Word alignment is a crucial component of modern machine translation systems. Given a sentence in two languages, the task is to determine which words from one language are the most likely translations of words from the other language. As an alternative to classical generative approach (IBM models) new methods based on discriminative training and maximum-weight bipartite matching algorithms for complete bipartite graphs have been proposed in recent years. The graph vertices represent words in the source and target language. The edges are weighted by measures of association estimated from parallel training data. This work focuses on the effective implementation of maximum weight bipartite matching algorithm, implementation of scoring procedures for graph vertexes, and basic experiments and their evaluation.