pythonMatrix

September 19, 2024

[23]:
```
import numpy as np

A = np.array([
    [100, 50, 150, 200],
    [50, 50, 100, 300],
    [100, 150, 200, 100],
    [50, 200, 300, 50],
    [200, 50, 250, 50],
    [300, 50, 50, 200]
])

rank = np.linalg.matrix_rank(A)

print("The rank of the  matrix A is:", rank)
```

```
The rank of the  matrix A is: 4
```

[22]:
```
import numpy as np

A_b = np.array([
    [2, 1, 3, 4, 50],
    [1, 1, 2, 6, 46],
    [2, 3, 4, 2, 60],
    [1, 4, 6, 1, 58],
    [4, 1, 5, 1, 62],
    [6, 1, 1, 4, 86]
])

rank = np.linalg.matrix_rank(A_b)


print("The rank of the  Argumented matrix [A|B] is:", rank)
```

```
The rank of the  Argumented matrix [A|B] is: 4
```

[28]:
```
b = np.array([2500, 2300, 3000, 2900, 3100, 4300])

Pseudo_A = A.T @ A
Pseudo_A_inverse = np.linalg.inv(Pseudo_A)
```

```
x = Pseudo_A_inverse @ A.T @ b
print("food A:", x[0])
print("food B:", x[1])
print("food C:", x[2])
print("food D:", x[3])
```

```
food A: 9.999999999999996
food B: 8.000000000000007
food C: 1.9999999999999942
food D: 4.000000000000002
```

[29]:
```
print("from Gaussian Elimination")
print("food A:", 10)
print("food A:", 8)
print("food A:", 2)
print("food D:", 4)
```

```
from Gaussian Elimination
food A: 10
food A: 8
food A: 2
food D: 4
```

[ ]:
```

```