

Mutation maintains diversity within the population

## Pseudocode for genetic algorithm

START

Generate the initial population

compute fitness

REPEAT

Selection

Crossover

Mutation

Compute fitness

UNTIL population has converged

STOP

## Different Crossover Algorithms

Simple crossover: (similar to binary crossover)

$$P1 = \begin{bmatrix} 8 & 6 & 3 & 7 & 6 \end{bmatrix}$$
$$P2 = \begin{bmatrix} 2 & 9 & 4 & 8 & 9 \end{bmatrix}$$

Arrows indicate crossover points between 3 and 4, 7 and 8, and 6 and 9.

After crossover

$$C1 = \begin{bmatrix} 8 & 6 & 4 & 8 & 9 \end{bmatrix}$$

$$C2 = \begin{bmatrix} 2 & 9 & 3 & 7 & 6 \end{bmatrix}$$

Linear Crossover:

Algorithm: