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Lecture: Logistic Regression

- **Video:** Welcome to the NLP Specialization — 4 min
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- **Reading:** Acknowledgement - Ken Church — 10 min
- **Video:** Week Introduction — 35 sec
- **Video:** Supervised ML & Sentiment Analysis — 2 min
- **Reading:** Supervised ML & Sentiment Analysis — 2 min
- **Video:** Vocabulary & Feature Extraction — 2 min
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Week 1 > Logistic Regression Overview

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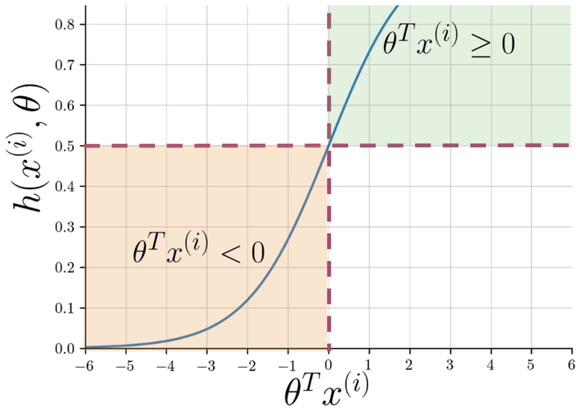
$$h(x^{(i)}, \theta) = \frac{1}{1 + e^{-\theta^T x^{(i)}}}$$



Note that as $\theta^T x^{(i)}$ gets closer and closer to $-\infty$ the denominator of the sigmoid function gets larger and larger and as a result, the sigmoid gets closer to 0. On the other hand, as $\theta^T x^{(i)}$ gets closer and closer to ∞ the denominator of the sigmoid function gets closer to 1 and as a result the sigmoid also gets closer to 1.

Now given a tweet, you can transform it into a vector and run it through your sigmoid function to get a prediction as follows:

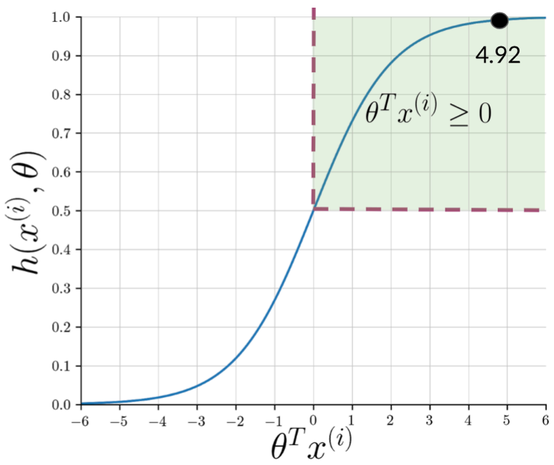
@YMourri and @AndrewYNg are tuning a GREAT AI model

↓

[tun, ai, great, model]

↓

$$x^{(i)} = \begin{bmatrix} 1 \\ 3476 \\ 245 \end{bmatrix} \quad \theta = \begin{bmatrix} 0.00003 \\ 0.00150 \\ -0.00120 \end{bmatrix}$$



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