We examine some designs and binary codes constructed from the primitive permutation representation of the group $PSL_2(11)$. For $PSL_2(11)$ of degree 55, we construct two designs with the automorphism group $PSL_2(11)$ and their codes invariant under the groups $S_{11}$ and $PSL_2(11)$. Also, we construct a design and its code invariant under the group $PSL_2(11):2$. The weight distribution and the dual of these codes are determined. By considering the action of $S_{11}$ on some code, we obtain the structure of the stabilizer for every codeword and construct some designs such that $S_{11}$ acts primitively on them.

Joint work with M. R. Darafsheh and A. Iranmanesh.