We
coc
efi

P1 | 0.5 | 0.7 | 0.7 | 0.5 | 0.2 | 0.8 | 0.3 | 0.9 | 0.4 |

P2 | 0.1 | 0.3 | 0.1 | 0.3 | 0.6 | 0.2 | 0.5 | 0.1 | 0.2 |

⇓ After crossover

C1 | 0.3 | 0.5 | 0.4 | 0.4 | 0.4 | 0.5 | 0.4 | 0.5 | 0.3 |

C2 | 0.3 | 0.5 | 0.4 | 0.4 | 0.4 | 0.5 | 0.4 | 0.5 | 0.3 |

$$\alpha = 0.5$$

$$0.5 * 0.5 + 0.5 * 0.1 = 0.25 + 0.05 = 0.3$$

$$0.5 * 0.1 + 0.5 * 0.5 = 0.05 + 0.25 = 0.3$$

Problem Solving using Genetic Algorithm:

Maximize $f(x) = x^2$; where x is permitted to vary between 0 and 31

step0: Select initial population at random

String Number	Initial Population	x value (DV)	$f(x)$ $= x^2$	pselect $\dfrac{f_i}{\Sigma f}$	Expected count $f_i/\bar{f}$	Actual count (Roulette Wheel)
1	01101	13	169	$0.14 = \dfrac{169}{1170}$	$0.58 = \dfrac{169}{293}$	1
2	11000	24	576	$0.49 = \dfrac{576}{1170}$	$1.97 = \dfrac{576}{293}$	2
3	01000	8	64	$0.06 = \dfrac{64}{1170}$	$0.22 = \dfrac{64}{293}$	0
4	10011	19	361	$0.31 = \dfrac{361}{1170}$	$1.23 = \dfrac{361}{293}$	1

sum = 1170
Avg = 293
Max = 576