



System Programming Assignment 1 A Typesetting Application

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[Outline]

- Objective
- Assignments & Requirements
- Grading Policies
- Turn In

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Objective

[Objective]

- To be familiar with **file operations** in **UNIX-like** environments
- To organize your program structure well



Assignments & Requirements

[Assignments]

- You are asked to implement a simple **typesetting program** which accepts the following labels
 - `<Insert>`
 - `<Newline>`
 - `<Proper>...</Proper>`
 - `<Upper>...</Upper>`
 - `<Lower>...</Lower>`
 - `<Reverse>...</Reverse>`



[Assignments (cont'd)

- <Insert char = 'ch' num = '##'>
 - Insert the character 'ch' '##' times by replacing the label
 - For example:

Wow<Insert char = '!' num = '3'> That's a good idea!



Wow!!! That's a good idea!

[Assignments (cont'd)]

■ <Newline>

- The data contents following this label should be **in a whole new line**
- For example:

This is line 1.<Newline>This is line 2.



This is line 1.

This is line 2.

[Assignments (cont'd)]

■ <Proper>...</Proper>

- The contents between <Proper> and </Proper> should be treated as a **proper noun**, which means the first character of each word will be in upper case
- For example:

It's a <Proper>turing machine</Proper>.



It's a Turing Machine.

[Assignments (cont'd)]

- `<Upper>...</Upper>`
 - The contents between `<Upper>` and `</Upper>` should all be in **upper cases**
 - For example:

Wow!!! That's a `<Upper>good</Upper>` idea!



Wow!!! That's a **GOOD** idea!

[Assignments (cont'd)]

- `<Lower>...</Lower>`
 - The contents between `<Lower>` and `</Lower>` should all be in **lower cases**
 - For example:

Wow!!! That's a `<Lower>GOOD</Lower>` idea!



Wow!!! That's a `good` idea!

[Assignments (cont'd)]

■ <Reverse>...</Reverse>

- The contents between <Reverse> and </Reverse> should be arranged **in the reverse order**
- For example:

Wow!!! That's a <Reverse>DOOG</Reverse> idea!



Wow!!! That's a GOOD idea!

[Requirements]

- The final executable program will be named 'Typeset'
- You are responsible for writing a make file suitable for your whole program
- The document of your program will be named 'readme.doc'

[Requirements (cont'd)]

- If the original manuscript is named 'test.tex', the output manuscript will be named 'test.output'
- Usage
 - `./Typeset test.tex`

[Requirements (cont'd)]

- A pair of tags cannot be interleaved by another pair of tags. E.g., the following is not allowed
 - `<Upper><Lower></Upper></Lower>`
- If a user makes such a mistake, your program will terminate and tell the user there is an error and where the error is located
 - **ERROR! In xxfile Line xx: Pairs of tags are interleaved!**


[Requirements (cont'd)]

- The following is allowed
 - `<Upper><Lower>...</Lower></Upper>`
 - Inner pair of tags will be processed first
 - For example:

Pay `<Upper><Lower>AtteNtioN</Lower></Upper>`, please!




Pay **ATTENTION**, please!

A decorative graphic consisting of a thin gold circle on the left side. A horizontal bar, divided into a gold left half and a light gray right half, passes through the center of the circle. The text "Grading Policies" is centered on the gold portion of the bar.

Grading Policies

[Grading Policies]

- You have to give me
 - **Report** (5 pages) including 20%
 - Program structure: flowchart, function call graph, ...
 - Main issues and proposed solutions
 - Your thoughts after this assignment
 - Possible extensions
 - **Program files** including
 - Source code 60%
 - Makefile 10%
 - Interleaved paired tag handling 10%



Turn In

[Turn In]

- The E-course System
 - <http://ecourse.ccu.edu.tw/>
- Put 學號_姓名.zip into “Assignment_1” directory
 - Report
 - Program files
 - Makefile
- Due date
 - 2017/04/12 23:59:59