Pixie inspired recommendations are types of recommendation systems that are inspired by Pinterest's Pixie algorithm, which utilizes a graph-based recommendation engine from item-user interactions. The core idea of a pixie inspired recommendation system is to create recommendations by randomly walking the graph using edge weights, such as ratings or the specific type of interaction. This idea of random walking is also more time and memory efficient than training latent models or neural networks, as it does not require item or user embeddings to compute.

Weighted random walks are useful because they explore the graph in a way that reflects a users or items characteristics rather than treating everything with equal importance. For example, suppose a user clicked on two movies, but only watched one of them. A weighted random walk might treat items related to the watched movie with more importance, as its edge weight is higher than the one that was only clicked. If we have a user who rates historical documentaries very highly, the weighted random walk will be more likely to explore a subgraph related to those historical documentaries.

There are plenty of real world examples and applications using this style of recommendation system. The core idea of pixie was first introduced by Pinterest, and has since been expanded to use graph neural networks (Pinterest) and semantic similarity between interactions (Twitter). There are also variants using personalized page rank over random walk, used by Linkedin.