

pi 배열 구하기

Pt	인덱스	0	1	2	3	4	5	6	7
	문자	A	A	B	A	A	B	A	C

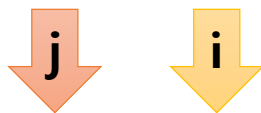
Pi	인덱스	0	1	2	3	4	5	6	7
	값	0							

Pt	인덱스	0	1	2	3	4	5	6	7
	문자	A	A	B	A	A	B	A	C

pt[i] == pt[j] :

pi[i] = ++j, i++

Pi	인덱스	0	1	2	3	4	5	6	7
	값	0	1						



Pt	인덱스	0	1	2	3	4	5	6	7
	문자	A	A	B	A	A	B	A	C

```
while(j > 0 && pt[i] != pt[j]) {  
    j = pi[j-1];  
}
```

Pi	인덱스	0	1	2	3	4	5	6	7
	값	0	1						



Pt	인덱스	0	1	2	3	4	5	6	7
	문자	A	A	B	A	A	B	A	C

pt[i] != pt[j] : i++

Pi	인덱스	0	1	2	3	4	5	6	7
	값	0	1	0					

Pt	인덱스	0	1	2	3	4	5	6	7
	문자	A	A	B	A	A	B	A	C

pt[i] == pt[j] :

pi[i] = ++j, i++

Pi	인덱스	0	1	2	3	4	5	6	7
	값	0	1	0	1				

Pt	인덱스	0	1	2	3	4	5	6	7
	문자	A	A	B	A	A	B	A	C



pt[i] == pt[j] :
pi[i] = ++j, i++

Pi	인덱스	0	1	2	3	4	5	6	7
	값	0	1	0	1	2			



Pt	인덱스	0	1	2	3	4	5	6	7
	문자	A	A	B	A	A	B	A	C

pt[i] == pt[j] :

pi[i] = ++j, i++

Pi	인덱스	0	1	2	3	4	5	6	7
	값	0	1	0	1	2	3		



Pt	인덱스	0	1	2	3	4	5	6	7
	문자	A	A	B	A	A	B	A	C

pt[i] == pt[j] :

pi[i] = ++j, i++

Pi	인덱스	0	1	2	3	4	5	6	7
	값	0	1	0	1	2	3	4	

Pt	인덱스	0	1	2	3	4	5	6	7
	문자	A	A	B	A	A	B	A	C



```
while(j > 0 && pt[i] != pt[j]) {
    j = pi[j-1];
}
```

Pi	인덱스	0	1	2	3	4	5	6	7
	값	0	1	0	1	2	3	4	

Pt	인덱스	0	1	2	3	4	5	6	7
	문자	A	A	B	A	A	B	A	C



```
while(j > 0 && pt[i] != pt[j]) {
    j = pi[j-1];
}
```

Pi	인덱스	0	1	2	3	4	5	6	7
	값	0	1	0	1	2	3	4	

Pt	인덱스	0	1	2	3	4	5	6	7
	문자	A	A	B	A	A	B	A	C



pt[i] != pt[j] : i++


종료

Pi	인덱스	0	1	2	3	4	5	6	7
	값	0	1	0	1	2	3	4	0


동작

텍스트 : AABAABAAAABAABDAABAABAC

패턴 : AABAABAC



0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	22	22
A	A	B	A	A	B	A	A	A	A	B	A	A	B	D	A	A	B	A	A	B	A	C



0	1	2	3	4	5	6	7
A	A	B	A	A	B	A	C

pi	0	1	2	3	4	5	6	7
	A	A	B	A	A	B	A	C
	0	1	0	1	2	3	4	0



0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	22	22
A	A	B	A	A	B	A	A	A	A	B	A	A	B	D	A	A	B	A	A	B	A	C



0	1	2	3	4	5	6	7
A	A	B	A	A	B	A	C

pi	0	1	2	3	4	5	6	7
	A	A	B	A	A	B	A	C
	0	1	0	1	2	3	4	0



0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	22	22
A	A	B	A	A	B	A	A	A	A	B	A	A	B	D	A	A	B	A	A	B	A	C



0	1	2	3	4	5	6	7
A	A	B	A	A	B	A	C

pi	0	1	2	3	4	5	6	7
	A	A	B	A	A	B	A	C
	0	1	0	1	2	3	4	0



0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	22	22
A	A	B	A	A	B	A	A	A	A	B	A	A	B	D	A	A	B	A	A	B	A	C



0	1	2	3	4	5	6	7
A	A	B	A	A	B	A	C

pi	0	1	2	3	4	5	6	7
	A	A	B	A	A	B	A	C
	0	1	0	1	2	3	4	0



0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	22	22
A	A	B	A	A	B	A	A	A	A	B	A	A	B	D	A	A	B	A	A	B	A	C



0	1	2	3	4	5	6	7
A	A	B	A	A	B	A	C

pi	0	1	2	3	4	5	6	7
	A	A	B	A	A	B	A	C
	0	1	0	1	2	3	4	0



0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	22	22
A	A	B	A	A	B	A	A	A	A	B	A	A	B	D	A	A	B	A	A	B	A	C



0	1	2	3	4	5	6	7
A	A	B	A	A	B	A	C

pi	0	1	2	3	4	5	6	7
	A	A	B	A	A	B	A	C
	0	1	0	1	2	3	4	0

i

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	22	22
A	A	B	A	A	B	A	A	A	A	B	A	A	B	D	A	A	B	A	A	B	A	C

j

0	1	2	3	4	5	6	7
A	A	B	A	A	B	A	C

pi	0	1	2	3	4	5	6	7
	A	A	B	A	A	B	A	C
	0	1	0	1	2	3	4	0

							i															
0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	22	22
A	A	B	A	A	B	A	A	A	A	B	A	A	B	D	A	A	B	A	A	B	A	C

							j
0	1	2	3	4	5	6	7
A	A	B	A	A	B	A	C

$\text{text}[i] \neq \text{pt}[j]$
 $j = \text{pi}[j-1]$ (while문)

	0	1	2	3	4	5	6	7
pi	A	A	B	A	A	B	A	C
	0	1	0	1	2	3	4	0


i

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	22	22
A	A	B	A	A	B	A	A	A	A	B	A	A	B	D	A	A	B	A	A	B	A	C


j

0	1	2	3	4	5	6	7
A	A	B	A	A	B	A	C

pi	0	1	2	3	4	5	6	7
	A	A	B	A	A	B	A	C
	0	1	0	1	2	3	4	0



0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	22	22
A	A	B	A	A	B	A	A	A	A	B	A	A	B	D	A	A	B	A	A	B	A	C



0	1	2	3	4	5	6	7
A	A	B	A	A	B	A	C

text[i] != pt[j]

j = pi[j-1] (while문)

pi	0	1	2	3	4	5	6	7
	A	A	B	A	A	B	A	C
	0	1	0	1	2	3	4	0

								i														
0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	22	22
A	A	B	A	A	B	A	A	A	A	B	A	A	B	D	A	A	B	A	A	B	A	C

		j					
0	1	2	3	4	5	6	7
A	A	B	A	A	B	A	C

text[i] != pt[j]

j = pi[j-1] (while문)

	0	1	2	3	4	5	6	7
pi	A	A	B	A	A	B	A	C
	0	1	0	1	2	3	4	0

i

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	22	22
A	A	B	A	A	B	A	A	A	A	B	A	A	B	D	A	A	B	A	A	B	A	C

j

0	1	2	3	4	5	6	7
A	A	B	A	A	B	A	C

pi	0	1	2	3	4	5	6	7
	A	A	B	A	A	B	A	C
	0	1	0	1	2	3	4	0



0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	22	22
A	A	B	A	A	B	A	A	A	A	B	A	A	B	D	A	A	B	A	A	B	A	C



0	1	2	3	4	5	6	7
A	A	B	A	A	B	A	C

text[i] != pt[j]

j = pi[j-1] (while문)

pi	0	1	2	3	4	5	6	7
	A	A	B	A	A	B	A	C
	0	1	0	1	2	3	4	0



0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	22	22
A	A	B	A	A	B	A	A	A	A	B	A	A	B	D	A	A	B	A	A	B	A	C



0	1	2	3	4	5	6	7
A	A	B	A	A	B	A	C

pi	0	1	2	3	4	5	6	7
	A	A	B	A	A	B	A	C
	0	1	0	1	2	3	4	0



0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	22	22
A	A	B	A	A	B	A	A	A	A	B	A	A	B	D	A	A	B	A	A	B	A	C



0	1	2	3	4	5	6	7
A	A	B	A	A	B	A	C

pi	0	1	2	3	4	5	6	7
	A	A	B	A	A	B	A	C
	0	1	0	1	2	3	4	0



0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	22	22
A	A	B	A	A	B	A	A	A	A	B	A	A	B	D	A	A	B	A	A	B	A	C



0	1	2	3	4	5	6	7
A	A	B	A	A	B	A	C

pi	0	1	2	3	4	5	6	7
	A	A	B	A	A	B	A	C
	0	1	0	1	2	3	4	0

i

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	22	22
A	A	B	A	A	B	A	A	A	A	B	A	A	B	D	A	A	B	A	A	B	A	C

j

0	1	2	3	4	5	6	7
A	A	B	A	A	B	A	C

pi	0	1	2	3	4	5	6	7
	A	A	B	A	A	B	A	C
	0	1	0	1	2	3	4	0

i

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	22	22
A	A	B	A	A	B	A	A	A	A	B	A	A	B	D	A	A	B	A	A	B	A	C

j

0	1	2	3	4	5	6	7
A	A	B	A	A	B	A	C

pi	0	1	2	3	4	5	6	7
	A	A	B	A	A	B	A	C
	0	1	0	1	2	3	4	0

<div><div>i</div></div>																						
0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	22	22
A	A	B	A	A	B	A	A	A	A	B	A	A	B	D	A	A	B	A	A	B	A	C

						j	
0	1	2	3	4	5	6	7
A	A	B	A	A	B	A	C

text[i] != pt[j]

j = pi[j-1] (while문)

	0	1	2	3	4	5	6	7
pi	A	A	B	A	A	B	A	C
	0	1	0	1	2	3	4	0

														i								
0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	22	22
A	A	B	A	A	B	A	A	A	A	B	A	A	B	D	A	A	B	A	A	B	A	C

			j				
0	1	2	3	4	5	6	7
A	A	B	A	A	B	A	C

text[i] != pt[j]

j = pi[j-1] (while문)

	0	1	2	3	4	5	6	7
pi	A	A	B	A	A	B	A	C
	0	1	0	1	2	3	4	0

i

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	22	22
A	A	B	A	A	B	A	A	A	A	B	A	A	B	D	A	A	B	A	A	B	A	C

j

0	1	2	3	4	5	6	7
A	A	B	A	A	B	A	C

pi	0	1	2	3	4	5	6	7
	A	A	B	A	A	B	A	C
	0	1	0	1	2	3	4	0

i

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	22	22
A	A	B	A	A	B	A	A	A	A	B	A	A	B	D	A	A	B	A	A	B	A	C

j

0	1	2	3	4	5	6	7
A	A	B	A	A	B	A	C

pi	0	1	2	3	4	5	6	7
	A	A	B	A	A	B	A	C
	0	1	0	1	2	3	4	0

i

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	22	22
A	A	B	A	A	B	A	A	A	A	B	A	A	B	D	A	A	B	A	A	B	A	C

j

0	1	2	3	4	5	6	7
A	A	B	A	A	B	A	C

pi	0	1	2	3	4	5	6	7
	A	A	B	A	A	B	A	C
	0	1	0	1	2	3	4	0

KMP Algorithm



0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	22	22
A	A	B	A	A	B	A	A	A	A	B	A	A	B	D	A	A	B	A	A	B	A	C

i

j

0	1	2	3	4	5	6	7
A	A	B	A	A	B	A	C

pi	0	1	2	3	4	5	6	7
	A	A	B	A	A	B	A	C
	0	1	0	1	2	3	4	0