**27.11.2023**

**Similarity Calculation and Recommendations**

**Calculating Similarity:**

In this session, we dive into the foundation of our outfit recommendation system by unraveling the science of similarity calculation. The focus is on understanding and applying cosine similarity, a powerful metric in the context of clothing features extracted by ResNet50.

**Introduction to Cosine Similarity**

Cosine similarity is a metric used to measure the similarity of two vectors. Regardless of the size of the vectors, cosine similarity takes into account the direction and magnitude of the vectors.

**Cosine similarity is calculated using the following formula:**

cos(θ) = (a · b) / (||a|| ||b||)

a and b are the vectors being compared.

θ is the angle between a and b.

||a|| and ||b|| are the lengths of a and b.

**Solution for Clothing Features**

In clothing recommendation systems, cosine similarity is often used to measure the similarity of clothing features. Garment characteristics can include features such as color, pattern, shape, texture, and style.

Cosine similarity is calculated by comparing vectors representing clothing features. These vectors can be created using a deep learning model such as ResNet50.

**Best Recommendations**

For a clothing item selected by a user, a list of similar clothing items can be created. This list is sorted by cosine similarity.

**In summary,** we have delved into the intricacies of calculating fashion compatibility via cosine similarity and made the first set of the most important recommendations that form the basis of a personalized and effective clothing recommendation journey.