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MANUAL ALGORITMA KNUTH-MORRIS-PRATT

1. Membuat tabel KMPNext dari pattern (kata yang mau dicari).

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| A | B | B | A | C | A |  |
| -1 | 0 | 0 | -1 | 1 | -1 | 1 |

1. Melakukan pencarian

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| A | B | A | B | D | A | B | B | A | C | A | D | B | C | A | B | B | A | C | A | A | B | D | A | B | B | A | C | A | D | A | B | B | C | A | B | B | A | C | A | A | C | D | A | B | B | A | C | A | C |
| A | B | B | A | C | A |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

Karena huruf ketiga tidak sama maka geser pattern sebesar (i – KMPnext[i]) di mana i adalah indeks pada pattern yang terakhir dikunjungi.

Geser = 2 – KMPnext[2] = 2 – (0) = 2

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| A | B | A | B | D | A | B | B | A | C | A | D | B | C | A | B | B | A | C | A | A | B | D | A | B | B | A | C | A | D | A | B | B | C | A | B | B | A | C | A | A | C | D | A | B | B | A | C | A | C |
|  |  | A | B | B | A | C | A |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

Geser = 2 – KMPnext[2] = 2 – (0) = 2

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| A | B | A | B | D | A | B | B | A | C | A | D | B | C | A | B | B | A | C | A | A | B | D | A | B | B | A | C | A | D | A | B | B | C | A | B | B | A | C | A | A | C | D | A | B | B | A | C | A | C |
|  |  |  |  | A | B | B | A | C | A |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

Geser = 0 – KMPnext[0] = 0 – (–1) = 1

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| A | B | A | B | D | A | B | B | A | C | A | D | B | C | A | B | B | A | C | A | A | B | D | A | B | B | A | C | A | D | A | B | B | C | A | B | B | A | C | A | A | C | D | A | B | B | A | C | A | C |
|  |  |  |  |  | A | B | B | A | C | A |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

Karena pattern ditemukan, maka posisi ditemukannya pattern adalah 5

Geser = 6 – KMPnext[6] = 6 – 1 = 5

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| A | B | A | B | D | A | B | B | A | C | A | D | B | C | A | B | B | A | C | A | A | B | D | A | B | B | A | C | A | D | A | B | B | C | A | B | B | A | C | A | A | C | D | A | B | B | A | C | A | C |
|  |  |  |  |  |  |  |  |  |  | A | B | B | A | C | A |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

Geser = 1 – KMPnext[1] = 1 – 0 = 1

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| A | B | A | B | D | A | B | B | A | C | A | D | B | C | A | B | B | A | C | A | A | B | D | A | B | B | A | C | A | D | A | B | B | C | A | B | B | A | C | A | A | C | D | A | B | B | A | C | A | C |
|  |  |  |  |  |  |  |  |  |  |  | A | B | B | A | C | A |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

Geser = 0 – KMPnext[0] = 0 – (–1) = 1

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| A | B | A | B | D | A | B | B | A | C | A | D | B | C | A | B | B | A | C | A | A | B | D | A | B | B | A | C | A | D | A | B | B | C | A | B | B | A | C | A | A | C | D | A | B | B | A | C | A | C |
|  |  |  |  |  |  |  |  |  |  |  |  | A | B | B | A | C | A |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

Geser = 0 – KMPnext[0] = 0 – (–1) = 1

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| A | B | A | B | D | A | B | B | A | C | A | D | B | C | A | B | B | A | C | A | A | B | D | A | B | B | A | C | A | D | A | B | B | A | D | A | B | B | A | C | A | C | D | A | B | B | A | C | A | C |
|  |  |  |  |  |  |  |  |  |  |  |  |  | A | B | B | A | C | A |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

Geser = 0 – KMPnext[0] = 0 – (–1) = 1

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| A | B | A | B | D | A | B | B | A | C | A | D | B | C | A | B | B | A | C | A | B | B | D | A | B | B | A | C | A | D | A | B | B | C | A | B | B | A | C | A | A | C | D | A | B | B | A | C | A | C |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  | A | B | B | A | C | A |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

Karena pattern ditemukan, maka posisi ditemukannya pattern adalah 14

Geser = 6 – KMPnext[6] = 6 – 1 = 5

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| A | B | A | B | D | A | B | B | A | C | A | D | B | C | A | B | B | A | C | A | B | B | D | A | B | B | A | C | A | D | A | B | B | C | A | B | B | A | C | A | A | C | D | A | B | B | A | C | A | C |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | A | B | B | A | C | A |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

Geser = 3 – KMPnext[3] = 3 – (–1) = 4

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| A | B | A | B | D | A | B | B | A | C | A | D | B | C | A | B | B | A | C | A | B | B | D | A | B | B | A | C | A | D | A | B | B | C | A | B | B | A | C | A | A | C | D | A | B | B | A | C | A | C |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | A | B | B | A | C | A |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

Karena pattern ditemukan, maka posisi ditemukannya pattern adalah 23

Geser = 6 – KMPnext[6] = 6 – 1 = 5

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| A | B | A | B | D | A | B | B | A | C | A | D | B | C | A | B | B | A | C | A | B | B | D | A | B | B | A | C | A | D | A | B | B | C | A | B | B | A | C | A | A | C | D | A | B | B | A | C | A | C |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | A | B | B | A | C | A |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

Geser = 1 – KMPnext[1] = 1 – 0 = 1

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| A | B | A | B | D | A | B | B | A | C | A | D | B | C | A | B | B | A | C | A | B | B | D | A | B | B | A | C | A | D | A | B | B | C | A | B | B | A | C | A | A | C | D | A | B | B | A | C | A | C |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | A | B | B | A | C | A |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

Geser = 0 – KMPnext[0] = 0 – (–1) = 1

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| A | B | A | B | D | A | B | B | A | C | A | D | B | C | A | B | B | A | C | A | B | B | D | A | B | B | A | C | A | D | A | B | B | A | C | D | B | A | B | B | C | A | D | A | B | B | A | C | A | C |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | A | B | B | A | C | A |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

Geser = 5 – KMPnext[5] = 5 – (–1) = 6

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| A | B | A | B | D | A | B | B | A | C | A | D | B | C | A | B | B | A | C | A | B | B | D | A | B | B | A | C | A | D | A | B | B | A | C | D | B | A | B | B | C | A | D | A | B | B | A | C | A | C |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | A | B | B | A | C | A |  |  |  |  |  |  |  |  |

Geser = 0 – KMPnext[0] = 0 – (–1) = 1

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| A | B | A | B | D | A | B | B | A | C | A | D | B | C | A | B | B | A | C | A | B | B | D | A | B | B | A | C | A | D | A | B | B | A | C | D | B | A | B | B | C | A | D | A | B | B | A | C | A | C |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | A | B | B | A | C | A |  |  |  |  |  |  |  |

Geser = 3 – KMPnext[3] = 3 – (–1) = 4

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| A | B | A | B | D | A | B | B | A | C | A | D | B | C | A | B | B | A | C | A | B | B | D | A | B | B | A | C | A | D | A | B | B | A | C | D | B | A | B | B | C | A | D | A | B | B | A | C | A | C |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | A | B | B | A | C | A |  |  |  |

Geser = 1 – KMPnext[1] = 1 – 0 = 1

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| A | B | A | B | D | A | B | B | A | C | A | D | B | C | A | B | B | A | C | A | B | B | D | A | B | B | A | C | A | D | A | B | B | A | C | D | B | A | B | B | C | A | D | A | B | B | A | C | A | C |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | A | B | B | A | C | A |  |  |

Geser = 0 – KMPnext[0] = 0 – (–1) = 1

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| A | B | A | B | D | A | B | B | A | C | A | D | B | C | A | B | B | A | C | A | B | B | D | A | B | B | A | C | A | D | A | B | B | A | C | D | B | A | B | B | C | A | D | A | B | B | A | C | A | C |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | A | B | B | A | C | A |  |

Karena pattern ditemukan, maka posisi ditemukannya pattern adalah 43

Geser = 6 – KMPnext[6] = 6 – 1 = 5

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| A | B | A | B | D | A | B | B | A | C | A | D | B | C | A | B | B | A | C | A | B | B | D | A | B | B | A | C | A | D | A | B | B | A | C | D | B | A | B | B | C | A | D | A | B | B | A | C | A | C |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | A | B | B | A | C | A |

Karena panjang pattern sudah melewati panjang string yang mau dicari maka proses berhenti.