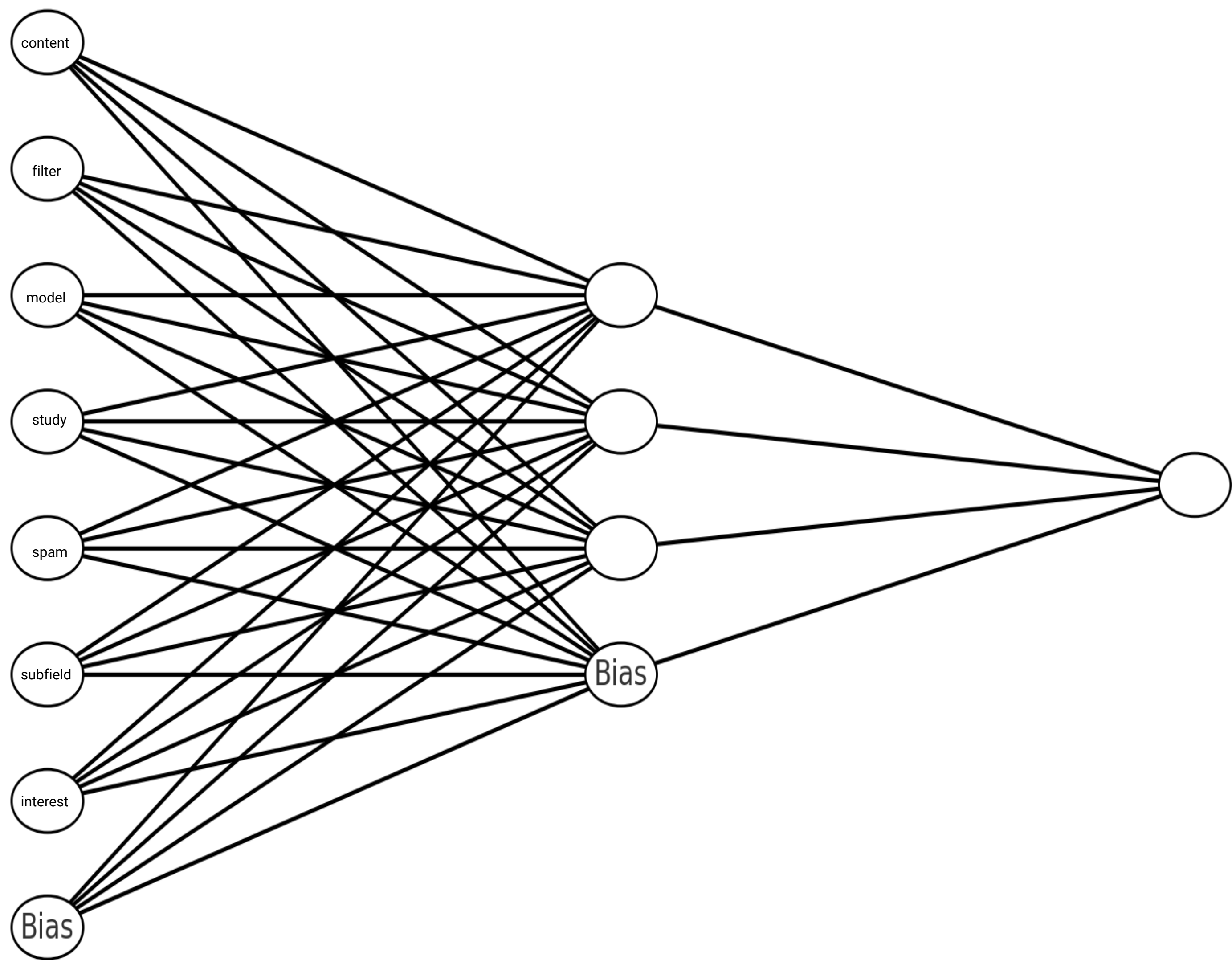


FORMULA FOR LOGISTIC REGRESSION (NEURAL NETWORK)

1. compute weighted sum
- $$\text{weighted sum} = \underset{\theta_0}{\text{bias}} + (\underset{\theta_1}{\text{weight 1}} \times \underset{x_1}{\text{feature 1}}) + (\underset{\theta_2}{\text{weight 2}} \times \underset{x_2}{\text{feature 2}}) + \dots$$
2. if weighted sum > 0, activation = 1

(a)



input layer

hidden layer

output layer

(b)

for pattern P1,  
weighted sum =  $0 + (2 \times 1) + (-4 \times 0) + (1 \times 0)$   
= 2

activation = 1

for pattern P2,  
weighted sum =  $0 + (2 \times 0) + (-4 \times 1) + (1 \times 1)$   
= -3

activation = 0

for pattern P3,  
weighted sum =  $0 + (2 \times 1) + (-4 \times 0) + (1 \times 1)$   
= 3

activation = 1

for pattern P4,  
weighted sum =  $0 + (2 \times 1) + (-4 \times 1) + (1 \times 1)$   
= -1

activation = 0

P1, y = 1

P2, y = 0

P3, y = 1

P4, y = 0