Claims reserving methods usually use data aggregated into development triangles, therefore a lot of information that insurance companies possess remains unused. This thesis shows a triangle-free approach using granular information from a claim by claim database. A statistical model for claims development which can further be used for estimation of reserves is built. The statistical model consists of a counting process that drives claims occurrence, distribution of reporting delay and distribution of claims severity. Several suitable distributions are presented, as well as methods for obtaining their parameters from data. Theoretical apparatus is used for real data. The thesis also pursues comparison of the IBNR reserve estimation using the triangle free approach and distribution free Chain ladder method for real data as well as for simulated data sets. For the data used in this thesis the complexity and data requirements of the triangle free approach are in favor of more preciseness and versatility.