Skip-gram and GloVe (Global Vectors) are two popular word embedding techniques that map words in a vocabulary to dense vectors of real numbers, which capture the meanings of the words and the relationships between them. These vectors can then be used as input to machine learning models for natural language processing tasks such as language translation, text classification, and text generation.

Here are the main differences between skip-gram and GloVe:

1. Objective function: Skip-gram uses a prediction-based objective function, which tries to predict the context words (surrounding words) given a target word. On the other hand, GloVe uses a co-occurrence-based objective function, which tries to predict a word based on the sum of the co-occurrences (i.e., how often they appear together) of that word and its context words in the corpus.
2. Training method: Skip-gram uses a shallow neural network with a single hidden layer to learn the word vectors. It learns the weights of the hidden layer using negative sampling. GloVe, on the other hand, uses a matrix factorization technique to learn the word vectors. It decomposes a co-occurrence matrix of word pairs into two smaller matrices, which are then used to reconstruct the original matrix.

Here are some examples to illustrate these differences:

Skip-gram: Suppose we have the following sentence: "The cat sat on the mat." The skip-gram model tries to predict the context words "The", "sat", "on", "the", "mat" given the target word "cat". It does this by learning a vector representation of "cat" that is close to the vectors of the context words in the word vector space.

GloVe: Suppose we have a corpus containing the following sentences: "The cat sat on the mat." "The cat chased the mouse." "The dog barked at the cat."

The GloVe model constructs a co-occurrence matrix of word pairs, where the rows represent target words and the columns represent context words. The elements of the matrix represent the number of times each word pair appears together in the corpus. For example, the element in the row "cat" and column "sat" would be 1, because "cat" and "sat" appear together once in the same sentence.

The GloVe model then decomposes this co-occurrence matrix into two smaller matrices, which are used to reconstruct the original matrix. The word vectors are obtained as the rows of one of these matrices. The word vector for "cat" would be obtained as the row of this matrix corresponding to the "cat" row in the co-occurrence matrix.