Suffix Array Construction | Cours

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Suffix Array Construction
Graded Quiz · 12 min

Due Aug 17, 12:29 PM IST

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Suffix Array Construction

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1. For the string $S = AACGATAGCGGTAGA\$$, w... SortChars?

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

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

1 / 1 point

- [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]
- [0,0,1,2,0,3,0,2,1,2,2,3,0,2,0,4]
- [1,1,2,3,1,4,1,3,2,2,3,4,1,3,1,0]

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'.

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

1 / 1 point

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

Correct
Correct!

Correct
Correct!

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

1 / 1 point

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

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

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

1 / 1 point

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

Correct
Correct! The classes are [A], [$A\$$], [AA], [AC], [AG, AG], [AT], [CG, CG], [GA, GA], [GC], [GG], [GT], [TA, TA]

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

1 / 1 point

- [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]
- [1,1,2,3,1,4,1,3,2,3,3,4,1,3,1,0]

Correct
Correct! Sorted suffixes

15 $

14 A$

0 AACGATAGCGGTAGA$

1 ACGATAGCGGTAGA$

12 AGA$

6 AGCGGTAGA$

4 ATAGCGGTAGA$

2 CGATAGCGGTAGA$

8 CGGTAGA$

13 GA$