

```
1 /Library/Java/JavaVirtualMachines/jdk1.8.0_311.jdk/Contents/Home/bin/java -javaagent:/Users/huyang/Library/Application Support/JetBrains/Toolbox/apps/IDEA-U/ch-0/213.6777.52/IntelliJ IDEA.app/Contents/lib/idea_rt.jar=55639:/Users/huyang/Library/Application Support/JetBrains/Toolbox/apps/IDEA-U/ch-0/213.6777.52/IntelliJ IDEA.app/Contents/bin -Dfile.encoding=UTF-8 -classpath /Library/Java/JavaVirtualMachines/jdk1.8.0_311.jdk/Contents/Home/jre/lib/charsets.jar:/Library/Java/JavaVirtualMachines/jdk1.8.0_311.jdk/Contents/Home/jre/lib/deploy.jar:/Library/Java/JavaVirtualMachines/jdk1.8.0_311.jdk/Contents/Home/jre/lib/ext/cldrdata.jar:/Library/Java/JavaVirtualMachines/jdk1.8.0_311.jdk/Contents/Home/jre/lib/ext/dnsns.jar:/Library/Java/JavaVirtualMachines/jdk1.8.0_311.jdk/Contents/Home/jre/lib/ext/jaccess.jar:/Library/Java/JavaVirtualMachines/jdk1.8.0_311.jdk/Contents/Home/jre/lib/ext/jfxrt.jar:/Library/Java/JavaVirtualMachines/jdk1.8.0_311.jdk/Contents/Home/jre/lib/ext/ldrdata.jar:/Library/Java/JavaVirtualMachines/jdk1.8.0_311.jdk/Contents/Home/jre/lib/ext/nashorn.jar:/Library/Java/JavaVirtualMachines/jdk1.8.0_311.jdk/Contents/Home/jre/lib/ext/sunec.jar:/Library/Java/JavaVirtualMachines/jdk1.8.0_311.jdk/Contents/Home/jre/lib/ext/sunec_provider.jar:/Library/Java/JavaVirtualMachines/jdk1.8.0_311.jdk/Contents/Home/jre/lib/ext/sunpkcs11.jar:/Library/Java/JavaVirtualMachines/jdk1.8.0_311.jdk/Contents/Home/jre/lib/ext/zipfs.jar:/Library/Java/JavaVirtualMachines/jdk1.8.0_311.jdk/Contents/Home/jre/lib/javaws.jar:/Library/Java/JavaVirtualMachines/jdk1.8.0_311.jdk/Contents/Home/jre/lib/jce.jar:/Library/Java/JavaVirtualMachines/jdk1.8.0_311.jdk/Contents/Home/jre/lib/jfr.jar:/Library/Java/JavaVirtualMachines/jdk1.8.0_311.jdk/Contents/Home/jre/lib/jfxswt.jar:/Library/Java/JavaVirtualMachines/jdk1.8.0_311.jdk/Contents/Home/jre/lib/jsse.jar:/Library/Java/JavaVirtualMachines/jdk1.8.0_311.jdk/Contents/Home/jre/lib/management-agent.jar:/Library/Java/JavaVirtualMachines/jdk1.8.0_311.jdk/Contents/Home/jre/lib/plugin.jar:/Library/Java/JavaVirtualMachines/jdk1.8.0_311.jdk/Contents/Home/jre/lib/resources.jar:/Library/Java/JavaVirtualMachines/jdk1.8.0_311.jdk/Contents/Home/jre/lib/rt.jar:/Users/huyang/Desktop/Courses/大数据原理与技术/final_project/SimpleGeneticAlgorithm/target/classes:/Users/huyang/.m2/repository/org/apache/hadoop/hadoop-common/3.3.3/hadoop-common-3.3.3.jar:/Users/huyang/.m2/repository/org/apache/hadoop/hadoop-thirdparty/hadoop-shaded-protobuf_3_7/1.1.1/hadoop-shaded-protobuf_3_7-1.1.1.jar:/Users/huyang/.m2/repository/org/apache/hadoop/hadoop-annotations/3.3.3/hadoop-annotations-3.3.3.jar:/Library/Java/JavaVirtualMachines/jdk1.8.0_311.jdk/Contents/Home/lib/tools.jar:/Users/huyang/.m2/repository/org/apache/hadoop/thirdparty/hadoop-shaded-guava/1.1.1/hadoop-shaded-guava-1.1.1.jar:/Users/huyang/.m2/repository/com/google/guava/guava/27.0-jre/guava-27.0-jre.jar:/Users/huyang/.m2/repository/com/google/guava/failureaccess/1.0/failureaccess-1.0.jar:/Users/huyang/.m2/repository/com/google/guava/listenablefuture/9999.0-empty-to-avoid-conflict-with-guava/listenablefuture-9999.0-empty-to-avoid-conflict-with-guava.jar:/Users/huyang/.m2/repository/org/checkerframework/checker-qual/2.5.2/checker-qual-2.5.2.jar:/Users/huyang/.m2/repository/com/google/j2objc/j2objc-annotations/1.1/j2objc-annotations-1.1.jar:/Users/huyang/.m2/repository/org/codehaus/mojo/animal-sniffer-annotations/1.17/animal-sniffer-annotations-1.17.jar:/Users/huyang/.m2/repository/commons-cli/1.2/commons-cli-1.2.jar:/Users/huyang/.m2/repository/org/apache/commons/commons-math3/3.1.1/commons-math3-3.1.1.jar:/Users/huyang/.m2/repository/org/apache/httpcomponents/httpclient/4.5.13/httpclient-4.5.13.jar:/Users/huyang/.m2/repository/org/apache/httpcomponents/httpcore/4.4.13/httpcore-4.4.13.jar:/Users/huyang/.m2/repository/commons-codec/commons-codec/1.15/commons-codec-1.15.jar:/Users/huyang/.m2/repository/commons-io/commons-io/2.8.0/commons-io-2.8.0.jar:/Users/huyang/.m2/repository/commons-net/commons-net/3.6/commons-net-3.6.jar:/Users/huyang/.m2/repository/commons-collections/commons-collections/3.2.2/commons-collections-3.2.2.jar:/Users/huyang/.m2/repository/javax/servlet/javax.servlet-api/3.1.0/javax.servlet-api-3.1.0.jar:/Users/huyang/.m2/repository/jakarta/activation/jakarta.activation-api/1.2.1/jakarta.activation-api-1.2.1.jar:/Users/huyang/.m2/repository/org/eclipse/jetty/jetty-server/9.4.43.v20210629/jetty-server-9.4.43.v20210629.jar:/Users/huyang/.m2/repository/org/eclipse/jetty/jetty-http/9.4.43.v20210629/jetty-http-9.4.43.v20210629.jar:/Users/huyang/.m2/repository/org/eclipse/jetty/jetty-io/9.4.43.v20210629.jar:/Users/huyang/.m2/repository/org/eclipse/jetty/jetty-util/9.4.43.v20210629/jetty-util-9.4.43.v20210629.jar:/Users/huyang/.m2/repository/org/eclipse/jetty/jetty-servlet/9.4.43.v20210629/jetty-servlet-9.4.43.v20210629.jar:/Users/huyang/.m2/repository/org/eclipse/jetty/jetty-security/9.4.43.v20210629/jetty-security-9.4.43.v20210629.jar:/Users/huyang/.m2/repository/org/eclipse/jetty/webapp/9.4.43.v20210629/jetty-webapp-9.4.43.v20210629.jar:/Users/huyang/.m2/repository/org/eclipse/jetty/jetty-xml/9.4.43.v20210629/jetty-xml-9.4.43.v20210629.jar:/Users/huyang/.m2/repository/javax/servlet/jsp/jsp-api/2.1/jsp-api-2.1.jar:/Users/huyang/.m2/repository/com/sun/jersey/jersey-core/1.19/jersey-core-1.19.jar:/Users/huyang/.m2/repository/javax/ws/rs/jsr311-api/1.1.1/jsr311-api-1.1.1.jar:/Users/huyang/.m2/repository/com/sun/jersey/jersey-servlet/1.19/jersey-servlet-1.19.jar:/Users/huyang/.m2/repository/org/codehaus/jettison/jettison/1.1/jettison-1.1.jar:/Users/huyang/.m2/repository/com/sun/xml/bind/jaxb-impl/2.2.3-1/jaxb-impl-2.2.3-1.jar:/Users/huyang/.m2/repository/org/codehaus/jackson/jackson-core-asl/1.9.2/jackson-core-asl-1.9.2.jar:/Users/huyang/.m2/repository/org/codehaus/jackson/jackson-mapper-asl/1.9.2/jackson-mapper-asl-1.9.2.jar:/Users/huyang/.m2/repository/org/codehaus/jackson/jackson-jaxrs/1.9.2/jackson-jaxrs-1.9.2.jar:/Users/huyang/.m2/repository/org/codehaus/jackson/jackson-xc/1.9.2/jackson-xc-1.9.2.jar:/Users/huyang/.m2/repository/com/sun/jersey/jersey-server/1.19/jersey-server-1.19.jar:/Users/huyang/.m2/repository/commons-logging/commons-logging/1.1.3/commons-logging-1.1.3.jar:/Users/huyang/.m2/repository/ch/qos/reload4j/reload4j/1.2.18.3/reload4j-1.2.18.3.jar:/Users/huyang/.m2/repository/commons-beanutils/commons-beanutils/1.9.4/commons-beanutils-1.9.4.jar:/Users/huyang/.m2/repository/org/apache/commons/commons-configuration2/2.1.1/commons-configuration2-2.1.1.jar:/Users/huyang/.m2/repository/org/apache/commons/commons-lang3/3.12.0/commons-lang3-3.12.0.jar:/Users/huyang/.m2/repository/org/apache/commons/commons-text/1.4/commons-text-1.4.jar:/Users/huyang/.m2/repository/org/slf4j/slf4j-api/1.7.36/slf4j-api-1.7.36.jar:/Users/huyang/.m2/repository/org/slf4j/slf4j-reload4j/1.7.36/slf4j-reload4j-1.7.36.jar:/Users/huyang/.m2/repository/org/apache/avro/avro/1.7.7/avro-1.7.7.jar:/Users/huyang/.m2/repository/com/thoughtworks/paranamer/paranamer/2.3/paranamer-2.3.jar:/Users/huyang/.m2/repository/com/google/re2j/re2j/1.1/re2j-1.1.jar:/Users/huyang/.m2/repository/com/google/protobuf/protobuf-java/2.5.0/protobuf-java-2.5.0.jar:/Users/huyang/.m2/repository/com/google/code/gson/gson/2.8.9/gson-2.8.9.jar:/Users/huyang/.m2/repository/org/apache/hadoop/hadoop-auth/3.3.3/hadoop-auth-3.3.3.jar:/Users/huyang/.m2/repository/com/nimbusds/nimbus-jose-jwt/9.8.1/nimbus-jose-jwt-9.8.1.jar:/Users/huyang/.m2/repository/com/github/stephenc/jcip/jcip-annotations/1.0-1/jcip-annotations-1.0-1.jar:/Users/huyang/.m2/repository/net/minidev/json-smart/2.4.7/json-smart-2.4.7.jar:/Users/huyang/.m2/repository/net/minidev/accessors-smart/2.4.7/accessors-smart-2.4.7.jar:/Users/huyang/.m2/repository/org/ow2/asm/asm/9.1/asm-9.1.jar:/Users/huyang/.m2/repository/org/apache/curator/curator-framework/4.2.0/curator-framework-4.2.0.jar:/Users/huyang/.m2/repository/org/apache/kerby/kerb-simplekdc/1.0.1/kerb-simplekdc-1.0.1.jar:/Users/huyang/.m2/repository/org/apache/kerby/kerb-client/1.0.1/kerb-client-1.0.1.jar:/Users/huyang/.m2/repository/org/apache/kerby/kerby-config/1.0.1/kerby-config-1.0.1.jar:/Users/huyang/.m2/repository/org/apache/kerby/kerb-common/1.0.1/kerb-common-1.0.1.jar:/Users/huyang/.m2/repository/org/apache/kerby/kerb-crypto/1.0.1/kerb-crypto-1.0.1.jar:/Users/huyang/.m2/repository/org/apache/kerby/kerb-util/1.0.1/kerb-util-1.0.1.jar:/Users/huyang/.m2/repository/org/apache/kerby/kerby-token-provider/1.0.1/kerby-token-provider-1.0.1.jar:/Users/huyang/.m2/repository/org/apache/kerby/kerb-admin/1.0.1/kerb-admin-1.0.1.jar:/Users/huyang/.m2/repository/org/apache/kerby/kerb-server/1.0.1/kerb-server-1.0.1.jar:/Users/huyang/.m2/repository/org/apache/kerby/kerb-identity/1.0.1/kerb-identity-1.0.1.jar:/Users/huyang/.m2/repository/org/apache/kerby/kerby-xdr/1.0.1/kerby-xdr-1.0.1.jar:/Users/huyang/.m2/repository/com/jcraft/jsch/0.1.55/jsch-0.1.55.jar:/Users/huyang/.m2/repository/org/apache/curator/curator-client/4.2.0/curator-client-4.2.0.jar:/Users/huyang/.m2/repository/org/apache/curator/curator-recipes/4.2.0/curator-recipes-4.2.0.jar:/Users/huyang/.m2/repository/com/google/code/findbugs/jsr305/3.0.2/jsr305-3.0.2.jar:/Users/huyang/.m2/repository/org/apache/zookeeper/zookeeper/3.5.6/zookeeper-3.5.6.jar:/Users/huyang/.m2/repository/org/apache/zookeeper/zookeeper-jute/3.5.6/zookeeper-jute-3.5.6.jar:/Users/huyang/.m2/repository/org/apache/yetus/audience-annotations/0.5.0/audience-annotations-0.5.0.jar:/Users/huyang/.m2/repository/io/netty/netty-handler/4.1.42.Final/netty-handler-4
```

```

1 1.42.Final.jar:/Users/huyang/.m2/repository/io/netty/netty-common/4.1.42.Final/netty-common-4.1.42.Final.jar:/Users/huyang/.m2/repository/io/netty/netty-buffer/4.1.42.Final/netty-buffer-4.1.42.Final.jar:/Users/huyang/.m2/repository/io/netty/netty-transport/4.1.42.Final/netty-transport-4.1.42.Final.jar:/Users/huyang/.m2/repository/io/netty/netty-resolver/4.1.42.Final/netty-resolver-4.1.42.Final.jar:/Users/huyang/.m2/repository/io/netty/netty-codec/4.1.42.Final/netty-codec-4.1.42.Final.jar:/Users/huyang/.m2/repository/io/netty/netty-transport-native-epoll/4.1.42.Final/netty-transport-native-epoll-4.1.42.Final.jar:/Users/huyang/.m2/repository/io/netty/netty-transport-native-unix-common/4.1.42.Final/netty-transport-native-unix-common-4.1.42.Final.jar:/Users/huyang/.m2/repository/org/slf4j/slf4j-log4j12/1.7.25/slf4j-log4j12-1.7.25.jar:/Users/huyang/.m2/repository/log4j/log4j/1.2.17/log4j-1.2.17.jar:/Users/huyang/.m2/repository/org/apache/commons/commons-compress/1.21/commons-compress-1.21.jar:/Users/huyang/.m2/repository/org/apache/kerby/kerb-core/1.0.1/kerb-core-1.0.1.jar:/Users/huyang/.m2/repository/org/apache/kerby/kerby-pkix/1.0.1/kerby-pkix-1.0.1.jar:/Users/huyang/.m2/repository/org/apache/kerby/kerby-asn1/1.0.1/kerby-asn1-1.0.1.jar:/Users/huyang/.m2/repository/org/apache/kerby/kerby-util/1.0.1/kerby-util-1.0.1.jar:/Users/huyang/.m2/repository/com/fasterxml/jackson/core/jackson-databind/2.13.2.2/jackson-databind-2.13.2.2.jar:/Users/huyang/.m2/repository/com/fasterxml/jackson/core/jackson-annotations/2.13.2/jackson-annotations-2.13.2.jar:/Users/huyang/.m2/repository/com/fasterxml/jackson/core/jackson-core/2.13.2/jackson-core-2.13.2.jar:/Users/huyang/.m2/repository/org/codehaus/woodstox/stax2-api/4.2.1/stax2-api-4.2.1.jar:/Users/huyang/.m2/repository/com/fasterxml/woodstox/woodstox-core/5.3.0/woodstox-core-5.3.0.jar:/Users/huyang/.m2/repository/dnsjava/dnsjava/2.1.7/dnsjava-2.1.7.jar:/Users/huyang/.m2/repository/org/xerial/snappy/snappy-java/1.1.8.2/snappy-java-1.1.8.2.jar:/Users/huyang/.m2/repository/org/apache/hadoop/hadoop-hdfs/3.3.3/hadoop-hdfs-3.3.3.jar:/Users/huyang/.m2/repository/org/eclipse/jetty/jetty-util-ajax/9.4.43.v20210629/jetty-util-ajax-9.4.43.v20210629.jar:/Users/huyang/.m2/repository/commons-daemon/commons-daemon/1.0.13/commons-daemon-1.0.13.jar:/Users/huyang/.m2/repository/io/netty/netty/3.10.6.Final/netty-3.10.6.Final.jar:/Users/huyang/.m2/repository/io/netty/netty-all/4.1.68.Final/netty-all-4.1.68.Final.jar:/Users/huyang/.m2/repository/org/fusesource/leveldbjni/leveldbjni-all/1.8/leveldbjni-all-1.8.jar:/Users/huyang/.m2/repository/org/apache/hadoop/hadoop-mapreduce-client-core/3.3.3/hadoop-mapreduce-client-core-3.3.3.jar:/Users/huyang/.m2/repository/org/apache/hadoop/hadoop-yarn-client/3.3.3/hadoop-yarn-client-3.3.3.jar:/Users/huyang/.m2/repository/org/eclipse/jetty/websocket/websocket-client/9.4.43.v20210629/websocket-client-9.4.43.v20210629.jar:/Users/huyang/.m2/repository/org/eclipse/jetty/jetty-client/9.4.43.v20210629/jetty-client-9.4.43.v20210629.jar:/Users/huyang/.m2/repository/org/eclipse/jetty/websocket/websocket-api/9.4.43.v20210629/websocket-api-9.4.43.v20210629.jar:/Users/huyang/.m2/repository/org/apache/hadoop/hadoop-yarn-api/3.3.3/hadoop-yarn-api-3.3.3.jar:/Users/huyang/.m2/repository/org/jline/jline/3.9.0/jline-3.9.0.jar:/Users/huyang/.m2/repository/org/apache/hadoop/hadoop-yarn-common/3.3.3/hadoop-yarn-common-3.3.3.jar:/Users/huyang/.m2/repository/javafx/scene/jfx-binding-api/2.2.11/jfx-binding-api-2.2.11.jar:/Users/huyang/.m2/repository/com/sun/jersey/jersey-client/1.19/jersey-client-1.19.jar:/Users/huyang/.m2/repository/com/google/inject/guice/4.0/guice-4.0.jar:/Users/huyang/.m2/repository/javax/inject/javax.inject/1/javax.inject-1.jar:/Users/huyang/.m2/repository/aopalliance/aopalliance/1.0/aopalliance-1.0.jar:/Users/huyang/.m2/repository/com/sun/jersey/contribs/jersey-guice/1.19/jersey-guice-1.19.jar:/Users/huyang/.m2/repository/com/fasterxml/jackson/module/jackson-module-jaxb-annotations/2.13.2/jackson-module-jaxb-annotations-2.13.2.jar:/Users/huyang/.m2/repository/jakarta/xml/bind/jakarta.xml.bind-api/2.3.3/jakarta.xml.bind-api-2.3.3.jar:/Users/huyang/.m2/repository/com/fasterxml/jackson/jaxrs/jackson-jaxrs-json-provider/2.13.2/jackson-jaxrs-json-provider-2.13.2.jar:/Users/huyang/.m2/repository/com/fasterxml/jackson/jaxrs/jackson-jaxrs-base/2.13.2/jackson-jaxrs-base-2.13.2.jar:/Users/huyang/.m2/repository/org/apache/hadoop/hadoop-hdfs-client/3.3.3/hadoop-hdfs-client-3.3.3.jar:/Users/huyang/.m2/repository/com/squareup/okhttp/okhttp/2.7.5/okhttp-2.7.5.jar:/Users/huyang/.m2/repository/com/squareup/okio/okio/1.6.0/okio-1.6.0.jar:/Users/huyang/.m2/repository/javax/ws/rs/javax.ws.rs-api/2.1.1/javax.ws.rs-api-2.1.1.jar:/Users/huyang/.m2/repository/com/google/inject/extensions/guice-servlet/4.0/guice-servlet-4.0.jar:/Users/huyang/.m2/repository/org/apache/hadoop/hadoop-mapreduce-client-jobclient/3.3.3/hadoop-mapreduce-client-jobclient-3.3.3.jar:/Users/huyang/.m2/repository/org/apache/hadoop/hadoop-mapreduce-client-common/3.3.3/hadoop-mapreduce-client-common-3.3.3.jar MyDriver 3 test_input/medium.txt 500 10
2 SLF4J: Class path contains multiple SLF4J bindings.
3 SLF4J: Found binding in [jar:file:/Users/huyang/.m2/repository/org/slf4j/slf4j-reload4j/1.7.36/slf4j-reload4j-1.7.36.jar!/org/slf4j/impl/StaticLoggerBinder.class]
4 SLF4J: Found binding in [jar:file:/Users/huyang/.m2/repository/org/slf4j/slf4j-log4j12/1.7.25/slf4j-log4j12-1.7.25.jar!/org/slf4j/impl/StaticLoggerBinder.class]
5 SLF4J: See http://www.slf4j.org/codes.html#multiple_bindings for an explanation.
6 SLF4J: Actual binding is of type [org.slf4j.impl.Reload4jLoggerFactory]
7 log4j:WARN No appenders could be found for logger (org.apache.hadoop.util.Shell).
8 log4j:WARN Please initialize the log4j system properly.
9 log4j:WARN See http://logging.apache.org/log4j/1.2/faq.html#noconfig for more info.
10 [INFO] Generated trial population!
11 [INFO] numOnes: 787
12 [INFO] proportionOfOnes: 0.491875
13 [INFO] MyReducer.pMutationPerBit: 0.2
14 [INFO] InitMapper.pOnes: 0.0491875
15 [INFO] Program started.
16 [INFO] Number of Mappers: 426
17 [INFO] Number of Reducers: 3
18 [INFO] Convergence Threshold: 11
19 [WARNING] Existing files from temporary directory will be deleted: /Users/huyang/Hadoop_runtime/GeneticAlgoRuntimeTmp
20 [INFO] Generating initial population...
21 [INFO] Finished generating initial population!
22 [INFO] Running iteration 1...
23 -----
24 Iteration 1
25 -----
26 Population: 2129
27 Gene Length: 40

```

File - Medium

```
28 Best Individual: 000100000000010001001000000100000101000 |
29 Best Fitness: 1074
30 Best Weight: 150
31 Time Taken: 24266ms
32
33 [INFO] Running iteration 2...
34 -----
35 Iteration 2
36 -----
37 Population: 2129
38 Gene Length: 40
39 Best Individual: 1000111010011010110101011010000001001101 |
40 Best Fitness: 2207
41 Best Weight: 423
42 Time Taken: 1402ms
43
44 [INFO] Running iteration 3...
45 -----
46 Iteration 3
47 -----
48 Population: 2129
49 Gene Length: 40
50 Best Individual: 000111100110101100101000010110011111101 |
51 Best Fitness: 2657
52 Best Weight: 521
53 Time Taken: 1181ms
54
55 [INFO] Running iteration 4...
56 -----
57 Iteration 4
58 -----
59 Population: 2129
60 Gene Length: 40
61 Best Individual: 0010011110010111101101111110100001110010 |
62 Best Fitness: 2960
63 Best Weight: 528
64 Time Taken: 1238ms
65
66 [INFO] Running iteration 5...
67 -----
68 Iteration 5
69 -----
70 Population: 2129
71 Gene Length: 40
72 Best Individual: 001111111001110110100111110110011101000 |
73 Best Fitness: 3037
74 Best Weight: 565
75 Time Taken: 1195ms
76
77 [INFO] Running iteration 6...
78 -----
79 Iteration 6
80 -----
81 Population: 2129
82 Gene Length: 40
83 Best Individual: 100111100111111101111100001100011110100 |
84 Best Fitness: 3203
85 Best Weight: 553
```

```
86 Time Taken: 1180ms
87
88 [INFO] Running iteration 7...
89 -----
90 Iteration 7
91 -----
92 Population: 2129
93 Gene Length: 40
94 Best Individual: 110111101111111100111111000100000101100 |
95 Best Fitness: 3293
96 Best Weight: 483
97 Time Taken: 1186ms
98
99 [INFO] Running iteration 8...
100 -----
101 Iteration 8
102 -----
103 Population: 2129
104 Gene Length: 40
105 Best Individual: 00110100101101111111111111001100101101110 |
106 Best Fitness: 3372
107 Best Weight: 599
108 Time Taken: 1177ms
109
110 [INFO] Running iteration 9...
111 -----
112 Iteration 9
113 -----
114 Population: 2129
115 Gene Length: 40
116 Best Individual: 110111101111111111111111111100100000101100 |
117 Best Fitness: 3438
118 Best Weight: 535
119 Time Taken: 1185ms
120
121 [INFO] Running iteration 10...
122 -----
123 Iteration 10
124 -----
125 Population: 2129
126 Gene Length: 40
127 Best Individual: 110111111111111110111111111100110000101100 |
128 Best Fitness: 3465
129 Best Weight: 582
130 Time Taken: 1194ms
131
132 [INFO] Running iteration 11...
133 -----
134 Iteration 11
135 -----
136 Population: 2129
137 Gene Length: 40
138 Best Individual: 11111100101101111011111111110010101111000 |
139 Best Fitness: 3524
140 Best Weight: 592
141 Time Taken: 1181ms
142
143 [INFO] Running iteration 12...
```

```
144 -----
145 Iteration 12
146 -----
147 Population: 2129
148 Gene Length: 40
149 Best Individual: 1011011011111111111111111000100101101100 |
150 Best Fitness: 3647
151 Best Weight: 572
152 Time Taken: 1188ms
153
154 [INFO] Running iteration 13...
155 -----
156 Iteration 13
157 -----
158 Population: 2129
159 Gene Length: 40
160 Best Individual: 0011111101111111011110111011001011101100 |
161 Best Fitness: 3666
162 Best Weight: 579
163 Time Taken: 1200ms
164
165 [INFO] Running iteration 14...
166 -----
167 Iteration 14
168 -----
169 Population: 2129
170 Gene Length: 40
171 Best Individual: 111111011110111001111011001101101111100 |
172 Best Fitness: 3742
173 Best Weight: 584
174 Time Taken: 1189ms
175
176 [INFO] Running iteration 15...
177 -----
178 Iteration 15
179 -----
180 Population: 2129
181 Gene Length: 40
182 Best Individual: 101111101011111111111111100100001111000 |
183 Best Fitness: 3765
184 Best Weight: 584
185 Time Taken: 1185ms
186
187 [INFO] Running iteration 16...
188 -----
189 Iteration 16
190 -----
191 Population: 2129
192 Gene Length: 40
193 Best Individual: 101111101011111111111111100100001111000 |
194 Best Fitness: 3765
195 Best Weight: 584
196 Time Taken: 1186ms
197
198 [INFO] Running iteration 17...
199 [WARNING] pMutation reset to 0.5011823178082374
200 [WARNING] pMutation reset to 0.5011823178082374
201 [WARNING] pMutation reset to 0.5011823178082374
```

```
202 -----
203 Iteration 17
204 -----
205 Population: 2129
206 Gene Length: 40
207 Best Individual: 11111101111111001111110100101111100 |
208 Best Fitness: 3805
209 Best Weight: 599
210 Time Taken: 1199ms
211
212 [INFO] Running iteration 18...
213 [WARNING] pMutation reset to 0.2
214 -----
215 Iteration 18
216 -----
217 Population: 2129
218 Gene Length: 40
219 Best Individual: 1111110111111101111111000100101111100 |
220 Best Fitness: 3841
221 Best Weight: 588
222 Time Taken: 1192ms
223
224 [INFO] Running iteration 19...
225 -----
226 Iteration 19
227 -----
228 Population: 2129
229 Gene Length: 40
230 Best Individual: 1111110111111101111111000100101111100 |
231 Best Fitness: 3841
232 Best Weight: 588
233 Time Taken: 1197ms
234
235 [INFO] Running iteration 20...
236 [WARNING] pMutation reset to 0.5011823178082374
237 [WARNING] pMutation reset to 0.5011823178082374
238 [WARNING] pMutation reset to 0.5011823178082374
239 -----
240 Iteration 20
241 -----
242 Population: 2129
243 Gene Length: 40
244 Best Individual: 10111101111111101111011000101101111100 |
245 Best Fitness: 3845
246 Best Weight: 595
247 Time Taken: 1178ms
248
249 [INFO] Running iteration 21...
250 [WARNING] pMutation reset to 0.2
251 -----
252 Iteration 21
253 -----
254 Population: 2129
255 Gene Length: 40
256 Best Individual: 1011110111111111111111000100101111000 |
257 Best Fitness: 3873
258 Best Weight: 595
259 Time Taken: 1184ms
```

```
260
261 [INFO] Running iteration 22...
262 -----
263 Iteration 22
264 -----
265 Population: 2129
266 Gene Length: 40
267 Best Individual: 1011111011111111111111111000100101111000 |
268 Best Fitness: 3873
269 Best Weight: 595
270 Time Taken: 1199ms
271
272 [INFO] Running iteration 23...
273 [WARNING] pMutation reset to 0.5011823178082374
274 [WARNING] pMutation reset to 0.5011823178082374
275 [WARNING] pMutation reset to 0.5011823178082374
276 -----
277 Iteration 23
278 -----
279 Population: 2129
280 Gene Length: 40
281 Best Individual: 10111110111111111111111111000100101111000 |
282 Best Fitness: 3873
283 Best Weight: 595
284 Time Taken: 1182ms
285
286 [INFO] Running iteration 24...
287 [WARNING] pMutation reset to 0.6604715292478953
288 [WARNING] pMutation reset to 0.6604715292478953
289 [WARNING] pMutation reset to 0.6604715292478953
290 -----
291 Iteration 24
292 -----
293 Population: 2129
294 Gene Length: 40
295 Best Individual: 10111110111111111111111111000100101111000 |
296 Best Fitness: 3873
297 Best Weight: 595
298 Time Taken: 1202ms
299
300 [INFO] Running iteration 25...
301 [WARNING] pMutation reset to 0.6921410410644817
302 [WARNING] pMutation reset to 0.6921410410644817
303 [WARNING] pMutation reset to 0.6921410410644817
304 -----
305 Iteration 25
306 -----
307 Population: 2129
308 Gene Length: 40
309 Best Individual: 10111110111111111111111111000100101111000 |
310 Best Fitness: 3873
311 Best Weight: 595
312 Time Taken: 1187ms
313
314 [INFO] Running iteration 26...
315 [WARNING] pMutation reset to 0.6984375
316 [WARNING] pMutation reset to 0.6984375
317 [WARNING] pMutation reset to 0.6984375
```

```
318 -----
319 Iteration 26
320 -----
321 Population: 2129
322 Gene Length: 40
323 Best Individual: 111111011111111111111111000100101111000 |
324 Best Fitness: 3884
325 Best Weight: 600
326 Time Taken: 1198ms
327
328 [INFO] Running iteration 27...
329 [WARNING] pMutation reset to 0.2
330 -----
331 Iteration 27
332 -----
333 Population: 2129
334 Gene Length: 40
335 Best Individual: 111111011111111111111111000100101111000 |
336 Best Fitness: 3884
337 Best Weight: 600
338 Time Taken: 1249ms
339
340 [INFO] Running iteration 28...
341 [WARNING] pMutation reset to 0.5011823178082374
342 [WARNING] pMutation reset to 0.5011823178082374
343 [WARNING] pMutation reset to 0.5011823178082374
344 -----
345 Iteration 28
346 -----
347 Population: 2129
348 Gene Length: 40
349 Best Individual: 111111011111111111111111000100101111000 |
350 Best Fitness: 3884
351 Best Weight: 600
352 Time Taken: 1182ms
353
354 [INFO] Running iteration 29...
355 [WARNING] pMutation reset to 0.6604715292478953
356 [WARNING] pMutation reset to 0.6604715292478953
357 [WARNING] pMutation reset to 0.6604715292478953
358 -----
359 Iteration 29
360 -----
361 Population: 2129
362 Gene Length: 40
363 Best Individual: 111111011111111111111111000100101111000 |
364 Best Fitness: 3884
365 Best Weight: 600
366 Time Taken: 1195ms
367
368 [INFO] Running iteration 30...
369 [WARNING] pMutation reset to 0.6921410410644817
370 [WARNING] pMutation reset to 0.6921410410644817
371 [WARNING] pMutation reset to 0.6921410410644817
372 -----
373 Iteration 30
374 -----
375 Population: 2129
```


File - Medium

```
376 Gene Length: 40
377 Best Individual: 1111110111111111111111000100101111000 |
378 Best Fitness: 3884
379 Best Weight: 600
380 Time Taken: 1192ms
381
382 [INFO] Running iteration 31...
383 [WARNING] pMutation reset to 0.6984375
384 [WARNING] pMutation reset to 0.6984375
385 [WARNING] pMutation reset to 0.6984375
386 -----
387 Iteration 31
388 -----
389 Population: 2129
390 Gene Length: 40
391 Best Individual: 11111101111111111111111000100101111000 |
392 Best Fitness: 3884
393 Best Weight: 600
394 Time Taken: 1176ms
395
396 [INFO] Running iteration 32...
397 [WARNING] pMutation reset to 0.6996893473715754
398 [WARNING] pMutation reset to 0.6996893473715754
399 [WARNING] pMutation reset to 0.6996893473715754
400 -----
401 Iteration 32
402 -----
403 Population: 2129
404 Gene Length: 40
405 Best Individual: 11111101111111111111111000100101111000 |
406 Best Fitness: 3884
407 Best Weight: 600
408 Time Taken: 1187ms
409
410 [INFO] Running iteration 33...
411 [WARNING] pMutation reset to 0.6999382367644499
412 [WARNING] pMutation reset to 0.6999382367644499
413 [WARNING] pMutation reset to 0.6999382367644499
414 -----
415 Iteration 33
416 -----
417 Population: 2129
418 Gene Length: 40
419 Best Individual: 11111101111111111111111000100101111000 |
420 Best Fitness: 3884
421 Best Weight: 600
422 Time Taken: 1172ms
423
424 [INFO] Running iteration 34...
425 [WARNING] pMutation reset to 0.6999877203766633
426 [WARNING] pMutation reset to 0.6999877203766633
427 [WARNING] pMutation reset to 0.6999877203766633
428 -----
429 Iteration 34
430 -----
431 Population: 2129
432 Gene Length: 40
433 Best Individual: 11111101111111111111111000100101111000 |
```

File - Medium

```
434 Best Fitness: 3884
435 Best Weight: 600
436 Time Taken: 1178ms
437
438 [INFO] Running iteration 35...
439 [WARNING] pMutation reset to 0.69999755859375
440 [WARNING] pMutation reset to 0.69999755859375
441 [WARNING] pMutation reset to 0.69999755859375
442 -----
443 Iteration 35
444 -----
445 Population: 2129
446 Gene Length: 40
447 Best Individual: 111111011111111111111111000100101111000 |
448 Best Fitness: 3884
449 Best Weight: 600
450 Time Taken: 1190ms
451
452 [INFO] Running iteration 36...
453 [WARNING] pMutation reset to 0.6999995146052681
454 [WARNING] pMutation reset to 0.6999995146052681
455 [WARNING] pMutation reset to 0.6999995146052681
456 -----
457 Iteration 36
458 -----
459 Population: 2129
460 Gene Length: 40
461 Best Individual: 1111110111111111111111111000100101111000 |
462 Best Fitness: 3884
463 Best Weight: 600
464 Time Taken: 1180ms
465
466 [INFO] Running iteration 37...
467 [WARNING] pMutation reset to 0.6999999034949446
468 [WARNING] pMutation reset to 0.6999999034949446
469 [WARNING] pMutation reset to 0.6999999034949446
470 -----
471 Iteration 37
472 -----
473 Population: 2129
474 Gene Length: 40
475 Best Individual: 1111110111111111111111111000100101111000 |
476 Best Fitness: 3884
477 Best Weight: 600
478 Time Taken: 1180ms
479
480 [INFO] Convergence is reached. Job terminated.
481 [INFO] Program run time: 83s
482
483 Process finished with exit code 0
484
```