Documenting c/c++ code with Doxygen

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This is a simple ‘how to’ manual on documenting C++/C projects using Doxygen software. It is used by our group of developers at Sharif Soft Condense Matter Group working on Virtual Cell Model project.

How to install

Linux:

Doxygen can be installed using apt package manager with sudo privilages:

```
sudo apt install doxygen
```

Mac:

Doxygen can be installed using homebrew. If you don’t have homebrew visit the website.

```
brew install doxygen
```

Other OS:

Please visit the doxygen website.

How to make a configuration file

In the terminal go in the main directory of your project and write this command:

```
doxygen -g <configuration file name>
```

This makes an editable configuration file of your project. With a text editor you can set your document parameters for example, the name of the project, output format(s), etc . You can find all information about these features in the configuration file and also in here.

How to create an output

In the terminal go in the main directory of your project and write this command to execute the configuration file:

```
doxygen <configuration file name>
```

This creates the output in the directory that has been set in the configuration file (the default is in the same directory as the configuration file). Doxygen reads all the files in your directory and creates the output based on configuration file settings, your codes, and other files in your project directory. You can see some examples here.

Attention!: If you want Doxygen to go through all your subdirectories as well, you need to change the RECURSIVE name-tag in the configuration file from NO to YES.

How to edit the documentation

Doxygen automatically goes through your code and extracts the classes and header files but if you want it to extract global functions and variables outside of classes you need to add this lines in a comment to your code file:

```
///@file
///@brief description about file.
```

For example the main.cpp file does not belong to any classes. By adding the comment above we can use Doxygen features to add documentation for this file.

Also to add description to your classes, functions, variables and … you need to follow a specific commenting style described here.

You can add a new tab to your html output by making .md files and edit them with markdown syntax to make your desired html pages in that tab. You can find more information about how to use markdown support here.