Data Structure Assignment 1 (Paper Homework)

Paper homework

(Textbook p.41 Exercise 1-(b)(c)(g)(k),2-(a)(d),5)

1. Show that the following statements are correct:

(b) n! $= O(n^n)$

(c) $2n^2+nlogn = \theta(n^2)$

(g) $n^3+10^6n^2 = \theta(n^3)$

(k) $10n^3+15n^4+100n^2 2^n = O(n^2 2^n)$

2. Show that the following statements are incorrect:

(a) $10n^2+9 = O$(n)

(d) $n^3 2^n+6n^2 3^n = O(n^2 2^n)$

5. Determine the worst-case complexity of Program 1.23.

General Information

- Deadline：**2015/10/2 (Please submit to TA after class)**
- **Late homework will not be accepted.**
- Please write on **A4** papers.
- Notice：You won't get any point if you only write the answer, please list your process and reason.

Data Structure Assignment 1 (Programming Homework)

Programming homework

(Textbook p.17 9)

9. Write an iterative function to compute a binomial coefficient, then transform it into an equivalent recursive function.

$$\binom{n}{k} = \frac{n!}{k!\,(n-k)!}$$

Sample Input：

4
1
5
3

Sample Output：

4(iterative function)
4(recursive function)
10(iteration function)
10(recursive function)

General Information:

- Deadline：**2015/10/7 23:59.**
- Upload your assignment to Moodle system.
- Upload file format: Student-Id_Name.rar , Ex.P76991094_王小明.rar
- Your file should consist of the following items:
- Source Code
- Readme file (Program description, program environment)
- **Late homework will not be accepted.**
- **Any copies will be scored as zero. Do not plagiarize!!!**