Notations

\( R_{ij} \) = Daily return of the \( i^{th} \) security, where, \( i=1,2,3,\ldots,n. \) and \( j=1,2,3,\ldots,k. \)

\( \sigma_i \) = Standard Deviation of the \( i^{th} \) security

\( \mu_i \) = Average return of the \( i^{th} \) security

\( \mu_{\text{min}} \) = Minimum return of the security in the portfolio

\( \mu_{\text{max}} \) = Maximum return of the security in the portfolio

\( R^O_p \) = Expected return of the optimum portfolio

\( W_i^* \) = Optimum weight of the \( i^{th} \) security

\( R_i \) = Expected return of the \( i^{th} \) security

\( n \) = Number of the securities in the portfolio

\( \sigma^O_p \) = Risk of the optimum portfolio

\( r_{ij} \) = Correlation coefficient between \( i^{th} \) and \( j^{th} \) securities

\( \sigma_i \) = Standard Deviation of \( i^{th} \) security.

\( w_i^{\text{HO}} \) = Heuristic optimistic weight of the \( i^{th} \) security

\( \mu_i \) = Expected return of \( i^{th} \) security

\( R^P_p \) = Expected return of the optimistic portfolio

\( \sigma^P_p \) = Standard Deviation of the heuristic optimistic portfolio.

\( w_i^{\text{HP}} \) = Heuristic pessimistic weight of \( i^{th} \) security

\( R^P_p \) = Expected return of the pessimistic portfolio

\( \sigma^P_p \) = Standard Deviation of the pessimistic portfolio
\( \alpha \) = Coefficient of optimism of the investor (0 ≤ \( \alpha \) ≤ 1)

\( \Sigma \) = Dispersion matrix of the securities

\( w \) = Weight vector

\( R \) = Expected return vector

\( w_{i}^{HRP} \) = Heuristic risk planner weight of the ‘\( i \)’th security

\( R_{p}^{HRP} \) = Expected return of the heuristic risk planner portfolio

\( \sigma_{p}^{HRP} \) = Standard Deviation of the heuristic risk planner portfolio

\( R_{p}^{HRS} \) = Expected return of the heuristic random selector portfolio

\( \sigma_{p}^{HRS} \) = Standard Deviation of the heuristic random selector portfolio

\( w_{H}(\alpha) \) = Weight of the ‘\( i \)’th security in the heuristic portfolio with coefficient of optimism as \( \alpha \)

\( R_{H} \) = Expected return of the general heuristic portfolio

\( \sigma_{H} \) = Standard deviation of the general heuristic portfolio

\( R_{m} \) = Rate of return on the market index, a random variable

\( \alpha_{i} \) = Expected value of the component of return independent of the market’s performance

\( \beta_{i} \) = The expected change in the rate of return on stock ‘\( i \)’ associated with a 1% change in the market return

\( e_{i} \) = Error component
\[ \sigma_m^2 = \text{Variance of market return} \]

\[ \sigma_{ei}^2 = \text{Variance of error term} \]

\[ \overline{R_i} = \text{Average return of } 'i^{th} \text{ security} \]

\[ R_p = \text{Return of the portfolio} \]

\[ w_i = \text{Weight of } 'i^{th} \text{ security} \]

\[ \sigma_p = \text{Standard deviation of the portfolio} \]

\[ \sigma_p^2 = \text{Variance of returns or portfolio risk} \]

\[ C_i = \text{Cut-off rate} \]

\[ C^* = \text{A candidate of } C_i \]