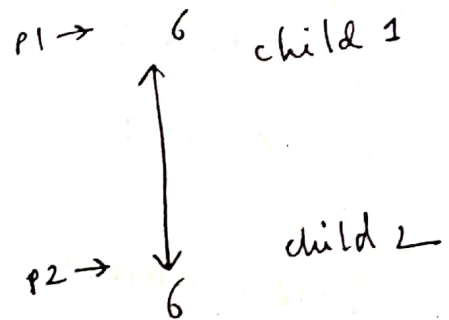
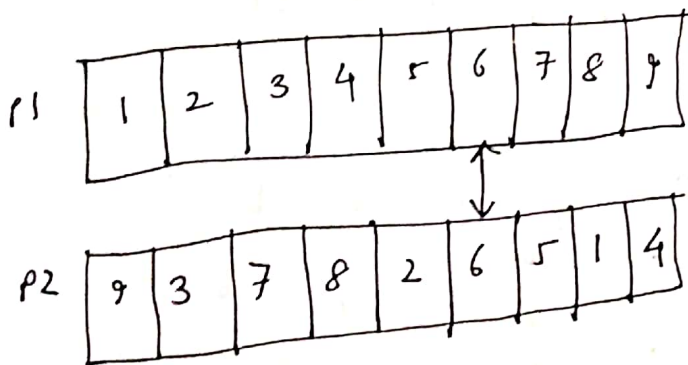
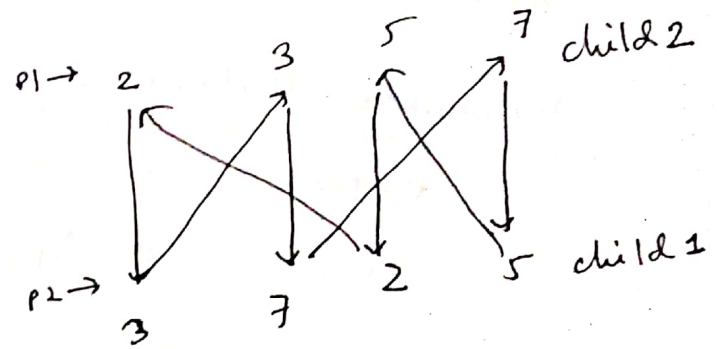
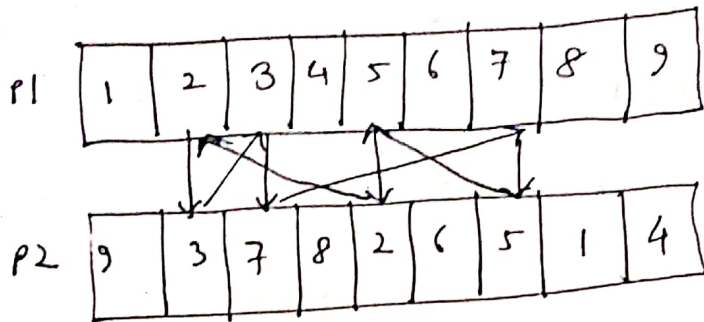
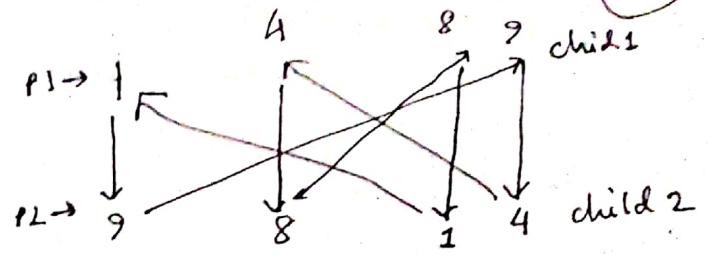
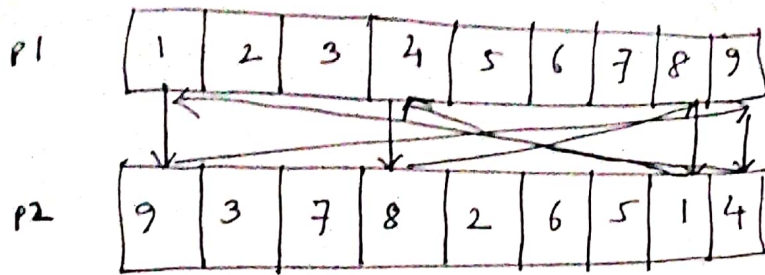


1c Cross over:



P1 → 1 2 3 4 5 6 7 8 9

P2 → 9 3 7 8 2 6 5 1 4



child 1 → 1 3 7 4 2 6 5 8 9

child 2 → 9 2 3 8 5 6 7 1 4

Different Mutations

To maintain genetic diversity

Insertion Mutation:

Before: 0 1 2 3 4 5 6 7

After: 0 1 2 6 3 4 5 7

Exchange Mutation:

Before: 5 3 2 1 7 4 0 6

After: 5 4 2 1 7 3 0 6

Scramble Mutation:

Before: 0 1 2 3 4 5 6 7

After: 0 1 2 5 6 3 4 7

Displacement Mutation:

Before: 0 1 2 3 4 5 6 7

After: 0 3 4 5 1 2 6 7

Inversion Mutation

Before: 0 1 2 3 4 5 6 7

After: 0 4 3 2 1 5 6 7

Displaced Inversion Mutation

Before: 0 1 2 3 4 5 6 7

After: 0 6 5 4 1 2 3 7

Flip Bit Mutation

Before: 1 0 1 0 1

After: 1 0 0 0 1