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Interpolation Polynomial with PHP

Contoh Input/Output

Format input:

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

Format output:

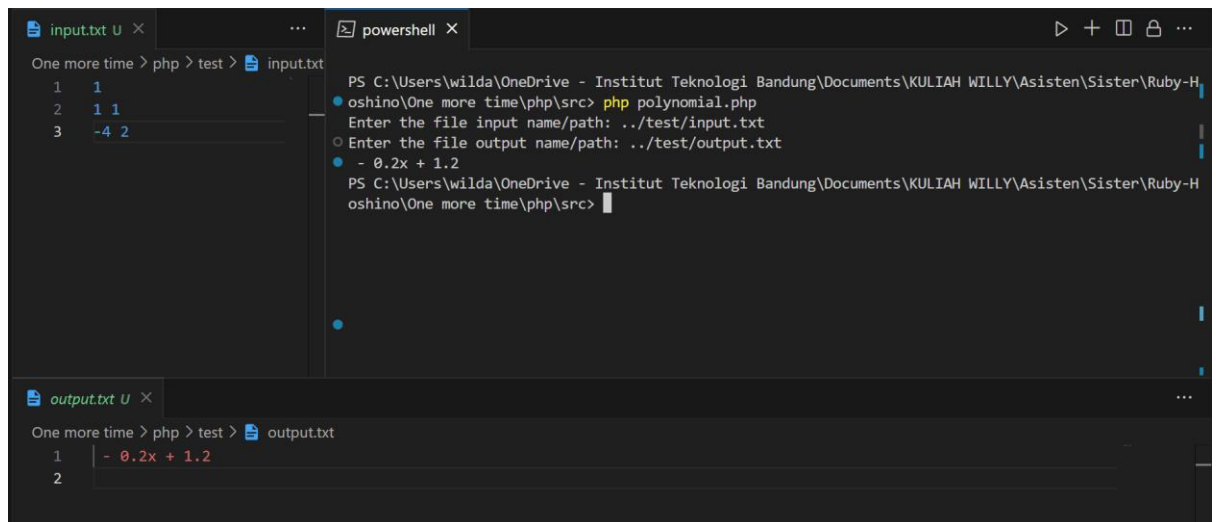
```
ax^n + bx^{n-1} + ... + px + q
```

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. $N = 1$



```
PS C:\Users\wilda\OneDrive - Institut Teknologi Bandung\Documents\KULIAH WILLY\Asisten\Sister\Ruby-H
oshino\One more time\php\src> php polynomial.php
Enter the file input name/path: ../test/input.txt
Enter the file output name/path: ../test/output.txt
- 0.2x + 1.2
PS C:\Users\wilda\OneDrive - Institut Teknologi Bandung\Documents\KULIAH WILLY\Asisten\Sister\Ruby-H
oshino\One more time\php\src>
```

The screenshot shows a PowerShell terminal window with two tabs: 'input.txt' and 'output.txt'. The 'input.txt' tab displays the following content:

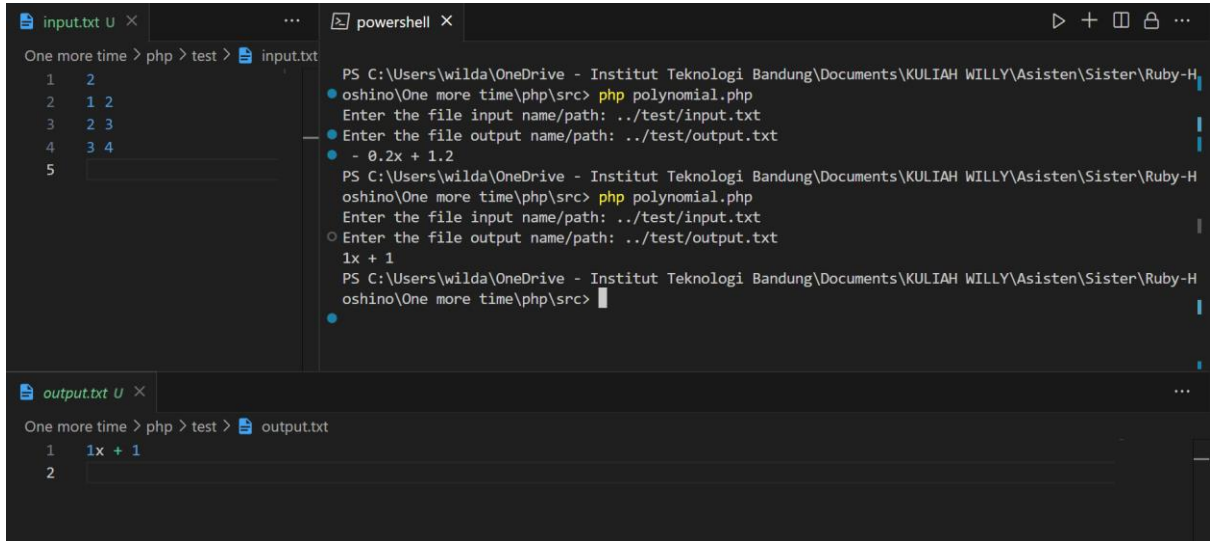
```
1 1
2 1 1
3 -4 2
```

The 'output.txt' tab displays the following content:

```
1 - 0.2x + 1.2
2
```

The PowerShell terminal window shows the execution of the 'polynomial.php' script. The prompt is 'PS C:\Users\wilda\OneDrive - Institut Teknologi Bandung\Documents\KULIAH WILLY\Asisten\Sister\Ruby-Hoshino\One more time\php\src>'. The user enters 'php polynomial.php'. The script prompts for the input file path: 'Enter the file input name/path: ../test/input.txt'. The user enters 'Enter the file output name/path: ../test/output.txt'. The script outputs the polynomial: '- 0.2x + 1.2'. The prompt returns to 'PS C:\Users\wilda\OneDrive - Institut Teknologi Bandung\Documents\KULIAH WILLY\Asisten\Sister\Ruby-Hoshino\One more time\php\src>'.

2. $N = 2$

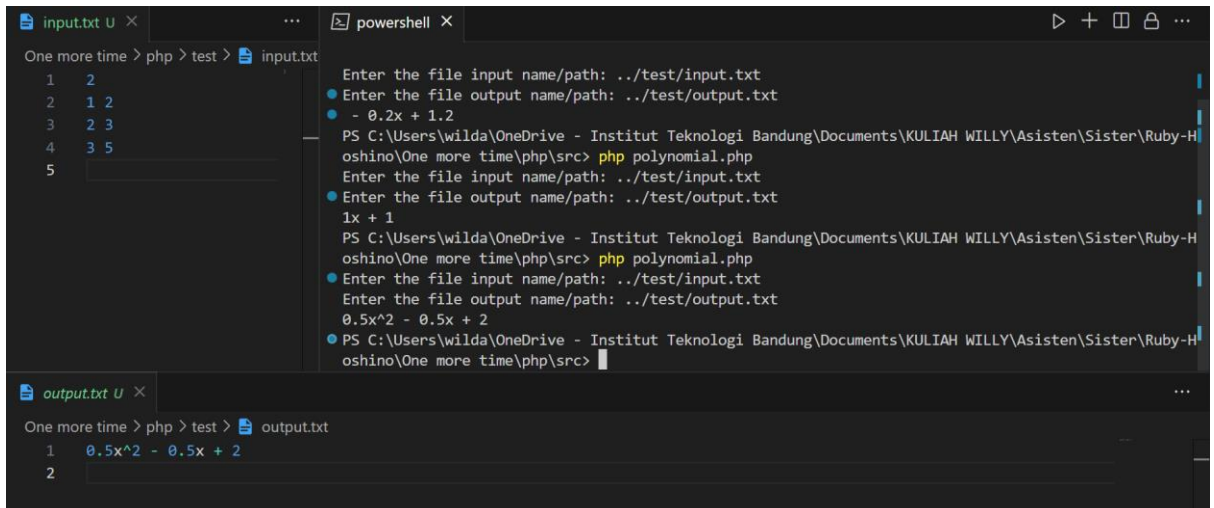


```
input.txt U x
One more time > php > test > input.txt
1 2
2 1 2
3 2 3
4 3 4
5

powershell X
PS C:\Users\wilda\OneDrive - Institut Teknologi Bandung\Documents\KULIAH WILLY\Asisten\Sister\Ruby-H
oshino\One more time\php\src> php polynomial.php
Enter the file input name/path: ../test/input.txt
Enter the file output name/path: ../test/output.txt
- 0.2x + 1.2
PS C:\Users\wilda\OneDrive - Institut Teknologi Bandung\Documents\KULIAH WILLY\Asisten\Sister\Ruby-H
oshino\One more time\php\src> php polynomial.php
Enter the file input name/path: ../test/input.txt
Enter the file output name/path: ../test/output.txt
1x + 1
PS C:\Users\wilda\OneDrive - Institut Teknologi Bandung\Documents\KULIAH WILLY\Asisten\Sister\Ruby-H
oshino\One more time\php\src>

output.txt U x
One more time > php > test > output.txt
1 1x + 1
2
```

3. $N = 2$

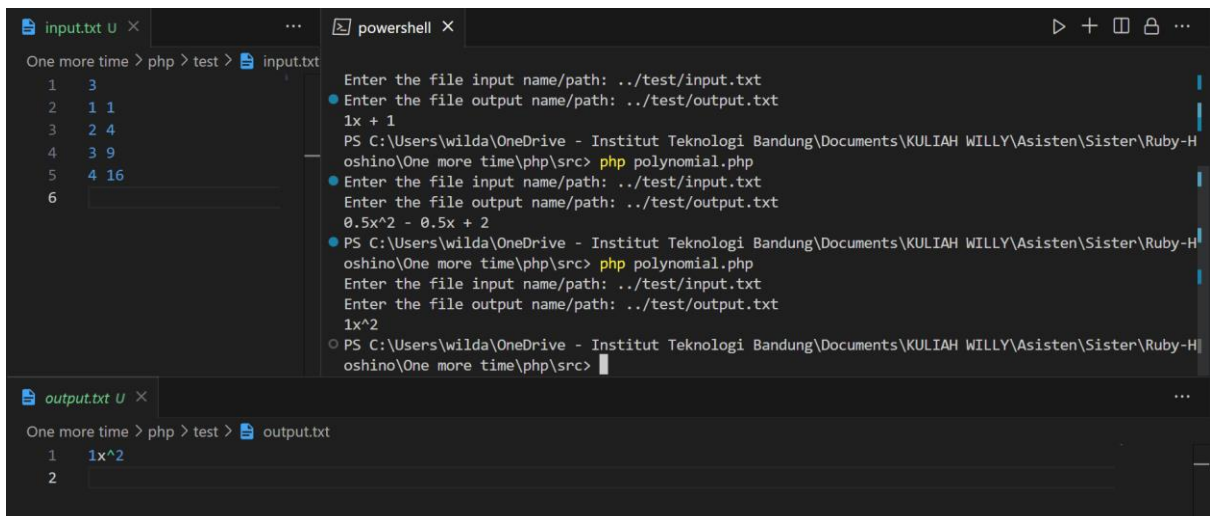


```
input.txt U x
One more time > php > test > input.txt
1 2
2 1 2
3 2 3
4 3 5
5

powershell X
Enter the file input name/path: ../test/input.txt
Enter the file output name/path: ../test/output.txt
- 0.2x + 1.2
PS C:\Users\wilda\OneDrive - Institut Teknologi Bandung\Documents\KULIAH WILLY\Asisten\Sister\Ruby-H
oshino\One more time\php\src> php polynomial.php
Enter the file input name/path: ../test/input.txt
Enter the file output name/path: ../test/output.txt
1x + 1
PS C:\Users\wilda\OneDrive - Institut Teknologi Bandung\Documents\KULIAH WILLY\Asisten\Sister\Ruby-H
oshino\One more time\php\src> php polynomial.php
Enter the file input name/path: ../test/input.txt
Enter the file output name/path: ../test/output.txt
0.5x^2 - 0.5x + 2
PS C:\Users\wilda\OneDrive - Institut Teknologi Bandung\Documents\KULIAH WILLY\Asisten\Sister\Ruby-H
oshino\One more time\php\src>

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

4. $N = 3$



```
input.txt U x
One more time > php > test > input.txt
1 3
2 1 1
3 2 4
4 3 9
5 4 16
6

powershell X
Enter the file input name/path: ../test/input.txt
Enter the file output name/path: ../test/output.txt
1x + 1
PS C:\Users\wilda\OneDrive - Institut Teknologi Bandung\Documents\KULIAH WILLY\Asisten\Sister\Ruby-H
oshino\One more time\php\src> php polynomial.php
Enter the file input name/path: ../test/input.txt
Enter the file output name/path: ../test/output.txt
0.5x^2 - 0.5x + 2
PS C:\Users\wilda\OneDrive - Institut Teknologi Bandung\Documents\KULIAH WILLY\Asisten\Sister\Ruby-H
oshino\One more time\php\src> php polynomial.php
Enter the file input name/path: ../test/input.txt
Enter the file output name/path: ../test/output.txt
1x^2
PS C:\Users\wilda\OneDrive - Institut Teknologi Bandung\Documents\KULIAH WILLY\Asisten\Sister\Ruby-H
oshino\One more time\php\src>

output.txt U x
One more time > php > test > output.txt
1 1x^2
2
```

5. $N = 3$

```

input.txt U x
One more time > php > test > input.txt
1 3
2 1 2
3 2 3
4 3 4
5 4 5
6

powershell X
Enter the file input name/path: ../test/input.txt
Enter the file output name/path: ../test/output.txt
0.5x^2 - 0.5x + 2
• PS C:\Users\wilda\OneDrive - Institut Teknologi Bandung\Documents\KULIAH WILLY\Asisten\Sister\Ruby-H
oshino\One more time\php\src> php polynomial.php
Enter the file input name/path: ../test/input.txt
Enter the file output name/path: ../test/output.txt
1x^2
• PS C:\Users\wilda\OneDrive - Institut Teknologi Bandung\Documents\KULIAH WILLY\Asisten\Sister\Ruby-H
oshino\One more time\php\src> php polynomial.php
Enter the file input name/path: ../test/input.txt
Enter the file output name/path: ../test/output.txt
1x + 1
• PS C:\Users\wilda\OneDrive - Institut Teknologi Bandung\Documents\KULIAH WILLY\Asisten\Sister\Ruby-H
oshino\One more time\php\src>

output.txt U x
One more time > php > test > output.txt
1 1x + 1
2

```

6. $N = 3$

```

input.txt U x
One more time > php > test > input.txt
1 3
2 1 10
3 2 2
4 3 5
5 4 1
6

powershell X
Enter the file input name/path: ../test/input.txt
Enter the file output name/path: ../test/output.txt
1x^2
• PS C:\Users\wilda\OneDrive - Institut Teknologi Bandung\Documents\KULIAH WILLY\Asisten\Sister\Ruby-H
oshino\One more time\php\src> php polynomial.php
Enter the file input name/path: ../test/input.txt
Enter the file output name/path: ../test/output.txt
1x + 1
• PS C:\Users\wilda\OneDrive - Institut Teknologi Bandung\Documents\KULIAH WILLY\Asisten\Sister\Ruby-H
oshino\One more time\php\src> php polynomial.php
Enter the file input name/path: ../test/input.txt
Enter the file output name/path: ../test/output.txt
- 3x^3 + 23.5x^2 - 57.5x + 47
• PS C:\Users\wilda\OneDrive - Institut Teknologi Bandung\Documents\KULIAH WILLY\Asisten\Sister\Ruby-H
oshino\One more time\php\src>

output.txt U x
One more time > php > test > output.txt
1 - 3x^3 + 23.5x^2 - 57.5x + 47
2

```

7. $N = 4$

```

input.txt U x
One more time > php > test > input.txt
1 4
2 0 1
3 1 1
4 2 1
5 3 1
6 4 1
7

powershell X
Enter the file input name/path: ../test/input.txt
Enter the file output name/path: ../test/output.txt
1x + 1
• PS C:\Users\wilda\OneDrive - Institut Teknologi Bandung\Documents\KULIAH WILLY\Asisten\Sister\Ruby-H
oshino\One more time\php\src> php polynomial.php
Enter the file input name/path: ../test/input.txt
Enter the file output name/path: ../test/output.txt
- 3x^3 + 23.5x^2 - 57.5x + 47
• PS C:\Users\wilda\OneDrive - Institut Teknologi Bandung\Documents\KULIAH WILLY\Asisten\Sister\Ruby-H
oshino\One more time\php\src> php polynomial.php
Enter the file input name/path: ../test/input.txt
Enter the file output name/path: ../test/output.txt
1
• PS C:\Users\wilda\OneDrive - Institut Teknologi Bandung\Documents\KULIAH WILLY\Asisten\Sister\Ruby-H
oshino\One more time\php\src>

output.txt U x
One more time > php > test > output.txt
1 1
2

```

8. N = 4

```

input.txt U x
One more time > php > test > input.txt
1 4
2 0 0
3 1 0
4 2 0
5 3 0
6 4 1
7

php x
Enter the file input name/path: ../test/input.txt
Enter the file output name/path: ../test/output.txt
- 3x^3 + 23.5x^2 - 57.5x + 47
• PS C:\Users\wilda\OneDrive - Institut Teknologi Bandung\Documents\KULIAH WILLY\Asisten\Sister\Ruby-H
oshino\One more time\php\src> php polynomial.php
Enter the file input name/path: ../test/input.txt
Enter the file output name/path: ../test/output.txt
1
• PS C:\Users\wilda\OneDrive - Institut Teknologi Bandung\Documents\KULIAH WILLY\Asisten\Sister\Ruby-H
oshino\One more time\php\src> php polynomial.php
Enter the file input name/path: ../test/input.txt
Enter the file output name/path: ../test/output.txt
0.041666666666667x^4 - 0.25x^3 + 0.45833333333333x^2 - 0.25x
○ PS C:\Users\wilda\OneDrive - Institut Teknologi Bandung\Documents\KULIAH WILLY\Asisten\Sister\Ruby-H
oshino\One more time\php\src>

output.txt U x
One more time > php > test > output.txt
1 0.041666666666667x^4 - 0.25x^3 + 0.45833333333333x^2 - 0.25x
2

```

9. N = 7

```

input.txt U x
One more time > php > 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

powershell x
Enter the file output name/path: ../test/output.txt
1
• PS C:\Users\wilda\OneDrive - Institut Teknologi Bandung\Documents\KULIAH WILLY\Asisten\Sister\Ruby-H
oshino\One more time\php\src> php polynomial.php
Enter the file input name/path: ../test/input.txt
Enter the file output name/path: ../test/output.txt
0.041666666666667x^4 - 0.25x^3 + 0.45833333333333x^2 - 0.25x
• PS C:\Users\wilda\OneDrive - Institut Teknologi Bandung\Documents\KULIAH WILLY\Asisten\Sister\Ruby-H
oshino\One more time\php\src> php polynomial.php
Enter the file input name/path: ../test/input.txt
Enter the file output name/path: ../test/output.txt
- 0.003968253968254x^7 + 0.097222222222222x^6 - 0.93611111111111x^5 + 4.4722222222222x^4 - 10.98611
111111x^3 + 12.930555555556x^2 - 5.5738095238095x
○ PS C:\Users\wilda\OneDrive - Institut Teknologi Bandung\Documents\KULIAH WILLY\Asisten\Sister\Ruby-H
oshino\One more time\php\src>

output.txt U x
One more time > php > test > output.txt
1 - 0.003968253968254x^7 + 0.097222222222222x^6 - 0.93611111111111x^5 + 4.4722222222222x^4 - 10.986111111111x^3 +
2

```

10. N = 10

```

input.txt U x
One more time > php > 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

php x
• PS C:\Users\wilda\OneDrive - Institut Teknologi Bandung\Documents\KULIAH WILLY\Asisten\Sister\Ruby-H
oshino\One more time\php\src> php polynomial.php
Enter the file input name/path: ../test/input.txt
Enter the file output name/path: ../test/output.txt
- 0.003968253968254x^7 + 0.097222222222222x^6 - 0.93611111111111x^5 + 4.4722222222222x^4 - 10.98611
111111x^3 + 12.930555555556x^2 - 5.5738095238095x
• PS C:\Users\wilda\OneDrive - Institut Teknologi Bandung\Documents\KULIAH WILLY\Asisten\Sister\Ruby-H
oshino\One more time\php\src> php polynomial.php
Enter the file input name/path: ../test/input.txt
Enter the file output name/path: ../test/output.txt
- 8.2157632300938E-10x^10 + 2.2364932807996E-7x^9 - 4.5965845415943E-7x^8 - 0.0025565895341109x^7 +
0.05517289041481x^6 - 0.0059764253984915x^5 - 4.5909284757604x^4 + 28.332063291449x^3 - 63.31933685
9386x^2 + 49.531562405046x
○ PS C:\Users\wilda\OneDrive - Institut Teknologi Bandung\Documents\KULIAH WILLY\Asisten\Sister\Ruby-H
oshino\One more time\php\src>

output.txt U x
One more time > php > test > output.txt
1 - 8.2157632300938E-10x^10 + 2.2364932807996E-7x^9 - 4.5965845415943E-7x^8 - 0.0025565895341109x^7 + 0.0551728904
2

```