

COMP9319 Exercises

Solution : Please come to the consultations if you have questions with the answers below.

Question 1

Suppose that the BWT encoded string $BWT(T) = \text{arbbrraa\$}$

where $\$$ is the last character of T .

Derive the number of matches for the search pattern **ar** using backward search.

Ans: 2 matches

Question 2

Suppose that the BWT encoded string $BWT(T) = \text{acb\$cccbaabbcab}$

where $\$$ is the last character of T .

Derive the number of matches for the search pattern **abc** using backward search.

Ans: 2 matches

Question 3

Suppose that the BWT encoded string $BWT(T) = \text{n\$rsocimpse}$

Derive the S , B , and B' arrays after applying RLFM index on T .

Ans: $S = \text{n\$rsocimpse}$ $B = 111110111111$ $B' = 111111101111$

Question 4

Suppose that the RLFM encoded string of text T is **cgcs\$agagatc** where $\$$ is the last character of T . Its corresponding bit array B is **1101011101110011**.

Derive its B' .

Ans: $B' = 1111001101101011$

Question 5

Suppose that the RLFM encoded string of text T is **cgcs\$agagatc** where $\$$ is the last character of T . Its corresponding bit array B is **1101011101110011**.

Derive the number of matches for the search pattern **cag** using backward search.

Ans: 2 matches

Question 6

Suppose that the RLFM encoded string of text T is **cgcsagagatc** where **\$** is the last character of T. Its corresponding bit array B is **1101011101110011**.

Derive the last 4 characters of T.

Ans: agcagcagactggac\$

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