

Examination Paper of Southeast University (A)

Course name	Advanced Data Structures		Semester	19-20-3	Score	
S p e c i a l t y	Software Engineering	Way of examination	Open	Duration	100 min.	
Textbook, dictionary, class notes and exercise books are allowed						

- 1, Address the differences between amortized analysis and asymptotic analysis; summarize the ideas (main steps) of aggregate analysis, accounting method and potential method. (10 points)
- 2, Let $A = \langle 111101010010000 \rangle$ be the bitvector of a heap-like notation for a binary tree, use function rank and/or select to compute the index of $A[6]$'s left child and the index of $A[11]$'s parent. (Index 0 is not used in A). (15 points)
- 3, In the run generation phase of Mergesort applied to the scenarios of external sorting, why TWO input buffers and TWO output buffers are allocated to serve the file reading and file writing? To achieve similar results, WHY actually THREE buffers are adequate? (15 points)
- 4, Please prove the correctness of good suffix rule introduced in Boyer and Moore string matching algorithm. (15 points)
- 5, Design an efficient data structure to manage the positional linear lists. The linear list has 3 methods: 1) search(Int idx): find the element of position idx ; 2) insert(Int idx, T ele): insert ele into the list at position idx , while the element of position idx will be moved to position $idx+1$, and element of position $idx+1$ to $idx+2$, ...; 3) delete(Int idx): delete the element at idx , while the element of position $idx+1$ will be moved to position idx , and element of position $idx+2$ to $idx+1$, Please summarize your ideas, methods, and performance analysis. Examples are preferred. (45 points)

The end

自觉遵守考场纪律

如考试作弊

此答卷无效