**Mathematics for the Problem Statement**

We let,

But, var (

**Constraints**

0

**Objective Function**

S = (µ − r)/σ

**Basic Equations related to Portfolio Optimization**-

**Mean portfolio return -** Mean Return \* Fractions of Total Capital (Chromosome).

**Risk-free rate -** 0.0697 (Market Risk-Free Rate)

**Heuristic Crossover –**

Offspring A = Best Parent + β \* (Best Parent - Worst Parent)

Offspring B = Worst Parent - β \* (Best Parent - Worst Parent)

**Arithmetic Crossover –**

Offspring A = α \* Parent1 + (1 - α) \* Parent2

Offspring B = (1 - α) \* Parent1 + α \* Parent2