Abstract

This thesis is largely split into two parts. The first introduces the readers to certain manifolds that may be endowed with a hyperbolic structure. The most notable of these are the compact, closed surfaces and the fighure-eight knot. The second part deals with the geometry of CAT (k) spaces. The CAT (k) condition is a generalization of sectional curvature in a Riemannian manifold to geodesic spaces. Following the general study of such spaces, we shall then restrict ourselves to CAT (0) spaces and study various interesting theorems that give us deeper insight about the geometric structure of these spaces.