

This work focuses on scenario reduction used in the Monte Carlo methods. Our main objective is to evaluate advantages and improvements that scenario reduction can provide us and whether it could be useful in practical applications. The results presented in this work were obtained using our own implementation of the reduction algorithm written in the Python programming language. Two specific problems were chosen to determine the efficiency of scenario reduction. The first problem is the estimation of  $\pi$ , which is especially suitable for our purposes because the exact result is known. The second problem we focus on is the optimal portfolio selection from given shares, which was chosen because it is quite demanding and interesting problem which allows us to assess the time efficiency of scenario reduction. Based on our results we conclude that scenario reduction could be useful for solving complicated problems, but we need to be careful about the choice of metrics.