

# Suffix Array Construction

Quiz, 6 questions

5/6 points (83%)

✓ **Congratulations! You passed!**

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points

1.

For the string  $S = AACGATAGCGGTAGA\$$ , what will be the contents of array *order* after *SortCharacters*?

- ☐ [15,14,0,1,12,6,4,2,8,13,3,7,9,10,11,5]
- ☐ [0,1,2,3,4,5,6,7,8,9,10,11,12,13,14,15]
- ☒ [15,0,1,4,6,12,14,2,8,3,7,9,10,13,5,11]

**Correct**

Correct! First goes '\$', then all 'A's in order, then all 'C's in order, then all 'G's in order, then all 'T's in order.

- ☐ [0,1,4,6,12,14,2,8,3,7,9,10,13,5,11,15]

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points

2.

For string  $S = AACGATAGCGGTAGA\$$ , what will be the contents of the array *class* after *ComputeCharClasses*?

- ☒ [1,1,2,3,1,4,1,3,2,3,3,4,1,3,1,0]

**Correct**

Correct! Class 0 is for '\$', class 1 is for 'A', class 2 is for 'C', class 3 is for 'G', class 4 is for 'T'.

- ☐ [0,0,1,2,0,3,0,2,1,2,2,3,0,2,0,4]

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☐ [0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0]

☐ [0,1,2,3,4,5,6,7,8,9,10,11,12,13,14,15]



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points

3.

For string  $S = AACGATAGCGGTAGA\$$ , what will be the order of cyclic shifts of length 2 ordered by the second character in ascending order?

- ☐ \$A, AA, GA, TA, TA, GA, AC, GC, CG, AG, CG, GG, AG, AT, GT, A\$
- ☐ \$A, A\$, AA, AC, AG, AG, AT, CG, CG, GA, GA, GC, GG, GT, TA, TA
- ☐ \$A, AA, AC, AT, AG, AG, A\$, CG, CG, GA, GC, GG, GT, GA, TA, TA
- ☒ A\$, \$A, AA, GA, TA, TA, GA, AC, GC, CG, AG, CG, GG, AG, AT, GT

**Correct**

Correct!



1 / 1  
points

4.

For string  $S = AACGATAGCGGTAGA\$$ , what will be the order of cyclic shifts of length 2 after *SortDoubled* with  $L = 1$ ?

- ☒ [15,14,0,1,6,12,4,2,8,3,13,7,9,10,5,11]

**Correct**

Correct! Recall that *SortDoubled* uses a stable sort by first halves of the doubled cyclic shifts.

- ☐ [14,0,1,6,12,4,2,8,3,13,7,9,10,5,11,15]
- ☐ [15,14,0,1,12,6,4,2,8,13,3,7,9,10,11,5]

0 / 1

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For string  $S = AACGATAGCGGTAGA\$$ , what will be the contents of the array *class* for the cyclic shifts of length 2 after *UpdateClasses*?

- ☐ [2,3,6,7,5,11,4,8,6,9,10,11,4,7,1,0]
- ☐ [0,1,2,3,4,5,6,7,2,8,9,5,6,3,10,11]
- ☒ [2,3,7,9,6,14,4,11,8,12,13,15,5,10,1,0]



**This should not be selected**

Equal cyclic shifts will have equal classes.

- ☐ [0,0,0,0,0,0,0,0,0,0,0,0,0,0,0]



1 / 1

points

6.

For string  $S = AACGATAGCGGTAGA\$$ , what will be the suffix array?

- ☒ [15,14,0,1,12,6,4,2,8,13,3,7,9,10,11,5]



**Correct**

Correct! Sorted suffixes:

15 \$

14 A\$

0 AACGATAGCGGTAGA\$

1 ACGATAGCGGTAGA\$

12 AGA\$

6 AGCGGTAGA\$

4 ATAGCGGTAGA\$

2 CGATAGCGGTAGA\$

8 CGGTAGA\$

13 GA\$

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3 GATAGCGGTAGA\$

7 GCGGTAGA\$

9 GGTAGA\$

10 GTAGA\$

11 TAGA\$

5 TAGCGGTAGA\$

☐ [0,1,2,3,4,5,6,7,8,9,10,11,12,13,14,15]☐ [15,0,1,4,6,12,14,2,8,3,7,9,10,13,5,11]☐ [1,1,2,3,1,4,1,3,2,3,3,4,1,3,1,0]