ABSTRACT. It is the purpose of this note to give a description of a simple-minded "alternating projections" algorithm and to very briefly mention some of its many and diverse applications. (A more comprehensive and detailed survey — with a lengthier list of reference — is planned for a later date.)

In its simplest (abstract) form, the algorithm goes back to von Neumann [20] and can be described as follows. Suppose M_1 and M_2 are two closed subspaces of a Hilbert space X and x is any element of X. The vector x is first (orthogonally) projected onto M_1 to obtain a new vector x_1; then x_1 is projected onto M_2 to obtain x_2; then x_2 is projected back onto M_1 to obtain x_3, and we continue to alternately project back and forth between the two subspaces. The sequence of vectors (x_n) thus generated converges to the projection of x onto the intersection $M_1 \cap M_2$ of M_1 and M_2 (see Figure 1 below).