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Inspired by Gauss's Circle Problem and Dirichlet's Divisor Problem, here we consider the conjectured asymptotic behavior of partial sums of Fourier coefficients of holomorphic cusp forms. We are able to obtain new results by means of meromorphically continuing Dirichlet series whose coefficients are derived from these partial sums, which we do by decomposing these objects into shifted multiple Dirichlet series and taking spectral expansions. (Received September 02, 2016)