Recently, the research on Graph Neural Networks (GNNs) made it possible to apply deep learning techniques to graph-structured data. In this thesis, we explore the application of GNNs to Social Network Analysis (SNA). We build and compare deep learning models for the prediction of hotel review ratings, hotel classes, and hotel scores on data scraped from the Tripadvisor website. We consider the resulting models precise enough to be used by recommender systems. A non-trivial part of this thesis is also the description of the theory behind GNNs and visualization techniques for high-dimensional data. We also provide software suitable for further experimentation on this topic.