```
# -*- coding: utf-8 -*-
"""
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"""

import numpy as np
# np.random.seed(seed=2)
I = np.random.choice([0,1], 3)# generate random vector I, sampling from {0,1}
# W = np.random.choice([-1,1], 3) # generate random vector W, sampling from {-1,1}
W = np.array([1,1,1])

print(f'Input vector:{I}, Weight vector:{W}')

dot = I @ W
print(f'Dot product: {dot}')

def linear_threshold_gate(dot: int, T: float) -> int:
    '''Returns the binary threshold output'''
    if dot >= T:
        return 1
    else:
        return 0

T = 3
activation = linear_threshold_gate(dot, T)
print(f'When Threshold =3, Activation: {activation}')
```

```
Input vector:[1 1 0], Weight vector:[1 1 1]
Dot product: 2
When Threshold =3, Activation: 0
```