This thesis deals with the problem of the longest alternating paths in colored point sets in a convex position, especially in point sets with n red and n blue points. The aim of the thesis is to summarize the main results in this area and put them in context. First, we present the basic concepts and the algorithm for finding the longest alternating path on a specific point set. We express $l(n)$, the largest number such that for each arrangement of $2n$ points with n red and n blue points, there is an alternating path of at least $l(n)$. We show the connection of $l(n)$ to the problem of the largest separated matching. We present the most important lower and upper bounds of $l(n)$, including the best ones published so far. Finally, we generalize the problem for multicolored point sets and show the related problem about (anti)palindromic subsequences of binary circular words.