Lab Test Week 9

Examination Rules

This is an exam. Please:

- Wait to be seated by a Lab. supervisor.
- Do not talk to anyone else.
- After logging onto Blackboard (possibly using two-factor authentication) and downloading any files and documents required :
  - Do not use a Web browser, unless instructed to do so (e.g. to submit files).
  - Do not use an email connection.
  - Do not use other electronic devices such as laptops, tablets or phones.
  - Do not look in other peoples directories.
  - Do not use code written in 'groups' with others students.
- **DO** use text books, lecture notes, man pages etc.

If you do not obey the above rules you will be asked to leave.
People arriving late may not be allowed into the Lab.
You will be informed as to the time available. There is additional time in case a server crashes or some other problem occurs.

Submitting Your Work

Submit the completed `toprow.c` and `subseq.c` files online using the Blackboard submission system.
Do not submit files that don't work.
Do not submit any driver files provided by us (e.g. `main` files, `.h` files or the `Makefile`).
We only get to mark your last submission on Blackboard, so **every** time you submit, give us **all** files you want marking. If you submit `toprow.c` at one time, and then finish `subseq.c` later, resubmit both files again.
No partial marks are available.
The only possible scores for each individual part are pass (100%) or fail (0%).

Code Style

Your code **must** compile without warnings using the clang/gcc flags, e.g. :

```
clang main1.c toprow.c -o tr -Wall -Wextra -pedantic -std=c99 -Wfloat-equal -Wvla -O2 -Werror
```

You will also need to ensure your code works with the sanitizer flags :

```
gcc main1.c toprow.c -o tr_s -Wall -Wextra -pedantic -std=c99 -Wfloat-equal -Wvla -Werror
-fsanitize=address -fsanitize=undefined -g3
```

Part 1 (60%) : QWERTY Keyboard

Some words (such as *typewriter*) can be typed using only the letters that appear on the top row of characters on a 'QWERTY' keyboard.
Finish the function in `toprow.c` which, along with the `main1.c`, `toprow.h` and `Makefile` given, allow you to decide whether a string contains only the characters `qwertyuiop` and `QWERTYUIOP`.
The driver file `main1.c`, `toprow.h` and the `Makefile`, are given and cannot be changed. You should complete `toprow.c` making any changes that you like, such that both `.c` files can be compiled together (and run correctly) without warnings.
Only submit you version of `toprow.c` - we will use our version of the other files. We will adapt our version of `main1.c` to test your code with other, similar, examples.

Part 2 (40%) : String Sub-Sequence

Complete the function `subseq` which returns the length of the longest subsequence that two strings share. For instance, the strings `firedoor` and `hundreds` have the length 3 string `red` in common.
The driver file `main2.c`, `subseq.h` and the `Makefile`, are given and cannot be changed. You should complete `subseq.c` making any changes that you like, such that both files can be compiled together (and run correctly) without warnings.
Only submit your version of `subseq.c` - we will use our version of the other files. We will adapt our version of `main2.c` to test your code with other, similar, examples.