Alum1

A rush on algorithms

42 staff staff@42.fr

Abstract: *This rush will make you work on efficient progamming methods and algorithms.*

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Chapter I

Preamble

Technoviking is the nickname given to a musclebound man dancing in a video shot during the annual techno music festival Fuckparade in July 2000. The footage shows an unruly man shoving a woman before being grabbed by a shirtless man wearing a beard and a Thor's hammer pendant who pushes him away. Since being uploaded to YouTube in 2006, the video has gained tens of millions of views, as well as spawning hundreds of parodies and remixes.
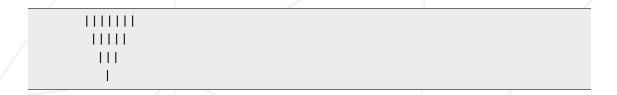
The original clip "Kneecam No. 1" was produced by German visual artist Matthias Fritsch at the annual street techno festival "Fuck Parade" in Berlin, Germany on July 8th, 2000. According to Matthias, the original intention behind publishing the Kneecam video was to raise the question of its authenticity. The video was first uploaded to YouTube by user subrelic on October 10th, 2006. According to the YouTube Insights, the video went largely unnoticed until some time in 2007 when it was posted on a Central American pornography site.It has more than 16 million views as of January 2013.

All hail the TechnoViking!!

Chapter II

Subject

II.1　What you need to do

- Alum1 is a game based on matches.

- There is a fixed number of rows of matches.

- Players take turns.

- Each player can take, on a single row, between 1 and 3 matches.

- The player who takes the last match, on the last available row, loses.

- For example, this is a board :

```
  | | | | | | |
   | | | | |
    | | |
     |
```

- You are going to code a program against which a user can play.

- This program will take a text file as input. That text file will describe the starting board.

- If no argument is given to the program, you'll read the board on standard input, with an empty line signaling the end of input.

- The board will be formatted according to the following rules :

  - Each line of the text file will indicate the number of matches present on that line, followed by a newline.

  - This number must be included between 1 and 10000.

- If the board description is incorrect, you'll write ERROR on standard error, followed by a newline, and exit cleanly.

- Once the game is loaded, you will display the board between each turn (whether it is the player playing or the computer).

- When it is the player's turn, you will ask them the number of matches they want to remove on the last line of the board.

- If the answer provided is incorrect (the move is invalid, or can't be played at that turn), you'll ask again !

- Your IA must try to win.

- At the end of the game, the winner is announced.

II.2 Turned-it project

- You must have, at the root of your repository, an `author` file containing your 2 logins on separate lines, followed by a newline:

```
$>cat -e auteur
xlogin$
ylogin$
$>
```

- Your executable will be called `alum1`.

- You must supply a `Makefile` with the usual rules.

- Only what is present on your Git repository will be evaluated during the defense.

- You can only use the following functions :

    ○ read

    ○ write

    ○ open

    ○ close

    ○ malloc

    ○ free

Chapter III

Guidelines

- Your project will be evaluated by humans only.

- Your project must respect the Norm, according to the Norminette.

- You must handle errors reasonably. Your program must NOT crash or terminate unexpectedly (Segmentation fault, bus error, double free, etc).

- Any allocated memory must be freed properly.

Good luck and have fun !