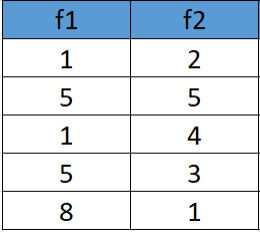
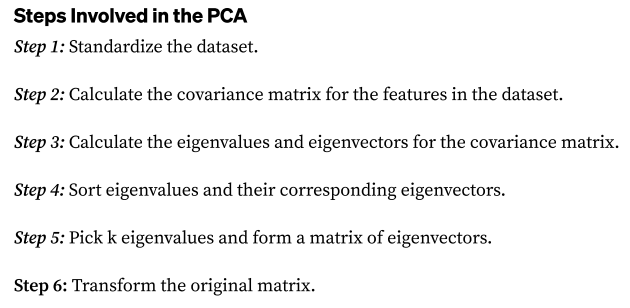
**Consider the following example with 2 features and 5 training examples on k=1 (Reducing dimensions from 2 to 1):**





**Step 1: Standardizing the dataset:**

**First, we calculate the mean and standard deviation for each feature.**

A math equations with numbers and formulas

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**Standardized Dataset:**

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**Step 2: Covariance Matrix:**

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**A math equations and numbers

Description automatically generated with medium confidence**

**Step 3,4,5: Calculate eigenvectors and eigenvalues of the covariance matrix, sort them and choose k features based on selection number k:**

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Description automatically generated**

**NOTE: THERE ARE TWO EIGENVALUES, SINCE K = 1 WE CHOOSE THE HIGHEST EIGENVALUE (1.9965)**

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