

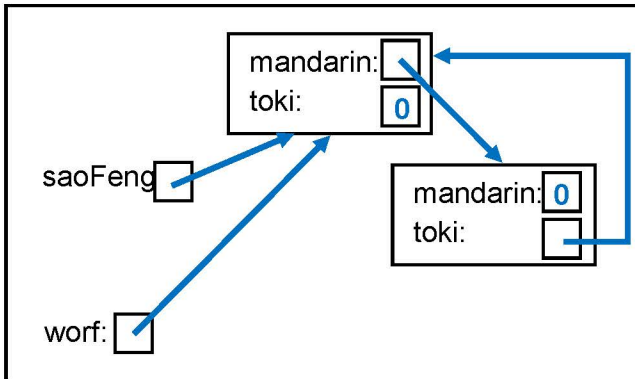
CSE 100 Midterm 1 Answer Sheet Winter 2017 Version B

Problem 1

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

1.1 (a) F (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) T

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. mandarin C. mandarin D. 0 E. mandarin

Problem 2

1 points for each correct; -1 points for each incorrect
Total = 0 if negative marks. 4 points if all of them are correct

2.1 (a) a, ape, pal

(b) 9 * 5 * p = 45p

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

2.2 (a) 2 (b) 3

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) $O(\log(N)D)$ or $O(\log(N))$ (0.5) (b) $O(ND)$ or $O(N)$ (0.5) (c) $O(D)$ (1)

0.5 points for each correct. 0 points for incorrect

3.2 (a) (b) (c) (d)

3.3 $(1 + 2 + 3 + \dots + (n+1)) / (n+1) = (n+2) * (n+1) / 2 / (n+1) = (n+2) / 2 = O(n)$

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 $(n + 1)$ or $(n + 2)$

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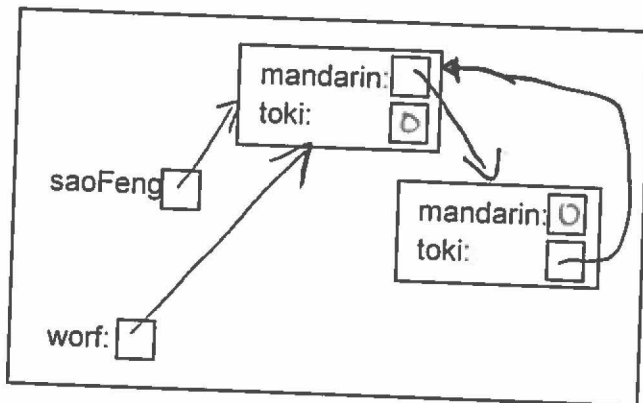
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26.5
27.5
29

Problem 1

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

1.2. (a)



(b) T

(c)

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

Problem 2

2.1 (a) a, ape, pal

(b) 45p

2.2 (a) 2 (b) 3

Problem 3

3.1 (a) $O(n)$ (b) $O(n)$ (c) $O(1)$

3.2 (a) (b) ✓ (c) (d) ✓

3.3 $\frac{1+2+\dots+n+n+1}{n+1} = \frac{(n+1)(n+2)}{2} \times \frac{1}{n+1} = \boxed{\frac{n+2}{2}}$

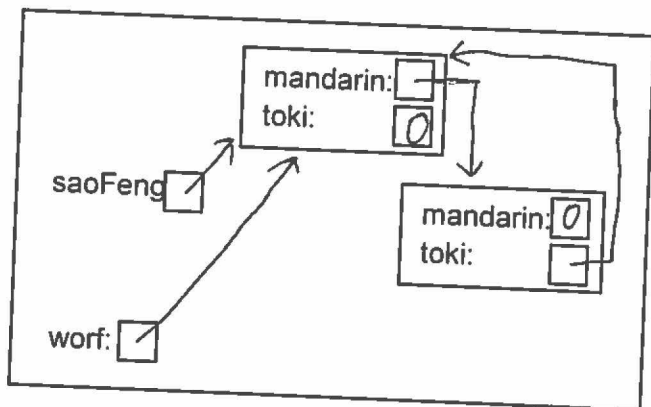
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Problem 1

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

1.2. (a)



(b) T

(c)

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

Problem 2

2.1 (a) a, ape, pal.

(b) $5 \times 9 \times p = 45p$

2.2 (a) 2 (b) 3

Problem 3

3.1 (a) $O(D \log N)$ (b) $O(DN)$ (c) $O(D)$

3.2 (a) ~~1~~ (b) \checkmark (c) \checkmark (d) \checkmark

3.3
$$\frac{1+2+\dots+n+(n+1)}{n} = \frac{(n+2)(n+1)}{2n} = \frac{(n+2)(n+1)}{2n}$$

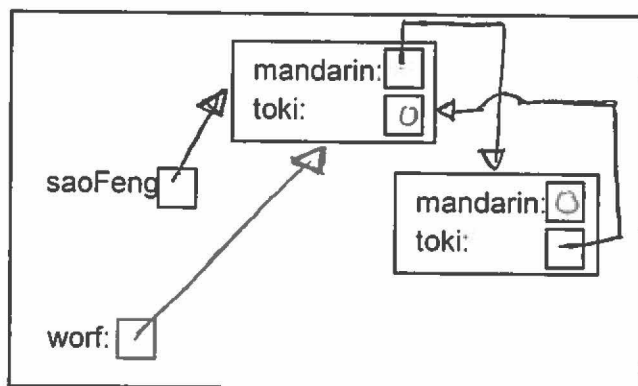
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CSE 100 Midterm 1 Answer Sheet Winter 2017 Version B

Problem 1

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

1.2. (a)



(b) True

(c)

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

Problem 2

2.1 (a) a, ape, pal

(b) 45p

2.2 (a) 2 (b) 3

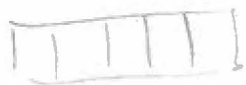
Problem 3

3.1 (a) $O(\log N)$ (b) $O(N)$ (c) $O(D)$

3.2 (a) _____ (b) \checkmark (c) _____ (d) \checkmark

3.3

$$AT = \frac{n+2}{2}$$



1 2 3 4 5



$$\frac{3+1}{2} = 2$$

$$\frac{1+2+3+4+5}{5} = \frac{15}{5} = 3$$

$$\frac{6}{2} = 3$$

$$\frac{15}{2} = 7.5$$

1 2 3

$$\frac{21}{6} = 3.5$$



$$\frac{28}{7} = 4$$

$$\frac{6+1}{2} = 3.5$$

$$\frac{21}{6} = 3.5$$

$$\frac{36}{8} = 4.5$$

$$\frac{n(n+1)}{2n}$$

$$\frac{n(n+1)}{2n}$$

7

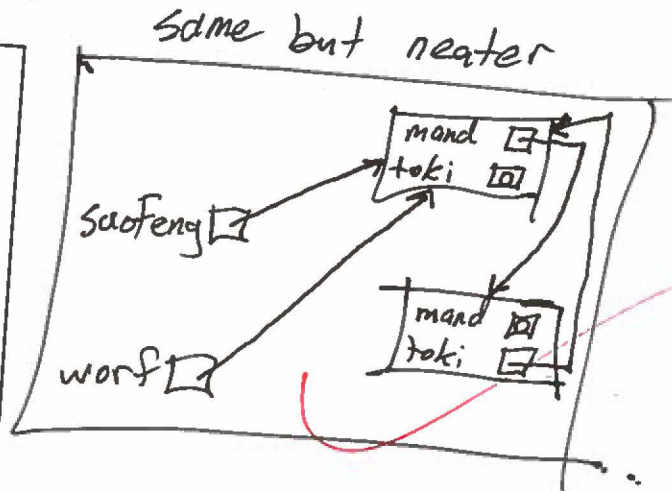
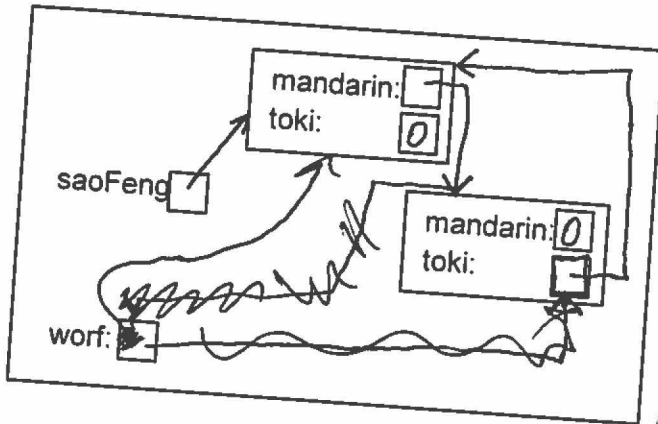
24.5

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Problem 1

1.1 (a) F (b) ~~#~~F (c) T (d) ~~T~~F (e) -1

1.2. (a)



(b) T

(c)

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

Problem 2

2.1 (a) a, ape, pal

(b) ~~5~~ -2

2.2 (a) 2 (b) 3

Problem 3

3.1 (a) $O(\log N)$

(b) ~~$O(N)$~~ $O(N)$

(c) ~~$O(N^2)$~~ $O(D)$

-1.5

3.2 (a) \checkmark ~~\times~~

(b) ~~\times~~

(c) ~~\times~~ \checkmark

(d) \checkmark

3.3

$$\frac{1+2+3+4+\dots+(n-1)+n+(n+1)}{(n+1)}$$

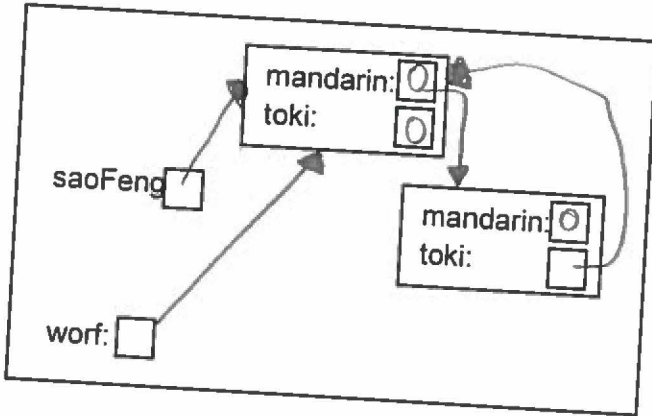
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CSE 100 Midterm 1 Answer Sheet Winter 2017 Version B

Problem 1

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

1.2. (a)



(b) True

(c)

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

Problem 2

2.1 (a) a, ape, pal

(b) $q(5)(p) = \boxed{45p}$

2.2 (a) 2 (b) 3

Problem 3

3.1 (a) $O(\log(N))$ (b) $O(N)$ (c) $O(D)$

3.2 (a) _____ (b) \checkmark (c) _____ (d) \checkmark

3.3 $\frac{1+2+3+\dots+(n+1)}{n+1} = \frac{(n+1)(n+2)}{2(n+1)} = \frac{n+2}{2}$ comparisons,
so average case is $O(n)$