Develop VSM Model - Wedding gown

The Vector Space Model (VSM) is a mathematical model used to represent text documents as vectors of identifiers. It is useful in information retrieval, indexing, and relevancy rankings.

Develop a VSM for a wedding gown
To develop a VSM for a wedding gown, create vectors for the documents (d1, d2, d3, d4) using the vocabulary vector (Gown, Rose, Diamond, Flowers) as follows:

- d1: User selected Wedding gown.
- d2: User ordered online rose flowers.
- d3: User searched diamond ring.
- d4: User selected white wedding gown, online flowers, 3 carat diamond ring.

For each document, a vector will be created where each dimension corresponds to a term in the vocabulary vector. If a term occurs in the document, its value in the vector is non-zero. This can be done using term frequency-inverse document frequency (tf-idf) weighting.

Representation of the the documents as vectors:

- d1: (1, 0, 0, 0) # Gown is present, Rose, Diamond, Flowers are not
- d2: (0, 1, 0, 0) # Rose is present, Gown, Diamond, Flowers are not
- d3: (0, 0, 1, 0) # Diamond is present, Gown, Rose, Flowers are not
- d4: (1, 1, 1, 1) # Gown, Rose, Diamond, and Flowers are all present

The cosine similarity can then be used to calculate the similarity between any two document vectors, which can be useful for tasks like information retrieval or document clustering

For example, a method cosine_similarity(), can be defined that calculates cosine similarity between vector points.

cosine_similarity(d1, d4)
cosine_similarity(d2, d4)
cosine_similarity(d3, d4)
cosine_similarity(d1, d3)