

# Principal Component Analysis (PCA) Reduces Dimensions

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One technique for doing so is called **Principal Component Analysis (PCA)**.

Conceptually, we **find an ellipse** that bounds the data.

The **largest dimension of the ellipse becomes the first dimension** for the data.

We then **select orthogonal dimensions one at a time** until we have the number we want.

In this way, we **maximize variance of the data** in the new dimensions.