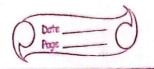
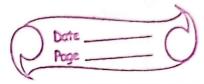
	Lab-a williams.
	Genetic Algorithm
	FCN = 22 1000 1000 1000 1000 1000 1000 1000
1)	Initialize Parameters:
	1) Population Size: Onose a population size, say 6 individuals.
	ii) Binary Representation: Each individual will be a 5-bit
_	binary string. iii) Pandonly Initialize Population: Cerviale to random binary Strings.
	Population: [" 10101", " 00111", " 01100", "1000", "1000", "01001"
100	Fitners' Evaluation : Gon I : my me win -:
	Convert binary to decimal
	10:01 -> 21-3212 2441
	$10101 \rightarrow 21 \rightarrow 21^{2} = 441$ $001100 \rightarrow 12 - 32^{2} = 144$
$-\parallel$	01100 -> 12-722=144 11001 -> 25->252 = 625
	$10010 \Rightarrow 18 \Rightarrow 18^2 = 344$
#	00000 > 2 -> 2 -> 2 -> 1 1 1
\parallel	
$\ \cdot \ $	
-	

	· Selection
	38180101
	use at method albe tournament.
	on selection: ["1001", "10101", "10010"]
	· (nossover : andonare)
	Pain 1: 11001 and 10101->
33	on crossover →offspring: 1,001,10101
1375	Paux 2: 10010 and a front random parent
	oftspang: 10011, 00110.
	Land" Trans Trees to to the translated
	· Offsping after "Crossover and "
	:- New offsporg: [1/1001", "10101", "10011", "00110"
	· Mutation lamb of mont tours
	9F we mutate 10011 -> 10001
	144 = 185 to 4 12101
	West Cit Cities
	· Poblacenest AM = CK-SI = GOHO
	Replace the old population with the new offsping for keep the best individuals). New Population: ["1001"/"1000"/" 00 60"]
$-\parallel$	keep the best individuals).
\parallel	· New Population: ["1001/ 1000/ "00 60"]
\parallel	
11	



	seperation. seperat sleps 26 for a predetermined rumber of generations or until convergence
	so bent slebs 26 for a bretotermined rumber of generations
west !	or until anyonoence
	(ledord ad be a
	import random : (Sententia) statem and
	impost numby as as
	Commodification > Manhamman makes The
	def Filmers_ function (2):
	setion new 2 describer grown
	population-size=10
	mutation-rate =0.01
	assover-rate = 0.8
	num = generations = 100
ino u	gene length =10
	0
	def coeate-philation (S120, gene-length).
44	def coeate-philation (S120, gene-length):
	toly () for in range ((12e))
	0
- T	det brary to deanal (binary):
-	binary - str = " join Cstr (bit) For bit in
	binary)
	return int (binary-stx, 2) 1(2 It gene-length-1) \$20-6
	January 2 Creek Singley - was not when
(0)	de F cialité populations (popoulation):
-	octum (Fitness-Function Chinary to-decimal (individual))
	For individual in population
A L	we philoson at all the to conditions
	det select (philation, Fitners, Score):
	total_fithers = sum (fithers_sures)

	Selection-probs = [fitners / total: fitners Fox fitners in
النظائية	b h 1
	return population Enp. randon chous (range (les Coppulation)
	p=selection_probs])
	1 Word Phrase
	def mulate (individual):
	For in range (gave-length): IF random random () < mutation rate;
	IF random, random (< mutation rate;
	nd in dual [i] = 1 - Indindual [i]
	retion national.
	dof compty alarretings
	def genetic_algorithm(): population = create_population (population_size, gene
	losoth)
	for any ton in surge (num accorations);
	length) For generation in range (num-generations): Fitness sures = evaluate-population (population)
	best fitness = max (filmess score)
()	best_individual = population [fitness-sores.
	Index Chept-fitners)
	print CF Generation Equeration 3: Pest Filmen:=
	print CF Generation Squeration 3: Rest Filmers: =
	new-philation = []
	while les (new-population) Zpopulation size:
	new-philation = [] while les (new-population) 2 population size: parent 1 = select (philation, Fitnes-soves)
makal	in sub-of parent 2 Folish a distinguis
	official = (possorer (parent, parenta)
	officiony = (rossoren (parenti, parenti) run jojulatron extent C [mitall (child) for child a
	offsprug D
	0



	Trage
population = new population [: popular best-fitners = max (fitners - scores)	tron_512e]
hest-filmens = max (filmens_scores)	
best-indiaded = population [Fitners-so	ores. Index (best
([capata	
hest-solution = broay-to-decimal (post-ndindual)
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	delin mil i
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* 121 - 7 To was 1 or 4 s 201	
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