

Removing Comments from a Source File

Even though comments are essential for human readers, the compiler simply ignores them. If you are writing a compiler, you therefore need to be able to recognize and eliminate comments that occur in a source file.

Write a C++ program that copies characters from the input stream to the output stream `os`, except the characters that appear inside C++ comments. Your implementation should recognize both comment conventions.

- Any text beginning with `/*` and ending with `*/`, possibly many lines later.
- Any text beginning with `//` and ending through the end of the line.

Do not worry about making the layout of the output of your program look nice, and do not worry about incorrect programs, but beware of `//`, `/*` and `*/` in comments, strings and character constants.

To compile and link your program with the system library routines, first make a link to the program `makefile`, and then execute: `make N=4`. To test your program, execute: `make execute N=4`. This command (1) executes your program `prog4.exe` with the input file `prog4-in.cc` and generates the output file `prog4-out.cc`; (2) compiles and links the output file; (3) executes the output program `prog4-out.exe` with the input file `prog4-out.d`; and (4) displays the output of the output program in both your terminal screen and `prog4-out.out`. You can find all related files for this computer assignment in directory: `/home/cs689/progs/16s/p4`.

The `main ()` routine in your program simply calls the following routines for each subtask:

- `void open_files (ifstream& is, ofstream& os)`: This routine opens the source file `prog4-in.cc` for the input stream `is` and the source file `prog4-out.cc` for the output stream `os`. If either of the file cannot be opened, it calls the `error ()` function to handle the error.
- `void process_data (ifstream& is, ofstream& os)`: This routine gets the data from the input stream `is`, character by character, and it inserts an individual character in the output stream `os` if the character is not part of a C++ comment.
- `void close_files (ifstream& is, ofstream& os)`: This routine closes both the input and output source files associated with the streams `is` and `os` at the end of the program.
- `void error (const string& msg)`: This routine prints the error message `msg` on `stderr` and exits the program with the nonzero return value `EXIT_FAILURE`.

When your program is ready, mail its source and header files to your TA by executing the following command:

```
mail_prog prog4.cc prog4.h
```