Problem Solving Final Project

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Part I

Exercise 1

Q1) Here is a linear program to maximize the profit of the automotive manufacturer before maintenance:

	Machine line	Assembly line	Price (to be maximized)
Non-electric	2	1	60
Electric	1	2	111
Constraint	104	60	

Objective function:
maximize 60x + 111y

Variables:
x = number of non-electric brake systems produced
y = number of electric brake systems produced

Constraints:
2x + y <= 104 (machining time constraint)
x + 2y <= 76 (assembly time constraint)

X>=0, y>=0

This linear program states that the objective is to maximize the profit by producing a certain number of non-electric and electric brake systems, subject to the constraints that the machining time and assembly time do not exceed the available time before maintenance.

Exercise 2

Q1

Here is a linear integer program to minimize the makespan on M=2 machines:
Objective function:
minimize max(C1, C2)

Variables:
x11, x12, ..., x1n, x21, x22, ..., x2n = binary variables indicating whether job j is assigned to machine 1 (x1j = 1) or machine 2 (x2j = 1)
C1 = load of machine 1
C2 = load of machine 2

Constraints:
$\Sigma j\ xij = 1$ (each job must be assigned to exactly one machine)
$C1 >= \Sigma j\ tj * x1j$ (load of machine 1 is the sum of processing times of jobs assigned to it)
$C2 >= \Sigma j\ tj * x2j$ (load of machine 2 is the sum of processing times of jobs assigned to it)

Q2

Here is a formulation of the abstract problem with M machines:
Objective function:
minimize max(C1, C2, ..., CM)

Variables:
x11, x12, ..., x1n, x21, x22, ..., x2n, ..., xM1, xM2, ..., xMn = binary variables indicating whether job j is assigned to machine i (xij = 1)
CM = load of machine M

Constraints:
$\Sigma\ xij = 1$ (each job must be assigned to exactly one machine)
$\Sigma j\ tj * xMj \leq CM$ (load of machine M is the sum of processing times of jobs assigned to it)

Exercise 3

Here is a linear program to maximize the available money at the end of the 7th year:

Maximize:

105x11 + 112x12 + 119x13 + 105x21 + 112x22 + 119x23 + 105x31 + 112x32 + 119x33 + 105x41 + 112x42 + 119x43 + 105x51 + 112x52 + 119x53 + 105x61 + 112x62 + 119x63 + 105x71 + 112x72 + 119x73

Subject to:

x11 + x12 + x13 + x21 + x22 + x23 + x31 + x32 + x33 + x41 + x42 + x43 + x51 + x52 + x53 + x61 + x62 + x63 + x71 + x72 + x73 = 1000 (budget constraint)

x21 + x22 + x23 + x31 + x32 + x33 + x41 + x42 + x43 + x51 + x52 + x53 + x61 + x62 + x63 + x71 + x72 + x73 >= x11 (continuity constraint)

x31 + x32 + x33 + x41 + x42 + x43 + x51 + x52 + x53 + x61 + x62 + x63 + x71 + x72 + x73 >= x21 + x22 + x23 (continuity constraint)

x41 + x42 + x43 + x51 + x52 + x53 + x61 + x62 + x63 + x71 + x72 + x73 >= x31 + x32 + x33 (continuity constraint)

x51 + x52 + x53 + x61 + x62 + x63 + x71 + x72 + x73 >= x41 + x42 + x43 (continuity constraint)

x61 + x62 + x63 + x71 + x72 + x73 >= x51 + x52 + x53 (continuity constraint)

x71 + x72 + x73 >= x61 + x62 + x63 (continuity constraint)

x11, x12, x13, x21, x22, x23, x31, x32, x33, x41, x42, x43, x51, x52, x53, x61, x62, x63, x71, x72, x73 >= 0 (non-negativity constraint)

In this linear program, the objective is to maximize the total available money at the end of the 7th year. The budget constraint ensures that the total amount invested in all the plans over the 7 year period does not exceed 1000 euros. The continuity constraints ensure that the amount invested in each plan at a given year is greater than or equal to the amount invested in the previous year. The non-negativity constraints ensure that the amount invested in each plan is non-negative.

Exercise 4

Q1)

The total number of hours available for the butcher is 36 hours. Let's say that the butcher will produce x meat loaves of the first kind and y meat loaves of the second kind.

The total amount of meat used should not exceed the 120 kg of fresh meat that the butcher has. Therefore, the following constraint applies:

$3x + 2y \leq 120$

The total number of hours used should not exceed the 36 hours available. Therefore, the following constraint applies:

$9x + 8y \leq 36$

The objective is to maximize the revenue, which is equal to 15x + 9y.

Therefore, the mathematical model for this problem is as follows:

Maximize: 15x + 9y

Subject to:

$3x + 2y \leq 120$

$9x + 8y \leq 36$

$x, y \geq 0$ (since the number of meat loaves produced cannot be negative)

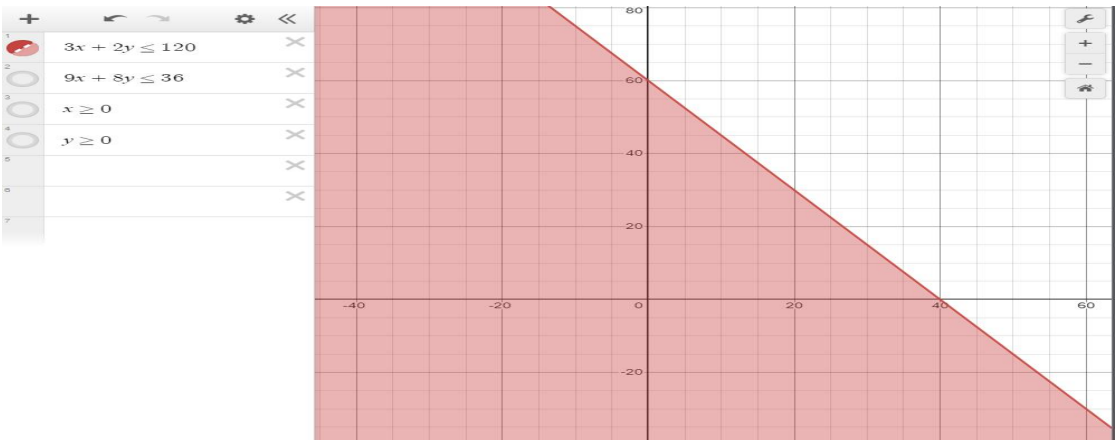
To solve this problem graphically, we can plot the constraints and find the values of x and y that maximize the objective function while satisfying the constraints.

To do this, we can begin by graphing the first constraint: $3x + 2y \leq 120$. We can do this by setting y = 0 and solving for x, and setting x = 0 and solving for y.

When y = 0, $3x \leq 120$, or $x \leq 40$.

When x = 0, $2y \leq 120$, or $y \leq 60$.

Therefore, the possible values of x and y that satisfy this constraint are all the points below the line 3x + 2y = 120, as shown in the graph below:

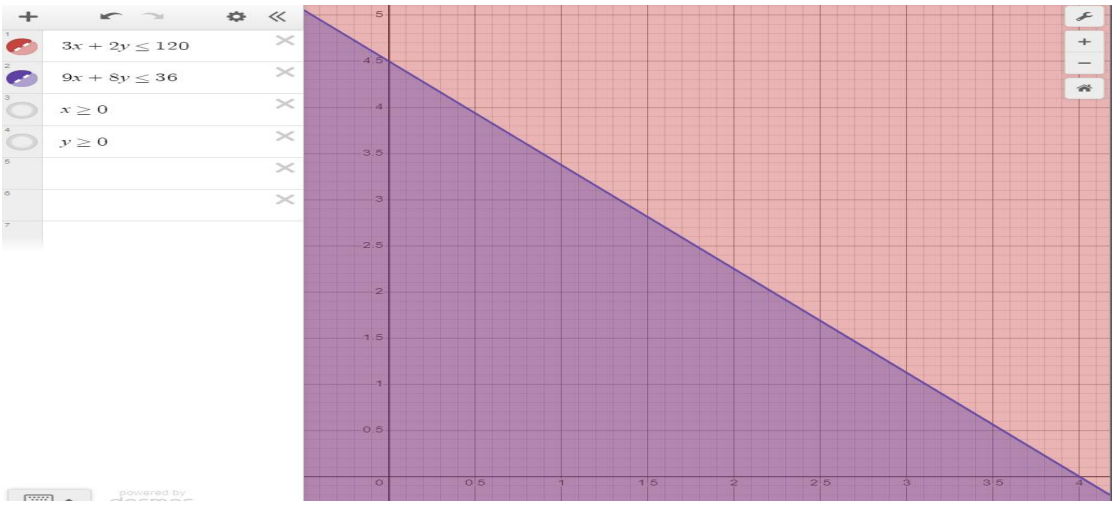


Next, we can graph the second constraint: $9x + 8y \leq 36$. We can do this by setting y = 0 and solving for x, and setting x = 0 and solving for y.

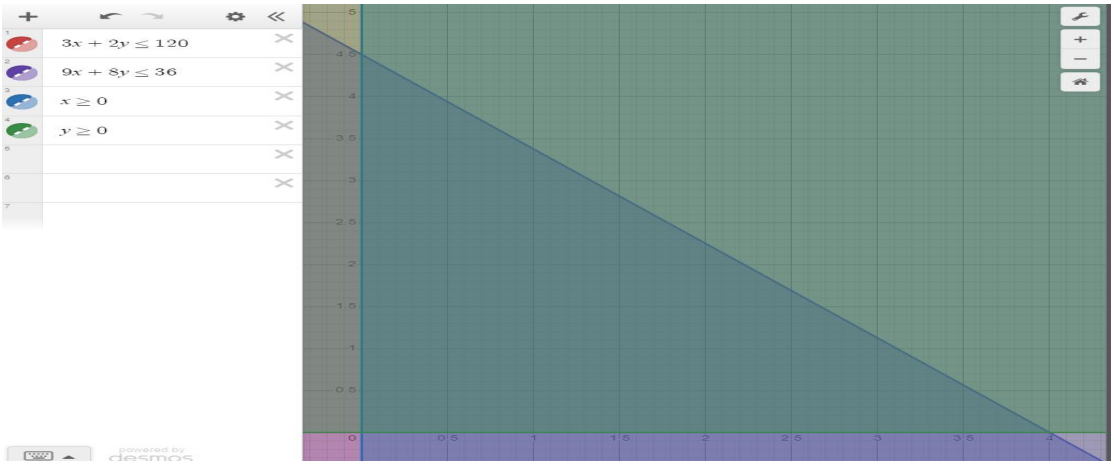
When y = 0, $9x \leq 36$, or $x \leq 4$.

When x = 0, $8y \leq 36$, or $y \leq 4.5$.

Therefore, the possible values of x and y that satisfy this constraint are all the points below the line 9x + 8y = 36, as shown in the graph below:



The feasible region, or the region where both constraints are satisfied, is the area where both graphs overlap. This region is shown in the graph below:



The optimal solution to this problem is the point in the feasible region that maximizes the objective function, which is 15x + 9y.

The point where this line is highest within the feasible region is the point (4, 0), which is the optimal solution.

This means that the butcher should produce 4 meat loaves of the first kind and 0 meat loaves of the second kind in order to maximize his revenue before Christmas.

Exercise 5

To prove that the Shortest Processing Time (SPT) rule is optimal, we will use a proof by contradiction. This means we will assume that there exists another scheduling that results in a smaller sum of completion times, and then show that this assumption leads to a contradiction.

Let's say that the SPT rule schedules the jobs in the order: J1, J2, J3, ..., Jn.

We will assume that there exists another scheduling, S, that results in a smaller sum of completion times. This means that the sum of completion times for the scheduling S is smaller than the sum of completion times for the SPT scheduling.

We can express this assumption as follows:

$\Sigma Ci(S) < \Sigma Ci(SPT)$

Where Ci(S) is the completion time of job i in the scheduling S, and Ci(SPT) is the completion time of job i in the SPT scheduling.

Since the sum of completion times for the scheduling S is smaller than the sum of completion times for the SPT scheduling, there must be at least one job, Jk, for which the completion time in the scheduling S is smaller than the completion time in the SPT scheduling.

This means that Ci(S) < Ci(SPT) for at least one job, Jk.

We can express this as follows:

$Ci(S) = \Sigma ti(S) < \Sigma ti(SPT) = Ci(SPT)$

Where ti(S) is the processing time of job i in the scheduling S, and ti(SPT) is the processing time of job i in the SPT scheduling.

Since the processing time of job Jk is smaller in the scheduling S than in the SPT scheduling, this means that Jk must be scheduled before Jk in the scheduling S.

However, since the SPT rule schedules the jobs in the order of increasing processing times, this means that Jk must be scheduled before Jk in the SPT scheduling as well.

This means that the scheduling S and the SPT scheduling are the same for the first k jobs.

We can express this as follows:

S1 = SPT1

Where S1 is the first k jobs in the scheduling S, and SPT1 is the first k jobs in the SPT scheduling.

Since the sum of completion times for the scheduling S is smaller than the sum of completion times for the SPT scheduling, and the first k jobs are the same in both schedulings, this means that the sum of completion times for the remaining (n-k) jobs must be smaller in the scheduling S than in the SPT scheduling.

We can express this as follows:

$\Sigma Ci(S) < \Sigma Ci(SPT)$

$\Sigma Ci(S) - \Sigma Ci(SPT1) < \Sigma Ci(SPT) - \Sigma Ci(SPT1)$

$\Sigma Ci(S2) < \Sigma Ci(SPT2)$

Where S2 is the remaining (n-k) jobs in the scheduling S, and SPT2 is the remaining (n-k) jobs in the SPT scheduling.

Since the sum of completion times for the remaining (n-k) jobs is smaller in the scheduling S than in the SPT scheduling, and the SPT rule schedules the jobs in the order of increasing processing times, this means that the scheduling S must also follow the SPT rule for the remaining (n-k) jobs

Exercise 6

To linearize the non-linear mathematical model provided, we can replace the objective with a linear function and add constraints to ensure that the maximum error of approximation is minimized.

One way to do this is to replace the objective with the sum of the absolute values of the errors of approximation. This will ensure that all errors of approximation are minimized, rather than just the largest error.

The linearized version of the model can be written as follows:

Minimize: $\Sigma|y - axi - bi|$

Subject to:

$a \in R$

$b \in R$

Alternatively, we can linearize the model by replacing the objective with the largest error of approximation and adding constraints to ensure that all other errors of approximation are minimized.

To do this, we can introduce a new variable, e, to represent the largest error of approximation. We can then add constraints to ensure that all other errors of approximation are smaller than or equal to e.

The linearized version of the model can be written as follows:

Minimize: e

Subject to:

$|y - axi - bi| \leq e \; \forall \; i \in \{1,...,m\}$

$a \in R$

$b \in R$

$e \in R$

Part II
Exercise 7

Q1: The decision variables in the N-queens problem are the positions of the queens on the chessboard. We can represent each queen's position using a pair of variables (i, j), where i is the row number and j is the column number.

Q2: The constraints in the N-queens problem include:
Each cell on the chessboard can only contain one queen.
No two queens can be on the same row.
No two queens can be on the same column.
No two queens can be on the same diagonal.

Q3: The objective function in the N-queens problem is to find a valid placement of queens on the chessboard that satisfies the constraints. There is no specific optimization criterion, such as minimizing or maximizing a particular value.

Q4: An abstract model or generalization of the N-queens problem to an arbitrary number of queens (N) can be expressed as follows:
Given an N x N chessboard, find a valid placement of N queens on the chessboard such that no two queens attack each other (i.e., no two queens are on the same row, column, or diagonal).
This abstract model can be used to solve the N-queens problem for any value of N. To do this, we can define the decision variables (i, j) for each queen, specify the constraints that must be satisfied, and use an appropriate algorithm to find a valid placement of queens on the chessboard.

Exercise 8

Questions

Q1:

```
ddef selection(self, individuals, k, tournsize=2):
#
# Exercise 2. a)
#
# Return a list of selected candidates
#
#Select the best individuals among the population.
chosen = []

for _ in range(k):
# Select candidates by tournament
rest = random.sample(individuals, tournsize)
# Select the fittest candidate
min  fitness = min([element.fitness for element in rest])
selected  individuals = [
element for element in rest if element.fitness == min  fitness]
selected = selected  individuals
if len(selected  individuals) > 1:
selected = random.sample(selected  individuals, 1)
# Append the fittest candidate to the list of chosen individuals
chosen.append(selected[0])
# Return the list of tournament winners
return chosen
```

Q2:

```
def crossover(self, ind1, ind2):
# Exercise 2. b)
#
# Define HERE the crossover operation
#
#
"""
Perform a single point crossover on the input individuals.
```

```
The point of crossover is selected at random and the resulting
individuals are returned.
"""
index = len(ind1.solution) - 1
for i in range(len(ind1.solution)):
# Create the offspring by combining the solutions of the parents
if all(item not in ind2.solution[i:] for item in ind1.solution[:i + 1]):
index = i
tmp = ind1.solution[index:].copy()
ind1.solution[index:] = ind2.solution[index:]
ind2.solution[index:] = tmp
return Individual(solution=ind1.solution,fitness=ind1.fitness),
Individual(solution=ind2.solution, fitness=ind2.fitness)
```

Q3:

```
def mutation(self, individual, indpb):
#
# Exercise 2. c)
#
# Define HERE the mutation operation
#
# Mutate an individual by randomly selecting two positions in the solution and swapping
them.
for i in range(len(individual.solution)):
r = random.random()
if r <= indpb:
individual.solution[i] = random.randint(
0, self.problem.size - 1)
return individual
```

Q4:

SETTING 1

Generation	Minimum Fitness	Maximum Fitness	Average Fitness	Standard deviation
1	24.5	42.667	32.937	5.345
2	23.9	35.667	29.547	3.768
3	23.3	32.467	27.26	2.878
4	22.867	29.8	25.913	2.1
5	22.2	28.2	24.98	1.87
6	21.867	27.4	24.26	1.708

7	21.633	26.5	23.847	1.532
8	21.1	25.8	23.183	1.459
9	20.667	25.533	22.717	1.46
10	20.033	24.367	22.04	1.306
11	19.6	24.333	21.71	1.43
12	19.267	24.167	21.187	1.456
13	18.6	23.233	20.51	1.414
14	18.367	22.467	20.12	1.298
15	18.067	22.267	19.777	1.262
16	17.8	22.533	19.677	1.444
17	17.467	21.967	19.327	1.374
18	17.233	21.6	18.913	1.353
19	17.1	21	18.57	1.224
20	16.633	21.033	18.303	1.3
21	16.3	20.467	17.957	1.242
22	16.233	20.367	17.823	1.343
23	15.9	20.567	17.537	1.49
24	15.367	20.133	17.337	1.421
25	15.333	19.833	17.14	1.415
26	14.933	20.1	16.77	1.555
27	14.733	19.3	16.537	1.403
28	14.6	18.867	16.263	1.295
29	14.467	18.6	16.12	1.261
30	14.367	18.3	15.95	1.244
31	14.2	18.4	15.72	1.317
32	13.933	18.433	15.6	1.366
33	13.667	18.4	15.42	1.439
34	13.3	17.867	15.113	1.385
35	13.033	18.1	15.01	1.541
36	12.833	17.667	14.65	1.471
37	12.667	16.8	14.38	1.297
38	12.367	17.033	14.163	1.394
39	12.333	16.467	13.85	1.308
40	12.033	16.2	13.613	1.27
41	11.867	16.333	13.643	1.401
42	11.7	16.367	13.483	1.438
43	11.633	16.467	13.413	1.5
44	11.367	15.533	13.14	1.321
45	11.167	16.2	13.093	1.491
46	11.067	15.867	12.933	1.476
47	11.033	14.933	12.55	1.232
48	10.667	15.1	12.473	1.362
49	10.567	14.9	12.253	1.358

50	10.567	14.2	12.02	1.178
51	10.467	14.933	12.08	1.42
52	10.533	14.933	11.897	1.37
53	10.333	14.3	11.723	1.273
54	10.2	14.033	11.623	1.245
55	10	14.8	11.727	1.471
56	10.067	14.4	11.703	1.372
57	10	13.6	11.54	1.163
58	9.933	14.267	11.52	1.35
59	9.833	14.2	11.457	1.355
60	9.767	13.867	11.423	1.313
61	9.533	14.067	11.22	1.417
62	9.267	14.2	11.24	1.522
63	9.233	14.2	11.15	1.524
64	9.267	13.767	10.937	1.421
65	9.1	13.233	10.7	1.247
66	9.033	13.067	10.583	1.278
67	8.967	13.567	10.657	1.439
68	8.867	12.933	10.463	1.306
69	8.8	12.833	10.447	1.272
70	8.833	13.3	10.58	1.425
71	8.867	13.267	10.45	1.389
72	8.8	13.067	10.417	1.348
73	8.667	13.167	10.337	1.404
74	8.6	12.4	10.093	1.234
75	8.567	12.567	10.17	1.297
76	8.6	13.033	10.18	1.45
77	8.5	12.867	9.927	1.379
78	8.267	12.567	9.87	1.393
79	8.167	12.7	9.897	1.503
80	8.167	12.567	9.887	1.438
81	8.2	12.667	9.77	1.386
82	8.167	12.167	9.683	1.334
83	8.133	12.667	9.803	1.441
84	7.967	12.467	9.697	1.42
85	7.867	11.967	9.537	1.308
86	7.967	12.5	9.53	1.454
87	7.867	12.033	9.363	1.364
88	7.833	12.467	9.47	1.43
89	7.967	12.333	9.47	1.344
90	8.067	12.067	9.58	1.301
91	8	12.5	9.61	1.406
92	7.933	12.1	9.387	1.289

93	7.7	11.967	9.33	1.329
94	7.7	11.933	9.167	1.384
95	7.7	11.7	9.05	1.307
96	7.533	11.533	8.927	1.256
97	7.533	11.467	8.893	1.236
98	7.433	11.633	8.883	1.357
99	7.5	11.067	8.767	1.163
100	7.567	11.233	8.82	1.207
101	7.6	11	8.807	1.118
102	7.633	11.333	8.94	1.217
103	7.567	11.467	8.947	1.268
104	7.467	11.833	9.073	1.399
105	7.233	11.567	8.96	1.352
106	7.367	11.733	8.983	1.404
107	7.267	11.633	8.893	1.405
108	7.167	11.367	8.67	1.338
109	7.2	10.833	8.65	1.208
110	7.267	11.867	8.793	1.427
111	7.133	11.7	8.643	1.446
112	6.933	11.333	8.567	1.337
113	6.9	11.233	8.59	1.348
114	6.967	11.2	8.643	1.336
115	7.1	11.5	8.737	1.356
116	7.067	11.4	8.69	1.387
117	7	11.5	8.597	1.418
118	6.733	11.633	8.607	1.53
119	6.667	11.067	8.39	1.39
120	6.767	11.233	8.403	1.394
121	6.7	10.8	8.303	1.291
122	6.6	10.667	8.047	1.267
123	6.633	10.7	8.157	1.295
124	6.7	10.433	8.13	1.239
125	6.767	10.933	8.233	1.312
126	6.8	11	8.203	1.38
127	6.767	10.533	8.093	1.224
128	6.733	10.533	8.123	1.278
129	6.7	10.833	8.153	1.344
130	6.7	10.933	8.157	1.335
131	6.6	10.967	8.117	1.345
132	6.667	10.9	8.107	1.361
133	6.633	10.533	8.087	1.278
134	6.667	10.5	8.12	1.226
135	6.533	10.733	7.993	1.289

136	6.533	10.7	8.097	1.313
137	6.433	10.467	8.03	1.261
138	6.467	10.4	8.057	1.229
139	6.467	10.733	8.127	1.387
140	6.433	10.433	7.99	1.262
141	6.5	10.967	8.15	1.402
142	6.4	10.633	8.03	1.372
143	6.3	10.6	7.98	1.345
144	6.433	11.633	8.117	1.628
145	6.333	11.167	8.063	1.482
146	6.433	10.233	7.843	1.197
147	6.5	10.433	8.043	1.296
148	6.467	10.6	8.14	1.342
149	6.333	11	8.083	1.439
150	6.433	10.767	8.083	1.378
151	6.367	10.767	8.08	1.339
152	6.433	10.833	8.063	1.38
153	6.433	10.7	8.063	1.365
154	6.467	10.467	8.02	1.307
155	6.433	10.8	8.117	1.407
156	6.633	10.7	8.083	1.352
157	6.567	10.833	8.167	1.458
158	6.5	11.1	8.113	1.467
159	6.533	10.4	7.98	1.272
160	6.5	10.833	7.99	1.369
161	6.467	10.2	7.91	1.203
162	6.367	10.733	7.977	1.333
163	6.333	10.5	7.993	1.317
164	6.467	10.967	8.02	1.398
165	6.533	10.5	7.947	1.243
166	6.567	10.567	8.133	1.302
167	6.4	10.833	8.153	1.404
168	6.5	10.933	8.213	1.445
169	6.467	10.733	8.04	1.371
170	6.433	10.533	7.937	1.308
171	6.533	10.667	8.07	1.285
172	6.567	10.567	8.11	1.286
173	6.6	10.467	8.053	1.285
174	6.467	10.667	8.02	1.319
175	6.433	10.533	8.007	1.338
176	6.333	10.533	7.943	1.327
177	6.367	10.633	7.95	1.354
178	6.433	10.767	7.993	1.347

179	6.333	11.933	8.183	1.679
180	6.433	10.833	8.017	1.455
181	6.333	10.733	8.003	1.433
182	6.267	10.867	8.023	1.465
183	6.267	11.067	8.033	1.539
184	6.267	10.633	7.803	1.392
185	6.167	10.267	7.74	1.3
186	6.067	9.933	7.547	1.194
187	6	10.033	7.58	1.296
188	5.933	10.6	7.637	1.458
189	6.1	10.4	7.74	1.412
190	6.2	11.067	7.963	1.549
191	6.3	11.433	8.013	1.57
192	6.333	10.633	7.89	1.41
193	6.233	10.7	7.843	1.439
194	6.167	10.167	7.763	1.296
195	6.267	10.1	7.707	1.246
196	6.2	11.033	7.927	1.463
197	6.2	10.567	7.793	1.428
198	6.233	10.3	7.59	1.349
199	6.167	10.2	7.647	1.326
200	6.233	10.033	7.61	1.266
201	6.167	10.133	7.61	1.323
202	6.2	10.3	7.593	1.301
203	6.133	10.167	7.53	1.334
204	6.1	10.267	7.643	1.33
205	6	10.367	7.577	1.381
206	5.867	9.767	7.367	1.248
207	5.767	10.1	7.483	1.433
208	5.767	10.5	7.527	1.498
209	5.767	10.333	7.49	1.467
210	5.8	9.967	7.32	1.354
211	5.8	9.7	7.31	1.273
212	5.667	10.267	7.423	1.445
213	5.8	9.7	7.193	1.287
214	5.8	10.133	7.36	1.433
215	5.767	9.767	7.34	1.315
216	5.7	9.733	7.283	1.321
217	5.667	9.733	7.167	1.272
218	5.667	9.6	7.217	1.296
219	5.8	10.267	7.34	1.442
220	5.733	10.4	7.237	1.467
221	5.733	9.833	7.27	1.32

222	5.733	10.4	7.457	1.446
223	5.767	10.533	7.38	1.493
224	5.6	10	7.3	1.405
225	5.533	10.067	7.12	1.458
226	5.467	9.9	7.06	1.396
227	5.267	9.9	7.117	1.473
228	5.367	9.8	6.95	1.381
229	5.3	9.933	7.103	1.418
230	5.533	9.967	7.163	1.446
231	5.533	9.9	7.12	1.434
232	5.4	9.633	6.967	1.373
233	5.333	9.9	7.007	1.421
234	5.367	9.667	6.973	1.406
235	5.333	9.533	6.843	1.361
236	5.3	9.4	6.867	1.311
237	5.3	9.733	6.94	1.436
238	5.133	9.533	6.83	1.396
239	5.233	9.133	6.793	1.256
240	5.367	9.833	6.957	1.392
241	5.3	10.167	7.03	1.532
242	5.367	9.833	7.127	1.428
243	5.3	9.7	7.077	1.35
244	5.433	9.333	6.943	1.285
245	5.467	9.433	6.987	1.291
246	5.433	10.167	7.08	1.482
247	5.433	9.833	7.133	1.397
248	5.5	9.767	7.2	1.38
249	5.5	9.9	7.11	1.403
250	5.5	10.067	7.15	1.476
251	5.367	9.767	7.093	1.489
252	5.433	10.167	7.067	1.498
253	5.5	9.267	6.923	1.214
254	5.533	9.733	7.02	1.338
255	5.4	9.6	6.987	1.305
256	5.6	9.633	7.12	1.309
257	5.633	9.667	7.063	1.286
258	5.633	10	7.06	1.413
259	5.533	9.733	7.067	1.311
260	5.6	9.733	7.13	1.341
261	5.533	9.633	7.093	1.292
262	5.667	9.933	7.233	1.307
263	5.733	10	7.337	1.359
264	5.7	10.167	7.363	1.404

265	5.867	10.2	7.623	1.419
266	5.8	10.433	7.553	1.463
267	5.733	10.033	7.513	1.428
268	5.833	10.1	7.483	1.331
269	5.733	9.967	7.437	1.396
270	5.667	10.333	7.487	1.437
271	5.767	10.467	7.557	1.504
272	5.833	10.233	7.43	1.462
273	5.9	10.033	7.417	1.382
274	5.9	10.233	7.51	1.389
275	5.833	10	7.343	1.313
276	5.733	10.133	7.35	1.372
277	5.8	10.4	7.46	1.423
278	5.833	10.333	7.52	1.41
279	5.8	10.333	7.487	1.46
280	5.8	10.133	7.377	1.376
281	5.7	10.233	7.353	1.439
282	5.733	10.067	7.253	1.364
283	5.733	10.333	7.39	1.438
284	5.7	10.1	7.463	1.451
285	5.7	10.367	7.52	1.486
286	5.7	10.167	7.45	1.385
287	5.667	10.133	7.42	1.419
288	5.667	9.633	7.37	1.301
289	5.7	10.067	7.4	1.412
290	5.767	10.167	7.317	1.374
291	5.8	9.967	7.353	1.38
292	5.8	9.833	7.217	1.296
293	5.8	10.133	7.307	1.356
294	5.867	10.2	7.397	1.419
295	5.833	10.367	7.443	1.469
296	5.9	10.033	7.307	1.39
297	5.9	9.967	7.257	1.333
298	5.9	10.133	7.327	1.378
299	5.833	9.733	7.317	1.289
300	5.9	10.133	7.357	1.343
301	5.967	10.067	7.347	1.311
302	6.033	10.033	7.487	1.325
303	5.9	10.233	7.427	1.357
304	5.867	10.867	7.623	1.558
305	5.867	10.333	7.497	1.448
306	5.867	10.533	7.48	1.489
307	5.8	10.167	7.39	1.364

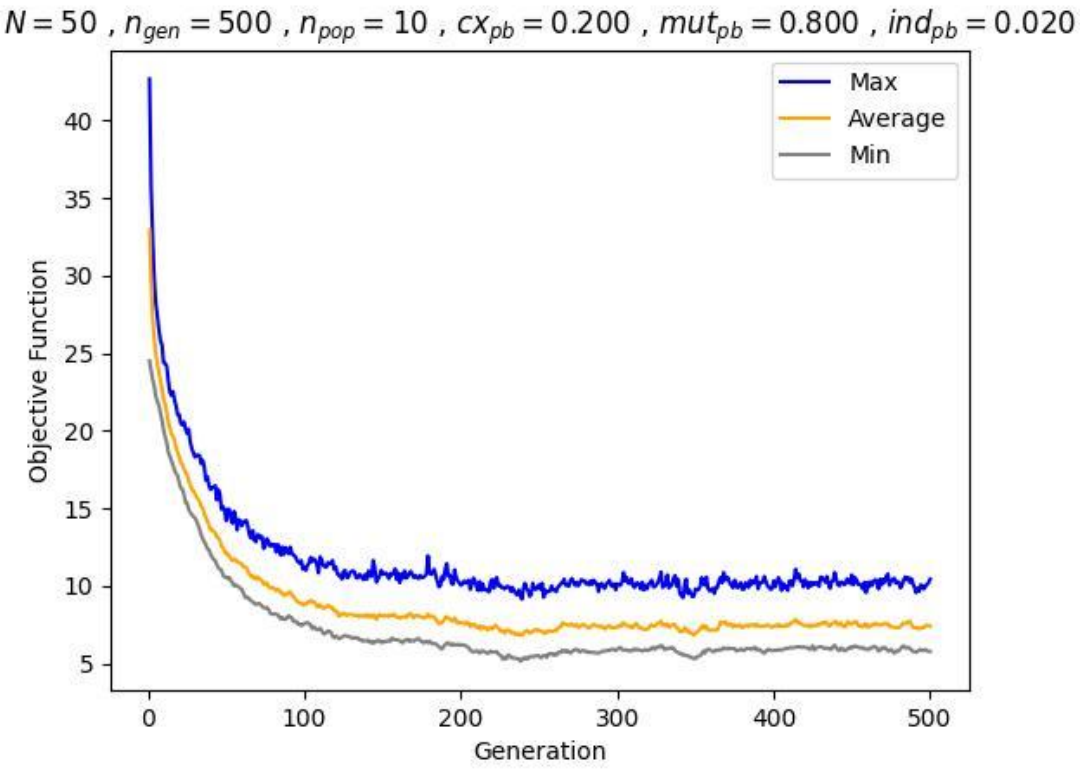
308	5.833	10.167	7.347	1.363
309	5.8	10.467	7.397	1.466
310	5.867	10.033	7.29	1.307
311	5.933	9.9	7.437	1.317
312	5.867	10.133	7.59	1.369
313	5.9	10.2	7.44	1.367
314	5.867	10.033	7.293	1.31
315	5.833	9.8	7.313	1.319
316	5.8	10.233	7.233	1.361
317	5.833	9.733	7.2	1.236
318	5.9	10.033	7.22	1.322
319	5.833	9.8	7.183	1.333
320	5.867	10.1	7.28	1.343
321	5.867	10.2	7.417	1.368
322	6	10.367	7.493	1.413
323	6.033	9.933	7.407	1.265
324	5.9	9.933	7.41	1.249
325	6.033	10.067	7.51	1.272
326	6.067	10.233	7.603	1.35
327	6.033	10.5	7.597	1.453
328	6.167	10.9	7.723	1.55
329	6.1	9.9	7.46	1.217
330	5.9	9.967	7.5	1.333
331	5.9	10.167	7.43	1.333
332	5.967	10.7	7.543	1.503
333	6	9.867	7.337	1.223
334	5.967	9.967	7.38	1.275
335	6.033	10.1	7.487	1.319
336	5.967	10.5	7.527	1.428
337	5.833	10.667	7.493	1.499
338	5.733	9.967	7.3	1.337
339	5.7	10.4	7.24	1.458
340	5.667	9.467	7.04	1.22
341	5.567	9.467	7.047	1.291
342	5.6	9.233	7.067	1.193
343	5.533	10	7.317	1.401
344	5.5	10.433	7.247	1.542
345	5.5	9.5	7.01	1.309
346	5.433	9.733	7.037	1.326
347	5.433	9.5	6.953	1.284
348	5.333	9.3	6.9	1.269
349	5.333	9.333	6.817	1.28
350	5.3	9.8	6.947	1.426

351	5.433	9.733	7.057	1.426
352	5.467	9.767	7.11	1.374
353	5.5	9.967	7.2	1.341
354	5.633	10.533	7.4	1.488
355	5.8	10.167	7.423	1.404
356	5.667	10.033	7.233	1.373
357	5.867	10.567	7.403	1.476
358	5.9	9.833	7.177	1.248
359	5.9	9.667	7.123	1.215
360	5.833	9.767	7.15	1.261
361	5.767	9.833	7.15	1.273
362	5.767	9.5	7.147	1.213
363	5.867	9.9	7.167	1.295
364	5.833	9.9	7.153	1.268
365	5.9	10.3	7.383	1.413
366	5.867	10.533	7.673	1.536
367	5.9	10.2	7.587	1.392
368	6	10.867	7.637	1.527
369	5.933	10.367	7.697	1.426
370	5.933	10.567	7.503	1.456
371	6	10.5	7.457	1.412
372	5.933	10.133	7.533	1.318
373	5.967	10.1	7.497	1.315
374	5.967	9.867	7.333	1.284
375	5.967	10.367	7.48	1.447
376	5.8	10.167	7.403	1.345
377	5.833	9.867	7.393	1.289
378	5.867	10.033	7.49	1.332
379	5.933	10.2	7.35	1.369
380	5.867	9.767	7.297	1.263
381	5.833	9.8	7.397	1.279
382	5.933	10.2	7.44	1.349
383	5.967	10.067	7.487	1.34
384	5.967	9.9	7.373	1.297
385	5.933	10.367	7.483	1.384
386	5.9	10.1	7.5	1.365
387	6	10.333	7.473	1.379
388	6.033	10.2	7.393	1.315
389	5.867	10.6	7.543	1.497
390	5.9	9.8	7.397	1.285
391	5.9	10.133	7.393	1.342
392	5.8	10.233	7.393	1.418
393	5.7	10.233	7.377	1.46

394	5.667	10.6	7.393	1.516
395	5.767	10.3	7.45	1.405
396	5.9	10	7.487	1.301
397	5.9	9.9	7.437	1.319
398	5.833	9.767	7.383	1.276
399	5.833	9.833	7.323	1.311
400	5.833	10.333	7.397	1.471
401	5.867	9.933	7.407	1.337
402	5.833	10.2	7.403	1.4
403	5.9	10.533	7.537	1.531
404	5.867	10.333	7.403	1.395
405	5.867	9.7	7.423	1.252
406	5.9	10.167	7.437	1.357
407	5.933	9.867	7.373	1.27
408	5.967	9.967	7.483	1.244
409	5.967	9.7	7.437	1.226
410	6	10.3	7.483	1.333
411	6.033	10.333	7.62	1.367
412	6	10	7.63	1.324
413	6.033	10.4	7.72	1.41
414	6.033	11.067	7.84	1.575
415	6.067	10.5	7.63	1.417
416	6.067	10.767	7.67	1.492
417	6.067	10.333	7.547	1.37
418	6.033	10.333	7.507	1.366
419	6.067	9.933	7.483	1.27
420	6.033	10.4	7.433	1.394
421	6.033	10.2	7.443	1.334
422	5.967	9.867	7.383	1.266
423	5.9	10.233	7.487	1.321
424	6.033	10	7.343	1.296
425	6.133	10.2	7.47	1.348
426	5.867	10.1	7.447	1.372
427	5.967	10.2	7.417	1.381
428	6.033	10.167	7.54	1.339
429	6.067	9.967	7.467	1.303
430	6.067	10.567	7.577	1.432
431	6.067	10.533	7.603	1.405
432	5.967	10.4	7.567	1.411
433	5.967	10.233	7.683	1.418
434	6	10.6	7.613	1.458
435	5.967	10.167	7.407	1.304
436	5.9	9.833	7.437	1.26

437	5.933	10.267	7.537	1.358
438	6.1	10.333	7.59	1.372
439	6.167	10.867	7.69	1.505
440	6	10.433	7.697	1.426
441	5.867	10.067	7.463	1.355
442	5.833	10	7.55	1.324
443	6	10.233	7.607	1.367
444	5.933	10.233	7.417	1.383
445	5.833	10.067	7.357	1.316
446	5.833	10.133	7.37	1.354
447	5.933	10.467	7.687	1.503
448	5.967	10.3	7.647	1.452
449	6.067	10.133	7.533	1.32
450	6	10.7	7.557	1.484
451	6.067	10.067	7.593	1.291
452	6.133	10.533	7.7	1.404
453	6.067	10.367	7.67	1.37
454	6.067	10.1	7.45	1.305
455	6	10.1	7.387	1.322
456	6	10	7.4	1.295
457	6.033	9.8	7.357	1.22
458	5.933	10.233	7.55	1.326
459	5.9	9.567	7.357	1.209
460	5.933	10.233	7.503	1.382
461	5.9	9.933	7.337	1.263
462	6	10.267	7.443	1.372
463	6.033	10.033	7.447	1.292
464	6.1	10.3	7.577	1.337
465	6.067	10.4	7.507	1.367
466	6	10.233	7.567	1.384
467	5.8	9.8	7.473	1.288
468	5.833	10.433	7.473	1.397
469	6	10.067	7.503	1.324
470	5.967	10.433	7.557	1.4
471	6.033	10.233	7.583	1.389
472	5.933	10.633	7.53	1.467
473	5.8	10.767	7.57	1.52
474	5.8	10.033	7.377	1.392
475	5.9	10.3	7.373	1.457
476	5.8	10.4	7.35	1.459
477	5.667	10.5	7.34	1.485
478	5.8	10.167	7.317	1.384
479	5.767	10.267	7.283	1.418

480	5.833	10.233	7.313	1.382
481	5.933	9.867	7.36	1.2
482	6.067	10.033	7.513	1.253
483	6.133	10.367	7.603	1.335
484	6	10.567	7.577	1.438
485	6	10.4	7.603	1.386
486	6.033	10.533	7.69	1.385
487	5.967	10.233	7.693	1.396
488	5.867	10.467	7.52	1.461
489	5.767	10.133	7.33	1.41
490	5.767	9.9	7.283	1.339
491	5.733	9.567	7.313	1.284
492	5.767	9.833	7.277	1.327
493	5.867	9.633	7.217	1.237
494	5.9	10.067	7.303	1.314
495	5.833	10	7.3	1.313
496	5.833	9.8	7.297	1.248
497	5.9	9.967	7.437	1.343
498	5.8	10.1	7.45	1.356
499	5.8	10.2	7.443	1.441
500	5.767	10.433	7.4	1.486



SETTING 2

Generation	Minimum Fitness	Maximum Fitness	Average Fitness	Standard deviation
1	22.6	45.367	32.887	5.51
2	22.567	37.633	29.584	4.07
3	22.2	33.467	27.256	3.149
4	21.933	30.5	25.736	2.391
5	21.867	28.533	24.516	1.922
6	21.767	26.467	23.539	1.434
7	21.6	25.267	22.82	0.987
8	21.433	24.3	22.357	0.757
9	21.267	23.767	22.076	0.557
10	21.067	22.633	21.833	0.398
11	20.7	22.533	21.629	0.482
12	20.633	22.567	21.459	0.513
13	20.467	22.367	21.265	0.516
14	20.333	22.133	21.055	0.439
15	20.133	21.833	20.908	0.421
16	20.033	22.2	20.799	0.499
17	19.9	21.6	20.605	0.451
18	19.667	21.533	20.48	0.481
19	19.667	21.533	20.355	0.503
20	19.533	21.2	20.163	0.452
21	19.233	21.1	20.0	0.457
22	18.967	20.9	19.809	0.465

23	18.8	20.533	19.655	0.445
24	18.767	20.7	19.529	0.489
25	18.633	20.8	19.371	0.537
26	18.267	20.433	19.172	0.533
27	18.167	20.2	18.964	0.518
28	17.9	19.6	18.761	0.476
29	17.9	19.6	18.573	0.45
30	17.6	19.7	18.396	0.517
31	17.4	19.3	18.237	0.451
32	17.333	19.133	18.097	0.429
33	17.233	19.167	17.959	0.495
34	17.2	18.833	17.801	0.441
35	17.1	18.8	17.685	0.44
36	16.9	18.5	17.521	0.41
37	16.833	18.467	17.389	0.409
38	16.733	18.1	17.236	0.336
39	16.733	18.167	17.124	0.341
40	16.6	17.7	17.013	0.253
41	16.467	17.8	16.944	0.313
42	16.267	17.767	16.863	0.351
43	16.3	17.633	16.768	0.33
44	16.2	17.567	16.693	0.343
45	16.133	17.433	16.591	0.301
46	15.933	17.333	16.493	0.326
47	15.8	17.467	16.427	0.355
48	15.633	17.3	16.335	0.42

49	15.567	17.133	16.228	0.412
50	15.533	17.0	16.075	0.406
51	15.433	17.1	15.917	0.434
52	15.333	16.6	15.771	0.319
53	15.3	16.433	15.663	0.301
54	15.167	16.533	15.592	0.311
55	15.167	16.233	15.507	0.272
56	15.1	16.467	15.436	0.317
57	14.9	16.4	15.359	0.344
58	14.6	15.833	15.233	0.287
59	14.567	16.033	15.161	0.361
60	14.5	15.7	15.063	0.342
61	14.467	16.067	14.977	0.43
62	14.4	15.867	14.827	0.377
63	14.167	15.533	14.708	0.339
64	14.033	15.367	14.6	0.306
65	13.8	15.5	14.523	0.383
66	13.733	15.4	14.407	0.438
67	13.533	15.3	14.263	0.437
68	13.333	15.067	14.12	0.428
69	13.333	14.967	14.009	0.412
70	13.267	14.7	13.867	0.406
71	13.233	14.767	13.744	0.407
72	13.167	14.433	13.608	0.36
73	13.033	14.367	13.459	0.366
74	12.967	14.567	13.352	0.344

75	12.967	14.2	13.283	0.288
76	12.933	14.2	13.239	0.309
77	12.8	14.333	13.188	0.348
78	12.667	14.067	13.104	0.324
79	12.7	13.733	13.02	0.251
80	12.7	13.633	12.96	0.222
81	12.6	13.567	12.901	0.248
82	12.567	13.6	12.847	0.254
83	12.433	13.633	12.784	0.281
84	12.233	13.6	12.74	0.311
85	12.2	13.667	12.687	0.334
86	12.167	13.5	12.581	0.333
87	11.967	13.233	12.457	0.33
88	11.933	13.533	12.388	0.386
89	11.767	13.033	12.273	0.301
90	11.767	13.333	12.22	0.372
91	11.767	12.967	12.139	0.317
92	11.733	13.167	12.091	0.343
93	11.6	12.5	11.987	0.264
94	11.567	13.233	11.937	0.4
95	11.433	13.0	11.828	0.37
96	11.4	12.667	11.737	0.307
97	11.3	12.567	11.68	0.296
98	11.1	12.667	11.627	0.351
99	11.1	12.7	11.561	0.36
100	11.1	12.067	11.437	0.272

101	11.0	12.2	11.337	0.292
102	10.967	12.333	11.272	0.314
103	10.867	12.067	11.208	0.262
104	10.8	12.1	11.176	0.287
105	10.6	12.267	11.137	0.357
106	10.633	12.067	11.096	0.363
107	10.333	12.067	10.987	0.415
108	10.167	11.967	10.892	0.404
109	10.3	12.1	10.784	0.418
110	10.267	11.667	10.664	0.366
111	10.267	11.567	10.56	0.344
112	10.267	11.167	10.469	0.233
113	10.167	11.267	10.412	0.242
114	10.1	11.267	10.373	0.276
115	9.967	11.2	10.308	0.261
116	9.933	11.233	10.277	0.298
117	9.867	11.2	10.236	0.282
118	9.767	11.1	10.171	0.318
119	9.7	11.333	10.129	0.402
120	9.7	11.267	10.043	0.389
121	9.5	10.8	9.916	0.302
122	9.367	10.5	9.823	0.287
123	9.333	10.733	9.736	0.308
124	9.3	10.633	9.671	0.314
125	9.3	10.367	9.575	0.283
126	9.267	10.567	9.529	0.333

127	9.233	10.267	9.437	0.259
128	9.2	10.833	9.417	0.345
129	9.167	10.567	9.384	0.315
130	9.167	10.133	9.339	0.229
131	9.0	10.433	9.323	0.311
132	9.0	10.167	9.285	0.253
133	9.0	10.033	9.237	0.235
134	9.0	10.133	9.205	0.25
135	8.9	10.133	9.177	0.26
136	8.833	9.933	9.135	0.238
137	8.833	9.933	9.092	0.259
138	8.767	10.433	9.068	0.367
139	8.667	10.133	9.005	0.335
140	8.633	9.7	8.935	0.244
141	8.633	9.833	8.904	0.31
142	8.6	9.633	8.831	0.261
143	8.533	9.6	8.777	0.244
144	8.5	9.967	8.76	0.32
145	8.467	9.433	8.695	0.225
146	8.367	9.267	8.644	0.228
147	8.333	9.6	8.619	0.323
148	8.3	9.5	8.536	0.293
149	8.267	9.467	8.487	0.279
150	8.267	9.0	8.411	0.185
151	8.233	9.3	8.388	0.235
152	8.167	9.2	8.352	0.229

153	8.167	9.433	8.336	0.274
154	8.1	9.1	8.297	0.217
155	8.067	9.533	8.3	0.322
156	8.067	9.633	8.271	0.343
157	8.0	9.167	8.207	0.254
158	7.933	8.833	8.157	0.203
159	7.833	8.967	8.139	0.262
160	7.833	8.967	8.1	0.256
161	7.8	8.733	8.045	0.24
162	7.7	8.7	7.98	0.26
163	7.8	9.1	7.935	0.309
164	7.767	9.067	7.892	0.298
165	7.733	9.0	7.867	0.277
166	7.633	9.133	7.863	0.323
167	7.6	8.567	7.816	0.224
168	7.6	8.9	7.819	0.297
169	7.5	8.733	7.777	0.271
170	7.533	8.533	7.747	0.225
171	7.533	8.667	7.727	0.273
172	7.5	8.733	7.688	0.28
173	7.433	8.6	7.656	0.251
174	7.4	8.6	7.631	0.273
175	7.333	8.4	7.583	0.245
176	7.233	8.633	7.553	0.314
177	7.167	8.267	7.484	0.279
178	7.133	8.567	7.451	0.347

179	7.1	8.8	7.419	0.395
180	7.067	8.1	7.321	0.277
181	6.967	8.467	7.283	0.354
182	6.9	7.967	7.195	0.249
183	6.833	8.133	7.147	0.301
184	6.867	8.367	7.135	0.379
185	6.833	7.667	7.013	0.231
186	6.833	8.033	6.993	0.296
187	6.833	7.6	6.927	0.177
188	6.767	7.767	6.911	0.223
189	6.567	8.167	6.912	0.338
190	6.567	7.5	6.848	0.191
191	6.567	7.867	6.843	0.297
192	6.533	7.7	6.799	0.25
193	6.5	7.433	6.74	0.222
194	6.5	7.567	6.689	0.282
195	6.433	7.867	6.648	0.339
196	6.433	7.5	6.567	0.26
197	6.433	7.5	6.537	0.241
198	6.4	7.3	6.519	0.213
199	6.333	7.2	6.487	0.182
200	6.367	7.8	6.519	0.314
201	6.333	7.4	6.477	0.242
202	6.3	7.567	6.468	0.271
203	6.267	7.333	6.435	0.223
204	6.167	7.033	6.412	0.206

205	6.1	7.433	6.403	0.308
206	6.1	7.133	6.34	0.265
207	6.067	6.967	6.285	0.221
208	6.067	7.467	6.275	0.332
209	6.067	7.033	6.208	0.217
210	6.033	7.167	6.195	0.246
211	6.033	7.033	6.173	0.206
212	6.033	7.033	6.163	0.222
213	6.033	6.967	6.153	0.215
214	6.0	7.0	6.139	0.234
215	6.0	7.133	6.129	0.24
216	5.967	7.0	6.107	0.221
217	6.0	7.033	6.1	0.245
218	6.0	7.067	6.08	0.223
219	5.967	7.067	6.077	0.238
220	5.933	7.0	6.071	0.247
221	5.867	6.933	6.053	0.237
222	5.833	6.933	6.017	0.243
223	5.8	6.667	5.963	0.205
224	5.8	7.0	5.953	0.259
225	5.767	6.833	5.924	0.243
226	5.767	6.867	5.9	0.244
227	5.6	6.867	5.872	0.259
228	5.533	6.967	5.848	0.295
229	5.533	6.633	5.809	0.263
230	5.5	6.667	5.767	0.281

231	5.5	6.867	5.727	0.326
232	5.5	6.633	5.68	0.285
233	5.5	7.0	5.669	0.349
234	5.433	6.633	5.607	0.265
235	5.333	6.367	5.567	0.239
236	5.3	6.733	5.552	0.313
237	5.233	6.667	5.516	0.326
238	5.267	6.4	5.447	0.283
239	5.267	6.3	5.392	0.26
240	5.267	6.233	5.356	0.231
241	5.167	6.233	5.327	0.225
242	5.133	6.367	5.317	0.257
243	5.1	5.967	5.287	0.182
244	5.1	6.367	5.296	0.289
245	5.1	6.2	5.269	0.261
246	5.067	6.433	5.24	0.319
247	5.067	6.0	5.173	0.214
248	5.067	6.1	5.16	0.233
249	5.067	6.233	5.163	0.25
250	5.067	6.133	5.147	0.227
251	5.033	6.4	5.149	0.289
252	5.033	5.767	5.112	0.163
253	5.0	5.733	5.099	0.16
254	4.933	6.1	5.113	0.25
255	4.9	5.9	5.089	0.231
256	4.9	5.733	5.043	0.194

257	4.9	5.833	5.02	0.208
258	4.9	5.8	5.005	0.22
259	4.9	6.033	4.991	0.251
260	4.867	5.9	4.955	0.215
261	4.833	6.267	4.988	0.313
262	4.767	5.667	4.931	0.186
263	4.8	5.933	4.944	0.249
264	4.767	6.133	4.923	0.312
265	4.733	5.8	4.873	0.234
266	4.7	5.9	4.861	0.269
267	4.667	6.067	4.864	0.306
268	4.667	5.667	4.817	0.22
269	4.633	5.833	4.803	0.275
270	4.633	5.533	4.769	0.213
271	4.533	5.4	4.724	0.195
272	4.5	5.6	4.708	0.231
273	4.533	5.7	4.697	0.277
274	4.533	5.867	4.683	0.323
275	4.533	5.633	4.628	0.245
276	4.533	5.567	4.613	0.232
277	4.533	5.7	4.62	0.277
278	4.467	5.567	4.587	0.233
279	4.467	5.3	4.565	0.176
280	4.467	5.733	4.581	0.28
281	4.467	5.433	4.547	0.219
282	4.4	5.4	4.528	0.22

283	4.467	5.467	4.527	0.217
284	4.367	5.567	4.529	0.263
285	4.333	5.333	4.509	0.212
286	4.333	5.433	4.512	0.235
287	4.267	5.567	4.507	0.283
288	4.233	5.267	4.488	0.256
289	4.133	5.333	4.447	0.279
290	4.133	5.167	4.397	0.258
291	4.133	5.3	4.349	0.277
292	4.1	5.4	4.313	0.313
293	4.067	5.333	4.255	0.287
294	4.067	4.867	4.201	0.196
295	4.0	5.333	4.185	0.289
296	3.967	5.2	4.163	0.278
297	3.933	5.067	4.12	0.257
298	3.9	4.867	4.089	0.254
299	3.9	5.0	4.073	0.266
300	3.9	5.167	4.061	0.307
301	3.867	4.867	4.004	0.228
302	3.867	4.8	3.983	0.222
303	3.833	5.067	3.971	0.262
304	3.8	4.933	3.952	0.241
305	3.767	4.867	3.931	0.232
306	3.767	4.967	3.917	0.267
307	3.767	4.833	3.893	0.25
308	3.733	4.933	3.864	0.261

309	3.7	4.833	3.837	0.257
310	3.667	4.6	3.808	0.197
311	3.667	4.9	3.813	0.245
312	3.667	4.767	3.804	0.237
313	3.667	4.9	3.804	0.267
314	3.667	4.533	3.767	0.205
315	3.633	4.5	3.753	0.206
316	3.667	4.9	3.767	0.283
317	3.667	4.867	3.765	0.279
318	3.667	5.033	3.759	0.301
319	3.633	5.033	3.747	0.309
320	3.633	4.4	3.703	0.163
321	3.6	4.367	3.689	0.157
322	3.6	4.567	3.705	0.22
323	3.533	4.433	3.685	0.196
324	3.5	4.967	3.715	0.346
325	3.5	4.833	3.669	0.283
326	3.5	4.767	3.645	0.287
327	3.467	4.867	3.623	0.311
328	3.467	4.567	3.572	0.242
329	3.467	4.733	3.563	0.291
330	3.467	4.667	3.547	0.27
331	3.4	4.467	3.515	0.223
332	3.4	4.667	3.527	0.269
333	3.367	4.5	3.511	0.245
334	3.4	4.367	3.505	0.213

335	3.367	4.467	3.493	0.237
336	3.333	4.167	3.483	0.187
337	3.3	4.633	3.483	0.278
338	3.267	4.367	3.463	0.25
339	3.267	4.467	3.457	0.271
340	3.267	4.267	3.425	0.237
341	3.233	4.133	3.379	0.221
342	3.233	4.233	3.36	0.232
343	3.233	4.267	3.345	0.222
344	3.167	4.267	3.32	0.221
345	3.167	4.367	3.319	0.266
346	3.167	4.533	3.313	0.305
347	3.1	4.333	3.295	0.282
348	3.133	4.233	3.26	0.252
349	3.067	4.167	3.232	0.261
350	3.067	4.3	3.232	0.296
351	3.1	4.267	3.199	0.261
352	3.1	4.067	3.173	0.21
353	3.1	4.0	3.177	0.211
354	3.1	4.333	3.179	0.28
355	3.1	4.1	3.157	0.221
356	3.067	4.133	3.159	0.227
357	3.067	3.733	3.129	0.137
358	3.033	3.967	3.144	0.201
359	3.0	4.1	3.139	0.221
360	2.967	4.033	3.135	0.227

361	2.933	3.9	3.108	0.224
362	2.867	4.2	3.101	0.299
363	2.867	3.933	3.047	0.234
364	2.867	3.867	3.028	0.245
365	2.867	4.1	3.024	0.291
366	2.867	4.167	2.987	0.294
367	2.867	3.833	2.967	0.223
368	2.867	3.933	2.959	0.237
369	2.8	3.933	2.939	0.234
370	2.833	3.733	2.939	0.202
371	2.833	3.833	2.937	0.227
372	2.833	3.733	2.915	0.19
373	2.8	4.0	2.923	0.25
374	2.767	3.9	2.917	0.252
375	2.767	4.067	2.911	0.299
376	2.7	3.9	2.889	0.289
377	2.633	3.633	2.833	0.226
378	2.633	3.8	2.816	0.249
379	2.667	4.0	2.832	0.299
380	2.633	3.9	2.816	0.274
381	2.633	3.833	2.793	0.284
382	2.6	3.9	2.775	0.291
383	2.6	3.933	2.747	0.309
384	2.6	4.1	2.716	0.325
385	2.6	3.733	2.688	0.257
386	2.567	3.667	2.685	0.254

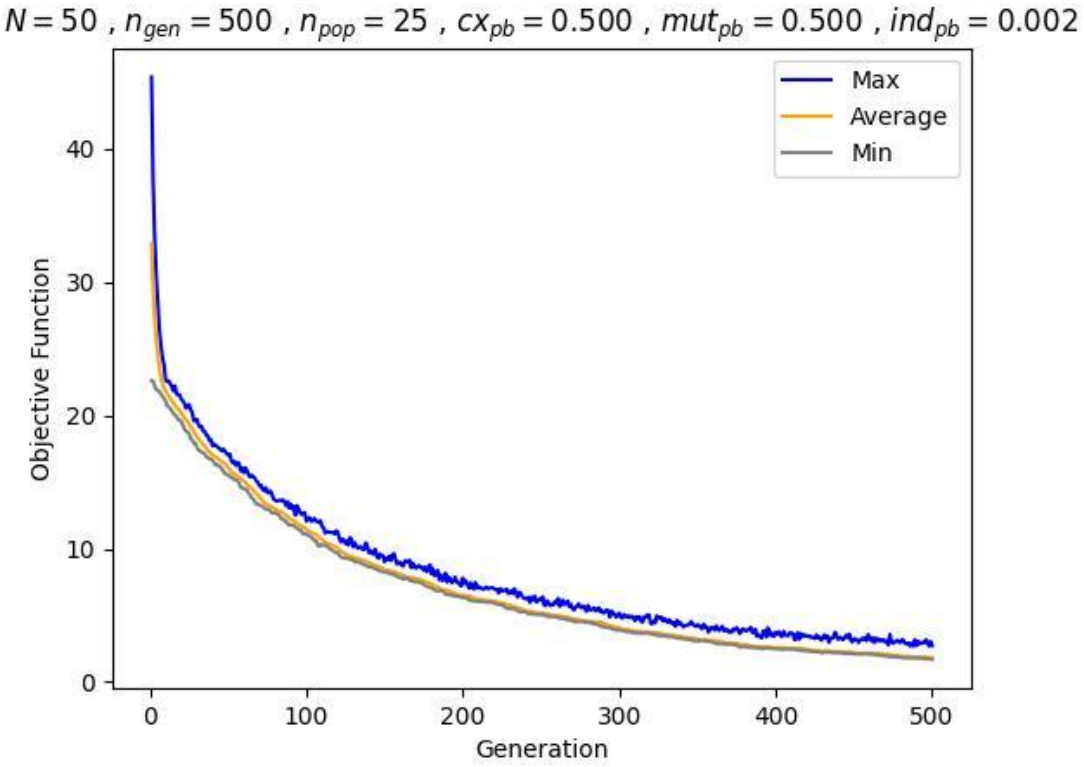
387	2.567	3.967	2.685	0.302
388	2.567	3.433	2.659	0.204
389	2.567	3.533	2.647	0.208
390	2.533	3.4	2.64	0.183
391	2.5	3.3	2.633	0.175
392	2.5	3.833	2.652	0.279
393	2.533	3.8	2.635	0.258
394	2.533	3.367	2.608	0.173
395	2.533	4.067	2.663	0.341
396	2.533	3.833	2.625	0.268
397	2.533	3.467	2.611	0.213
398	2.5	3.633	2.603	0.245
399	2.5	3.433	2.585	0.201
400	2.5	3.733	2.587	0.248
401	2.467	3.633	2.588	0.251
402	2.467	3.767	2.603	0.287
403	2.467	3.5	2.581	0.224
404	2.433	3.4	2.565	0.216
405	2.467	3.8	2.576	0.285
406	2.467	3.533	2.56	0.244
407	2.467	3.5	2.552	0.222
408	2.467	3.467	2.543	0.218
409	2.467	3.7	2.551	0.265
410	2.467	3.667	2.551	0.276
411	2.467	3.633	2.541	0.263
412	2.433	3.167	2.507	0.153

413	2.433	3.233	2.503	0.17
414	2.433	3.7	2.537	0.282
415	2.367	3.2	2.501	0.177
416	2.367	3.633	2.528	0.273
417	2.367	3.4	2.513	0.253
418	2.367	3.533	2.503	0.263
419	2.333	3.433	2.48	0.246
420	2.333	3.5	2.464	0.265
421	2.333	3.4	2.439	0.247
422	2.3	3.433	2.429	0.258
423	2.3	3.333	2.395	0.227
424	2.3	3.333	2.379	0.228
425	2.267	3.267	2.369	0.213
426	2.267	3.533	2.377	0.277
427	2.267	3.333	2.347	0.235
428	2.267	3.367	2.34	0.238
429	2.2	3.133	2.307	0.188
430	2.2	3.267	2.319	0.22
431	2.233	3.533	2.34	0.286
432	2.233	3.3	2.328	0.239
433	2.233	3.467	2.325	0.264
434	2.233	2.967	2.288	0.162
435	2.233	3.233	2.3	0.222
436	2.2	3.333	2.292	0.245
437	2.2	3.333	2.295	0.254
438	2.2	3.733	2.297	0.322

439	2.2	3.4	2.281	0.269
440	2.2	3.2	2.257	0.218
441	2.2	3.367	2.275	0.269
442	2.2	3.267	2.251	0.219
443	2.133	3.167	2.247	0.215
444	2.133	3.333	2.253	0.247
445	2.133	3.5	2.279	0.305
446	2.133	3.333	2.259	0.259
447	2.133	3.6	2.261	0.311
448	2.133	3.133	2.244	0.234
449	2.133	3.0	2.201	0.193
450	2.133	3.233	2.211	0.249
451	2.1	3.233	2.2	0.25
452	2.1	3.133	2.188	0.231
453	2.1	2.967	2.179	0.208
454	2.1	3.133	2.159	0.216
455	2.1	3.267	2.179	0.276
456	2.1	3.167	2.164	0.242
457	2.1	3.3	2.156	0.246
458	2.1	3.1	2.155	0.214
459	2.1	3.567	2.183	0.317
460	2.1	3.333	2.164	0.262
461	2.067	3.1	2.152	0.217
462	2.067	3.3	2.176	0.283
463	2.067	2.967	2.147	0.2
464	2.033	3.3	2.16	0.289

465	2.033	3.1	2.131	0.235
466	2.033	3.233	2.128	0.263
467	2.0	3.067	2.107	0.231
468	1.967	3.167	2.112	0.27
469	1.967	3.167	2.084	0.257
470	1.967	3.0	2.076	0.249
471	1.967	3.1	2.085	0.287
472	1.9	2.767	2.039	0.204
473	1.9	3.567	2.073	0.372
474	1.9	3.033	2.023	0.256
475	1.9	2.9	2.004	0.199
476	1.867	3.0	2.02	0.265
477	1.867	3.067	2.0	0.275
478	1.867	3.133	2.001	0.294
479	1.867	2.967	1.973	0.257
480	1.833	3.0	1.955	0.272
481	1.833	3.2	1.957	0.306
482	1.8	3.033	1.924	0.251
483	1.833	2.867	1.917	0.216
484	1.8	2.867	1.925	0.24
485	1.833	2.933	1.924	0.233
486	1.8	2.7	1.915	0.215
487	1.8	2.9	1.904	0.248
488	1.8	2.7	1.877	0.21
489	1.8	3.167	1.897	0.307
490	1.8	2.733	1.856	0.204

491	1.8	3.067	1.872	0.275
492	1.8	2.867	1.865	0.245
493	1.767	2.9	1.869	0.258
494	1.767	2.967	1.861	0.263
495	1.767	2.933	1.873	0.268
496	1.733	3.167	1.888	0.338
497	1.733	3.0	1.848	0.282
498	1.733	2.7	1.813	0.203
499	1.733	3.033	1.833	0.28
500	1.7	2.733	1.817	0.244



SETTING 3

Generation	Minimum Fitness	Maximum Fitness	Average Fitness	Standard deviation
1	21.1	49.467	33.131	5.835
2	21.033	41.867	29.937	4.396

3	20.733	36.667	27.663	3.509
4	20.533	33.033	25.88	2.779
5	20.067	30.467	24.456	2.374
6	19.733	29.067	23.315	2.023
7	18.867	27.5	22.402	1.732
8	18.5	26.1	21.608	1.441
9	17.767	24.7	20.994	1.379
10	17.4	24.333	20.458	1.375
11	16.933	23.633	19.91	1.318
12	16.433	23.2	19.408	1.308
13	16.033	22.8	18.894	1.302
14	15.6	22.267	18.365	1.263
15	15.2	21.667	17.832	1.249
16	14.633	21.133	17.36	1.199
17	14.433	20.867	16.888	1.179
18	14.233	20.0	16.439	1.121
19	13.9	19.4	16.02	1.073
20	13.633	19.3	15.66	1.064
21	13.2	18.567	15.297	1.023
22	12.9	18.467	14.95	1.013
23	12.733	18.133	14.632	0.974
24	12.333	17.733	14.344	0.973
25	12.133	17.5	14.047	0.994
26	11.9	16.9	13.738	0.951
27	11.667	16.767	13.451	0.98
28	11.333	16.367	13.151	0.922

29	11.167	16.3	12.896	0.955
30	10.833	15.833	12.625	0.952
31	10.633	16.167	12.375	0.977
32	10.467	15.4	12.109	0.934
33	10.267	15.3	11.843	0.917
34	10.067	14.8	11.627	0.913
35	9.9	15.167	11.428	0.976
36	9.533	14.533	11.184	0.928
37	9.367	14.4	10.978	0.925
38	9.133	14.133	10.724	0.852
39	8.767	14.333	10.549	0.912
40	8.467	13.567	10.349	0.922
41	8.3	13.367	10.164	0.962
42	8.2	13.4	9.929	0.97
43	8.167	13.333	9.687	0.957
44	7.9	13.067	9.451	0.946
45	7.767	12.767	9.243	0.932
46	7.6	12.733	9.036	0.952
47	7.4	12.5	8.808	0.939
48	7.267	12.167	8.603	0.911
49	7.033	11.7	8.37	0.857
50	6.867	11.5	8.203	0.877
51	6.7	11.6	8.072	0.901
52	6.467	11.033	7.885	0.833
53	6.333	10.967	7.723	0.815
54	6.3	11.367	7.616	0.902

55	6.133	10.967	7.48	0.901
56	6.0	10.633	7.322	0.886
57	5.867	10.633	7.168	0.901
58	5.7	10.6	6.981	0.891
59	5.533	10.333	6.839	0.895
60	5.467	10.0	6.719	0.853
61	5.4	10.367	6.6	0.899
62	5.267	9.933	6.465	0.887
63	5.133	9.567	6.29	0.834
64	4.967	9.467	6.16	0.85
65	4.833	9.367	6.028	0.837
66	4.733	9.533	5.898	0.864
67	4.633	9.433	5.814	0.882
68	4.533	9.033	5.717	0.897
69	4.467	8.867	5.566	0.851
70	4.367	8.967	5.454	0.846
71	4.333	9.067	5.328	0.863
72	4.2	8.567	5.218	0.854
73	4.133	8.267	5.096	0.811
74	4.067	8.233	5.025	0.825
75	3.833	8.833	4.924	0.888
76	3.667	8.267	4.88	0.884
77	3.6	8.033	4.726	0.812
78	3.533	7.7	4.643	0.832
79	3.333	8.1	4.55	0.841
80	3.333	8.067	4.487	0.894

81	3.233	7.867	4.363	0.862
82	3.167	7.533	4.246	0.846
83	3.067	7.467	4.131	0.845
84	3.033	7.567	4.055	0.901
85	2.967	7.2	3.966	0.876
86	3.0	7.467	3.86	0.89
87	2.867	6.867	3.766	0.841
88	2.8	6.833	3.664	0.827
89	2.7	6.833	3.625	0.859
90	2.533	6.833	3.543	0.853
91	2.633	6.8	3.482	0.858
92	2.533	6.833	3.384	0.823
93	2.467	6.6	3.319	0.822
94	2.433	6.6	3.259	0.848
95	2.333	6.333	3.173	0.795
96	2.267	6.7	3.137	0.865
97	2.167	6.467	3.076	0.856
98	2.033	6.167	2.976	0.821
99	2.0	6.3	2.924	0.86
100	1.967	5.967	2.801	0.819
101	1.967	6.233	2.749	0.852
102	1.933	6.3	2.661	0.838
103	1.867	5.933	2.604	0.828
104	1.8	5.767	2.535	0.847
105	1.8	5.767	2.472	0.837
106	1.767	5.8	2.388	0.814

107	1.7	5.6	2.327	0.798
108	1.667	5.533	2.288	0.811
109	1.567	5.533	2.262	0.833
110	1.6	5.767	2.186	0.81
111	1.533	5.367	2.169	0.797
112	1.467	5.567	2.124	0.816
113	1.5	5.2	2.1	0.819
114	1.4	5.433	2.066	0.824
115	1.433	5.467	2.041	0.837
116	1.367	5.567	2.013	0.855
117	1.4	5.3	1.984	0.841
118	1.3	5.167	1.948	0.815
119	1.2	5.1	1.893	0.772
120	1.233	5.433	1.878	0.829
121	1.233	5.167	1.834	0.817
122	1.2	4.9	1.772	0.782
123	1.233	5.233	1.74	0.825
124	1.133	4.767	1.732	0.837
125	1.133	5.1	1.673	0.824
126	1.067	4.867	1.619	0.788
127	1.033	5.067	1.604	0.791
128	1.033	4.967	1.633	0.843
129	1.067	4.567	1.582	0.754
130	1.0	4.867	1.593	0.806
131	0.933	4.967	1.599	0.832
132	0.867	4.733	1.561	0.821

133	0.833	5.1	1.52	0.839
134	0.833	4.9	1.48	0.811
135	0.8	4.833	1.44	0.814
136	0.833	4.8	1.41	0.831
137	0.8	4.667	1.382	0.835
138	0.8	5.1	1.356	0.895
139	0.8	5.033	1.306	0.869
140	0.767	4.333	1.244	0.784
141	0.733	5.067	1.245	0.878
142	0.667	4.733	1.199	0.825
143	0.7	4.433	1.172	0.804
144	0.7	4.467	1.139	0.792
145	0.667	4.7	1.152	0.834
146	0.7	4.667	1.146	0.837
147	0.7	4.5	1.12	0.8
148	0.633	4.367	1.101	0.795
149	0.6	4.2	1.079	0.776
150	0.567	4.533	1.08	0.794
151	0.6	4.3	1.081	0.806
152	0.633	4.333	1.04	0.78
153	0.6	4.567	1.063	0.831
154	0.533	4.6	1.044	0.815
155	0.567	4.133	1.017	0.77
156	0.533	4.533	1.038	0.834
157	0.533	4.333	1.01	0.791
158	0.533	4.233	0.994	0.794

159	0.533	4.633	0.978	0.802
160	0.533	4.633	0.987	0.834
161	0.5	4.033	0.975	0.779
162	0.467	4.367	0.966	0.813
163	0.467	4.133	0.911	0.742
164	0.433	4.267	0.941	0.798
165	0.433	4.233	0.943	0.836
166	0.433	4.367	0.936	0.857
167	0.367	4.233	0.918	0.831
168	0.4	4.333	0.876	0.801
169	0.4	4.033	0.85	0.79
170	0.4	4.067	0.824	0.803
171	0.4	4.3	0.823	0.82
172	0.367	4.0	0.816	0.817
173	0.367	4.067	0.799	0.826
174	0.333	4.167	0.788	0.813
175	0.333	4.467	0.803	0.858
176	0.333	4.233	0.798	0.85
177	0.333	3.633	0.752	0.776
178	0.333	3.967	0.758	0.795
179	0.333	4.233	0.762	0.825
180	0.333	4.067	0.745	0.796
181	0.333	4.233	0.737	0.812
182	0.3	4.1	0.72	0.815
183	0.3	3.833	0.702	0.78
184	0.267	3.667	0.674	0.74

185	0.267	4.167	0.656	0.774
186	0.267	3.7	0.653	0.744
187	0.233	3.967	0.68	0.799
188	0.233	3.9	0.66	0.777
189	0.233	4.2	0.667	0.827
190	0.233	4.1	0.646	0.803
191	0.233	4.067	0.663	0.815
192	0.267	4.167	0.657	0.835
193	0.167	3.967	0.67	0.848
194	0.167	3.967	0.651	0.822
195	0.167	4.033	0.633	0.804
196	0.167	4.0	0.619	0.795
197	0.167	3.767	0.623	0.802
198	0.167	4.133	0.6	0.818
199	0.167	4.0	0.594	0.82
200	0.167	3.9	0.614	0.841
201	0.167	4.067	0.579	0.819
202	0.167	4.267	0.569	0.831
203	0.167	3.833	0.56	0.805
204	0.167	3.767	0.556	0.821
205	0.167	3.967	0.553	0.825
206	0.167	3.833	0.536	0.8
207	0.133	3.8	0.5	0.768
208	0.133	4.2	0.515	0.789
209	0.133	4.2	0.526	0.815
210	0.133	3.8	0.516	0.786

211	0.133	3.8	0.529	0.796
212	0.133	4.0	0.522	0.799
213	0.133	4.033	0.523	0.819
214	0.133	4.167	0.532	0.856
215	0.133	4.033	0.504	0.823
216	0.133	3.9	0.494	0.792
217	0.133	3.9	0.503	0.802
218	0.133	3.967	0.525	0.847
219	0.133	4.2	0.524	0.842
220	0.133	3.9	0.507	0.81
221	0.133	3.9	0.515	0.807
222	0.133	3.567	0.499	0.783
223	0.133	4.467	0.532	0.878
224	0.133	4.067	0.521	0.838
225	0.133	4.467	0.525	0.862
226	0.133	4.033	0.529	0.832
227	0.133	4.1	0.508	0.838
228	0.133	3.567	0.459	0.746
229	0.133	3.533	0.497	0.766
230	0.133	4.533	0.552	0.891
231	0.1	4.367	0.511	0.847
232	0.1	4.333	0.508	0.844
233	0.1	3.867	0.526	0.828
234	0.1	3.867	0.48	0.779
235	0.1	3.667	0.491	0.777
236	0.1	4.2	0.506	0.832

237	0.1	3.967	0.492	0.785
238	0.1	3.933	0.507	0.821
239	0.1	3.433	0.482	0.76
240	0.1	3.933	0.509	0.83
241	0.1	4.0	0.514	0.846
242	0.1	3.833	0.485	0.797
243	0.1	4.1	0.498	0.847
244	0.1	4.2	0.511	0.858
245	0.1	3.9	0.486	0.821
246	0.1	3.9	0.466	0.802
247	0.1	3.9	0.47	0.797
248	0.1	3.667	0.482	0.809
249	0.1	3.533	0.478	0.792
250	0.1	4.033	0.484	0.812
251	0.1	3.833	0.452	0.795
252	0.1	3.933	0.463	0.794
253	0.1	4.067	0.465	0.825
254	0.1	3.633	0.494	0.827
255	0.1	4.267	0.484	0.836
256	0.1	3.933	0.489	0.81
257	0.1	3.333	0.465	0.763
258	0.1	3.833	0.49	0.822
259	0.1	3.633	0.481	0.793
260	0.1	3.967	0.476	0.817
261	0.1	3.833	0.465	0.798
262	0.1	3.933	0.468	0.815

263	0.1	3.667	0.448	0.768
264	0.1	4.033	0.479	0.835
265	0.1	3.967	0.472	0.809
266	0.1	4.4	0.512	0.882
267	0.1	3.667	0.488	0.808
268	0.067	4.2	0.52	0.878
269	0.067	3.767	0.466	0.795
270	0.1	3.867	0.462	0.804
271	0.1	3.667	0.483	0.805
272	0.1	3.7	0.463	0.8
273	0.1	4.467	0.482	0.851
274	0.1	3.533	0.466	0.774
275	0.1	3.833	0.484	0.826
276	0.1	3.733	0.465	0.784
277	0.1	4.233	0.483	0.843
278	0.1	3.733	0.466	0.778
279	0.1	3.7	0.475	0.788
280	0.1	3.9	0.485	0.808
281	0.1	4.067	0.496	0.834
282	0.1	3.8	0.476	0.803
283	0.1	3.533	0.468	0.771
284	0.1	4.133	0.519	0.86
285	0.1	3.933	0.469	0.795
286	0.1	3.767	0.465	0.793
287	0.1	3.633	0.441	0.77
288	0.1	3.667	0.46	0.781

289	0.1	3.467	0.443	0.763
290	0.1	3.567	0.45	0.767
291	0.1	3.6	0.454	0.758
292	0.1	3.9	0.452	0.787
293	0.1	3.767	0.46	0.779
294	0.1	3.667	0.461	0.779
295	0.1	3.8	0.484	0.815
296	0.1	3.9	0.48	0.822
297	0.1	3.967	0.471	0.829
298	0.1	3.867	0.482	0.826
299	0.1	3.833	0.451	0.788
300	0.1	3.667	0.462	0.79
301	0.1	4.133	0.471	0.829
302	0.1	4.0	0.45	0.808
303	0.1	3.9	0.429	0.773
304	0.1	3.9	0.439	0.775
305	0.067	4.067	0.454	0.803
306	0.1	3.667	0.449	0.779
307	0.1	3.9	0.476	0.816
308	0.1	4.1	0.489	0.855
309	0.1	3.933	0.466	0.815
310	0.1	4.033	0.48	0.812
311	0.1	3.7	0.459	0.766
312	0.1	3.733	0.428	0.754
313	0.1	4.067	0.481	0.832
314	0.067	3.733	0.494	0.82

315	0.067	3.833	0.49	0.808
316	0.067	4.367	0.47	0.832
317	0.067	3.467	0.442	0.753
318	0.067	3.967	0.476	0.819
319	0.067	3.967	0.48	0.832
320	0.067	3.833	0.467	0.81
321	0.067	3.633	0.435	0.766
322	0.067	3.833	0.458	0.824
323	0.067	3.833	0.461	0.815
324	0.067	3.7	0.435	0.78
325	0.067	3.733	0.439	0.801
326	0.067	3.833	0.426	0.794
327	0.067	3.8	0.444	0.822
328	0.067	4.133	0.476	0.861
329	0.067	3.733	0.433	0.796
330	0.067	3.6	0.451	0.793
331	0.067	4.233	0.461	0.855
332	0.067	4.0	0.439	0.813
333	0.067	3.9	0.465	0.832
334	0.067	3.867	0.452	0.818
335	0.067	4.033	0.438	0.81
336	0.067	3.633	0.44	0.795
337	0.067	4.2	0.471	0.865
338	0.067	3.533	0.43	0.792
339	0.033	3.433	0.399	0.744
340	0.067	4.267	0.46	0.855

341	0.067	3.733	0.422	0.785
342	0.033	4.067	0.428	0.815
343	0.033	3.5	0.422	0.773
344	0.033	3.8	0.443	0.81
345	0.033	3.8	0.443	0.806
346	0.033	3.6	0.438	0.807
347	0.033	3.4	0.412	0.762
348	0.033	3.9	0.442	0.823
349	0.033	3.367	0.406	0.765
350	0.033	4.1	0.421	0.842
351	0.033	3.767	0.425	0.812
352	0.033	3.733	0.43	0.814
353	0.033	3.867	0.407	0.798
354	0.033	3.433	0.396	0.764
355	0.033	3.7	0.432	0.807
356	0.033	4.033	0.462	0.854
357	0.033	3.8	0.412	0.803
358	0.033	3.567	0.378	0.762
359	0.033	3.667	0.405	0.795
360	0.033	3.933	0.43	0.841
361	0.033	4.033	0.412	0.824
362	0.033	4.067	0.42	0.835
363	0.033	3.7	0.415	0.806
364	0.033	3.867	0.397	0.788
365	0.033	3.567	0.429	0.811
366	0.033	3.733	0.437	0.827

367	0.033	3.867	0.441	0.838
368	0.033	4.1	0.459	0.877
369	0.033	4.033	0.438	0.859
370	0.033	3.533	0.424	0.825
371	0.033	4.2	0.406	0.83
372	0.033	3.867	0.393	0.795
373	0.033	3.767	0.395	0.78
374	0.033	4.067	0.432	0.835
375	0.033	3.8	0.44	0.838
376	0.033	4.333	0.43	0.88
377	0.033	3.867	0.404	0.809
378	0.033	4.1	0.42	0.84
379	0.033	3.9	0.427	0.846
380	0.033	3.6	0.385	0.759
381	0.033	3.8	0.411	0.81
382	0.033	3.633	0.395	0.78
383	0.033	3.733	0.384	0.768
384	0.033	4.067	0.422	0.842
385	0.033	3.9	0.424	0.823
386	0.033	3.833	0.415	0.813
387	0.033	3.867	0.427	0.841
388	0.033	3.833	0.402	0.794
389	0.033	3.367	0.385	0.752
390	0.033	3.933	0.404	0.823
391	0.033	3.967	0.41	0.831
392	0.033	3.7	0.396	0.795

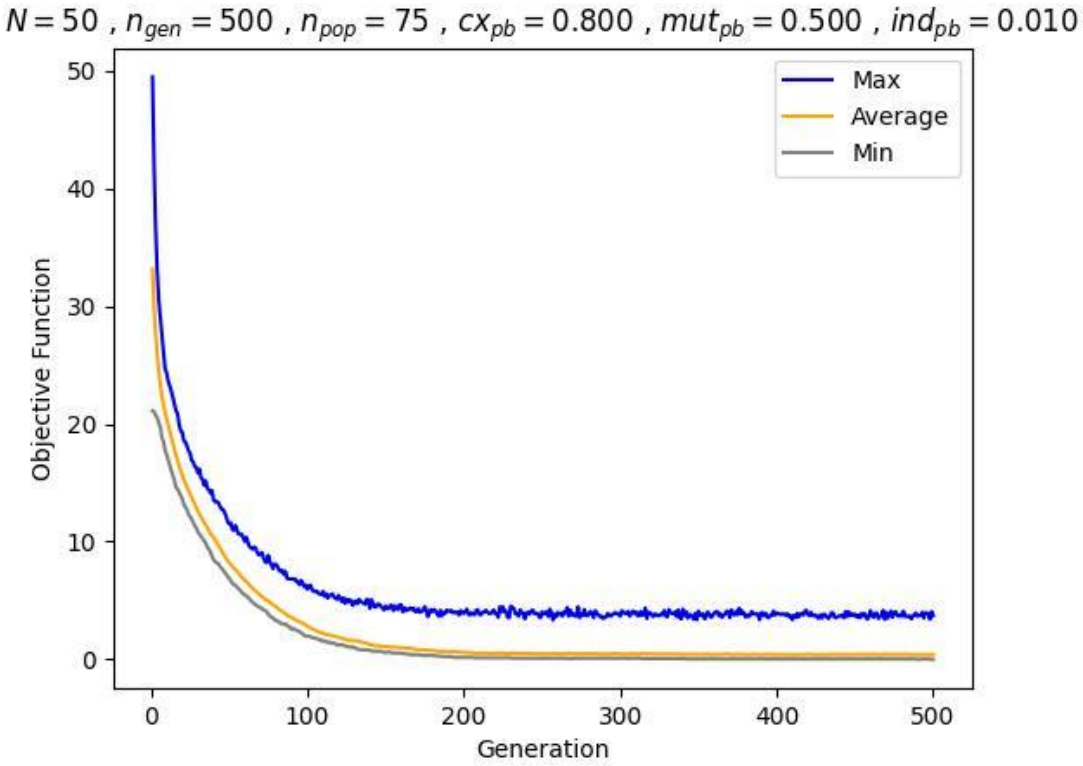
393	0.033	3.9	0.434	0.839
394	0.033	3.567	0.427	0.798
395	0.033	3.533	0.415	0.785
396	0.033	3.767	0.423	0.803
397	0.033	3.733	0.427	0.806
398	0.033	4.1	0.392	0.808
399	0.033	3.767	0.408	0.806
400	0.033	3.933	0.417	0.822
401	0.033	3.9	0.4	0.804
402	0.033	3.833	0.411	0.813
403	0.033	3.8	0.437	0.839
404	0.033	3.867	0.423	0.838
405	0.033	3.833	0.395	0.795
406	0.033	3.733	0.396	0.79
407	0.033	3.867	0.416	0.818
408	0.033	3.633	0.404	0.789
409	0.033	3.7	0.402	0.788
410	0.033	3.367	0.387	0.75
411	0.033	3.733	0.372	0.771
412	0.033	3.567	0.388	0.763
413	0.033	3.9	0.398	0.798
414	0.033	3.6	0.418	0.8
415	0.033	3.833	0.401	0.812
416	0.033	3.9	0.405	0.828
417	0.033	3.767	0.416	0.816
418	0.033	4.1	0.418	0.836

419	0.033	4.167	0.416	0.847
420	0.033	3.8	0.437	0.84
421	0.033	3.7	0.418	0.815
422	0.033	4.0	0.425	0.853
423	0.033	3.7	0.408	0.806
424	0.033	3.733	0.396	0.79
425	0.033	3.767	0.39	0.785
426	0.033	3.533	0.37	0.752
427	0.033	3.5	0.401	0.785
428	0.033	3.8	0.43	0.83
429	0.033	3.5	0.397	0.794
430	0.033	3.833	0.386	0.778
431	0.033	3.8	0.404	0.802
432	0.033	3.6	0.375	0.768
433	0.033	3.467	0.386	0.765
434	0.033	3.633	0.436	0.816
435	0.033	3.967	0.436	0.854
436	0.033	3.933	0.412	0.824
437	0.033	3.567	0.42	0.799
438	0.033	3.533	0.407	0.781
439	0.033	3.633	0.404	0.791
440	0.033	3.7	0.392	0.786
441	0.033	3.667	0.436	0.819
442	0.033	3.767	0.404	0.8
443	0.033	3.533	0.398	0.785
444	0.033	4.067	0.399	0.823

445	0.033	3.633	0.397	0.794
446	0.033	4.033	0.414	0.827
447	0.033	3.7	0.392	0.792
448	0.033	3.867	0.405	0.811
449	0.033	3.733	0.412	0.805
450	0.033	3.833	0.407	0.807
451	0.033	3.6	0.42	0.805
452	0.033	3.767	0.41	0.812
453	0.033	3.533	0.432	0.809
454	0.033	3.867	0.422	0.832
455	0.033	3.667	0.422	0.799
456	0.033	3.9	0.434	0.839
457	0.033	3.633	0.409	0.792
458	0.033	3.4	0.391	0.76
459	0.033	3.767	0.411	0.801
460	0.033	4.133	0.429	0.838
461	0.033	3.667	0.4	0.777
462	0.033	3.567	0.425	0.79
463	0.033	3.9	0.442	0.838
464	0.033	3.933	0.403	0.807
465	0.033	3.467	0.383	0.763
466	0.033	3.633	0.394	0.776
467	0.033	3.733	0.392	0.795
468	0.033	4.167	0.438	0.856
469	0.033	3.4	0.412	0.773
470	0.033	3.967	0.416	0.82

471	0.033	3.5	0.43	0.8
472	0.033	3.8	0.432	0.815
473	0.033	4.1	0.431	0.852
474	0.033	3.567	0.401	0.779
475	0.033	3.967	0.412	0.825
476	0.033	4.067	0.412	0.829
477	0.033	3.733	0.421	0.815
478	0.033	3.667	0.42	0.813
479	0.033	3.8	0.416	0.808
480	0.033	3.667	0.407	0.795
481	0.033	4.1	0.41	0.827
482	0.033	3.633	0.428	0.813
483	0.033	3.667	0.431	0.816
484	0.033	3.633	0.402	0.776
485	0.033	3.7	0.394	0.794
486	0.033	3.433	0.399	0.78
487	0.033	3.633	0.395	0.787
488	0.033	3.8	0.412	0.81
489	0.033	3.933	0.394	0.804
490	0.0	3.667	0.394	0.803
491	0.0	3.733	0.408	0.806
492	0.0	3.733	0.399	0.802
493	0.033	4.0	0.42	0.834
494	0.033	3.5	0.408	0.787
495	0.033	3.967	0.419	0.822
496	0.0	3.9	0.384	0.799

497	0.033	3.867	0.394	0.792
498	0.033	3.4	0.408	0.782
499	0.0	4.067	0.428	0.846
500	0.0	3.7	0.414	0.814



SETTING 4

Generation	Minimum Fitness	Maximum Fitness	Average Fitness	Standard deviation
1	20.933	50.567	32.873	5.783
2	20.5	41.567	29.602	4.316
3	20.3	35.867	27.337	3.435
4	20.0	33.133	25.53	2.875
5	19.667	30.267	24.024	2.271
6	19.2	27.9	22.957	1.848
7	18.8	26.7	22.171	1.556
8	18.6	25.7	21.55	1.364

9	18.267	24.333	20.935	1.225
10	17.767	24.0	20.42	1.185
11	17.533	23.133	19.865	1.08
12	16.9	22.6	19.398	1.044
13	16.667	22.0	18.943	0.979
14	16.367	21.5	18.529	0.93
15	15.9	21.2	18.125	0.909
16	15.6	20.567	17.761	0.878
17	15.3	20.167	17.396	0.872
18	15.033	19.833	17.055	0.851
19	14.8	19.233	16.708	0.824
20	14.433	18.967	16.376	0.83
21	14.0	18.733	16.028	0.829
22	13.533	18.533	15.696	0.826
23	13.567	18.333	15.374	0.824
24	13.267	17.8	15.052	0.792
25	13.033	17.4	14.738	0.787
26	12.767	17.433	14.429	0.81
27	12.3	16.633	14.113	0.767
28	12.1	16.1	13.786	0.728
29	11.733	16.033	13.489	0.745
30	11.533	15.933	13.229	0.743
31	11.367	15.5	12.958	0.705
32	11.267	15.267	12.73	0.725
33	11.133	15.1	12.472	0.715
34	10.833	14.833	12.211	0.696

35	10.533	14.2	11.981	0.649
36	10.4	14.367	11.752	0.658
37	10.167	14.167	11.54	0.659
38	10.067	13.767	11.334	0.618
39	9.9	13.7	11.146	0.633
40	9.733	13.467	10.956	0.645
41	9.533	13.367	10.749	0.632
42	9.333	13.067	10.545	0.621
43	9.167	12.6	10.352	0.607
44	9.067	12.633	10.192	0.594
45	8.967	12.4	10.029	0.593
46	8.733	12.4	9.864	0.6
47	8.467	12.167	9.7	0.609
48	8.3	12.067	9.519	0.621
49	8.2	12.033	9.365	0.632
50	8.067	11.867	9.182	0.615
51	7.933	11.4	9.013	0.596
52	7.8	11.433	8.871	0.626
53	7.633	11.033	8.689	0.581
54	7.433	11.133	8.522	0.58
55	7.3	10.933	8.385	0.591
56	7.167	10.5	8.257	0.562
57	7.033	10.567	8.119	0.563
58	6.867	10.4	7.981	0.573
59	6.833	10.4	7.831	0.609
60	6.667	10.367	7.672	0.621

61	6.533	10.0	7.508	0.588
62	6.333	10.033	7.365	0.587
63	6.3	9.8	7.248	0.567
64	6.2	9.9	7.117	0.578
65	6.033	9.4	6.997	0.561
66	5.9	9.133	6.875	0.55
67	5.767	9.367	6.772	0.584
68	5.8	8.967	6.645	0.542
69	5.6	9.033	6.518	0.551
70	5.5	9.067	6.43	0.581
71	5.567	8.733	6.319	0.566
72	5.467	8.633	6.201	0.554
73	5.367	8.733	6.087	0.568
74	5.2	8.367	5.973	0.549
75	5.1	8.467	5.879	0.567
76	4.967	8.167	5.779	0.557
77	4.833	7.967	5.661	0.525
78	4.7	7.967	5.566	0.552
79	4.633	7.9	5.465	0.556
80	4.667	7.567	5.343	0.523
81	4.633	7.533	5.252	0.542
82	4.567	7.6	5.151	0.555
83	4.5	7.533	5.042	0.525
84	4.367	7.433	4.958	0.539
85	4.233	7.633	4.879	0.548
86	4.2	7.233	4.801	0.482

87	4.1	7.1	4.757	0.476
88	4.067	7.167	4.726	0.507
89	3.967	6.9	4.669	0.499
90	3.9	6.967	4.616	0.511
91	3.867	6.633	4.521	0.486
92	3.767	6.833	4.46	0.529
93	3.667	6.633	4.364	0.516
94	3.567	6.767	4.285	0.537
95	3.6	6.767	4.207	0.522
96	3.467	6.767	4.141	0.555
97	3.467	6.367	4.052	0.536
98	3.3	6.333	3.974	0.541
99	3.2	6.333	3.881	0.501
100	3.133	6.367	3.828	0.535
101	3.0	6.233	3.748	0.521
102	2.867	6.133	3.682	0.527
103	2.8	6.033	3.61	0.539
104	2.767	5.633	3.504	0.516
105	2.733	5.6	3.41	0.523
106	2.733	5.7	3.318	0.531
107	2.567	5.567	3.23	0.544
108	2.467	5.367	3.112	0.503
109	2.467	5.233	3.028	0.489
110	2.5	5.233	2.974	0.514
111	2.4	5.367	2.924	0.523
112	2.367	5.2	2.868	0.495

113	2.333	4.967	2.799	0.458
114	2.267	5.233	2.772	0.494
115	2.233	4.9	2.716	0.457
116	2.133	4.967	2.69	0.479
117	2.1	4.767	2.651	0.481
118	2.067	4.9	2.609	0.523
119	2.0	4.833	2.552	0.542
120	1.9	5.033	2.489	0.547
121	1.867	4.667	2.398	0.501
122	1.867	4.6	2.338	0.507
123	1.833	4.433	2.255	0.464
124	1.833	4.433	2.221	0.508
125	1.767	4.333	2.171	0.493
126	1.7	4.3	2.13	0.482
127	1.633	4.233	2.09	0.474
128	1.6	4.133	2.063	0.48
129	1.567	4.267	2.019	0.47
130	1.533	4.067	1.984	0.44
131	1.567	4.233	1.959	0.464
132	1.5	4.0	1.93	0.46
133	1.467	4.167	1.896	0.488
134	1.3	4.233	1.864	0.519
135	1.333	4.233	1.819	0.492
136	1.367	3.967	1.772	0.478
137	1.3	3.967	1.736	0.496
138	1.233	4.233	1.695	0.536

139	1.133	4.133	1.633	0.506
140	1.2	3.633	1.571	0.469
141	1.067	3.933	1.541	0.513
142	1.0	3.833	1.502	0.528
143	1.0	3.933	1.445	0.503
144	0.967	3.7	1.384	0.474
145	0.967	3.633	1.375	0.513
146	0.933	3.7	1.318	0.491
147	0.9	3.5	1.287	0.504
148	0.867	3.467	1.22	0.446
149	0.9	3.267	1.215	0.46
150	0.9	3.367	1.188	0.471
151	0.867	3.367	1.155	0.473
152	0.867	3.367	1.119	0.474
153	0.9	3.433	1.086	0.475
154	0.9	3.3	1.055	0.47
155	0.867	3.167	1.027	0.43
156	0.833	3.167	1.031	0.445
157	0.767	3.233	1.023	0.439
158	0.767	3.333	1.02	0.456
159	0.733	3.033	1.009	0.445
160	0.733	3.3	1.013	0.491
161	0.667	3.2	0.982	0.474
162	0.633	3.1	0.952	0.474
163	0.633	3.133	0.931	0.486
164	0.6	3.033	0.888	0.468

165	0.567	2.967	0.868	0.466
166	0.5	3.133	0.839	0.475
167	0.467	3.2	0.818	0.483
168	0.467	3.167	0.773	0.481
169	0.467	2.9	0.75	0.481
170	0.467	2.867	0.703	0.466
171	0.467	3.133	0.686	0.49
172	0.467	2.833	0.656	0.472
173	0.467	2.667	0.63	0.465
174	0.433	2.9	0.603	0.443
175	0.433	2.833	0.598	0.442
176	0.433	2.633	0.597	0.437
177	0.367	2.767	0.59	0.44
178	0.367	2.867	0.601	0.459
179	0.367	2.8	0.598	0.472
180	0.367	2.833	0.597	0.476
181	0.367	2.567	0.569	0.434
182	0.367	2.933	0.577	0.483
183	0.367	2.833	0.56	0.474
184	0.367	2.667	0.542	0.461
185	0.367	2.867	0.537	0.505
186	0.367	2.633	0.521	0.47
187	0.367	2.733	0.517	0.485
188	0.367	2.9	0.502	0.465
189	0.367	2.733	0.502	0.459
190	0.333	2.833	0.51	0.47

191	0.367	2.733	0.508	0.464
192	0.367	2.767	0.501	0.456
193	0.367	2.7	0.483	0.416
194	0.367	2.6	0.501	0.448
195	0.333	2.7	0.513	0.47
196	0.333	2.767	0.509	0.465
197	0.333	2.6	0.494	0.437
198	0.333	2.8	0.507	0.466
199	0.333	2.733	0.518	0.482
200	0.333	2.7	0.514	0.485
201	0.3	2.733	0.49	0.462
202	0.3	2.433	0.488	0.45
203	0.3	2.567	0.481	0.449
204	0.3	2.633	0.468	0.449
205	0.3	2.567	0.47	0.458
206	0.3	2.6	0.466	0.451
207	0.3	2.767	0.462	0.45
208	0.3	2.767	0.455	0.469
209	0.267	2.667	0.459	0.472
210	0.267	2.567	0.44	0.445
211	0.233	2.367	0.427	0.428
212	0.233	2.6	0.412	0.427
213	0.233	2.8	0.428	0.449
214	0.233	2.6	0.426	0.458
215	0.2	2.5	0.413	0.439
216	0.2	2.6	0.417	0.477

217	0.2	2.533	0.38	0.447
218	0.2	2.667	0.372	0.468
219	0.2	2.433	0.352	0.434
220	0.2	2.533	0.355	0.461
221	0.167	2.7	0.347	0.472
222	0.167	2.4	0.349	0.466
223	0.167	2.633	0.339	0.464
224	0.167	2.5	0.331	0.454
225	0.167	2.467	0.314	0.427
226	0.167	2.633	0.319	0.457
227	0.167	2.533	0.312	0.458
228	0.167	2.567	0.308	0.463
229	0.167	2.567	0.308	0.468
230	0.167	2.4	0.294	0.428
231	0.133	2.433	0.303	0.449
232	0.133	2.433	0.305	0.458
233	0.133	2.4	0.295	0.437
234	0.1	2.333	0.301	0.442
235	0.1	2.2	0.299	0.45
236	0.1	2.5	0.299	0.477
237	0.1	2.367	0.275	0.434
238	0.1	2.467	0.281	0.464
239	0.1	2.5	0.276	0.47
240	0.1	2.433	0.265	0.449
241	0.1	2.3	0.265	0.452
242	0.1	2.4	0.252	0.445

243	0.1	2.367	0.245	0.446
244	0.1	2.367	0.234	0.421
245	0.1	2.333	0.25	0.465
246	0.1	2.267	0.241	0.448
247	0.1	2.367	0.234	0.45
248	0.1	2.533	0.237	0.456
249	0.1	2.6	0.249	0.48
250	0.067	2.5	0.231	0.449
251	0.067	2.3	0.239	0.456
252	0.1	2.533	0.231	0.45
253	0.1	2.533	0.245	0.473
254	0.1	2.367	0.238	0.456
255	0.1	2.5	0.237	0.457
256	0.1	2.533	0.262	0.496
257	0.1	2.367	0.229	0.436
258	0.1	2.4	0.225	0.433
259	0.1	2.267	0.231	0.428
260	0.1	2.367	0.23	0.443
261	0.1	2.367	0.243	0.457
262	0.1	2.2	0.219	0.415
263	0.1	2.3	0.246	0.461
264	0.1	2.433	0.235	0.451
265	0.1	2.6	0.231	0.457
266	0.1	2.367	0.25	0.462
267	0.067	2.367	0.24	0.454
268	0.067	2.233	0.228	0.437

269	0.067	2.733	0.244	0.483
270	0.067	2.433	0.223	0.43
271	0.033	2.2	0.221	0.423
272	0.0	2.433	0.221	0.447
273	0.0	2.233	0.224	0.446
274	0.0	2.367	0.224	0.471
275	0.0	2.267	0.207	0.461
276	0.0	2.2	0.209	0.468
277	0.0	2.5	0.211	0.511
278	0.0	2.367	0.187	0.489
279	0.0	2.5	0.16	0.481
280	0.0	2.3	0.148	0.452
281	0.0	2.033	0.139	0.441
282	0.0	2.333	0.138	0.455
283	0.0	2.233	0.141	0.45
284	0.0	2.433	0.146	0.471
285	0.0	2.267	0.137	0.442
286	0.0	2.233	0.137	0.451
287	0.0	2.367	0.143	0.465
288	0.0	2.5	0.118	0.427
289	0.0	2.233	0.119	0.409
290	0.0	2.233	0.137	0.453
291	0.0	2.333	0.141	0.462
292	0.0	2.233	0.137	0.448
293	0.0	2.333	0.123	0.431
294	0.0	2.4	0.137	0.457

295	0.0	2.567	0.141	0.466
296	0.0	2.267	0.137	0.457
297	0.0	2.267	0.135	0.449
298	0.0	2.467	0.137	0.454
299	0.0	2.467	0.144	0.469
300	0.0	2.1	0.125	0.427
301	0.0	2.2	0.156	0.481
302	0.0	2.3	0.159	0.484
303	0.0	2.367	0.135	0.459
304	0.0	2.3	0.134	0.453
305	0.0	2.267	0.131	0.445
306	0.0	2.433	0.152	0.471
307	0.0	2.5	0.141	0.467
308	0.0	2.1	0.136	0.441
309	0.0	2.4	0.142	0.471
310	0.0	2.3	0.141	0.46
311	0.0	2.333	0.147	0.469
312	0.0	2.2	0.135	0.445
313	0.0	2.3	0.131	0.436
314	0.0	2.3	0.133	0.442
315	0.0	2.4	0.132	0.444
316	0.0	2.3	0.136	0.453
317	0.0	2.067	0.117	0.413
318	0.0	2.333	0.14	0.465
319	0.0	2.2	0.139	0.446
320	0.0	2.2	0.148	0.464

321	0.0	2.1	0.137	0.443
322	0.0	2.267	0.139	0.45
323	0.0	2.3	0.122	0.425
324	0.0	2.233	0.142	0.456
325	0.0	2.433	0.133	0.455
326	0.0	2.267	0.122	0.429
327	0.0	2.2	0.143	0.463
328	0.0	2.433	0.135	0.458
329	0.0	2.133	0.134	0.446
330	0.0	2.267	0.131	0.441
331	0.0	2.367	0.123	0.427
332	0.0	2.3	0.132	0.447
333	0.0	2.4	0.139	0.467
334	0.0	2.367	0.134	0.451
335	0.0	2.267	0.129	0.435
336	0.0	2.2	0.129	0.43
337	0.0	2.233	0.139	0.449
338	0.0	2.333	0.136	0.461
339	0.0	2.3	0.135	0.452
340	0.0	2.167	0.13	0.436
341	0.0	2.267	0.136	0.45
342	0.0	2.4	0.135	0.456
343	0.0	2.1	0.125	0.419
344	0.0	2.333	0.143	0.462
345	0.0	2.333	0.147	0.471
346	0.0	2.3	0.136	0.452

347	0.0	2.133	0.132	0.445
348	0.0	2.167	0.136	0.444
349	0.0	2.2	0.125	0.427
350	0.0	2.5	0.141	0.472
351	0.0	2.533	0.147	0.482
352	0.0	2.333	0.158	0.492
353	0.0	2.633	0.156	0.502
354	0.0	2.433	0.142	0.459
355	0.0	2.333	0.131	0.44
356	0.0	2.1	0.136	0.438
357	0.0	2.3	0.13	0.427
358	0.0	2.267	0.135	0.441
359	0.0	2.367	0.147	0.476
360	0.0	2.3	0.136	0.452
361	0.0	2.167	0.142	0.455
362	0.0	2.367	0.133	0.452
363	0.0	2.333	0.142	0.464
364	0.0	2.4	0.138	0.455
365	0.0	2.3	0.136	0.449
366	0.0	2.1	0.135	0.448
367	0.0	2.267	0.14	0.458
368	0.0	2.567	0.137	0.459
369	0.0	2.333	0.141	0.466
370	0.0	2.167	0.146	0.463
371	0.0	2.433	0.142	0.467
372	0.0	2.4	0.14	0.458

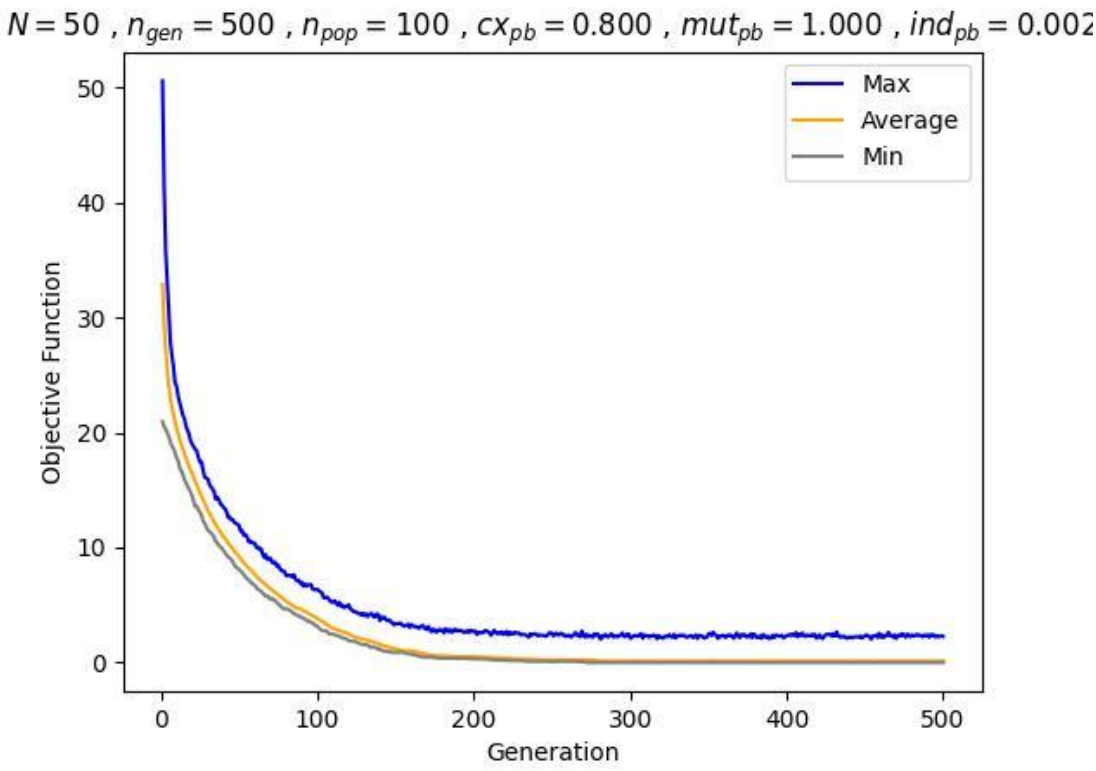
373	0.0	2.433	0.132	0.449
374	0.0	2.233	0.131	0.441
375	0.0	2.267	0.132	0.442
376	0.0	2.233	0.136	0.449
377	0.0	2.5	0.135	0.466
378	0.0	2.167	0.143	0.454
379	0.0	2.467	0.126	0.443
380	0.0	2.333	0.134	0.458
381	0.0	2.167	0.132	0.433
382	0.0	2.167	0.139	0.456
383	0.0	2.3	0.12	0.417
384	0.0	2.1	0.138	0.442
385	0.0	2.433	0.138	0.463
386	0.0	2.3	0.132	0.451
387	0.0	2.167	0.122	0.412
388	0.0	2.267	0.136	0.455
389	0.0	2.067	0.133	0.444
390	0.0	2.167	0.121	0.428
391	0.0	2.367	0.141	0.468
392	0.0	2.167	0.128	0.438
393	0.0	2.4	0.136	0.46
394	0.0	2.333	0.132	0.446
395	0.0	2.267	0.139	0.46
396	0.0	2.333	0.123	0.431
397	0.0	2.367	0.143	0.473
398	0.0	2.133	0.131	0.423

399	0.0	2.233	0.133	0.439
400	0.0	2.333	0.136	0.446
401	0.0	2.367	0.134	0.453
402	0.0	2.433	0.146	0.473
403	0.0	2.367	0.134	0.455
404	0.0	2.467	0.143	0.471
405	0.0	2.333	0.129	0.445
406	0.0	2.6	0.141	0.478
407	0.0	2.233	0.134	0.45
408	0.0	2.467	0.138	0.462
409	0.0	2.333	0.141	0.461
410	0.0	2.567	0.145	0.478
411	0.0	2.333	0.145	0.459
412	0.0	2.267	0.143	0.453
413	0.0	2.4	0.142	0.473
414	0.0	2.333	0.151	0.483
415	0.0	2.3	0.142	0.456
416	0.0	2.433	0.132	0.449
417	0.0	2.3	0.125	0.437
418	0.0	2.433	0.139	0.462
419	0.0	2.1	0.122	0.426
420	0.0	2.2	0.133	0.44
421	0.0	2.4	0.144	0.476
422	0.0	2.2	0.132	0.437
423	0.0	2.067	0.13	0.425
424	0.0	2.3	0.149	0.466

425	0.0	2.433	0.147	0.464
426	0.0	2.433	0.127	0.432
427	0.0	2.467	0.139	0.462
428	0.0	2.433	0.142	0.466
429	0.0	2.267	0.142	0.464
430	0.0	2.5	0.138	0.463
431	0.0	2.3	0.123	0.436
432	0.0	2.667	0.146	0.476
433	0.0	2.3	0.136	0.451
434	0.0	2.2	0.134	0.439
435	0.0	2.267	0.14	0.456
436	0.0	2.233	0.137	0.448
437	0.0	2.267	0.126	0.427
438	0.0	2.133	0.13	0.431
439	0.0	2.133	0.141	0.454
440	0.0	2.233	0.134	0.45
441	0.0	2.2	0.123	0.424
442	0.0	2.133	0.132	0.427
443	0.0	2.233	0.137	0.454
444	0.0	2.233	0.124	0.427
445	0.0	2.233	0.135	0.449
446	0.0	2.2	0.139	0.448
447	0.0	2.3	0.142	0.468
448	0.0	2.133	0.134	0.442
449	0.0	2.2	0.134	0.439
450	0.0	2.333	0.13	0.446

451	0.0	2.4	0.15	0.478
452	0.0	2.3	0.133	0.44
453	0.0	2.267	0.122	0.426
454	0.0	2.033	0.122	0.418
455	0.0	2.3	0.126	0.436
456	0.0	2.3	0.129	0.445
457	0.0	2.367	0.134	0.455
458	0.0	2.2	0.121	0.427
459	0.0	2.533	0.129	0.444
460	0.0	2.2	0.134	0.44
461	0.0	2.4	0.167	0.508
462	0.0	2.167	0.127	0.427
463	0.0	2.333	0.137	0.449
464	0.0	2.333	0.135	0.456
465	0.0	2.633	0.146	0.488
466	0.0	2.333	0.15	0.481
467	0.0	2.367	0.143	0.464
468	0.0	2.2	0.138	0.451
469	0.0	2.4	0.127	0.437
470	0.0	2.1	0.14	0.441
471	0.0	2.333	0.143	0.458
472	0.0	2.4	0.149	0.475
473	0.0	2.3	0.134	0.445
474	0.0	2.5	0.145	0.472
475	0.0	2.4	0.15	0.483
476	0.0	2.2	0.139	0.451

477	0.0	2.467	0.142	0.47
478	0.0	2.4	0.138	0.458
479	0.0	2.233	0.133	0.441
480	0.0	2.4	0.129	0.448
481	0.0	2.3	0.131	0.45
482	0.0	2.333	0.136	0.454
483	0.0	2.433	0.153	0.492
484	0.0	2.367	0.133	0.445
485	0.0	2.4	0.135	0.453
486	0.0	2.3	0.136	0.452
487	0.0	2.233	0.137	0.452
488	0.0	2.4	0.152	0.488
489	0.0	2.3	0.137	0.455
490	0.0	2.4	0.126	0.442
491	0.0	2.2	0.137	0.455
492	0.0	2.433	0.136	0.462
493	0.0	2.333	0.134	0.451
494	0.0	2.4	0.123	0.433
495	0.0	2.233	0.131	0.443
496	0.0	2.333	0.129	0.442
497	0.0	2.233	0.124	0.437
498	0.0	2.267	0.135	0.451
499	0.0	2.333	0.134	0.456
500	0.0	2.267	0.149	0.473



SETTING 5

Generation	Minimum Fitness	Maximum Fitness	Average Fitness	Standard deviation
1	20.433	50.033	33.24	5.842
2	20.233	41.533	29.924	4.457
3	19.967	37.033	27.533	3.605
4	19.533	33.433	25.628	2.881
5	19.4	30.267	24.185	2.373
6	19.0	28.5	23.054	2.047
7	18.5	27.3	22.128	1.727
8	17.733	26.433	21.341	1.593
9	17.433	25.4	20.657	1.428
10	16.733	24.9	20.089	1.35
11	16.533	23.667	19.545	1.267
12	16.1	23.133	19.023	1.228

13	15.733	22.633	18.56	1.175
14	15.567	22.333	18.145	1.155
15	15.067	21.7	17.726	1.119
16	14.433	21.133	17.314	1.135
17	14.167	21.1	16.864	1.143
18	13.833	20.767	16.445	1.139
19	13.5	20.167	16.014	1.116
20	13.233	19.333	15.591	1.063
21	12.9	19.4	15.229	1.109
22	12.667	18.9	14.804	1.086
23	12.3	18.433	14.419	1.065
24	11.933	18.667	14.05	1.073
25	11.733	17.567	13.67	0.982
26	11.467	17.233	13.337	0.968
27	11.133	16.8	13.007	0.93
28	10.967	16.4	12.749	0.909
29	10.5	16.267	12.467	0.911
30	10.3	16.0	12.183	0.918
31	10.133	15.8	11.919	0.918
32	9.9	16.2	11.67	0.953
33	9.833	15.767	11.424	0.955
34	9.633	15.433	11.158	0.928
35	9.5	15.033	10.882	0.877
36	9.3	14.4	10.665	0.831
37	9.1	14.167	10.458	0.834
38	8.933	14.333	10.254	0.875

39	8.8	13.633	10.065	0.827
40	8.7	13.9	9.885	0.847
41	8.567	13.167	9.689	0.746
42	8.433	12.567	9.523	0.705
43	8.267	13.567	9.416	0.822
44	8.1	13.4	9.272	0.803
45	7.967	12.733	9.139	0.773
46	7.633	12.6	9.009	0.808
47	7.533	12.567	8.816	0.796
48	7.433	12.667	8.645	0.781
49	7.433	12.533	8.507	0.808
50	7.1	12.9	8.372	0.855
51	7.033	12.4	8.239	0.852
52	6.967	12.1	8.089	0.819
53	6.833	12.067	7.964	0.859
54	6.733	12.267	7.826	0.874
55	6.667	11.767	7.645	0.811
56	6.467	11.467	7.512	0.773
57	6.333	11.2	7.393	0.79
58	6.3	11.6	7.295	0.811
59	6.1	11.2	7.176	0.827
60	5.9	10.9	7.05	0.811
61	5.833	11.2	6.932	0.845
62	5.667	10.8	6.791	0.813
63	5.533	10.433	6.661	0.776
64	5.5	10.733	6.585	0.862

65	5.4	10.533	6.459	0.822
66	5.3	10.333	6.34	0.79
67	5.267	10.3	6.251	0.804
68	5.133	10.2	6.139	0.803
69	5.067	10.533	6.037	0.839
70	5.0	9.833	5.885	0.815
71	4.833	9.5	5.762	0.771
72	4.7	9.867	5.671	0.813
73	4.633	9.3	5.576	0.758
74	4.467	9.667	5.496	0.807
75	4.433	9.467	5.441	0.806
76	4.4	9.433	5.347	0.822
77	4.3	8.933	5.243	0.805
78	4.267	9.333	5.179	0.861
79	4.133	8.867	5.036	0.798
80	4.1	9.067	4.931	0.805
81	4.067	8.7	4.855	0.807
82	3.867	8.867	4.773	0.798
83	3.8	8.7	4.665	0.77
84	3.733	8.433	4.593	0.759
85	3.667	9.1	4.56	0.854
86	3.6	8.833	4.485	0.823
87	3.533	8.4	4.416	0.821
88	3.5	8.567	4.317	0.816
89	3.467	8.333	4.23	0.794
90	3.367	8.233	4.177	0.837

91	3.333	8.3	4.09	0.84
92	3.3	8.133	3.987	0.823
93	3.267	7.933	3.889	0.775
94	3.267	7.933	3.798	0.756
95	3.133	7.567	3.754	0.79
96	2.967	7.633	3.667	0.747
97	2.9	7.767	3.636	0.79
98	2.9	7.8	3.591	0.787
99	2.9	8.067	3.545	0.79
100	2.833	7.5	3.522	0.778
101	2.8	7.533	3.468	0.774
102	2.767	7.567	3.436	0.802
103	2.7	7.767	3.379	0.841
104	2.733	7.467	3.283	0.804
105	2.567	7.467	3.227	0.812
106	2.433	7.067	3.15	0.775
107	2.433	7.033	3.095	0.775
108	2.3	7.267	3.054	0.823
109	2.3	7.267	2.995	0.822
110	2.233	7.267	2.935	0.82
111	2.267	6.967	2.871	0.816
112	2.233	6.8	2.801	0.81
113	2.2	7.067	2.758	0.863
114	2.133	6.933	2.655	0.778
115	2.033	7.367	2.64	0.859
116	2.033	6.533	2.586	0.792

117	2.033	6.667	2.519	0.745
118	1.967	7.4	2.505	0.82
119	1.8	6.533	2.459	0.735
120	1.767	6.7	2.436	0.796
121	1.7	6.6	2.411	0.797
122	1.633	6.533	2.371	0.823
123	1.633	6.9	2.325	0.851
124	1.667	6.567	2.247	0.822
125	1.6	6.333	2.179	0.8
126	1.5	6.4	2.12	0.825
127	1.467	5.967	2.028	0.752
128	1.4	6.5	2.025	0.85
129	1.4	6.233	1.992	0.836
130	1.367	5.767	1.94	0.784
131	1.4	5.7	1.891	0.766
132	1.4	5.867	1.838	0.767
133	1.4	5.833	1.805	0.774
134	1.4	6.033	1.778	0.781
135	1.333	5.567	1.74	0.738
136	1.3	5.833	1.734	0.769
137	1.233	5.833	1.716	0.778
138	1.267	5.967	1.722	0.825
139	1.267	5.933	1.71	0.811
140	1.267	5.767	1.661	0.781
141	1.2	5.767	1.643	0.79
142	1.133	5.7	1.583	0.759

143	1.133	5.733	1.578	0.782
144	1.133	5.767	1.598	0.843
145	1.133	5.467	1.536	0.786
146	1.133	6.3	1.529	0.857
147	1.133	5.567	1.487	0.77
148	1.067	5.367	1.461	0.742
149	1.033	5.667	1.476	0.809
150	1.067	6.333	1.484	0.897
151	1.033	5.267	1.419	0.749
152	1.0	5.5	1.409	0.778
153	1.0	5.767	1.413	0.828
154	0.867	5.533	1.38	0.786
155	0.8	5.6	1.377	0.818
156	0.8	5.467	1.371	0.827
157	0.767	5.767	1.351	0.832
158	0.767	5.733	1.329	0.856
159	0.767	5.733	1.271	0.836
160	0.767	5.067	1.234	0.786
161	0.767	5.333	1.205	0.83
162	0.767	5.567	1.183	0.852
163	0.733	5.467	1.128	0.811
164	0.733	5.7	1.117	0.87
165	0.733	5.267	1.081	0.823
166	0.733	5.467	1.049	0.803
167	0.733	5.067	1.026	0.758
168	0.733	5.467	1.037	0.82

169	0.733	5.233	1.021	0.804
170	0.7	5.667	1.069	0.901
171	0.733	5.033	1.013	0.787
172	0.733	5.6	1.013	0.823
173	0.7	5.033	0.998	0.773
174	0.667	5.167	1.0	0.786
175	0.667	5.5	1.021	0.852
176	0.633	5.367	1.007	0.814
177	0.633	5.433	1.014	0.819
178	0.633	5.0	0.976	0.758
179	0.633	5.4	0.972	0.794
180	0.633	4.633	0.948	0.738
181	0.6	5.233	0.925	0.751
182	0.6	5.1	0.951	0.792
183	0.567	5.067	0.951	0.81
184	0.467	4.667	0.925	0.755
185	0.5	5.267	0.948	0.842
186	0.5	4.733	0.892	0.758
187	0.5	5.133	0.894	0.812
188	0.467	5.033	0.888	0.831
189	0.467	5.1	0.843	0.806
190	0.467	5.033	0.842	0.837
191	0.433	5.267	0.821	0.863
192	0.433	4.467	0.779	0.763
193	0.467	4.933	0.749	0.775
194	0.467	5.033	0.771	0.834

195	0.433	5.367	0.725	0.797
196	0.433	4.767	0.734	0.795
197	0.433	5.133	0.751	0.831
198	0.4	5.4	0.757	0.85
199	0.4	4.633	0.737	0.778
200	0.367	5.067	0.738	0.824
201	0.367	5.167	0.734	0.818
202	0.367	5.267	0.744	0.851
203	0.367	5.267	0.714	0.832
204	0.367	5.133	0.692	0.821
205	0.367	5.133	0.654	0.803
206	0.367	4.6	0.637	0.779
207	0.367	4.8	0.656	0.813
208	0.333	5.1	0.669	0.862
209	0.267	4.867	0.619	0.78
210	0.267	4.867	0.635	0.81
211	0.233	5.133	0.618	0.801
212	0.2	4.5	0.624	0.766
213	0.2	5.0	0.632	0.823
214	0.2	5.067	0.628	0.837
215	0.2	4.8	0.584	0.775
216	0.2	4.8	0.574	0.792
217	0.2	4.933	0.531	0.793
218	0.2	4.9	0.518	0.814
219	0.167	4.8	0.505	0.81
220	0.167	4.7	0.47	0.781

221	0.167	4.933	0.48	0.815
222	0.133	4.767	0.463	0.792
223	0.133	4.933	0.49	0.854
224	0.133	4.733	0.457	0.793
225	0.133	4.633	0.434	0.768
226	0.1	4.433	0.41	0.74
227	0.1	4.6	0.425	0.777
228	0.1	4.6	0.404	0.754
229	0.1	4.567	0.418	0.808
230	0.1	4.567	0.427	0.83
231	0.067	5.133	0.419	0.847
232	0.067	4.367	0.379	0.767
233	0.067	4.7	0.38	0.804
234	0.067	4.967	0.389	0.827
235	0.067	4.867	0.386	0.836
236	0.067	4.9	0.395	0.854
237	0.067	5.4	0.389	0.888
238	0.067	4.633	0.348	0.794
239	0.067	4.733	0.384	0.858
240	0.067	4.467	0.345	0.797
241	0.067	5.1	0.37	0.851
242	0.067	4.4	0.332	0.775
243	0.067	4.467	0.34	0.803
244	0.067	4.767	0.346	0.804
245	0.067	4.167	0.314	0.749
246	0.067	4.4	0.308	0.735

247	0.067	4.233	0.334	0.758
248	0.067	4.633	0.336	0.803
249	0.067	5.033	0.357	0.856
250	0.067	4.733	0.351	0.829
251	0.067	4.667	0.341	0.816
252	0.067	4.767	0.365	0.855
253	0.067	4.233	0.36	0.791
254	0.067	4.733	0.361	0.849
255	0.067	4.533	0.321	0.772
256	0.067	4.6	0.338	0.807
257	0.067	5.067	0.345	0.831
258	0.067	4.7	0.346	0.81
259	0.067	4.4	0.362	0.813
260	0.067	5.033	0.378	0.871
261	0.067	4.967	0.363	0.861
262	0.067	4.533	0.322	0.774
263	0.067	4.633	0.324	0.779
264	0.067	4.733	0.341	0.805
265	0.067	4.567	0.338	0.794
266	0.067	4.7	0.337	0.818
267	0.067	4.633	0.347	0.835
268	0.067	4.533	0.336	0.802
269	0.067	4.8	0.325	0.802
270	0.067	4.967	0.37	0.871
271	0.067	4.467	0.313	0.753
272	0.067	4.967	0.354	0.851

273	0.067	4.567	0.347	0.815
274	0.067	4.633	0.322	0.794
275	0.067	5.067	0.35	0.861
276	0.067	4.933	0.351	0.851
277	0.067	4.933	0.336	0.818
278	0.067	4.267	0.336	0.771
279	0.067	4.533	0.346	0.794
280	0.067	4.467	0.372	0.849
281	0.067	4.8	0.353	0.815
282	0.067	4.367	0.33	0.785
283	0.067	4.167	0.33	0.77
284	0.067	4.533	0.341	0.804
285	0.067	4.767	0.351	0.814
286	0.067	4.767	0.366	0.846
287	0.067	4.633	0.343	0.791
288	0.067	4.867	0.345	0.825
289	0.067	4.733	0.336	0.806
290	0.067	4.6	0.343	0.817
291	0.067	4.6	0.337	0.793
292	0.067	4.667	0.359	0.823
293	0.067	4.5	0.344	0.805
294	0.067	4.833	0.344	0.83
295	0.067	4.5	0.344	0.794
296	0.067	4.433	0.328	0.774
297	0.067	4.967	0.369	0.86
298	0.067	4.833	0.354	0.811

299	0.067	4.067	0.301	0.711
300	0.067	4.5	0.338	0.8
301	0.067	4.533	0.343	0.799
302	0.067	4.267	0.309	0.735
303	0.067	4.767	0.328	0.782
304	0.033	4.467	0.336	0.793
305	0.033	4.167	0.315	0.73
306	0.033	5.0	0.33	0.813
307	0.033	4.367	0.34	0.791
308	0.033	4.3	0.331	0.771
309	0.033	4.6	0.355	0.822
310	0.033	4.933	0.338	0.816
311	0.033	4.433	0.329	0.776
312	0.033	4.333	0.348	0.801
313	0.033	4.167	0.314	0.74
314	0.033	4.567	0.31	0.783
315	0.033	4.5	0.31	0.779
316	0.033	4.667	0.339	0.837
317	0.033	4.367	0.31	0.791
318	0.033	4.633	0.336	0.848
319	0.033	4.5	0.318	0.818
320	0.033	5.0	0.305	0.831
321	0.033	4.5	0.297	0.773
322	0.033	4.567	0.295	0.792
323	0.033	4.633	0.314	0.799
324	0.033	4.833	0.336	0.847

325	0.033	4.733	0.338	0.85
326	0.033	5.033	0.335	0.848
327	0.033	4.233	0.312	0.791
328	0.033	4.533	0.312	0.793
329	0.033	4.467	0.312	0.809
330	0.033	5.2	0.333	0.864
331	0.033	4.533	0.311	0.809
332	0.033	4.2	0.288	0.75
333	0.033	4.867	0.332	0.879
334	0.033	4.633	0.323	0.828
335	0.033	5.0	0.31	0.837
336	0.033	4.7	0.3	0.797
337	0.033	4.9	0.318	0.819
338	0.033	4.4	0.269	0.748
339	0.033	3.967	0.273	0.721
340	0.033	4.467	0.308	0.799
341	0.033	4.5	0.313	0.797
342	0.033	4.5	0.32	0.818
343	0.033	4.267	0.302	0.787
344	0.033	4.233	0.297	0.743
345	0.033	4.767	0.295	0.797
346	0.033	4.233	0.289	0.763
347	0.033	4.933	0.32	0.844
348	0.033	4.733	0.311	0.817
349	0.033	4.533	0.311	0.812
350	0.033	5.1	0.324	0.852

351	0.033	4.9	0.312	0.826
352	0.033	4.467	0.286	0.784
353	0.033	4.667	0.303	0.813
354	0.033	4.467	0.312	0.798
355	0.033	4.067	0.282	0.756
356	0.033	4.567	0.325	0.834
357	0.033	4.567	0.318	0.818
358	0.033	4.833	0.318	0.819
359	0.033	4.333	0.298	0.78
360	0.033	4.167	0.285	0.744
361	0.033	4.167	0.298	0.768
362	0.033	4.433	0.326	0.819
363	0.033	4.833	0.32	0.835
364	0.033	4.8	0.317	0.845
365	0.033	4.4	0.324	0.822
366	0.033	4.467	0.312	0.799
367	0.033	4.7	0.299	0.779
368	0.033	4.533	0.295	0.786
369	0.033	4.5	0.288	0.766
370	0.033	4.433	0.306	0.792
371	0.033	4.3	0.291	0.76
372	0.033	4.667	0.304	0.808
373	0.033	4.5	0.293	0.771
374	0.033	4.5	0.311	0.794
375	0.033	4.433	0.305	0.788
376	0.033	5.1	0.33	0.867

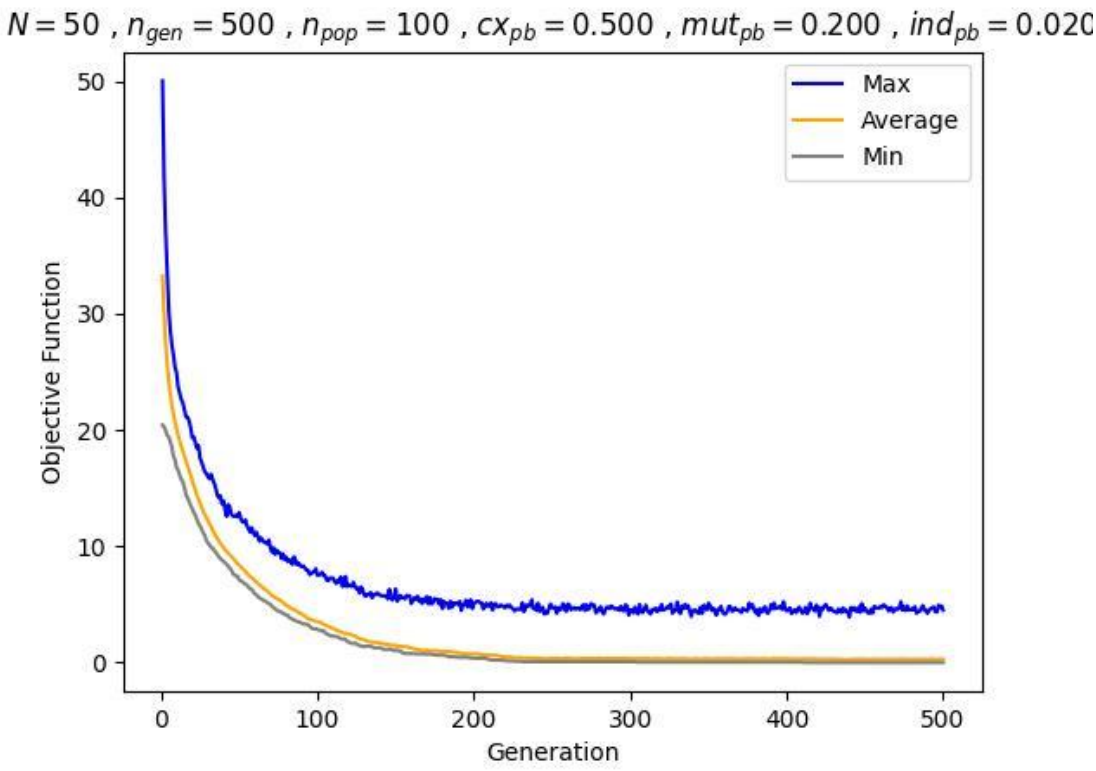
377	0.033	4.733	0.327	0.851
378	0.033	5.0	0.315	0.842
379	0.033	4.567	0.325	0.843
380	0.033	4.3	0.304	0.787
381	0.033	4.567	0.296	0.789
382	0.033	4.033	0.294	0.746
383	0.033	4.633	0.319	0.827
384	0.033	4.333	0.291	0.755
385	0.033	4.5	0.308	0.804
386	0.033	4.8	0.331	0.846
387	0.033	4.367	0.307	0.781
388	0.033	4.233	0.271	0.736
389	0.033	4.5	0.306	0.797
390	0.033	5.0	0.326	0.854
391	0.033	4.6	0.305	0.809
392	0.033	5.1	0.34	0.878
393	0.033	4.633	0.306	0.799
394	0.033	4.7	0.329	0.85
395	0.033	4.7	0.313	0.812
396	0.033	4.867	0.321	0.838
397	0.033	4.567	0.323	0.827
398	0.033	5.233	0.333	0.867
399	0.033	4.6	0.316	0.831
400	0.033	4.433	0.288	0.77
401	0.033	4.567	0.328	0.834
402	0.033	4.7	0.292	0.797

403	0.033	4.2	0.302	0.778
404	0.033	4.367	0.305	0.796
405	0.033	4.533	0.306	0.788
406	0.033	4.3	0.287	0.757
407	0.033	4.533	0.281	0.772
408	0.033	4.767	0.301	0.82
409	0.033	4.467	0.305	0.787
410	0.033	4.233	0.285	0.747
411	0.0	4.367	0.301	0.774
412	0.0	4.733	0.322	0.823
413	0.0	4.2	0.289	0.75
414	0.0	4.4	0.295	0.776
415	0.0	5.1	0.325	0.853
416	0.0	4.667	0.293	0.792
417	0.0	4.6	0.306	0.808
418	0.0	4.433	0.293	0.792
419	0.0	4.933	0.301	0.856
420	0.0	4.667	0.3	0.849
421	0.0	3.967	0.265	0.736
422	0.0	4.733	0.285	0.831
423	0.0	4.567	0.291	0.832
424	0.0	4.833	0.29	0.838
425	0.0	5.0	0.294	0.871
426	0.0	4.7	0.279	0.827
427	0.0	4.467	0.28	0.815
428	0.0	4.7	0.274	0.815

429	0.0	4.567	0.301	0.849
430	0.0	4.4	0.271	0.774
431	0.0	4.367	0.285	0.804
432	0.0	4.267	0.281	0.787
433	0.0	4.6	0.29	0.821
434	0.0	4.4	0.263	0.779
435	0.0	4.3	0.27	0.768
436	0.0	4.7	0.281	0.804
437	0.0	4.4	0.265	0.778
438	0.0	4.5	0.269	0.791
439	0.0	4.333	0.254	0.765
440	0.0	3.9	0.243	0.715
441	0.0	4.733	0.275	0.813
442	0.0	4.5	0.255	0.77
443	0.0	4.733	0.288	0.842
444	0.0	4.433	0.291	0.808
445	0.0	4.4	0.265	0.765
446	0.0	4.767	0.272	0.814
447	0.0	4.333	0.267	0.778
448	0.0	5.067	0.295	0.861
449	0.0	4.433	0.274	0.789
450	0.0	4.7	0.279	0.819
451	0.0	4.433	0.28	0.807
452	0.0	4.267	0.268	0.772
453	0.0	4.233	0.251	0.746
454	0.0	4.6	0.268	0.792

455	0.0	4.267	0.268	0.783
456	0.0	4.833	0.302	0.859
457	0.0	4.733	0.273	0.809
458	0.0	4.7	0.266	0.786
459	0.0	4.667	0.275	0.807
460	0.0	4.833	0.272	0.795
461	0.0	4.733	0.284	0.823
462	0.0	4.967	0.281	0.837
463	0.0	4.833	0.278	0.832
464	0.0	4.767	0.277	0.831
465	0.0	4.433	0.288	0.812
466	0.0	4.667	0.28	0.829
467	0.0	4.733	0.294	0.85
468	0.0	4.333	0.263	0.769
469	0.0	4.567	0.268	0.789
470	0.0	4.633	0.289	0.828
471	0.0	4.567	0.296	0.84
472	0.0	4.733	0.28	0.807
473	0.0	5.233	0.3	0.891
474	0.0	4.5	0.28	0.798
475	0.0	4.767	0.29	0.848
476	0.0	4.467	0.282	0.811
477	0.0	4.867	0.271	0.828
478	0.0	4.5	0.265	0.766
479	0.0	4.533	0.279	0.799
480	0.0	4.633	0.273	0.801

481	0.0	4.533	0.272	0.793
482	0.0	4.8	0.274	0.814
483	0.0	4.233	0.271	0.776
484	0.0	4.4	0.277	0.815
485	0.0	4.4	0.275	0.79
486	0.0	4.667	0.296	0.837
487	0.0	4.9	0.289	0.845
488	0.0	4.5	0.277	0.799
489	0.0	4.467	0.269	0.791
490	0.0	4.233	0.254	0.747
491	0.0	4.533	0.279	0.834
492	0.0	4.6	0.284	0.825
493	0.0	4.733	0.283	0.82
494	0.0	4.767	0.295	0.841
495	0.0	4.367	0.254	0.76
496	0.0	4.333	0.265	0.792
497	0.0	4.933	0.284	0.838
498	0.0	4.767	0.285	0.826
499	0.0	4.867	0.286	0.821
500	0.0	4.5	0.278	0.811



SETTING 6

Generation	Minimum Fitness	Maximum Fitness	Average Fitness	Standard deviation
1	20.733	49.233	32.95	5.536
2	20.467	41.667	29.768	4.283
3	20.1	36.267	27.497	3.428
4	19.733	33.4	25.722	2.817
5	19.367	30.333	24.279	2.417
6	18.867	28.867	23.097	2.12
7	18.4	27.467	22.069	1.82
8	17.867	26.467	21.25	1.55
9	17.3	24.9	20.63	1.36
10	16.933	23.9	20.061	1.248
11	16.4	23.733	19.539	1.266
12	16.133	22.867	19.043	1.269

13	15.7	22.6	18.538	1.264
14	15.233	22.433	18.047	1.288
15	14.8	21.5	17.542	1.209
16	14.3	21.233	17.103	1.2
17	13.833	20.733	16.658	1.181
18	13.567	20.1	16.241	1.167
19	13.133	20.033	15.822	1.169
20	12.9	19.533	15.419	1.155
21	12.667	19.567	15.048	1.174
22	12.4	18.533	14.663	1.13
23	12.067	18.033	14.266	1.079
24	11.633	18.167	13.953	1.136
25	11.333	17.133	13.551	1.051
26	11.033	16.767	13.193	1.016
27	10.833	16.7	12.865	0.992
28	10.4	16.433	12.616	1.019
29	10.233	15.767	12.329	0.995
30	9.967	16.0	12.048	1.053
31	9.633	15.5	11.717	1.038
32	9.533	15.133	11.392	1.03
33	9.4	15.0	11.11	1.007
34	9.1	14.367	10.816	0.966
35	8.8	14.4	10.559	0.959
36	8.667	13.9	10.309	0.928
37	8.5	14.033	10.068	0.934
38	8.267	13.467	9.861	0.907

39	7.967	13.3	9.68	0.916
40	7.867	13.267	9.474	0.931
41	7.633	13.167	9.241	0.919
42	7.5	12.333	9.038	0.881
43	7.433	12.3	8.876	0.881
44	7.233	12.367	8.717	0.934
45	6.9	12.167	8.507	0.907
46	6.733	12.2	8.34	0.91
47	6.7	11.833	8.174	0.906
48	6.467	11.6	7.999	0.896
49	6.333	11.433	7.807	0.873
50	6.1	11.367	7.655	0.901
51	5.967	10.933	7.491	0.923
52	5.733	10.8	7.275	0.895
53	5.667	10.867	7.117	0.928
54	5.533	10.767	6.946	0.903
55	5.467	10.533	6.783	0.872
56	5.367	10.467	6.654	0.927
57	5.233	10.067	6.48	0.875
58	5.0	9.967	6.335	0.882
59	4.767	9.667	6.177	0.887
60	4.767	9.633	6.003	0.877
61	4.733	9.567	5.858	0.866
62	4.533	9.067	5.711	0.838
63	4.433	9.267	5.625	0.894
64	4.233	8.8	5.482	0.837

65	4.167	8.7	5.36	0.833
66	3.933	8.8	5.243	0.87
67	3.933	8.933	5.122	0.862
68	3.833	9.133	5.031	0.902
69	3.633	8.633	4.927	0.866
70	3.633	8.833	4.824	0.867
71	3.533	8.2	4.701	0.849
72	3.533	8.133	4.6	0.884
73	3.433	8.0	4.465	0.859
74	3.267	7.9	4.363	0.867
75	3.233	8.3	4.27	0.888
76	3.2	7.833	4.164	0.867
77	3.033	7.7	4.059	0.84
78	2.967	7.567	3.991	0.828
79	2.867	7.467	3.901	0.841
80	2.733	7.5	3.806	0.84
81	2.633	6.967	3.711	0.809
82	2.633	7.3	3.638	0.854
83	2.5	7.267	3.543	0.865
84	2.467	7.367	3.456	0.878
85	2.333	7.067	3.416	0.926
86	2.3	6.6	3.255	0.828
87	2.233	6.933	3.189	0.879
88	2.167	6.8	3.114	0.878
89	2.167	6.567	3.015	0.843
90	1.967	6.433	2.933	0.821

91	1.967	6.433	2.877	0.852
92	1.933	6.533	2.829	0.875
93	1.9	6.233	2.73	0.85
94	1.8	6.333	2.638	0.838
95	1.767	6.267	2.585	0.865
96	1.733	6.2	2.52	0.854
97	1.733	6.133	2.465	0.86
98	1.6	6.0	2.403	0.813
99	1.5	6.333	2.396	0.89
100	1.433	5.8	2.335	0.838
101	1.433	5.9	2.278	0.834
102	1.4	5.833	2.202	0.81
103	1.333	5.5	2.137	0.805
104	1.267	5.767	2.095	0.827
105	1.267	5.667	2.037	0.855
106	1.167	5.633	1.983	0.853
107	1.2	5.767	1.93	0.855
108	1.1	5.267	1.872	0.821
109	1.033	5.1	1.818	0.814
110	1.033	5.367	1.758	0.814
111	0.9	5.3	1.712	0.831
112	0.9	5.267	1.647	0.797
113	0.9	5.233	1.631	0.824
114	0.867	5.267	1.591	0.853
115	0.833	5.067	1.519	0.82
116	0.8	4.867	1.488	0.834

117	0.733	5.067	1.442	0.834
118	0.7	5.167	1.418	0.86
119	0.633	4.667	1.338	0.789
120	0.567	5.233	1.327	0.85
121	0.6	5.267	1.303	0.865
122	0.533	4.633	1.216	0.794
123	0.533	4.767	1.235	0.843
124	0.5	4.9	1.192	0.859
125	0.467	4.833	1.132	0.818
126	0.433	4.533	1.098	0.836
127	0.4	4.733	1.058	0.844
128	0.3	4.567	1.027	0.835
129	0.333	4.3	0.955	0.79
130	0.333	4.533	0.93	0.83
131	0.333	4.5	0.893	0.831
132	0.333	4.233	0.855	0.817
133	0.267	4.167	0.806	0.804
134	0.267	4.533	0.798	0.852
135	0.233	4.3	0.761	0.83
136	0.233	4.3	0.72	0.824
137	0.233	4.1	0.686	0.801
138	0.2	4.0	0.665	0.787
139	0.2	4.033	0.655	0.786
140	0.133	4.333	0.643	0.819
141	0.133	4.067	0.638	0.823
142	0.133	4.3	0.622	0.826

143	0.133	4.5	0.608	0.841
144	0.133	4.3	0.589	0.811
145	0.133	4.733	0.625	0.909
146	0.133	4.667	0.591	0.878
147	0.1	4.3	0.57	0.845
148	0.1	4.133	0.553	0.829
149	0.067	4.233	0.541	0.842
150	0.033	4.233	0.529	0.832
151	0.033	4.367	0.52	0.846
152	0.033	4.2	0.503	0.824
153	0.033	4.233	0.486	0.805
154	0.033	4.2	0.511	0.845
155	0.033	4.1	0.497	0.838
156	0.033	4.0	0.49	0.812
157	0.033	3.767	0.456	0.789
158	0.033	4.233	0.479	0.836
159	0.033	4.067	0.451	0.827
160	0.0	4.1	0.436	0.805
161	0.0	4.167	0.442	0.824
162	0.0	4.033	0.433	0.819
163	0.0	4.4	0.449	0.862
164	0.0	4.267	0.45	0.868
165	0.0	3.967	0.406	0.802
166	0.0	3.633	0.39	0.781
167	0.0	3.667	0.362	0.754
168	0.0	4.167	0.397	0.835

169	0.0	3.733	0.379	0.801
170	0.0	4.0	0.371	0.809
171	0.0	4.3	0.37	0.819
172	0.0	4.067	0.361	0.805
173	0.0	3.867	0.349	0.772
174	0.0	3.9	0.367	0.804
175	0.0	3.8	0.357	0.786
176	0.0	3.867	0.37	0.807
177	0.0	3.933	0.38	0.815
178	0.0	4.3	0.415	0.863
179	0.0	3.933	0.372	0.793
180	0.0	3.667	0.364	0.792
181	0.0	4.1	0.387	0.845
182	0.0	3.767	0.357	0.778
183	0.0	4.267	0.406	0.859
184	0.0	4.133	0.394	0.835
185	0.0	3.867	0.384	0.818
186	0.0	4.067	0.371	0.81
187	0.0	4.0	0.377	0.809
188	0.0	3.767	0.347	0.777
189	0.0	4.067	0.373	0.818
190	0.0	3.5	0.352	0.758
191	0.0	3.867	0.372	0.808
192	0.0	4.033	0.377	0.822
193	0.0	3.867	0.364	0.786
194	0.0	3.967	0.374	0.802

195	0.0	3.867	0.376	0.808
196	0.0	3.767	0.374	0.805
197	0.0	3.8	0.344	0.765
198	0.0	4.2	0.406	0.851
199	0.0	4.1	0.376	0.81
200	0.0	4.1	0.369	0.811
201	0.0	4.0	0.367	0.807
202	0.0	3.933	0.368	0.8
203	0.0	3.967	0.369	0.809
204	0.0	3.9	0.372	0.822
205	0.0	4.1	0.388	0.827
206	0.0	4.0	0.376	0.818
207	0.0	4.133	0.386	0.829
208	0.0	4.467	0.391	0.85
209	0.0	3.833	0.362	0.792
210	0.0	4.0	0.401	0.839
211	0.0	4.0	0.372	0.817
212	0.0	4.067	0.383	0.808
213	0.0	4.1	0.39	0.83
214	0.0	3.8	0.363	0.788
215	0.0	3.7	0.343	0.762
216	0.0	4.0	0.343	0.792
217	0.0	3.967	0.358	0.791
218	0.0	4.133	0.392	0.84
219	0.0	3.933	0.369	0.804
220	0.0	3.867	0.373	0.792

221	0.0	3.9	0.383	0.803
222	0.0	3.833	0.37	0.799
223	0.0	4.133	0.369	0.816
224	0.0	4.0	0.363	0.801
225	0.0	4.167	0.372	0.826
226	0.0	4.433	0.384	0.841
227	0.0	3.833	0.346	0.768
228	0.0	4.0	0.377	0.815
229	0.0	4.033	0.358	0.793
230	0.0	4.067	0.399	0.851
231	0.0	3.967	0.37	0.807
232	0.0	4.0	0.364	0.8
233	0.0	3.667	0.373	0.789
234	0.0	4.1	0.375	0.807
235	0.0	3.7	0.389	0.817
236	0.0	3.967	0.375	0.815
237	0.0	3.967	0.389	0.811
238	0.0	3.5	0.359	0.767
239	0.0	4.067	0.353	0.801
240	0.0	4.233	0.357	0.805
241	0.0	3.9	0.395	0.836
242	0.0	3.967	0.389	0.816
243	0.0	4.267	0.407	0.867
244	0.0	4.0	0.374	0.797
245	0.0	4.033	0.351	0.796
246	0.0	3.633	0.363	0.781

247	0.0	4.3	0.372	0.817
248	0.0	3.7	0.365	0.79
249	0.0	3.933	0.361	0.801
250	0.0	4.0	0.361	0.793
251	0.0	3.833	0.369	0.791
252	0.0	4.1	0.385	0.842
253	0.0	3.567	0.351	0.757
254	0.0	4.167	0.379	0.826
255	0.0	4.133	0.362	0.82
256	0.0	3.9	0.373	0.803
257	0.0	3.7	0.373	0.792
258	0.0	4.1	0.343	0.789
259	0.0	4.033	0.328	0.769
260	0.0	3.967	0.383	0.839
261	0.0	4.1	0.367	0.806
262	0.0	3.567	0.336	0.744
263	0.0	4.067	0.393	0.833
264	0.0	4.033	0.373	0.808
265	0.0	3.8	0.372	0.801
266	0.0	3.833	0.385	0.817
267	0.0	4.033	0.39	0.823
268	0.0	3.933	0.38	0.805
269	0.0	4.233	0.382	0.825
270	0.0	3.833	0.367	0.787
271	0.0	4.167	0.363	0.822
272	0.0	4.167	0.378	0.838

273	0.0	4.067	0.38	0.824
274	0.0	4.4	0.367	0.824
275	0.0	3.6	0.369	0.787
276	0.0	3.8	0.375	0.808
277	0.0	3.7	0.383	0.806
278	0.0	3.9	0.369	0.792
279	0.0	4.233	0.371	0.806
280	0.0	4.233	0.358	0.807
281	0.0	4.133	0.389	0.841
282	0.0	3.8	0.365	0.788
283	0.0	3.733	0.386	0.818
284	0.0	4.167	0.395	0.866
285	0.0	3.933	0.377	0.798
286	0.0	4.167	0.378	0.822
287	0.0	4.367	0.398	0.854
288	0.0	4.2	0.364	0.812
289	0.0	3.867	0.372	0.799
290	0.0	4.133	0.396	0.84
291	0.0	4.033	0.393	0.821
292	0.0	3.967	0.39	0.823
293	0.0	4.0	0.392	0.84
294	0.0	3.733	0.364	0.779
295	0.0	4.067	0.391	0.83
296	0.0	4.633	0.396	0.87
297	0.0	4.033	0.384	0.826
298	0.0	4.0	0.355	0.785

299	0.0	3.967	0.339	0.791
300	0.0	3.967	0.358	0.803
301	0.0	3.833	0.365	0.799
302	0.0	3.967	0.37	0.81
303	0.0	4.133	0.367	0.81
304	0.0	4.0	0.376	0.823
305	0.0	3.933	0.393	0.838
306	0.0	4.033	0.376	0.825
307	0.0	4.067	0.392	0.838
308	0.0	3.9	0.365	0.799
309	0.0	4.2	0.399	0.846
310	0.0	4.133	0.398	0.847
311	0.0	4.067	0.403	0.825
312	0.0	3.967	0.377	0.805
313	0.0	4.1	0.41	0.843
314	0.0	4.0	0.374	0.811
315	0.0	3.867	0.369	0.8
316	0.0	4.133	0.385	0.838
317	0.0	3.7	0.349	0.769
318	0.0	3.9	0.354	0.786
319	0.0	4.2	0.386	0.827
320	0.0	3.767	0.357	0.774
321	0.0	4.033	0.376	0.815
322	0.0	4.033	0.369	0.816
323	0.0	3.933	0.36	0.805
324	0.0	4.2	0.381	0.828

325	0.0	3.9	0.375	0.801
326	0.0	4.067	0.38	0.821
327	0.0	3.967	0.387	0.828
328	0.0	4.0	0.364	0.798
329	0.0	3.967	0.352	0.79
330	0.0	3.533	0.336	0.756
331	0.0	3.9	0.362	0.806
332	0.0	4.267	0.383	0.831
333	0.0	3.933	0.379	0.808
334	0.0	4.3	0.392	0.856
335	0.0	3.9	0.369	0.804
336	0.0	4.0	0.375	0.824
337	0.0	3.567	0.363	0.778
338	0.0	4.033	0.385	0.827
339	0.0	4.0	0.376	0.81
340	0.0	3.567	0.345	0.76
341	0.0	3.867	0.364	0.802
342	0.0	4.233	0.385	0.842
343	0.0	3.8	0.379	0.809
344	0.0	3.833	0.348	0.775
345	0.0	3.667	0.35	0.772
346	0.0	4.1	0.384	0.822
347	0.0	3.733	0.36	0.789
348	0.0	4.0	0.387	0.815
349	0.0	4.1	0.391	0.835
350	0.0	3.933	0.395	0.825

351	0.0	4.0	0.393	0.825
352	0.0	3.833	0.385	0.816
353	0.0	3.967	0.385	0.822
354	0.0	3.467	0.353	0.754
355	0.0	4.433	0.407	0.87
356	0.0	4.167	0.378	0.823
357	0.0	4.067	0.368	0.811
358	0.0	4.133	0.371	0.831
359	0.0	3.9	0.361	0.799
360	0.0	3.933	0.358	0.807
361	0.0	3.933	0.343	0.79
362	0.0	3.833	0.357	0.791
363	0.0	4.1	0.388	0.834
364	0.0	3.933	0.375	0.806
365	0.0	3.933	0.357	0.789
366	0.0	3.933	0.367	0.795
367	0.0	3.7	0.367	0.797
368	0.0	4.233	0.388	0.838
369	0.0	3.967	0.368	0.8
370	0.0	3.967	0.377	0.807
371	0.0	3.8	0.372	0.801
372	0.0	3.9	0.386	0.82
373	0.0	4.167	0.387	0.84
374	0.0	3.667	0.363	0.774
375	0.0	4.1	0.382	0.828
376	0.0	4.2	0.361	0.802

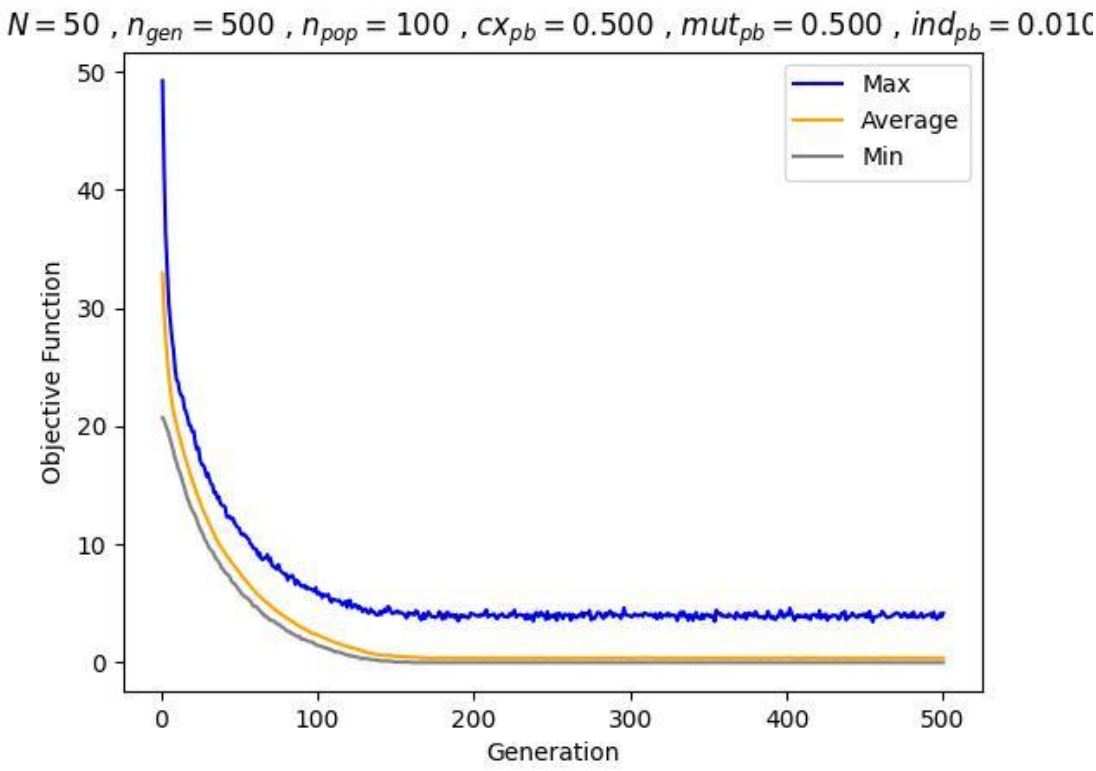
377	0.0	3.967	0.362	0.804
378	0.0	4.1	0.409	0.858
379	0.0	3.9	0.382	0.813
380	0.0	4.3	0.401	0.845
381	0.0	4.1	0.35	0.794
382	0.0	3.8	0.357	0.778
383	0.0	3.9	0.373	0.804
384	0.0	3.8	0.358	0.788
385	0.0	3.9	0.351	0.785
386	0.0	3.7	0.382	0.797
387	0.0	3.933	0.4	0.821
388	0.0	4.333	0.37	0.827
389	0.0	3.9	0.344	0.776
390	0.0	3.767	0.349	0.783
391	0.0	3.933	0.38	0.824
392	0.0	3.667	0.381	0.812
393	0.0	3.633	0.367	0.793
394	0.0	3.967	0.395	0.836
395	0.0	3.9	0.368	0.811
396	0.0	4.4	0.371	0.833
397	0.0	4.2	0.388	0.839
398	0.0	3.8	0.372	0.796
399	0.0	3.933	0.372	0.794
400	0.0	4.133	0.396	0.818
401	0.0	4.0	0.411	0.832
402	0.0	4.6	0.408	0.87

403	0.0	4.2	0.38	0.834
404	0.0	3.9	0.379	0.802
405	0.0	3.567	0.354	0.767
406	0.0	3.867	0.38	0.818
407	0.0	4.033	0.364	0.814
408	0.0	3.833	0.348	0.779
409	0.0	3.967	0.386	0.827
410	0.0	3.867	0.331	0.751
411	0.0	3.833	0.347	0.773
412	0.0	4.067	0.38	0.815
413	0.0	3.8	0.401	0.828
414	0.0	3.933	0.367	0.789
415	0.0	3.633	0.38	0.788
416	0.0	4.033	0.376	0.815
417	0.0	4.067	0.405	0.853
418	0.0	4.067	0.399	0.839
419	0.0	3.867	0.346	0.771
420	0.0	3.8	0.351	0.778
421	0.0	4.4	0.38	0.832
422	0.0	3.733	0.358	0.781
423	0.0	3.967	0.372	0.806
424	0.0	3.9	0.378	0.802
425	0.0	4.1	0.38	0.817
426	0.0	3.567	0.362	0.779
427	0.0	3.9	0.367	0.809
428	0.0	3.833	0.362	0.791

429	0.0	4.0	0.379	0.826
430	0.0	3.967	0.375	0.808
431	0.0	4.0	0.344	0.771
432	0.0	3.933	0.378	0.811
433	0.0	3.667	0.35	0.769
434	0.0	3.733	0.356	0.784
435	0.0	4.167	0.373	0.821
436	0.0	4.1	0.369	0.821
437	0.0	4.333	0.391	0.858
438	0.0	3.6	0.354	0.76
439	0.0	3.9	0.346	0.777
440	0.0	3.833	0.343	0.767
441	0.0	3.967	0.352	0.79
442	0.0	4.2	0.366	0.815
443	0.0	4.0	0.364	0.798
444	0.0	3.9	0.367	0.797
445	0.0	3.8	0.362	0.784
446	0.0	4.033	0.387	0.827
447	0.0	3.933	0.367	0.79
448	0.0	4.033	0.366	0.809
449	0.0	4.1	0.366	0.807
450	0.0	3.867	0.361	0.786
451	0.0	4.133	0.397	0.848
452	0.0	3.8	0.371	0.808
453	0.0	4.333	0.374	0.821
454	0.0	3.833	0.351	0.765

455	0.0	3.433	0.344	0.741
456	0.0	3.867	0.364	0.797
457	0.0	3.867	0.383	0.807
458	0.0	3.933	0.356	0.791
459	0.0	3.967	0.348	0.782
460	0.0	3.967	0.38	0.812
461	0.0	4.333	0.399	0.852
462	0.0	4.167	0.405	0.842
463	0.0	3.967	0.374	0.808
464	0.0	3.8	0.367	0.795
465	0.0	3.833	0.389	0.813
466	0.0	3.867	0.37	0.799
467	0.0	3.9	0.377	0.808
468	0.0	4.067	0.367	0.814
469	0.0	4.067	0.365	0.801
470	0.0	4.2	0.389	0.82
471	0.0	4.167	0.386	0.831
472	0.0	4.1	0.387	0.828
473	0.0	3.833	0.397	0.825
474	0.0	3.9	0.369	0.791
475	0.0	4.167	0.388	0.833
476	0.0	4.133	0.364	0.814
477	0.0	3.8	0.356	0.793
478	0.0	3.867	0.383	0.81
479	0.0	4.1	0.386	0.826
480	0.0	3.833	0.366	0.795

481	0.0	4.267	0.381	0.845
482	0.0	3.9	0.376	0.802
483	0.0	3.8	0.38	0.812
484	0.0	3.833	0.367	0.796
485	0.0	4.0	0.394	0.838
486	0.0	4.167	0.404	0.859
487	0.0	3.8	0.373	0.789
488	0.0	3.867	0.38	0.821
489	0.0	4.0	0.398	0.833
490	0.0	4.0	0.387	0.816
491	0.0	4.067	0.374	0.814
492	0.0	4.133	0.383	0.83
493	0.0	3.8	0.393	0.822
494	0.0	4.267	0.387	0.839
495	0.0	3.833	0.382	0.807
496	0.0	3.667	0.361	0.778
497	0.0	3.8	0.348	0.778
498	0.0	4.133	0.372	0.823
499	0.0	3.867	0.377	0.815
500	0.0	4.167	0.372	0.817



Q5: The setting that gives the best solution is the one that gives the best fitness value for the last generation. For one particular full execution of the program (30 iterations), the best setting is hence setting 4 which gives a last population fitness average of 0.149.

Q6:

Setting 1

No hit occurred for any of the 30 runs therefore there is no optimal solution

Min Hit Count	**Max Hit Count**	**Average Hit Count**
0	0	0
Min Hit Rate	**Max Hit Rate**	**Average Hit Rate**
0	0	0

Setting 2

2nd setting 3 minimum hit occurred for 30 runs which resulted in a minimum hit rate of 16.67%. The max and average hit counts of 1 after 30 runs which is a 3.34% hit rate.

Min Hit Count	Max Hit Count	Average Hit Count
3	1	1
Min Hit Rate	**Max Hit Rate**	**Average Hit Rate**
16.67%	3.34%	3.34

Setting 3

3rd setting had 30 minimum hit occurred for 30 runs which resulted in a minimum hit rate of 100%. The max and average hit counts were 0 after 30 runs which is a 0% hit rate.

Min Hit Count	Max Hit Count	Average Hit Count
30	0	0
Min Hit Rate	**Max Hit Rate**	**Average Hit Rate**
100%	0%	0%

Setting 4

4th setting had 30 minimum hit occurred for 30 runs which resulted in a minimum hit rate of 100%. The max and average hit counts were 0 after 30 runs which is a 0% hit rate.

Min Hit Count	Max Hit Count	Average Hit Count
30	0	0
Min Hit Rate	**Max Hit Rate**	**Average Hit Rate**
100%	0%	0%

Setting 5

5th setting had 30 minimum hit occurred for 30 runs which resulted in a minimum hit rate of 100%. The max and average hit counts were 0 after 30 runs which is a 0% hit rate.

Min Hit Count	Max Hit Count	Average Hit Count
30	0	0
Min Hit Rate	**Max Hit Rate**	**Average Hit Rate**
100%	0%	0%

Setting 6

Min Hit Count	Max Hit Count	Average Hit Count
30	0	0
Min Hit Rate	**Max Hit Rate**	**Average Hit Rate**
100%	0%	0%

Q7:

The crossover operator is used to create new individuals by combining the genetic material of two parent individuals. This allows the genetic algorithm to explore new regions of the search space and potentially find better solutions.

The mutation operator is used to introduce small, random changes to the genetic material of an individual. This helps to prevent the population from becoming too homogenous and allows the genetic algorithm to escape local minima or maxima.

The selection operator is used to choose which individuals will be used as parents for the next generation. This is typically done based on the fitness of the individuals, with more fit individuals being more likely to be selected as parents. The selection operator plays a key role in determining the direction of evolution and helps to ensure that the population as a whole is moving towards better solutions.