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## Interpolation Polynomial with Java

Contoh Input/Output

Format input:

```
n
x1 y1
x2 y2
...
xn yn
xn+1 yn+1
```

Format output:

```
ax^n + bx^{n-1} + ... + px + q
```

yang berarti  $y = ax^n + bx^{n-1} + \dots + px + q$

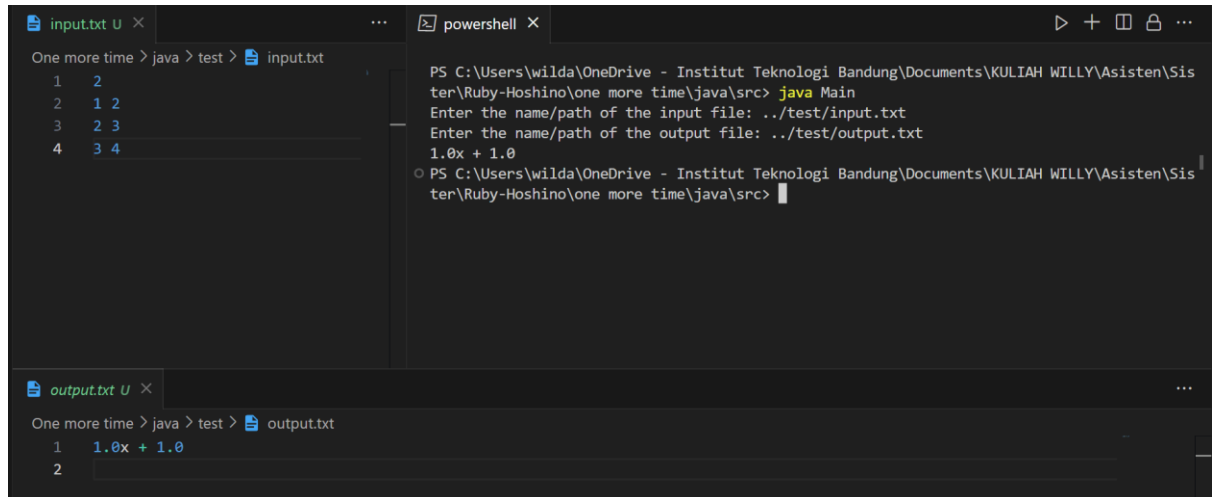
dengan ^ merupakan pangkat yang berarti  $ax^{**n} = ax^n$

Jumlah titik =  $N + 1$

### 1. $N = 1$

```
input.txt U x  ...  powershell x
One more time > java > test > i PS C:\Users\wilda\OneDrive - Institut Teknologi Bandung\Documents\KULIAH WILLY\Asisten\Sister\Ruby-Hoshino
1 1 \One more time\java\src> javac Main.java
2 1 1 \One more time\java\src> java Main
3 -4 2 Enter the name/path of the input file: ../test/input.txt
4 Enter the name/path of the output file: ../test/output.txt
5 - 0.2x + 1.2
6
7
8
9
10
11
12
output.txt U x  ...
One more time > java > test > output.txt
1 - 0.2x + 1.2
2
```

## 2. $N = 2$

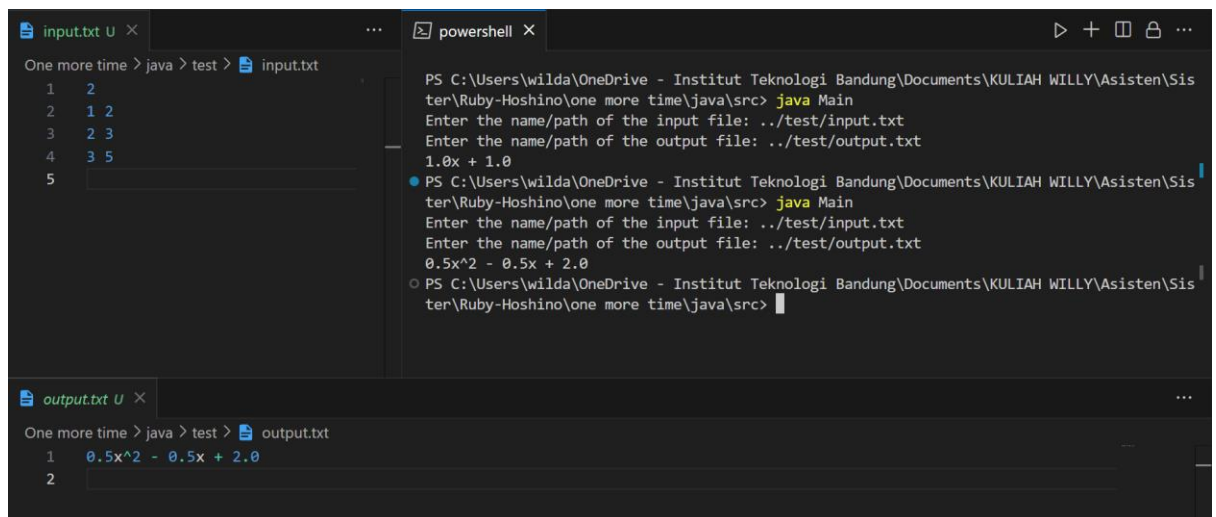


```
input.txt U X
One more time > java > test > input.txt
1 2
2 1 2
3 2 3
4 3 4

output.txt U X
One more time > java > test > output.txt
1 1.0x + 1.0
2
```

```
PS C:\Users\wilda\OneDrive - Institut Teknologi Bandung\Documents\KULIAH WILLY\Asisten\Sister\Ruby-Hoshino\one more time\java\src> java Main
Enter the name/path of the input file: ../test/input.txt
Enter the name/path of the output file: ../test/output.txt
1.0x + 1.0
PS C:\Users\wilda\OneDrive - Institut Teknologi Bandung\Documents\KULIAH WILLY\Asisten\Sister\Ruby-Hoshino\one more time\java\src>
```

## 3. $N = 2$

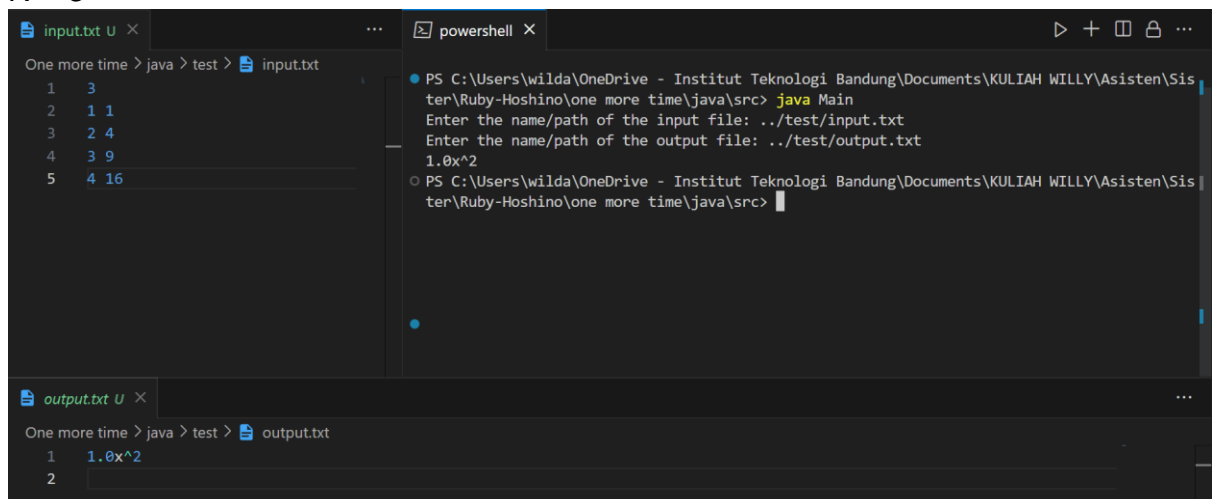


```
input.txt U X
One more time > java > test > input.txt
1 2
2 1 2
3 2 3
4 3 5
5

output.txt U X
One more time > java > test > output.txt
1 0.5x^2 - 0.5x + 2.0
2
```

```
PS C:\Users\wilda\OneDrive - Institut Teknologi Bandung\Documents\KULIAH WILLY\Asisten\Sister\Ruby-Hoshino\one more time\java\src> java Main
Enter the name/path of the input file: ../test/input.txt
Enter the name/path of the output file: ../test/output.txt
1.0x + 1.0
PS C:\Users\wilda\OneDrive - Institut Teknologi Bandung\Documents\KULIAH WILLY\Asisten\Sister\Ruby-Hoshino\one more time\java\src> java Main
Enter the name/path of the input file: ../test/input.txt
Enter the name/path of the output file: ../test/output.txt
0.5x^2 - 0.5x + 2.0
PS C:\Users\wilda\OneDrive - Institut Teknologi Bandung\Documents\KULIAH WILLY\Asisten\Sister\Ruby-Hoshino\one more time\java\src>
```

## 4. $N = 3$



```
input.txt U X
One more time > java > test > input.txt
1 3
2 1 1
3 2 4
4 3 9
5 4 16

output.txt U X
One more time > java > test > output.txt
1 1.0x^2
2
```

```
PS C:\Users\wilda\OneDrive - Institut Teknologi Bandung\Documents\KULIAH WILLY\Asisten\Sister\Ruby-Hoshino\one more time\java\src> java Main
Enter the name/path of the input file: ../test/input.txt
Enter the name/path of the output file: ../test/output.txt
1.0x^2
PS C:\Users\wilda\OneDrive - Institut Teknologi Bandung\Documents\KULIAH WILLY\Asisten\Sister\Ruby-Hoshino\one more time\java\src>
```

## 5. $N = 3$

input.txt U ×

One more time > java > test > input.txt

1	3
2	1 2
3	2 3
4	3 4
5	4 5

output.txt U ×

One more time > java > test > output.txt

1	0.99999905x + 1.0
2	

powershell X

- PS C:\Users\wilda\OneDrive - Institut Teknologi Bandung\Documents\KULIAH WILLY\Asisten\Sister\Ruby-Hoshino\one more time\java\src> java Main  
Enter the name/path of the input file: ../test/input.txt  
Enter the name/path of the output file: ../test/output.txt  
1.0x^2
- PS C:\Users\wilda\OneDrive - Institut Teknologi Bandung\Documents\KULIAH WILLY\Asisten\Sister\Ruby-Hoshino\one more time\java\src> java Main  
Enter the name/path of the input file: ../test/input.txt  
Enter the name/path of the output file: ../test/output.txt  
0.99999905x + 1.0
- PS C:\Users\wilda\OneDrive - Institut Teknologi Bandung\Documents\KULIAH WILLY\Asisten\Sister\Ruby-Hoshino\one more time\java\src>

## 6. $N = 3$

input.txt U ×

One more time > java > test > input.txt

1	3
2	1 10
3	2 2
4	3 5
5	4 1
6	

output.txt U ×

One more time > java > test > output.txt

1	- 3.0x^3 + 23.5x^2 - 57.500004x + 47.0
2	

powershell X

- Enter the name/path of the input file: ../test/input.txt  
Enter the name/path of the output file: ../test/output.txt  
1.0x^2
- PS C:\Users\wilda\OneDrive - Institut Teknologi Bandung\Documents\KULIAH WILLY\Asisten\Sister\Ruby-Hoshino\one more time\java\src> java Main  
Enter the name/path of the input file: ../test/input.txt  
Enter the name/path of the output file: ../test/output.txt  
0.99999905x + 1.0
- PS C:\Users\wilda\OneDrive - Institut Teknologi Bandung\Documents\KULIAH WILLY\Asisten\Sister\Ruby-Hoshino\one more time\java\src> java Main  
Enter the name/path of the input file: ../test/input.txt  
Enter the name/path of the output file: ../test/output.txt  
- 3.0x^3 + 23.5x^2 - 57.500004x + 47.0
- PS C:\Users\wilda\OneDrive - Institut Teknologi Bandung\Documents\KULIAH WILLY\Asisten\Sister\Ruby-Hoshino\one more time\java\src>

## 7. $N = 4$

input.txt U ×

One more time > java > test > input.txt

1	4
2	0 1
3	1 1
4	2 1
5	3 1
6	4 1

output.txt U ×

One more time > java > test > output.txt

1	1.0
2	

powershell X

- Enter the name/path of the input file: ../test/input.txt  
Enter the name/path of the output file: ../test/output.txt  
0.99999905x + 1.0
- PS C:\Users\wilda\OneDrive - Institut Teknologi Bandung\Documents\KULIAH WILLY\Asisten\Sister\Ruby-Hoshino\one more time\java\src> java Main  
Enter the name/path of the input file: ../test/input.txt  
Enter the name/path of the output file: ../test/output.txt  
- 3.0x^3 + 23.5x^2 - 57.500004x + 47.0
- PS C:\Users\wilda\OneDrive - Institut Teknologi Bandung\Documents\KULIAH WILLY\Asisten\Sister\Ruby-Hoshino\one more time\java\src> java Main  
Enter the name/path of the input file: ../test/input.txt  
Enter the name/path of the output file: ../test/output.txt  
1.0
- PS C:\Users\wilda\OneDrive - Institut Teknologi Bandung\Documents\KULIAH WILLY\Asisten\Sister\Ruby-Hoshino\one more time\java\src>

## 8. N = 4

```

input.txt U ×
One more time > java > test > input.txt
1 4
2 0 0
3 1 0
4 2 0
5 3 0
6 4 1

output.txt U ×
One more time > java > test > output.txt
1 0.041666668x^4 - 0.25x^3 + 0.45833334x^2 - 0.25x
2

```

## 9. N = 7

```

input.txt U ×
One more time > java > test > input.txt
1 7
2 0 0
3 1 0
4 2 0
5 3 0
6 4 1
7 5 1
8 6 1
9 7 1

output.txt U ×
One more time > java > test > output.txt
1 - 0.0039682547x^7 + 0.09722223x^6 - 0.936111x^5 + 4.472222x^4 - 10.986111x^3 + 12.930555x^2 - 5.573809x
2

```

## 10. N = 10

```

input.txt U ×
One more time > java > test > input.txt
1 10
2 1 10
3 2 2
4 3 5
5 4 1
6 6 1
7 -10 -10
8 0 0
9 18 100
10 -100 100
11 200 10
12 150 -150

output.txt U ×
One more time > java > test > output.txt
1 - 0.00255659x^7 + 0.055172905x^6 - 0.00597638x^5 - 4.590929x^4 + 28.332066x^3 - 63.319336x^2 + 49.531567x
2

```