Lab 6

Data Structures C++ for C Coders

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Makefile
quicksort.cpp
print_list.cpp

Lab06: The make utility

- You may need to install some packages.
  (Install it as **admin privilege**. 관리자모드로 설치하십시오)
  ```
  $ pacman –S base-devel          #install the build toolchain
  $ pacman –Syu                   #update msys2
  ```


- For macOS, use 'Homebrew' to install these kinds of packages in general.
  - https://osxdaily.com/2018/03/07/how-install-homebrew-mac-os/
  - https://whitepaek.tistory.com/3

- For Linux,
  ```
  $ ./configure
  $ make
  $ sudo make install
  ```

Lab06: The make utility

- If you still have a problem running make, check the following in PC Windows.

- Check where you install msys2 and mingw64. Check the "make.exe" file exists in such as:

    `C:\msys64\usr\bin\make.exe`

- If it does not exist, install it as shown below:

`pacman -S --needed base-devel mingw-w64-i686-toolchain mingw-w64-x86_64-toolchain`

- If "make" does exist, then check whether or not you set PATH environment variable correctly.
    - Make sure that PATH environment variable includes the folder name where "make" exists.

The make utility – a simple example of Makefile

- **Basic syntax for Makefile:**

```
target: dependencies
<tab>system command(s)
```

- **Example:**
  Source files: quicksort.cpp,
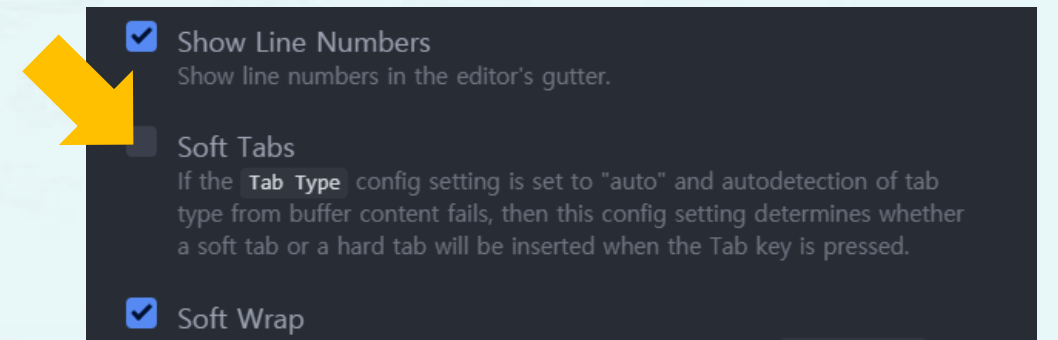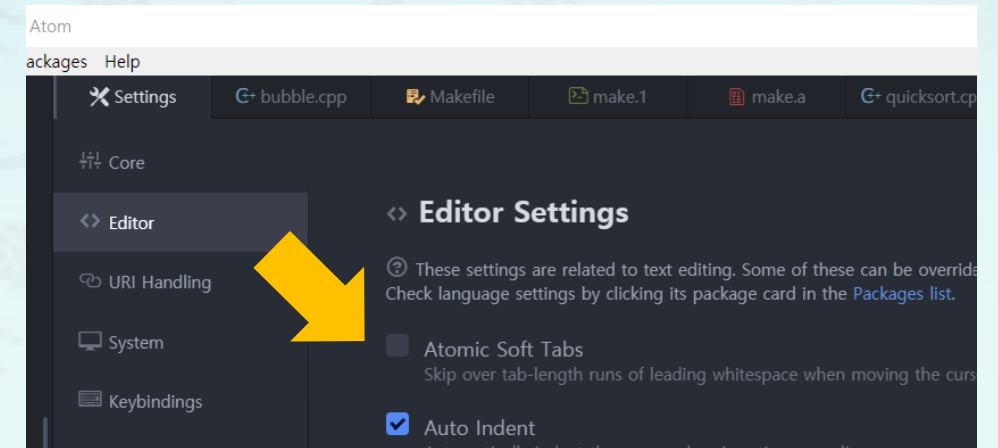 print_list.cpp
  Executable: qsort.exe

- **Makefile:**

```
qsort: quicksort.o print_list.o

    g++ quicksort.o print_list.o -o qsort


quicksort.o: quicksort.cpp

    g++ -c quicksort.cpp
print_list.o: print_list.cpp

    g++ -c print_list.cpp
clean:
<tab>rm -f *.o qsort.exe qsort
```

- Use a hard <tab>
- Restart atom after turning on Hard Tabs

Lab 06:

- Use make and Makefile and build qsort.exe.
- Files to submit:
  - **Makefile, qsort.exe**
- Due:
  - 11:55 pm, **강의 당일 11:55 PM까지**
- Grade: 출석체크
  - If not submitted, -1.0 point.

Lab 5

Data Structures
C++ for C Coders

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insertion sort
selection sort
bubble sort
quick sort
#if