

Ques 7 :

Evolution of eqn use Genetic Programming with 'Tree' Data structure

Datafile

	x_1	x_2	...	x_m	y	$e_r^i: r:1 \rightarrow P$
r_1 row 1	—	—		—	—	e_1^i
r_2	—	—	...	—	—	e_2^i
\vdots	\vdots			\vdots		
r_p	—	—	...	—	—	e_p^i

step 1 operands

$x_1, x_2, \dots, x_m.$

step 2 operators

$+ - * / \sin \cos \tan \text{ etc..}$

step 3 Fitness Function.

use Cross Validation on datafile per chromosome per generation

$$e_{av} = \frac{\sum_{r=1}^P e_r^i}{P}$$

$$\text{Fitness} = f_{av} = \frac{1}{e_{av}}.$$

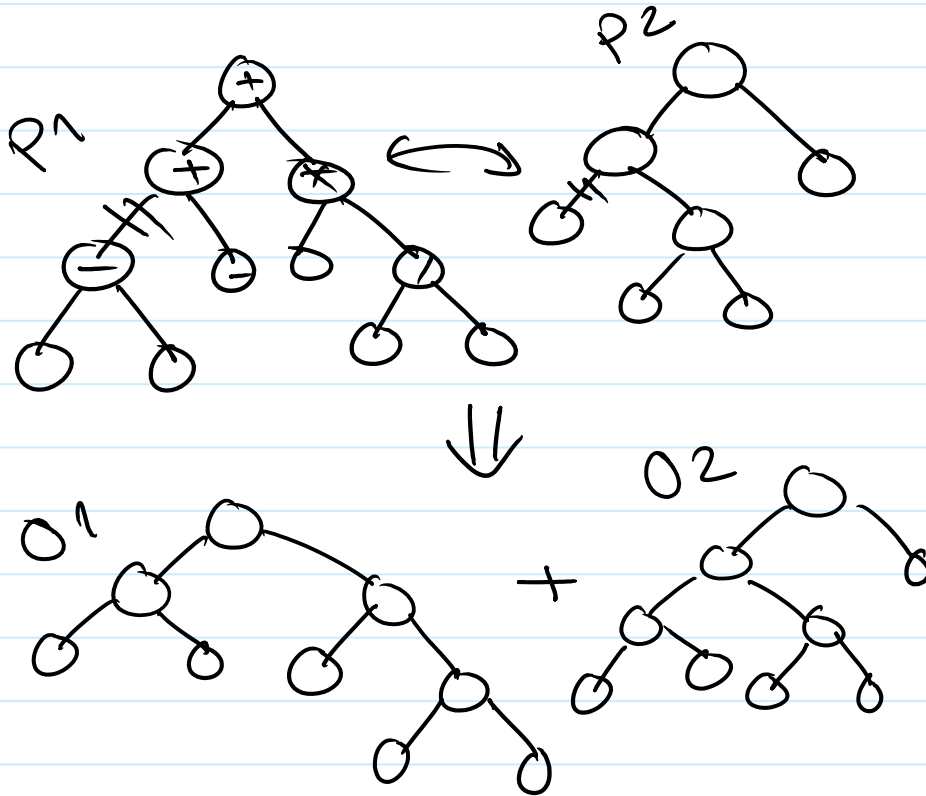
step 4 Selection.

Normal Roulette wheel

step 4 Selection.

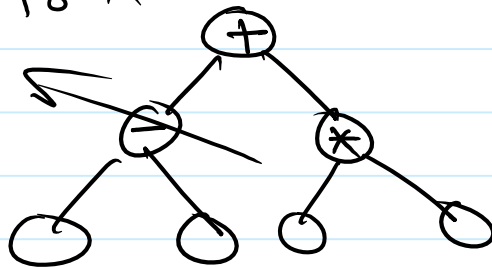
Normal Roulette wheel selection.

step 5 Crossover



step 6 Mutation

Flip to *



step 7 Replacement

Use elitism