In [1]:
```
"""
Problem Statement 1:
Write a function so that the columns of the output matrix are powers of the ir
vector.
The order of the powers is determined by the increasing boolean argument. Spec
when increasing is False, the i-th output column is the input vector raised el
to the power of N - i - 1.
HINT: Such a matrix with a geometric progression in each row is named for Alex
Theophile Vandermonde.
"""
import numpy as np
x = np.array([1, 2, 3, 4])
N=4
np.column_stack([x**(N-i -1) for i in range(N)])

```

Out[1]:
```
array([[ 1,  1,  1,  1],
       [ 8,  4,  2,  1],
       [27,  9,  3,  1],
       [64, 16,  4,  1]], dtype=int32)
```

In [ ]:
```

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