**Logistic Regression with Polynomial Features**

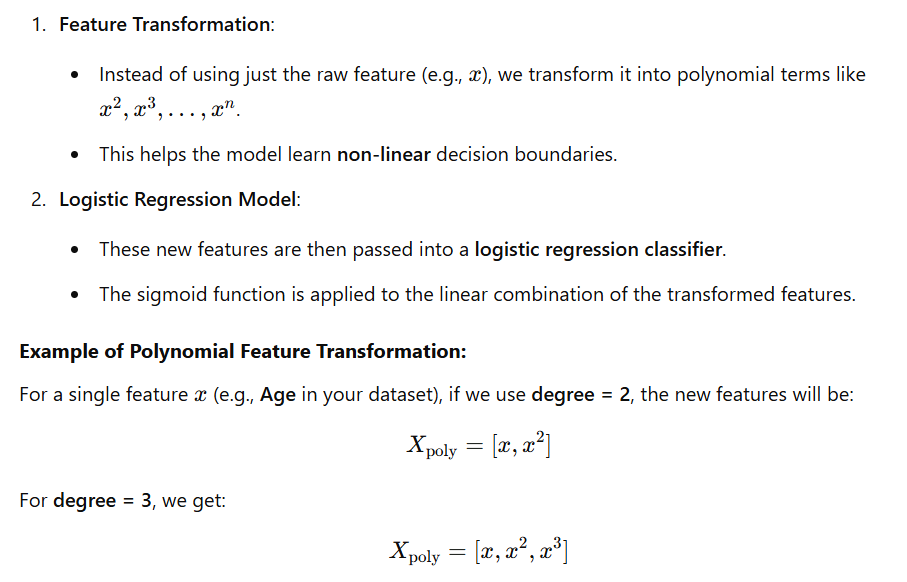
In standard **Logistic Regression**, the decision boundary is typically **linear**. However, when the relationship between input features and output is **non-linear**, we can use **Polynomial Features** to capture more complex patterns.

**How it Works:**

1. **Feature Transformation**:
   * Instead of using just the raw feature (e.g., xxx), we transform it into polynomial terms like x2,x3,…,xnx^2, x^3, \dots, x^nx2,x3,…,xn.
   * This helps the model learn **non-linear** decision boundaries.
2. **Logistic Regression Model**:

These new features are then passed into a **logistic regression classifier**.

* + The sigmoid function is applied to the linear combination of the transformed features.

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