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A real, positive definite quadratic form in n variables is called perfect, if it is uniquely determined by its arithmetical minimum and the integral vectors representing it. Due to classical theorems of Voronoi, for every n there exist only finitely many perfect forms up to arithmetical equivalence. In this talk we explain how to classify perfect forms using polyhedral computations and how to obtain a reduction domain from such a classification. We discuss some applications and generalizations. (Received March 05, 2008)