**CIS 422**

**User Guide**

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**Team 4**

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# 

# 1. Introduction

Welcome to Panda Engine that creates an initial version of a three-dimensional rendering machine, our application allows users to construct an interactive program easier. Our engine is able to run on the laptop computers with a Linux or MacOS system, the participants able to draw, create and move the objects inside the window.

The most version for our code is available <https://github.com/pork3/sdlengine>.

Prior to installation, the user should ensure the following requirements are met:

* C++11 Runtime Environment
* Git (optional) but highly recommended
* GNU/Linux Operating System
* GCC 4.8 or newer
* OpenGl 3.0 or newer

# 2. Prerequisites

Our C++ graphic engine requires various libraries and systems be available for use during the build procedure, Modifying Panda engine requires additional libraries and systems as shown below.

**Systems and Libraries necessary for building our engine:**

## 2.1. C++ compiler: GCC Install

You must have GCC and G++ make installed to compile our project.

### 2.1.1 Ubuntu:

1. Press Ctrl+Alt +T at the same time
2. Check if gcc is installed, run in Terminal app:

|  |
| --- |
| **$** gcc -v |

and press **enter/return** key.

In Terminal: “*command not found*” shows that you don’t have gcc on your pc

3. Installation gcc:

|  |
| --- |
| **$** sudo apt install gcc |

and press **enter/return** key.

4. g++ is installed by default when you install gcc, but check if g++ is installed is still important, for checking:

|  |
| --- |
| **$** gcc -v |

and press **enter/return** key.

In Terminal: “*command not found*” shows that you have the gcc.

5. Installation g++:

|  |
| --- |
| **$** sudo apt install g++ |

and press **enter/return** key.

### 2.1.2. MacOS:

1. Press Command+Space and type ***Terminal*** and press ***enter/return*** key.
2. Check if your Mac have gcc and g++:

|  |
| --- |
| **$** gcc -v |

and press ***enter/return*** key.

In Terminal: “*command not found*” shows that you have the gcc

|  |
| --- |
| **$** g++ -v |

and press ***enter/return*** key.

In Terminal: “*command not found*” shows that you have the gcc

1. To install, download homebrew first, run in Terminal app:

|  |
| --- |
| **$** ruby -e "$(curl -fsSL https://raw.githubusercontent.com/Homebrew/install/master/install)" < /dev/null 2> /dev/null |

and press ***enter/return*** key, for more information of homebrew: <https://brew.sh/>

4. Installation GCC

|  |
| --- |
| **$** brew update **$** brew upgrade **$** brew install gcc **$** brew cleanup |

and press ***enter/return*** key.

5. Installation G++ : <http://www.edparrish.net/common/macgpp.php>

## 

## 2.2. CMake Install

Necessary for managing the building process of our application

### 2.2.1. Ubuntu:

1. Press Ctrl+Alt +T at the same time
2. Run in Terminal app:

|  |
| --- |
| **$** sudo apt-get -y install cmake |

and press **enter/return** key.

### 2.2.2. MacOS:

1. Press Command+Space and type ***Terminal*** and press ***enter/return*** key.
2. Run in Terminal app:

|  |
| --- |
| **$** ruby -e "$(curl -fsSL https://raw.githubusercontent.com/Homebrew/install/master/install)" < /dev/null 2> /dev/null |

and press ***enter/return*** key.

1. Installation CMake

|  |
| --- |
| **$** brew install cmake |

## 

## 2.3. OpenGL library Install

Necessary for rendering 2D or 3D vector graphics

### 2.3.1. Ubuntu:

OpenGl is already there, you just need to install GLUT.

1. Press Ctrl+Alt +T at the same time
2. Run in Terminal app:

|  |
| --- |
| **$** sudo apt-get install -y glutg3 glutg3-dev libglu1-mesa-dev freeglut3-dev mesa-common-dev mesa-utils |

### 2.3.2. MacOS:

OpenGL and GLUT are already there if you have Xcode, Here is the link for checking the version of the OPenGL on your Mac:

<https://support.apple.com/en-us/HT202823>

## 2.4. GLEW library Install

Necessary for helping in querying and loading OpenGl extension

### 2.4.1. Ubuntu:

1. Press Ctrl+Alt +T at the same time
2. Run in Terminal app:

|  |
| --- |
| **$** sudo apt-get install libglew-dev |

and press **enter/return** key.

### 2.4.2. MacOS:

1. Press Command+Space and type ***Terminal*** and press ***enter/return*** key.
2. Run in Terminal app:

|  |
| --- |
| **$** ruby -e "$(curl -fsSL https://raw.githubusercontent.com/Homebrew/install/master/install)" < /dev/null 2> /dev/null |

and press ***enter/return*** key.

3. Install GLEW library

**$** brew install glew

## 2.5. SDL2 library Install

Necessary for giving the low-level access to multimedia, such as image, audio, mouse, text and interactive content.

### 2.5.1. Ubuntu:

1. Press Ctrl+Alt +T at the same time
2. Run in Terminal app:

|  |
| --- |
| **$** sudo apt-get install libsdl2-dev |

and press **enter/return** key.

### 2.5.2. MacOS:

1. Press Command+Space and type ***Terminal*** and press ***enter/return*** key.
2. Run in Terminal app:

|  |
| --- |
| **$** ruby -e "$(curl -fsSL https://raw.githubusercontent.com/Homebrew/install/master/install)" < /dev/null 2> /dev/null |

and press ***enter/return*** key.

3. Install SDL2 library

|  |
| --- |
| **$** brew install sdl2 |

# 3. Software installation and setup

## 3.1. Source Install

A source install is available through GitHub,

either visit <https://github.com/pork3/sdlengine> and download the zip file,extract and run the CMakeLists.txt file, or use git

|  |
| --- |
| **$** git clone https://github.com/pork3/sdlengine.git **$** cd sdlengine **$** cmake . **$** make  **$** ./engine |