

### step 3: Mutation

String Number	Population After Crossover	Mutation point	Population After Mutation	x-value	$f(x)$
1	01100	1	11100	28	784
2	11001	4	11011	27	729
3	11011	3	11111	31	961
4	10000	2	11000	24	576

### Iteration 2: Population after mutation

String Number	Population After Mutation	x value (DV)	$f(x) = x^2$	$p_{\text{select}} = \frac{f_i}{\sum f_i}$	Expected count $\frac{f_i}{\bar{f}}$	Actual count (Roulette wheel)
1	11100	28	784	0.257	1.028	1
2	11011	27	729	0.239	0.956	1
3	11111	31	961	0.315	1.260	2
4	11000	24	576	0.189	0.755	0

$$\rightarrow \text{sum} = 3050$$

$$\rightarrow \text{Avg} = 762.5$$

$$\rightarrow \text{Max} = 961$$