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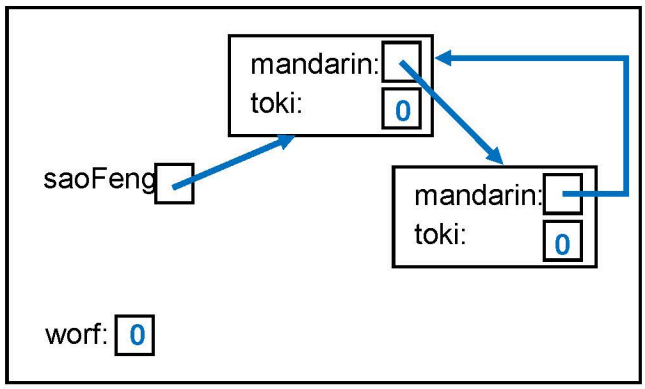
Problem 1

1 points for each correct; 0 points for blank or incorrect

1.1 (a) ____T_____ **(b)**_____F_____**(c)** _____T_____ **(d)**_____F_____ **(e)**_____F_____

1.2. (a)



0.5 points for each correct entry
0 points for blank or incorrect

Total = 6 * 0.5 = 3 points

(b) ___F_____

2 points for correct answer
0 points for blank or incorrect

(c)

1 points for each correct; 0 points for blank or incorrect

A._____worf_____B.____worf or saoFeng_____C.__mandarin____D.___0____E.___worf_____

Problem 2

1 points for each correct; -1 points for each incorrect
Total = 0 if negative marks. Max = 4 points

2.1 (a)_____a, ape, eat, set_____

(b)_____10 * 5 * p = 50p_____

2 points for correct answer; 0 points for blank or incorrect

2.2 (a)_____2_____ (b)_____-1_____

1 points for each correct
0 points for blank or incorrect

Problem 3

(x) points for each correct; 0 points for blank or incorrect

3.1 (a) ____O(ND) or O(N)_(0.5)____ **(b)** _____O(D)__(1)_____ **(c)** _____O(ND) or O(N)___(0.5)_____

0.5 points for each correct. 0 points for incorrect

3.2 (a) _____√_____ **(b)** _____ **(c)** _____√_____ **(d)** _____

3.3_____(1 + 2 + 3 ….. + (n-1) + n) / n = (n + 1) * n / 2 / n = (n + 1) / 2 = O(n)_____

2 points for correct formula (either the series expanded or the simplified one)
0 points for blank or incorrect
1 points for just writing **O(n) or n or (n + 1)**

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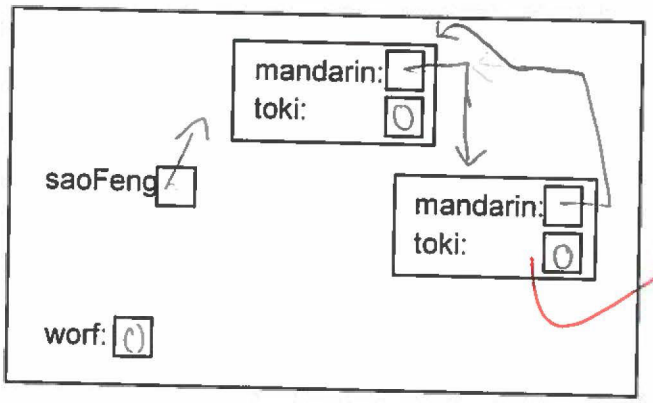
Problem 1

1.1 (a) T (b) F (c) T (d) F (e) F

1.2. (a)



(b) False

(c)

A. Worf B. saofeng C. mandarin D. 0 E. worf

Problem 2

2.1 (a) @pe, pat, set, a

(b) 50p

2.2 (a) 2 (b) -1

Problem 3

3.1 (a) O(N) **(b)** O(D) **(c)** O(N)

3.2 (a) √ **(b)** _____ **(c)** √ **(d)** _____

3.3 the formula for the average case running time is

$\frac{1+2+3+\ldots+n}{n} = \frac{(n+1)(n)}{2(n)} = \frac{n+1}{2} = O(n)$

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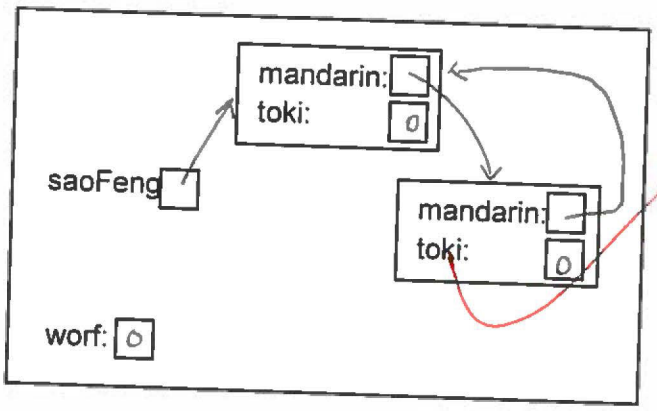
Problem 1

1.1 (a) T (b) F (c) T (d) F (e) F

1.2. (a)



(b) F

(c)

A. worf B. saoFeng C. mandarin D. 0 E. worf

Problem 2

2.1 (a) a, ape, eat, set

(b) P × 5 ptrs/node × 10 nodes = 50P

2.2 (a) 2 (b) -1

Problem 3

3.1 (a) O(N) (b) O(D) (c) O(N)

3.2 (a) ✓ (b) _____ (c) ✓ (d) _____

3.3 there are n elements, each one takes k comparisons to find.
where k : 1 ... n, so

comparisons = $\frac{1}{n}(1+2+3+\ldots+(n-1)+n) = \frac{n(n+1)}{2n} = \frac{n+1}{2} = O(n)$

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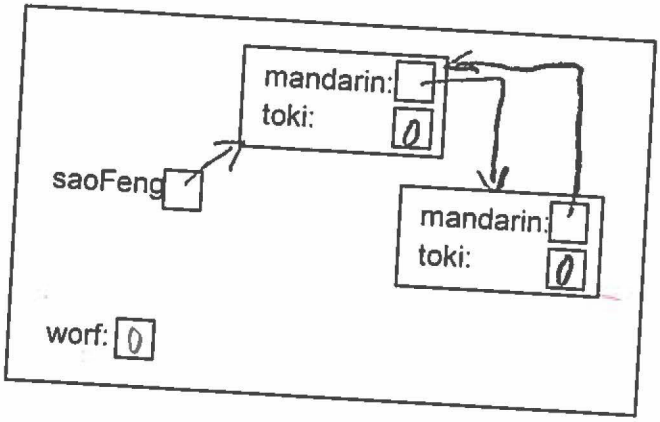
Problem 1

5/5 **1.1** (a) True (b) False (c) True (d) False (e) False

10/10 **1.2.** (a)



(b) False

(c)

A. worf B. saoFeng C. mandarin D. nullptr E. Worf

Problem 2

4/6 **2.1** (a) a, ape, eat, set

(b) 35p -2

2/2 **2.2** (a) 2 (b) —|

Problem 3

2/2 3.1 (a) O(N) (b) O(D) (c) O(N).

2/2 3.2 (a) √ (b) _____ (c) √ (d) _____

2/2 3.3 $\frac{1+2+\ldots+(n-1)+n}{n}$

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+1
=26

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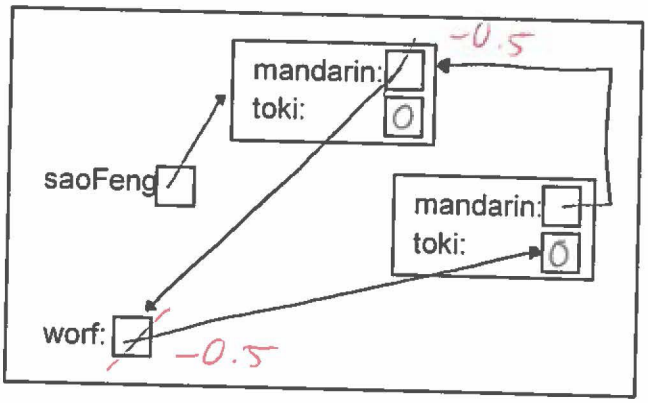
Problem 1

1.1 (a) T (b) ~~T~~ (c) T (d) F (e) F

1.2. (a)



(b) False

(c)

A. worf B. saoFeng C. mandarin D. 0 E. worf

Problem 2

2.1 (a) a, ape, eat, set

(b) 9/P -2

2.2 (a) 2 (b) -1

Problem 3

3.1 (a) O(N) (b) O(D) (c) O(N)

3.2 (a) ✓ (b) _____ (c) ✓ (d) _____

3.3 $\frac{1}{n}(1+2+3+\cdots+(n-2)+(n-1)+n) = \frac{n+1}{2} = O(n)$

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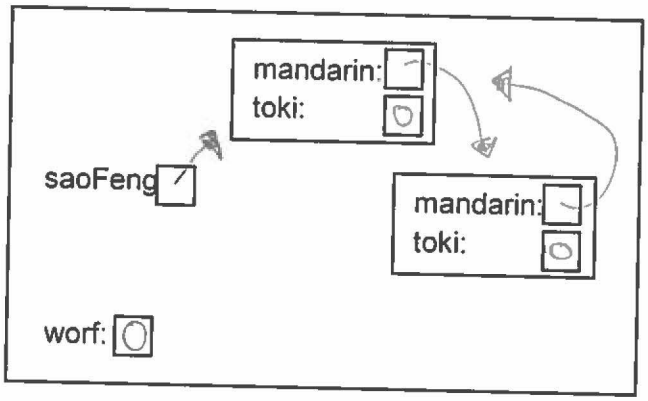
Problem 1

1.1 (a) True (b) True (c) True (d) False (e) False

ok

1.2. (a)



(b) False

(c)

A. worf B. saoFeng C. mandarin D. 0 E. worf

Problem 2

2.1 (a) c, cpe, eat, set

(b) p=9

-2

2.2 (a) 2 (b) -1

Problem 3

3.1 (a) O(n) **(b)** O(D) **(c)** O(n)

3.2 (a) ✓ **(b)** _____ **(c)** ✓ **(d)** _____

3.3 Average running time for finding 1 element in a list of 'n' elements: $\frac{1+2+3+\ldots+(n-1)+n}{n}$.

-an element has an equal chance of being found in this linked list - As such, in a linked list of 'n' elements, to find the average running time, one would determine the amount of indexes needed to travel to get to the desired element [best case is just 1 comparison, then 2, then 3, etc. $1+2+3+\ldots+(n-1)+n$, where n = total elements. If desired element was at the n^{th} index, it'd be the worst case running time] and divide it by 'n'. this takes the average running time.