Homework 3

Solving Recurrence Equation in MIPS

Recurrence Equation

$$T(n) = \begin{cases} 2 * T\left(\frac{n}{2}\right) + c * n, \text{if } n \geq 2 \\ c, \text{otherwise} \end{cases}$$

Input / Output Format

- Input: <n><“,”><c> in file “input.txt”
  - Both n, c are in 2-digit (integer)
    - n ∈{2,4,8,16,32,64}
    - 1 <= c <= 20
- Output: <result> in file “output.txt”
  - Use itoa function in HW2
  - result is 4-digit
- E.g.
  - Input: “04,03” => output: “0036”
  - Input: “32,15”=> output: “2880”

Hints

- Refer to the slide ISA(II) – Procedure calling convention

- Refer to Fibonacci
  - Page 36-38 of slides “SPIM tutorial”

$$\text{fib}(n) = \begin{cases} \text{fib}(n-1) + \text{fib}(n-2), \text{if } n \geq 2 \\ n, \text{otherwise} \end{cases}$$

Requirements

- Right I/O format
  - Correctness of your program would be judged by output file
- Implement in recursive function for full-credit
  - I.e. equation in page 2
  - Or your credits would be 40% off

Submission

- 2017/10/23 midnight (23:59:59)
- 10% off per day for late submission
- You should pack the folder in a .zip file
  - Whatever.zip
    - hw3_<studentID>
      - hw3_<studentID>.s
      - readme.txt

- Please upload to CEIBA this time