Environment Setup for CSE 131 fa17

This document will guide you to setup the developing environment for CSE 131 fall 2017, including:

- bison: A parser generator given customized rules.
- flex: A tool for generating scanners: programs which recognize lexical patterns in text.
- g++ for windows only

Hopefully this will successfully prepare your computer for all the assignments for the class, if it doesn't, however, feel free to post an issue on Piazza or ask the professor/TAs :)

MacOS

Homebrew

The easiest and recommended way would be using Homebrew, by which you can manage your packages very efficiently. To install Homebrew, open your terminal and simply type

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

bison

Your MacOS should have bison installed already if you installed the latest commaned line tools. To check this, run `bison -V` and several lines of information should be shown.

If your system doesn't have bison, or you want to make sure bison is up-to-date, run

```
brew update && brew install bison
# replace .bashrc or equivalence if you are using other shell
echo 'export PATH="/usr/local/opt/bison/bin:$PATH"' >> ~/.zshrc
sourch ~/.zshrc
```

Type `bison -V` to check if it is successfully installed.

flex

Flex has a lot of dependencies according to its github documentation. Luckily Homebrew will figure out all the dependencies for us. Simply run

```
brew update && brew install flex
# replace .bashrc or equivalence if you are using other shell
echo 'export PATH="/usr/local/opt/flex/bin:$PATH"' >> ~/.zshrc
source ~/.zshrc
```

Then all we need to do is sit and wait. Type `flex -V` to check if it is successfully installed.

build your own

If you feel like build your customized version of bison/flex by your own can play with the source code a little bit by following the instructions in its documentation.

Linux

Similar to MacOS, use apt-get to get the latest version of the packages needed.

bison

```
sudo apt-get update && upgrade
sudo apt-get install bison
```

Type `bison -V` to check if it is successfully installed.

flex

```
sudo apt-get update && upgrade
sudo apt-get install flex
```

Type `flex -V` to check if it is successfully installed.

build your own

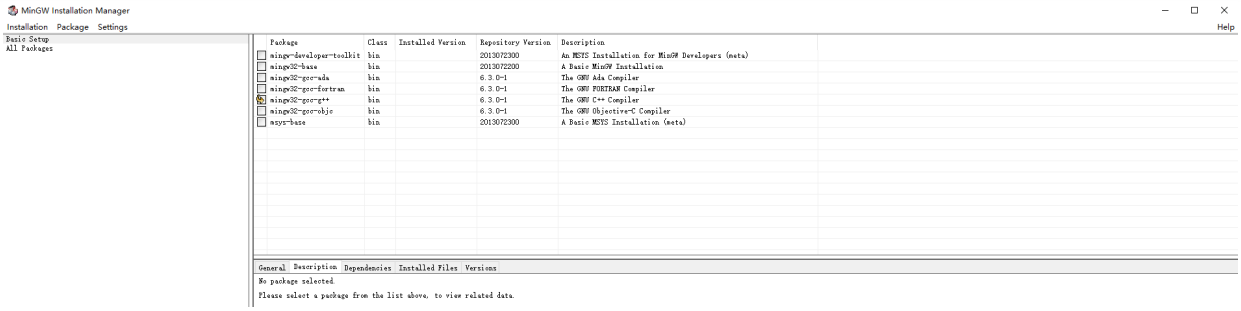
If you feel like build your customized version of bison/flex by your own can play with the source code a little bit by following the instructions in its documentation.

Windows

g++

For windows users, you'll need a GCC compiler under Win32. The recommended package is MinGW. The installation steps are as follows:

1. Click into the website and download the installer by hitting the upper right `download installer` button on the website.
2. Open the installer, after a series of prompt, mark the `mingw32-gcc-g++` as shown below.



3. Click the `installation` drag down and hit `apply changes`. The `g++` compiler should be successfully installed.
4. Configure your system environment variable, and `path\to\MinGW\bin` to your `path` variable.
5. Open `cmd.exe`, type `g++ -v` and your g++ information should be prompted

bison and flex

There is an official package website on sourceforge for both bison and flex:

- http://gnuwin32.sourceforge.net/packages/bison.htm
- http://gnuwin32.sourceforge.net/packages/flex.htm

Download the complete package, follow the setup prompt and you should be good to go!