

# Advanced Programming COEN 11

## Project 9

## Pattern Matching

- Given a pattern and a file
  - Search by "Brutal Force"
  - Search the pattern in each line by traversing both of them
    1. Traverse the line until you find the first character in the pattern. Mark this character.
    2. Then start traversing both of them, comparing each character until...
      - The end of the pattern - hit! -- Move to next line in the file and go to step 1
      - The characters being compared are different -- Move to the character that follows the marked one, and go to step 1.

## Project 9

- `sgrep` - find a string in a file
  - Due in class (code and demo) on 3/13

## `sgrep`

- You will implement `sgrep`, a simplified `grep` to find strings in a file.
- The arguments for `sgrep` are a string and the name of a file.  
`#a.out string file_name`
- The program shows all the lines of the file in which the string appears:  
`line_number: xxx yyy xxx string aaa bbb ccc`

## sgrep

- ❑ You are not allowed to use strcmp!
- ❑ You will read the file line-by-line, using fgets, into a buffer.
- ❑ Then you will process this buffer looking for a pattern that matches the string provided.
- ❑ To simplify, the pattern should be all in the same line.

## sgrep

- ❑ The string could have any character, except new-lines.
- ❑ The string could also contain a "wild card"
  - > . - any character
  - > \. - character .
  - > \\ - character \

Note: \ is a special character for the sh, so pass your string in double-quotes, to tell the sh to ignore the \. For example:  
#a.out "a\\.b" file\_name
- ❑ Extra credit
  - > ? and \\? -- ? repeats the previous character 0 or 1 time
  - > \* and \\\* -- \* repeats the previous character 0 or more times