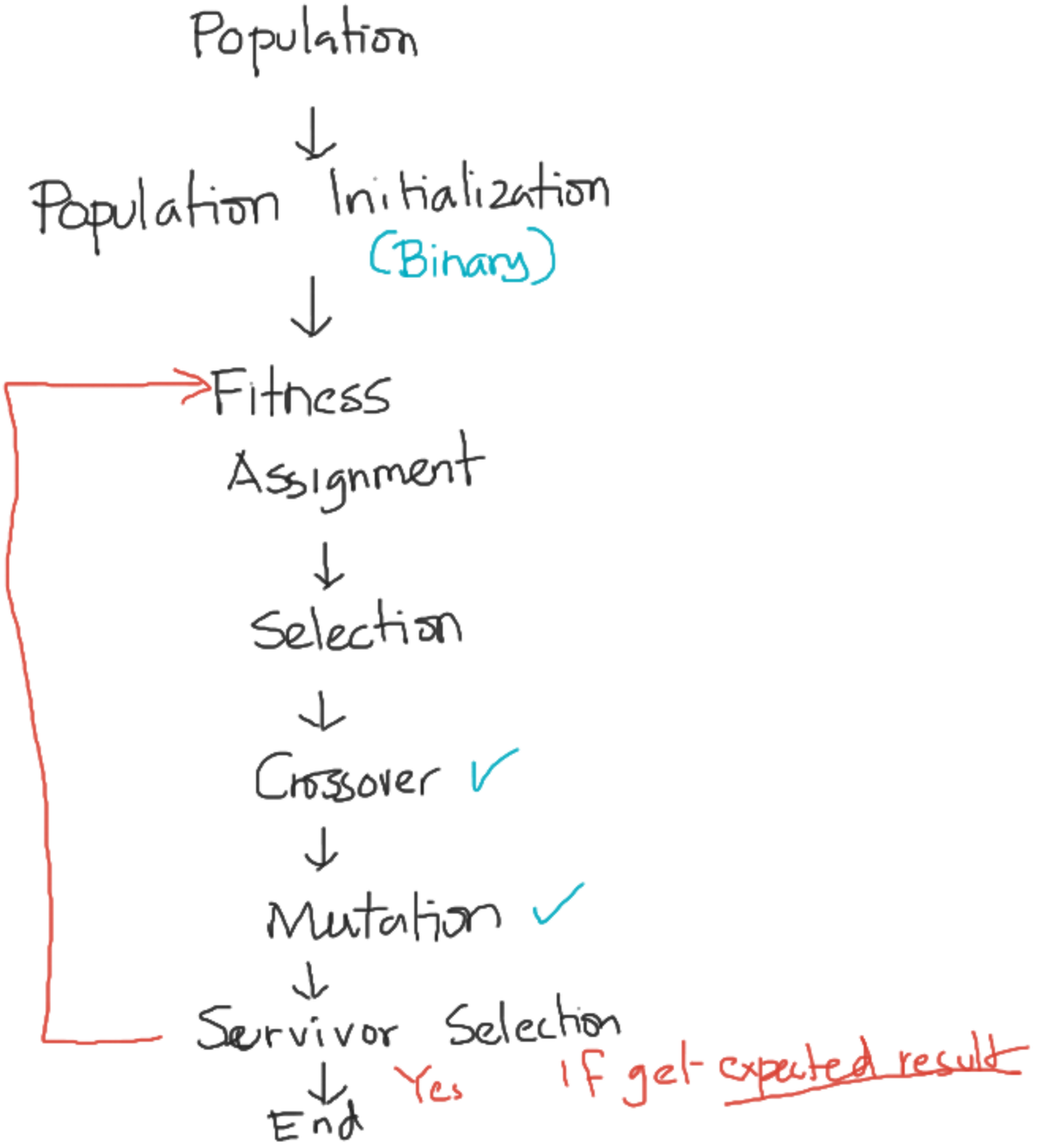
Genetic Algorithm:



Knapsack Problem

	Weight (kg)	Value (TK)
A	5	12
B	3	5
C	7	10
D	2	7

Which items shall be kept in knapsack so that the value will maximize.

Step 1 Encoding

Generation 1

	A	B	C	D	Value	Weight	Remark
C_1	0	1	1	0	15	10 ✓	$10 \leq 12$ C_1 is accepted
C_2	0	1	0	1	12	5 ✓	$5 \leq 12$ C_2 is accepted
C_3	1	1	0	1	24	10 ✓	$10 \leq 12$ C_3 is accepted
C_4	1	1	1	1	34	17 ×	17 is higher than 12 C_4 is rejected

$2^4 = 16$

Combination

0 → absent

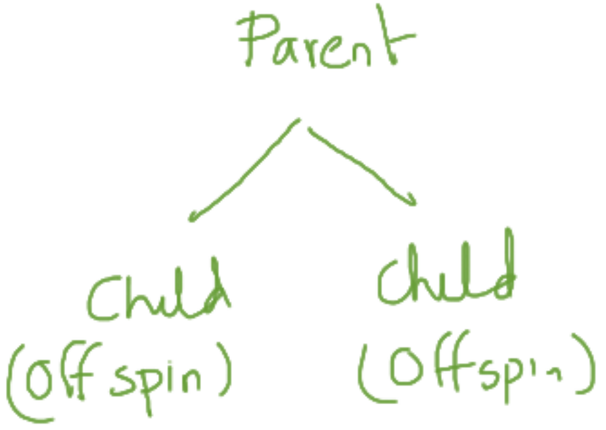
1 → present

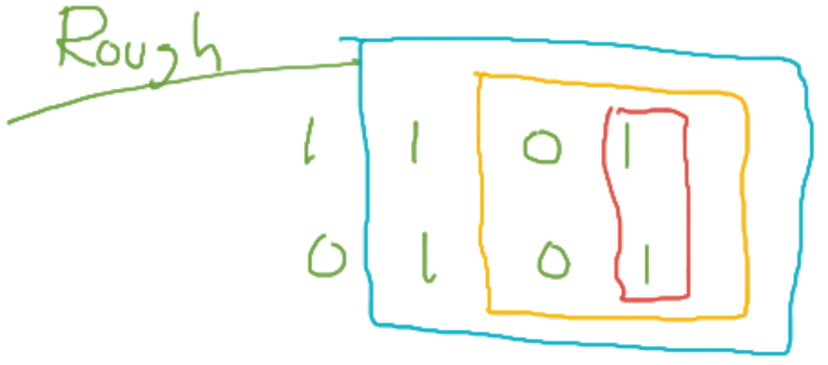
} In Knapsack

	Value	Weight	fitness
C_1	15	10	15/51
C_2	12	5	12/51
C_3	24	10	24/51
C_4	~~34~~	~~17~~	
	51		

Genation 2

C_3	1 1 0 | 1	OS_1 1 1 0 0
C_1	0 1 1 | 0	OS_2 0 1 1 1
C_3	1 1 0 1	C_3 1 1 0 1
C_2	0 1 0 1	C_2 0 1 0 1





	A	B	C	D	Value	Weigh	A/R	fitnes,
OS_1	1	1	0	0	17	8	Accepted	17/75
OS_2	0	1	1	1	22	12	Accepted	22/75
C_3	1	1	0	1	24	10	Accepted	24/75
C_2	0	1	0	1	12	5	Accepted	12/75
					75			

Terminate

Gen 3

OS_1	1	1	0	0	1 1 1 0
C_3	1	1	0	1	1 1 1 1
OS_2	0	1	1	1	
C_3	1	1	0	1	

6 Slides / 5 min
15 June

- Joy — Expert System
- Bashir — CNN
- Tawfiq — RNN
- Shariar — GA
- Afsara — Various types of learning
- Rahan — FOPL
- Rafi — Fuzzy Membership function
- Rana — MLP

- Faruq — Mamdani — 01511000555
- Syed Iqbal — Sugana (TS Fuzzy)
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