In recent years, mixture models have become a powerful tool for statistical analysis, mainly due to the impact of computer technology that facilitates the application of such models. A variety of statistical methodologies can be viewed as applications of mixture models. This fact in itself is important as it expands our comprehensibility of such models and enhances the applicability of methodologies connected with them to practical problems arising, mainly in the area of estimation. The aim of this paper is to provide a brief account of statistical methodologies that can be seen under the prism of mixture models either directly or via a latent structure imposed.

Keywords and phrases: multilevel models; random effect models; ANOVA; factor analysis; latent structures; cluster analysis; discriminant analysis; distribution theory