Assignment - 03

Genetic Algorithm

My age is 22. and my Id is 17101007 Let's consider, t(x): 2x-1: Selection

A= 1st digit of my Age. = 2

B= (2nd digit of Age mod last two digit of my Id) + 1

 $\frac{1}{1000} = (2.7.07) + 1 = 2 + 1 = 3$ $\frac{1100}{1000} = (2.7.07) + 1 = 2 + 1 = 3$ $\frac{1100}{1000} = (2.7.07) + 1 = 2 + 1 = 3$

LC = A+1 = 2+1=3 d 1100 (5)8

D=(B mord 3)+1=(31,3)+1=0+1=1.

Griven, f(x) = 2x - 1

·. f(A) = 2*2-1=4-1=3

f(8) = 2*3-1 = 6-1=5

hugt(c)=2*3+1=671=51 mas show at 8 to

 $f(b) = 2 \times 1 - 1 = 1$

So, we have 4 population A,B,C,D

In this case, the range of x is 1~5. So I am using a 4-bit representation.

Assignment -03

f(x) = 2x - 1: Selection

String No.	Initial Population	× Value	Fitness $f(x) = 2x - 1$	Probabili ty (i)	Expected	Adual
1(A)	0010	2	3	0.21	0.84	1
2(8)	0011	3	5	0.36	1.44	2 (Taking Ceilling)
3(c)	0011	3	5 8	0.36	1.44	1
4(0)	0001	1.	1	0.07	0.28	0
Sum-			14	1.00	4.00	4)
Average->			3.50	0.25	1.00	1
$Max \rightarrow$			511	0.36	1.44	2

Here, I am taking Ceilling value for the Actual court of B to make swee that the total no. of population is 4.

o. So, we have I population A.B.C.D.

Let's resident

Calculation of Probability: (Fitness Value Sum of Atness value $P(A) = \frac{3}{14} = 0.21$ No. $P(B) = \frac{5}{14} = 0.36$ P(c) = 3 = 0.360 0010 1(A) 0011 2(8) $P(D) = \frac{1}{14} = 0.07$ 2(8) 00/11 Calculation of Expected Count! (Probability x Total no. of population) 0.21×4= 0.84 0.36 × 4 = 1.44 0.36 x4 = 1.44 0.07 × 4 = 0.28 J(4) Dx-1: Mutalion String Othering gringatto Roulette Wheel: f(x)-2x-1 mutetion B 0011 (A)1 5/14 36% 0010 (8)0 36% 2(8) 0011 3/14 1/14 21% 7% 3(0) 0011 CA CHANG. Coli Average

f(x)=2x-1: Crossover Hildeday to moideline

String No.	Mating Pool	Crossover point	Offspring after crossover	x Value	fitness f(x)=x~
1(A)	0010	3	0011	3	9 5
2(B)	0011	3	0010	12	3
2(8)	00/11	2	0011	3	5
3(c)	00/11	2	0011	3	Calcutation
	TALL	Coal		Sum-	1.18
				Average-	4.50
				$\max \rightarrow$	× 25.

f(x)=2x-1: Mutation

String No.	Offspring after crossover	Offspring after mudation	x Value	fitness f(x)=2x-1
1(A)	0011	1011	11	21
2(8)	0010	0010	2120	3
2(B)	0011	0011	3	5
3(c)	0011	0111	117	13
		1	Sum-> Average-> Max->	

0.04 × 4=0.28