In this thesis, we will introduce various methods for measuring risk known as Value at Risk (VaR) and Conditional Value at Risk ($CVaR$). We will use their properties and formulations in deriving a linear optimization problem. The linear programming problem will consist of minimizing the objective function representing the deviation between the portfolio and a chosen index. The calculation will be carried out based on multiple constraints, where one of them will use the aforementioned risk measures VaR and $CVaR$. The goal is to create a portfolio based on this program that replicates the S&P 500 index. We will perform the entire calculation using Python based on historical data. Subsequently, we will use the optimal solution found by the software and construct a replication portfolio that we will track in the following time periods. In conclusion, we will analyze and discuss the individual results for various input parameters.