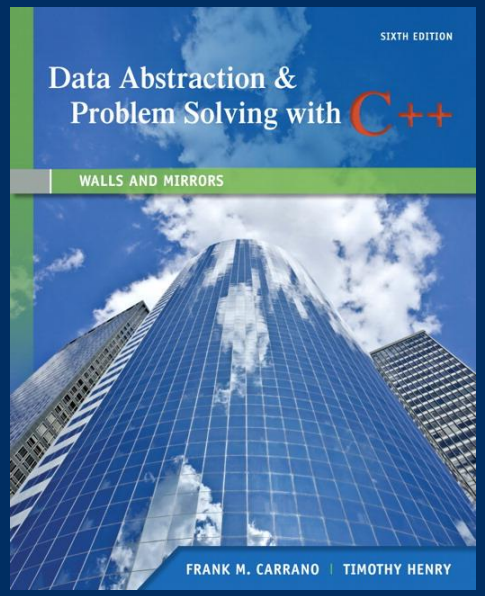


Something cool!

- https://www.youtube.com/watch?v=gZhQrjCipRc

- Imagine the data
  - collecting,
  - storing,
  - Processing,
  - Analyzing,
  - Decision Making

Doxygen

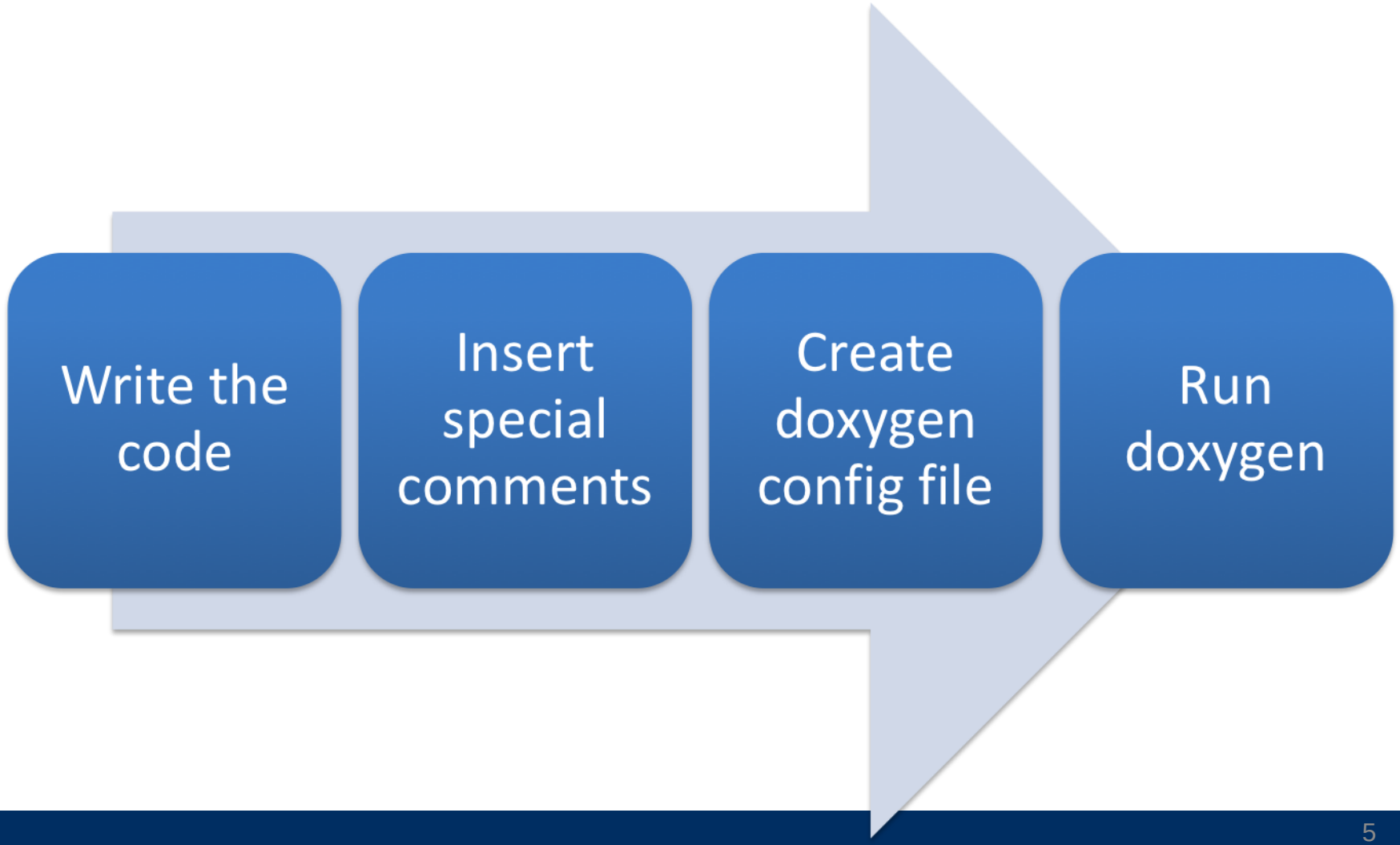
- Document generator
- Free (GNU General Public License)
- Supports C++, C, C#, Objective-C, Java, Python, IDL, VHDL, Fortran, and D

- Output
  - HTML
  - Latex
  - RTF
  - XML
  - Man Page

Installation

- 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

Usage


Write the code
Insert special comments
Create doxygen config file
Run doxygen

Document / Basics

- Brief Comment Before
  - Add an extra ” / ”

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

Document / Basics

- 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();
```

Document / Basics

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

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

Document / Basics

- 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. */
```

Document / Special Tags

- Put “ \ ” or “ @ ” before the tags

- Most used tags
  - file
  - author
  - brief
  - date
  - see
  - param
  - return
  - code

Document / Example

- Include following lines in .h file

```
/**
@file className.h
@author yourName
@date date
*/
```

Document / Example

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

Usage (Option 1): Command Line

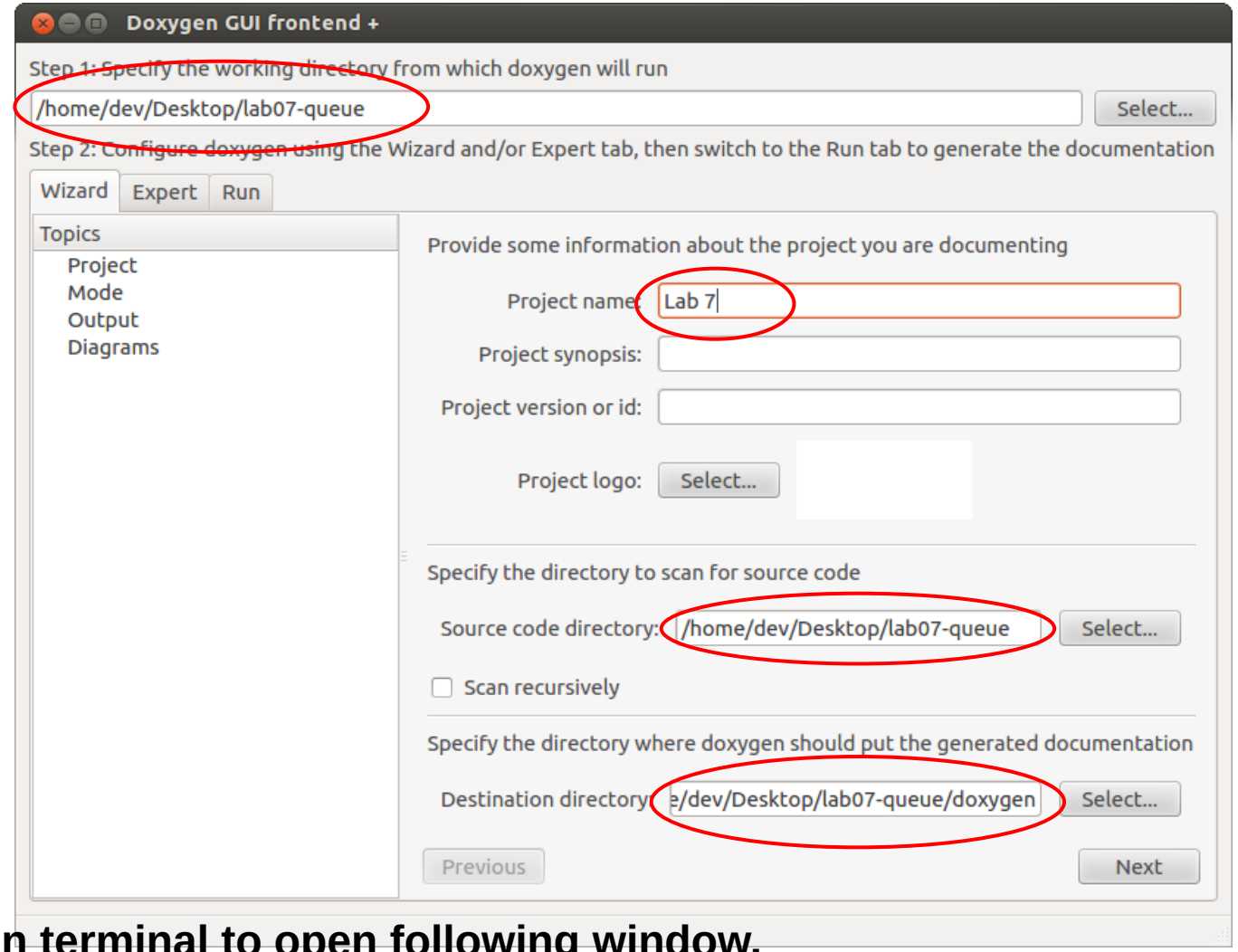
- Generate a configuration file
  - doxygen -g <config-file>
    - Default file: Doxyfile
- Edit configuration file as you see fit
- Generate the documentation
  - doxygen <config-file>

Config File

- Main things to set

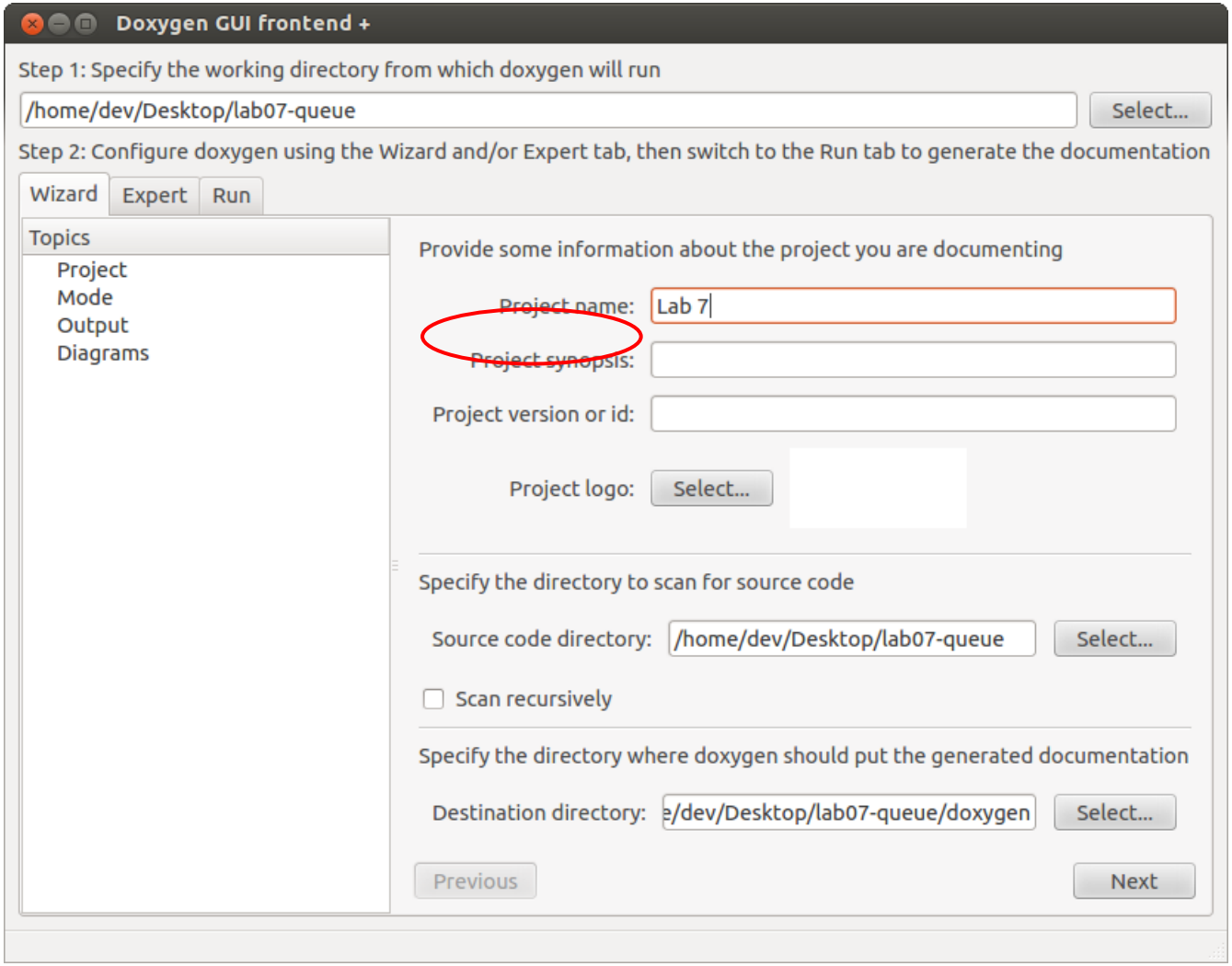
```
PROJECT_NAME =MyProject
OUTPUT_DIRECTORY =./doc
INPUT =./src./include
FILE_PATTERNS =*.cpp*.hpp
GENERATE_HTML = YES
EXTRACT_ALL = YES
```

Usage (Option 2): doxywizard (GUI)



Type doxywizard in terminal to open following window.

Usage (Option 2): doxywizard (GUI)



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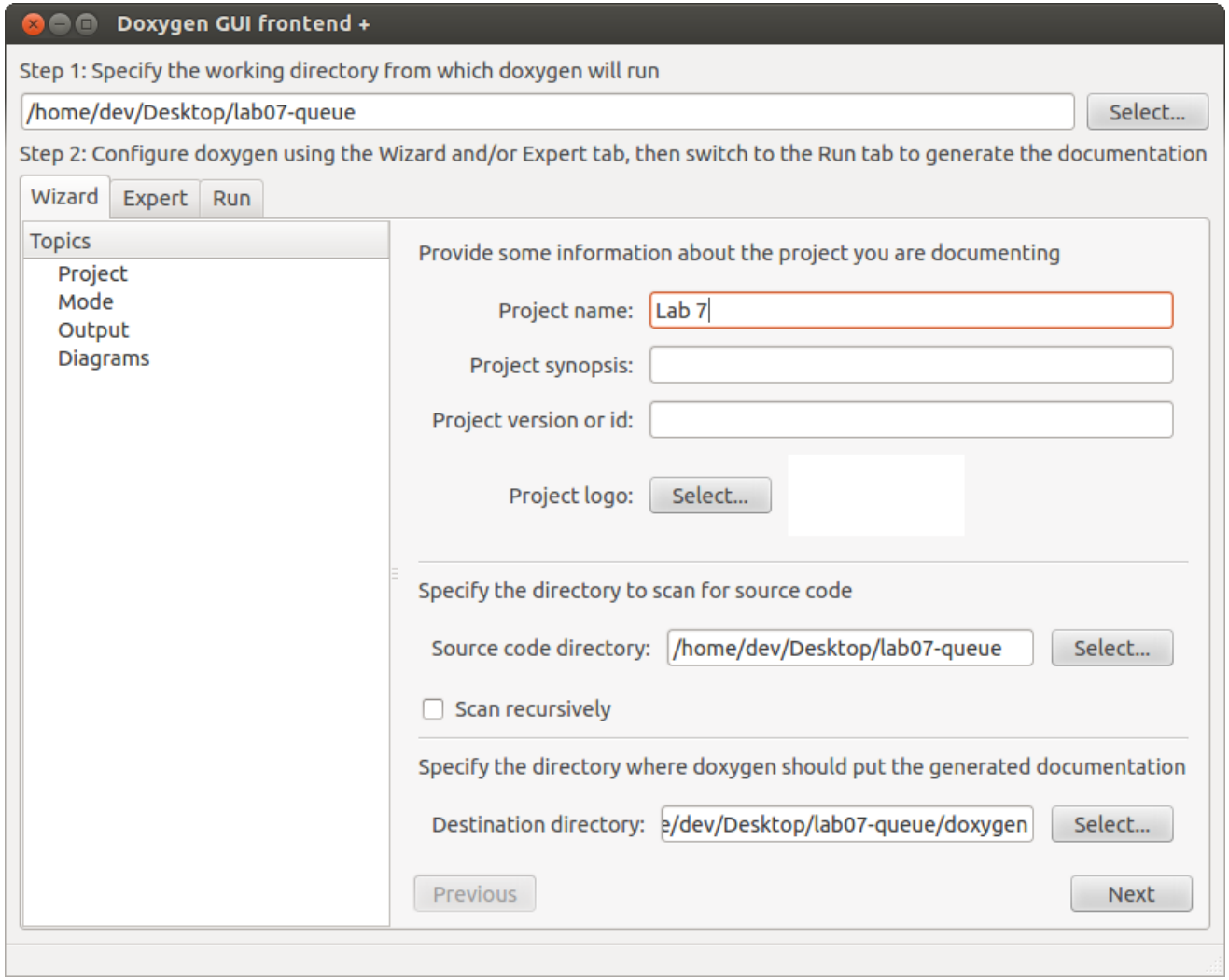

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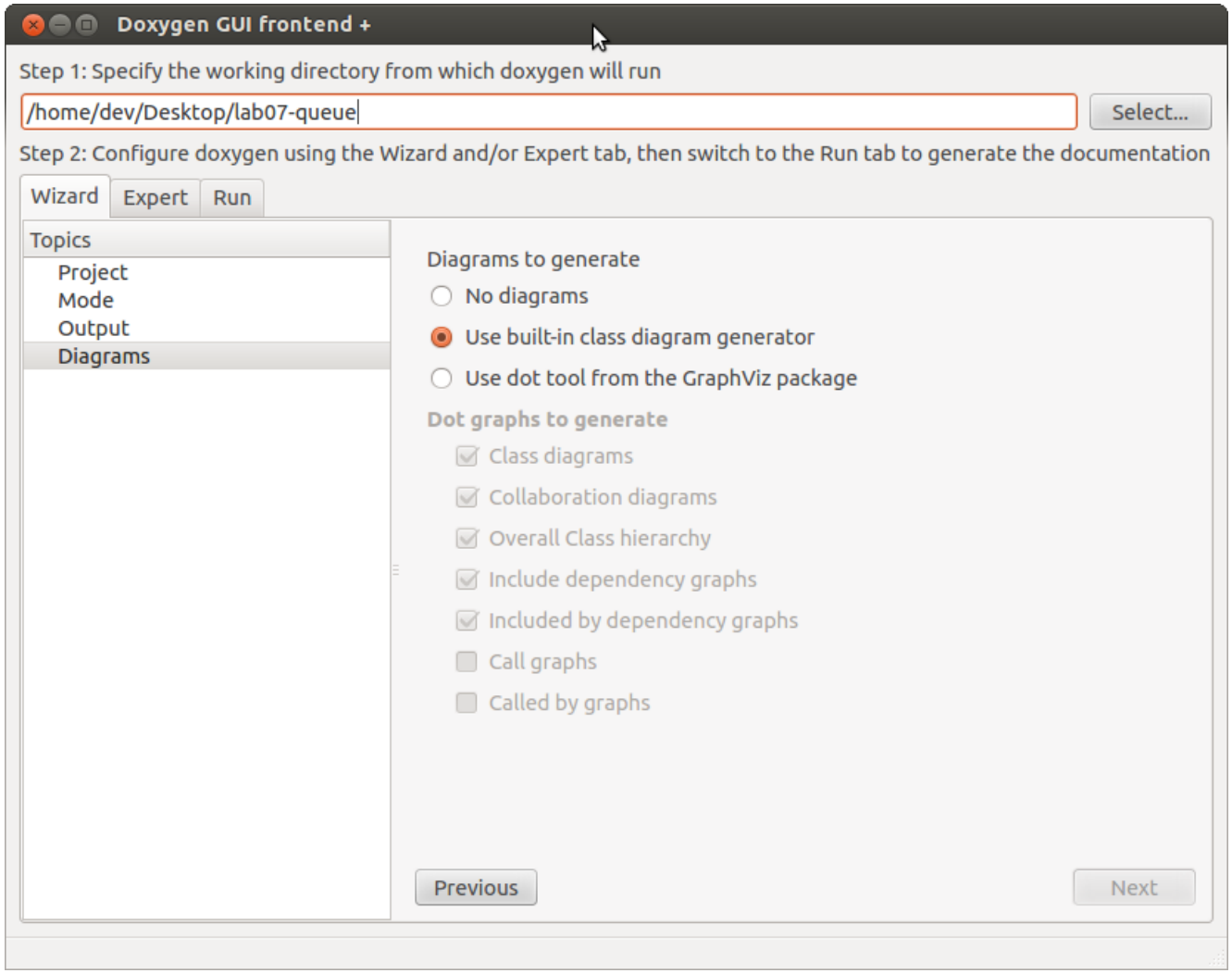
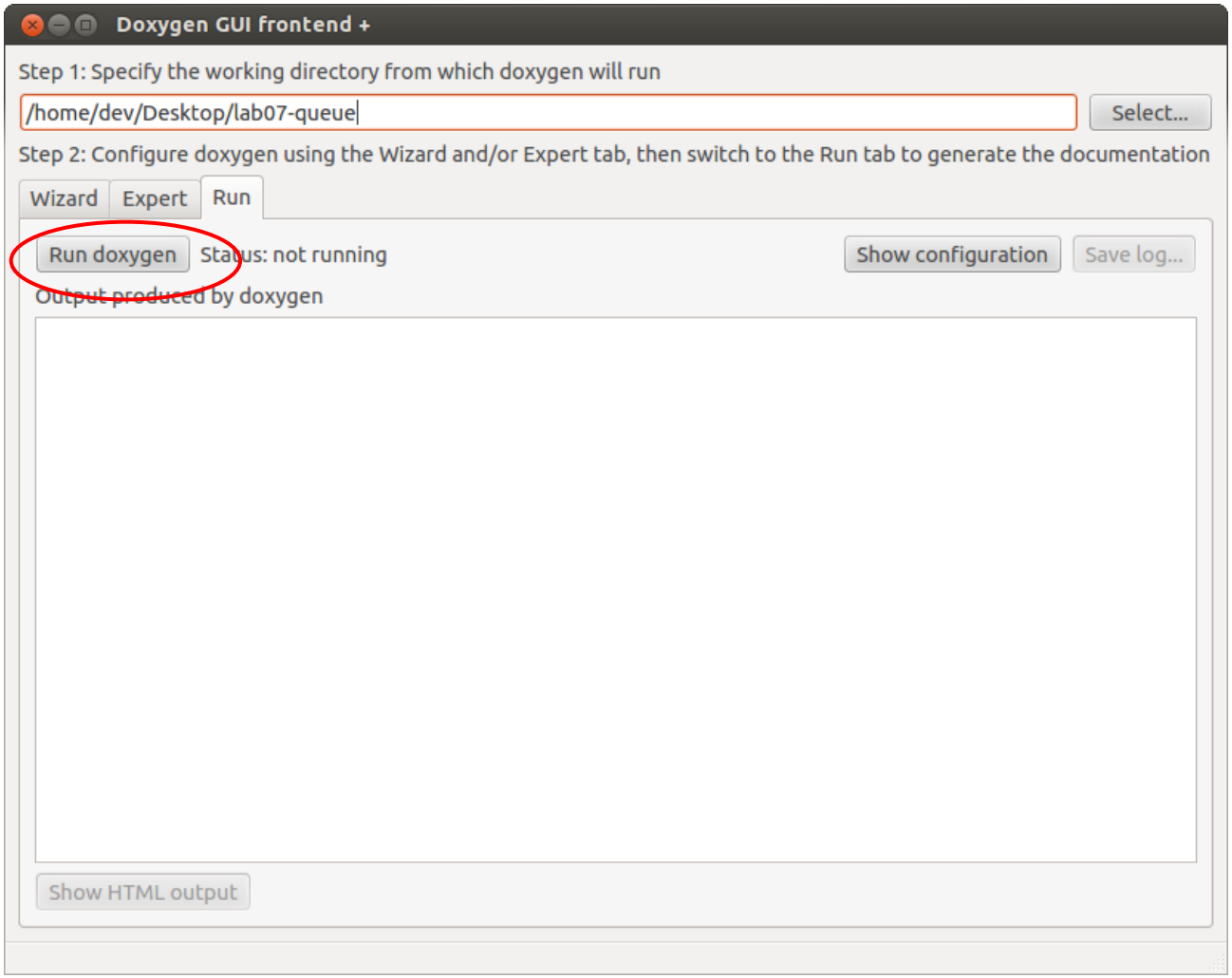


Usage (Option 2): doxywizard (GUI)



HTML and LaTex

- 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

Latex

- If make doesn’t work

pdflatex refman.tex

or

latex refman

dvips refman

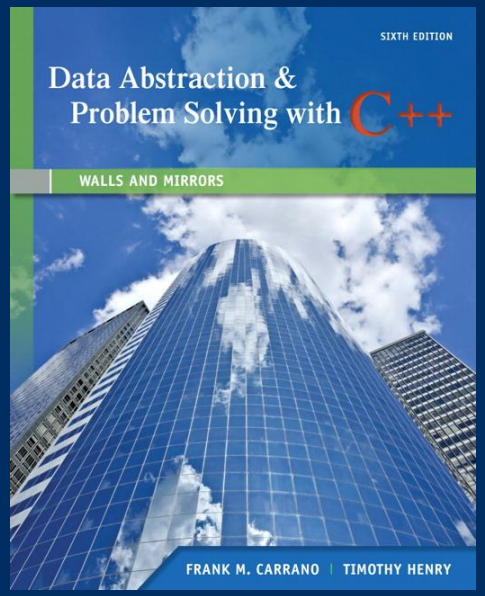
ps2pdf refman.ps

Helpful Links

- 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



Out of the Box

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