manim_install_instructions.md

Manim installation instructions for the workshop

Windows 10

The installation is divided into three parts

1. Installing System Libraries
2. Installing manim's python Dependencies
3. Testing the Installation

1. Installing system libraries

The required system libraries are: 1. Python 3.7 2. ffmpeg 3. Latex 4. Sox

Installing Python

Download Python: https://www.python.org/ftp/python/3.7.4/python-3.7.4-amd64.exe and install it (don't change any of the default options).

Installing ffmpeg

Ffmpeg is used for video, audio, and other multimedia files and streams and is the de-facto open source library for the video rendering/processing. Download ffmpeg: https://ffmpeg.zeranoe.com/builds/win64/static/ffmpeg-20190826-0821bc4-win64-static.zip Extract the files in `C:\ffmpeg` (You will have to create the folder `ffmpeg` inside C directory)

Note: Typically, the folder for ffmpeg will contain a subfolder named `ffmpeg-2019826-....` , cut the contents from inside this folder so that `C:\ffmpeg\bin\` is a valid path.

Installing MikTex

Download MikTex from https://miktex.org/download/ctan/systems/win32/miktex/setup/windows-x64/basic-miktex-2.9.7152-x64.exe and install it with the default options.

Install SoX

Download SoX from: https://sourceforge.net/projects/sox/files/sox/ and install it with the default options.

Adding to PATH

Adding to PATH is important so that python, and in turn, manim knows where to look for all the files you just installed. Go to `This PC > Right Click > Properties > Advanced System Settings > Environment Variables` . Under "**User Variables for Admin**", click on `Path` and press the `edit` button. Copy Paste the following after pressing new on the pop-up window (you'll have to paste one at a time):

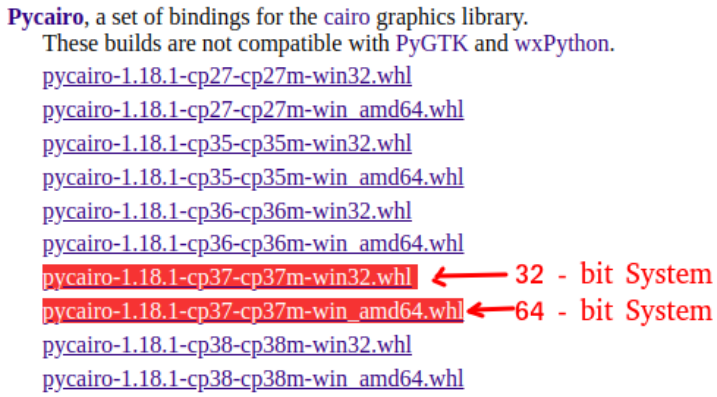
```
%localappdata%\Programs\Python\Python37\
%localappdata%\Programs\Python\Python37\Scripts\
%localappdata%\Programs\MiKTeX 2.9\miktex\bin\x64\
C:\ffmpeg\bin\
```

After you're done, open up terminal and type python. If you get the python command prompt, that means the installation has successful (so far). Similarly, type `ffmpeg` , if you see the ffmpeg version number, then you're good to go. (In any case if you get an error saying `'...' is not recognized as an internal or external command` , then something went wrong somewhere and it'll be a good idea to retrace your steps before proceeding further).

2. Installing manim Dependencies

Before we install other manim dependencies, we need to download and install Microsoft C++ Redistributable Library from: https://www.microsoft.com/en-US/download/details.aspx?id=48145. These are needed for the scipy library.

Once that is done, download PyCario from: https://www.lfd.uci.edu/~gohlke/pythonlibs/#pycairo Refer the image below to make sure you've downloaded the correct version.



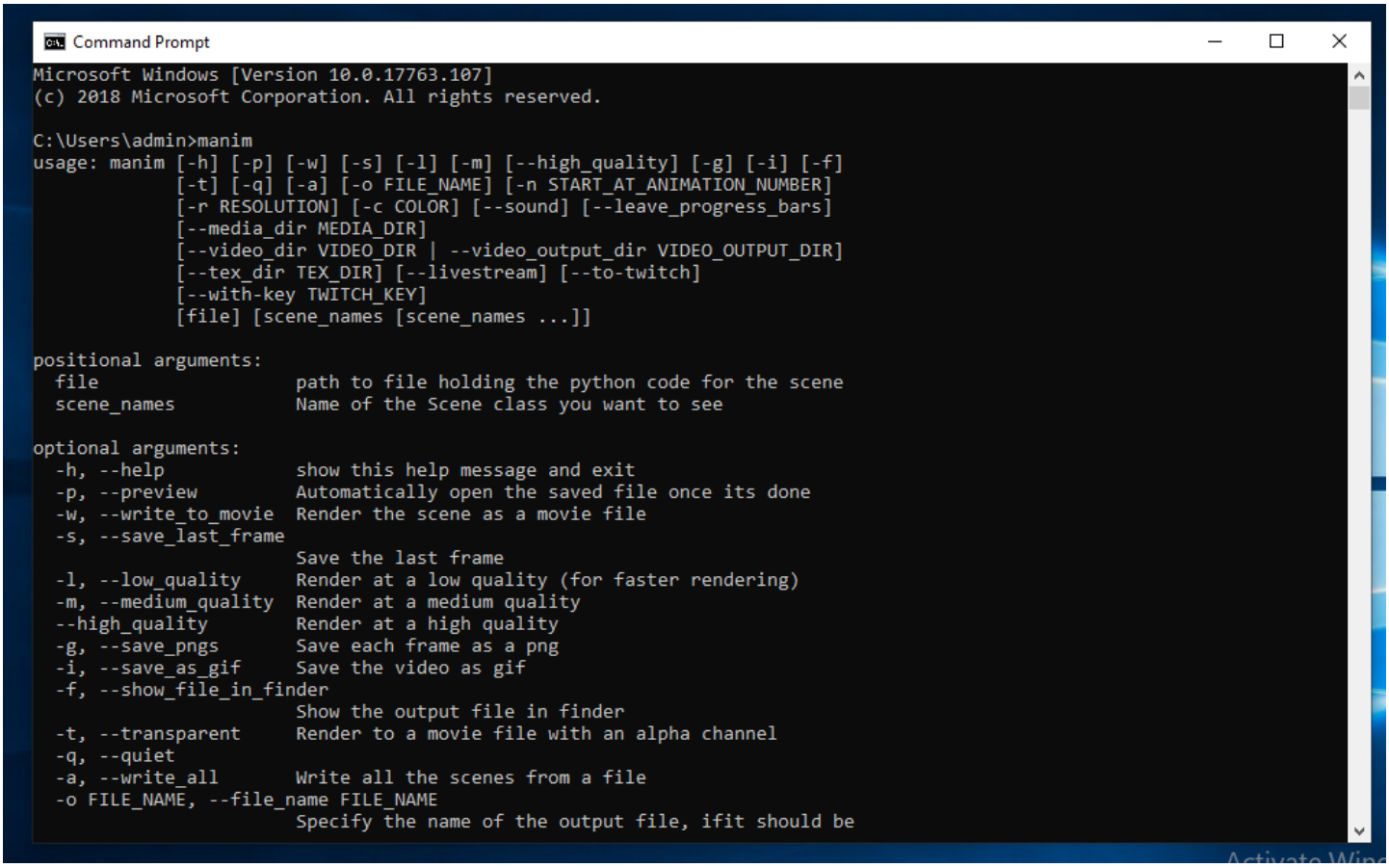
Finally, navigate to `Downloads` from the command prompt and do `pip install pycairo-1.18.1-cp37-cp37m-win_amd64.whl` or `pip install pycario-1.18.1-cp37-cp37m-win32.whl` depending on the file you downloaded.

After that, in the command prompt type:

```
pip install --upgrade setuptools
pip install pyreadline
pip install manimlib
```

3. Testing the installation

Once that is done, in the same command prompt, type: `manim -h` If you see something similar to what shown in the image, it means you're ready for the workshop



Mac OS X Mojve

While installing dependencies on Mac, it'll be more convenient to install the dependencies through `homebrew`. The installation procedure remains the same execpt, you'd have to install homebrew if you don't have it already.

Installing Homebrew

Homebrew is a package manager for Mac, it's equivanet to apt/dnf/yum in Ubuntu and Fedora.

Open up terminal and paste the following command:

```
/usr/bin/ruby -e "$(curl -fsSL https://raw.githubusercontent.com/Homebrew/install/master/install)"
```

1. Installing System Libraries

Cairo, SoX, ffmpeg

Once the installation for homebrew is completed, use the same terminal to type out the following command one after another:

```
brew install cairo
brew install sox
brew install ffmpeg
```

Installing Latex

Download and install MiKTex from https://miktex.org/download/ctan/systems/win32/miktex/setup/darwin-x86_64/miktex-2.9.7050-1-darwin-x86_64.dmg

This would be a `.dmg` file. Drag and drop it to the Applications folder to complete the installation.
(For more information on installation instruction: https://miktex.org/howto/install-miktex-mac))

Installing Python3

Note that all Macs come with Python2 pre-installed. You'll have to explicitly install Python3 Download and install python 3.7.4 form the python.org website: https://www.python.org/ftp/python/3.7.4/python-3.7.4-macosx10.9.pkg

2. Installing manim

In the terminal type: `pip3 install manimlib pycairo`

Testing the installation

Type `manim -h` on the terminal and check if you get a help menu.

Common Errors:

If you get an error saying `ModuleNotFoundError: No module named 'cairo'` Check if you have pkg-config installed.

Open a new terminal windows and do the following:

1. Install package config: `brew instal pkg-config`
2. Export path:

```
export PKG_CONFIG_PATH="/usr/local/opt/libffi/lib/pkgconfig"
export LDFLAGS="-L/usr/local/opt/libffi/lib"
```

Test the installation again and check. If you see a manim help screen, then you're ready for the workshop.

Linux (Ubuntu/Fedora)

(Assuming you have python3 installed)

Ubuntu

```
$ sudo apt install libcairo2-dev ffmpeg sox texlive-full
$ python3 -m pip install manimlib
```

Fedora

```
$ sudo dnf install cairo-devel ffmpeg sox texlive-scheme-full
$ python3 -m pip install manimlib
```

Note: If you want to reduce the size of the installation, download and install MikTex. You can drop the `texlive-full` or `texlive-scheme-full` if you decide to go for the MiKTex instllation.

Testing the installation

Type `manim -h` on the Terminal. If you see the help message, then you're ready for the workshop.