

```
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=55778:/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/com/sun/jersey/jersey-json/1.19/jersey-json-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/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/token-provider/1.0.1/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-common/9.4.43.v20210629/websocket-common-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/contris/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 6 test_input/hard.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: 478
12 [INFO] proportionOfOnes: 0.0029875
13 [INFO] MyReducer.pMutationPerBit: 2.9875E-4
14 [INFO] InitMapper.pOnes: 2.9875E-4
15 [INFO] Program started.
16 [INFO] Number of Mappers: 6
17 [INFO] Number of Reducers: 6
18 [INFO] Convergence Threshold: 14
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: 34576
27 Gene Length: 400

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[illegible]

76

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125 Population: 34576
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126 Gene Length: 400
127 Best Individual: 0000000000000000000000000000000000000000000000000000000 | 0000000000000000000000000000000000000000000000000000000 |
    00000000000000000000000000000000000000000000000000000000000000000000 | 00000000000001000000000000000000000000000000000000000000000000000000 |
    00000000000000000000000000000000000000000000000000000000000000000000 | 00000000000000000000000000000000000000000000000000000000000000000000 |
128 Best Fitness: 501618
129 Best Weight: 500625
130 Time Taken: 2228ms
131
132 [INFO] Running iteration 11 ...
133 -----
134 Iteration 11
135 -----
136 Population: 34576
137 Gene Length: 400
138 Best Individual: 0000000000000000000000000000000000000000000000000000000 | 0000000000000000000000000000000000000000000000000000000 |
    00000000000000000000000000000000000000000000000000000000000000000000 | 00000000000000000000000000000000000000000000000000000000000000000000 |
    00000000000000000000000000000000000000000000000000000000000000000000 | 00000000000000000000000000000000000000000000000000000000000000000000 |
139 Best Fitness: 501889
140 Best Weight: 500963
141 Time Taken: 1206ms
142
143 [INFO] Running iteration 12 ...
144 -----
145 Iteration 12
146 -----
147 Population: 34576
148 Gene Length: 400
149 Best Individual: 0000000000000000000000000000000000000000000000000000000 | 0000000000000000000000000000000000000000000000000000000 |
    00000000000000000000000000000000000000000000000000000000000000000000 | 00010000000000000000000000000000000000000000000000000000000000000000 |
    00000000000000000000000000000000000000000000000000000000000000000000 | 00000000000000000000000000000000000000000000000000000000000000000000 |
150 Best Fitness: 502186
151 Best Weight: 500975
152 Time Taken: 2235ms
153
154 [INFO] Running iteration 13 ...
155 -----
156 Iteration 13
157 -----
158 Population: 34576
159 Gene Length: 400
160 Best Individual: 0000000000000000000000000000000000000000000000000000000 | 0000000000000000000000000000000000000000000000000000000 |
    00000000000000000000000000000000000000000000000000000000000000000000 | 00000000000000000000000001000000000000000000000000000000000000000000 |
    00000000000000000000000000000000000000000000000000000000000000000000 | 00000000000000000000000000000000000000000000000000000000000000000000 |
161 Best Fitness: 502606
162 Best Weight: 501257
163 Time Taken: 1209ms
164
165 [INFO] Running iteration 14 ...
166 -----
167 Iteration 14
168 -----
169 Population: 34576
170 Gene Length: 400
171 Best Individual: 0000000000000000000000000000000000000000000000000000000 | 0000000000000000000000000000000000000000000000000000000 |
    00000000000000000000000000000000000000000000000000000000000000000000 | 00000000000000000000000001000000000000000000000000000000000000000000 |
    00000000000000000000000000000000000000000000000000000000000000000000 | 00000000000000000000000000000000000000000000000000000000000000000000 |
172 Best Fitness: 502606
173 Best Weight: 501257

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[illegible]

[illegible]

File - Hard

[illegible]

[illegible]

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372 0000000000000000000000000000000000000000000000000000000 | 0000000000000000000000000000000000000000000000000000000 | 1011111011000111 |
373 Best Fitness: 505178
374 Best Weight: 503407
375 Time Taken: 1193ms
376
377 [INF0] Running iteration 32 ...
378 -----
379 Iteration 32
380 -----
381 Population: 34576
382 Gene Length: 400
383 Best Individual: 0000000000000000000000000000000000000000000000000000000 | 0000000000000000000000000000000000000000000000000000000 |
    000000000000000000000000000000000000000000000000000000000000000000000000 | 00000000000000000000000000000000000000000000000000000000 |
    000000000000000000000000000000000000000000000000000000000000000000000000 | 00000000000000000000000000000000000000000000000000000000 |
384 Best Fitness: 505376
385 Best Weight: 503505
386 Time Taken: 1200ms
387
388 [INF0] Running iteration 33 ...
389 -----
390 Iteration 33
391 -----
392 Population: 34576
393 Gene Length: 400
394 Best Individual: 0000000000000000000000000000000000000000000000000000000 | 0000000000000000000000000000000000000000000000000000000 |
    000000000000000000000000000000000000000000000000000000000000000000000000 | 00000000000000000000000000000000000000000000000000000000 |
    000000000000000000000000000000000000000000000000000000000000000000000000 | 00000000000000000000000000000000000000000000000000000000 |
395 Best Fitness: 505376
396 Best Weight: 503505
397 Time Taken: 2192ms
398
399 [INF0] Running iteration 34 ...
400 [WARNING] pMutation reset to 0.32164223514265644
401 [WARNING] pMutation reset to 0.32164223514265644
402 [WARNING] pMutation reset to 0.32164223514265644
403 [WARNING] pMutation reset to 0.32164223514265644
404 [WARNING] pMutation reset to 0.32164223514265644
405 [WARNING] pMutation reset to 0.32164223514265644
406 -----
407 Iteration 34
408 -----
409 Population: 34576
410 Gene Length: 400
411 Best Individual: 0000000000000000000000000000000000000000000000000000000 | 0000000000000000000000000000000000000000000000000000000 |
    000000000000000000000000000000000000000000000000000000000000000000000000 | 00000000000000000000000000000000000000000000000000000000 |
    000000000000000000000000000000000000000000000000000000000000000000000000 | 00000000000000000000000000000000000000000000000000000000 |
412 Best Fitness: 505392
413 Best Weight: 503485
414 Time Taken: 1209ms
415
416 [INF0] Running iteration 35 ...
417 [WARNING] pMutation reset to 0.2
418 -----
419 Iteration 35
420 -----
421 Population: 34576
422 Gene Length: 400
423 Best Individual: 0000000000000000000000000000000000000000000000000000000 | 0000000000000000000000000000000000000000000000000000000 |

```

[illegible]

[illegible]

```

524 Gene Length: 400
525 Best Individual: 00000000000000000000000000000000000000000000000000000000000000000000 | 00000000000000000000000000000000000000000000000000000000000000000000 |
    00000000000000000000000000000000000000000000000000000000000000000000 | 00000000000000000000000000000000000000000000000000000000000000000000 |
    00000000000000000000000000000000000000000000000000000000000000000000 | 00000000000000000000000000000000000000000000000000000000000000000000 |
526 Best Fitness: 505881
527 Best Weight: 504265
528 Time Taken: 1190ms
529
530 [INFO] Running iteration 44...
531 -----
532 Iteration 44
533 -----
534 Population: 34576
535 Gene Length: 400
536 Best Individual: 00000000000000000000000000000000000000000000000000000000000000000000 | 00000000000000000000000000000000000000000000000000000000000000000000 |
    00000000000000000000000000000000000000000000000000000000000000000000 | 00000000000000000000000000000000000000000000000000000000000000000000 |
    00000000000000000000000000000000000000000000000000000000000000000000 | 00000000000000000000000000000000000000000000000000000000000000000000 |
537 Best Fitness: 505957
538 Best Weight: 504247
539 Time Taken: 1194ms
540
541 [INFO] Running iteration 45...
542 -----
543 Iteration 45
544 -----
545 Population: 34576
546 Gene Length: 400
547 Best Individual: 00000000000000000000000000000000000000000000000000000000000000000000 | 00000000000000000000000000000000000000000000000000000000000000000000 |
    00000000000000000000000000000000000000000000000000000000000000000000 | 00000000000000000000000000000000000000000000000000000000000000000000 |
    00000000000000000000000000000000000000000000000000000000000000000000 | 00000000000000000000000000000000000000000000000000000000000000000000 |
548 Best Fitness: 505966
549 Best Weight: 504250
550 Time Taken: 1194ms
551
552 [INFO] Running iteration 46...
553 -----
554 Iteration 46
555 -----
556 Population: 34576
557 Gene Length: 400
558 Best Individual: 00000000000000000000000000000000000000000000000000000000000000000000 | 00000000000000000000000000000000000000000000000000000000000000000000 |
    00000000000000000000000000000000000000000000000000000000000000000000 | 00000000000000000000000000000000000000000000000000000000000000000000 |
    00000000000000000000000000000000000000000000000000000000000000000000 | 00000000000000000000000000000000000000000000000000000000000000000000 |
559 Best Fitness: 506037
560 Best Weight: 504513
561 Time Taken: 1201ms
562
563 [INFO] Running iteration 47...
564 -----
565 Iteration 47
566 -----
567 Population: 34576
568 Gene Length: 400
569 Best Individual: 00000000000000000000000000000000000000000000000000000000000000000000 | 00000000000000000000000000000000000000000000000000000000000000000000 |
    00000000000000000000000000000000000000000000000000000000000000000000 | 00000000000000000000000000000000000000000000000000000000000000000000 |
    00000000000000000000000000000000000000000000000000000000000000000000 | 00000000000000000000000000000000000000000000000000000000000000000000 |
570 Best Fitness: 506069
571 Best Weight: 504462

```

```

572 Time Taken: 1188ms
573 -----
574 [INFO] Running iteration 48 ...
575 -----
576 Iteration 48
577 -----
578 Population: 34576
579 Gene Length: 400
580 Best Individual: 00000000000000000000000000000000000000000000000000000 | 00000000000000000000000000000000000000000000000000000 |
    00000000000000000000000000000000000000000000000000000 | 00000000000000000000000000000000000000000000000000000 |
    00000000000000000000000000000000000000000000000000000 | 00000000000000000000000000000000000000000000000000000 | 1011111111010111 |
581 Best Fitness: 506141
582 Best Weight: 504532
583 Time Taken: 1196ms
584 -----
585 [INFO] Running iteration 49 ...
586 -----
587 Iteration 49
588 -----
589 Population: 34576
590 Gene Length: 400
591 Best Individual: 00000000000000000000000000000000000000000000000000000 | 00000000000000000000000000000000000000000000000000000 |
    00000000000000000000000000000000000000000000000000000 | 00000000000000000000000000000000000000000000000000000 |
    00000000000000000000000000000000000000000000000000000 | 00000000000000000000000000000000000000000000000000000 | 1011111111000111 |
592 Best Fitness: 506252
593 Best Weight: 504966
594 Time Taken: 1202ms
595 -----
596 [INFO] Running iteration 50 ...
597 -----
598 Iteration 50
599 -----
600 Population: 34576
601 Gene Length: 400
602 Best Individual: 00000000000000000000000000000000000000000000000000000 | 00000000000000000000000000000000000000000000000000000 |
    00000000000000000000000000000000000000000000000000000 | 00000000000000000000000000000000000000000000000000000 |
    00000000000000000000000000000000000000000000000000000 | 00000000000000000000000000000000000000000000000000000 | 1011111111000111 |
603 Best Fitness: 506252
604 Best Weight: 504966
605 Time Taken: 1194ms
606 -----
607 [INFO] Running iteration 51 ...
608 [WARNING] pMutation reset to 0.32164223514265644
609 [WARNING] pMutation reset to 0.32164223514265644
610 [WARNING] pMutation reset to 0.32164223514265644
611 [WARNING] pMutation reset to 0.32164223514265644
612 [WARNING] pMutation reset to 0.32164223514265644
613 [WARNING] pMutation reset to 0.32164223514265644
614 -----
615 Iteration 51
616 -----
617 Population: 34576
618 Gene Length: 400
619 Best Individual: 00000000000000000000000000000000000000000000000000000 | 00000000000000000000000000000000000000000000000000000 |
    00000000000000000000000000000000000000000000000000000 | 00000000000000000000000000000000000000000000000000000 |
    00000000000000000000000000000000000000000000000000000 | 00000000000000000000000000000000000000000000000000000 | 1011111111000111 |
620 Best Fitness: 506252
621 Best Weight: 504966

```

```
622 Time Taken: 1193ms
623
624 [INFO] Running iteration 52...
625 [WARNING] pMutation reset to 0.5568454017721551
626 [WARNING] pMutation reset to 0.5568454017721551
627 [WARNING] pMutation reset to 0.5568454017721551
628 [WARNING] pMutation reset to 0.5568454017721551
629 [WARNING] pMutation reset to 0.5568454017721551
630 [WARNING] pMutation reset to 0.5568454017721551
631 -----
632 Iteration 52
633 -----
634 Population: 34576
635 Gene Length: 400
636 Best Individual: 00000000000000000000000000000000000000000000000000000 | 00000000000000000000000000000000000000000000000000000 |
    00000000000000000000000000000000000000000000000000000 | 00000000000000000000000000000000000000000000000000000 |
    00000000000000000000000000000000000000000000000000000 | 00000000000000000000000000000000000000000000000000000 | 1111111111000111 |
637 Best Fitness: 506324
638 Best Weight: 505226
639 Time Taken: 2199ms
640
641 [INFO] Running iteration 53...
642 [WARNING] pMutation reset to 0.2
643 -----
644 Iteration 53
645 -----
646 Population: 34576
647 Gene Length: 400
648 Best Individual: 00000000000000000000000000000000000000000000000000000 | 00000000000000000000000000000000000000000000000000000 |
    00000000000000000000000000000000000000000000000000000 | 00000000000000000000000000000000000000000000000000000 |
    00000000000000000000000000000000000000000000000000000 | 00000000000000000000000000000000000000000000000000000 | 1111111111010111 |
649 Best Fitness: 506364
650 Best Weight: 505171
651 Time Taken: 1211ms
652
653 [INFO] Running iteration 54...
654 -----
655 Iteration 54
656 -----
657 Population: 34576
658 Gene Length: 400
659 Best Individual: 00000000000000000000000000000000000000000000000000000 | 00000000000000000000000000000000000000000000000000000 |
    00000000000000000000000000000000000000000000000000000 | 00000000000000000000000000000000000000000000000000000 |
    00000000000000000000000000000000000000000000000000000 | 00000000000000000000000000000000000000000000000000000 | 1111111111010111 |
660 Best Fitness: 506416
661 Best Weight: 505364
662 Time Taken: 1195ms
663
664 [INFO] Running iteration 55...
665 -----
666 Iteration 55
667 -----
668 Population: 34576
669 Gene Length: 400
670 Best Individual: 00000000000000000000000000000000000000000000000000000 | 00000000000000000000000000000000000000000000000000000 |
    00000000000000000000000000000000000000000000000000000 | 00000000000000000000000000000000000000000000000000000 |
    00000000000000000000000000000000000000000000000000000 | 00000000000000000000000000000000000000000000000000000 | 1111111111010111 |
671 Best Fitness: 506472
```

```
672 Best Weight: 505532
673 Time Taken: 1191ms
674 -----
675 [INFO] Running iteration 56...
676 -----
677 Iteration 56
678 -----
679 Population: 34576
680 Gene Length: 400
681 Best Individual: 0000000000000000000000000000000000000000000000000000000 | 0000000000000000000000000000000000000000000000000000000 |
0000000000000000000000000000000000000000000000000000000 | 0000000000000000000000000000000000000000000000000000000 |
0000000000000000000000000000000000000000000000000000000 | 0000000000000000000000000000000000000000000000000000000 | 1111111111101011 | 1111111111101011 |
682 Best Fitness: 506474
683 Best Weight: 505444
684 Time Taken: 1194ms
685 -----
686 [INFO] Running iteration 57...
687 -----
688 Iteration 57
689 -----
690 Population: 34576
691 Gene Length: 400
692 Best Individual: 0000000000000000000000000000000000000000000000000000000 | 0000000000000000000000000000000000000000000000000000000 |
0000000000000000000000000000000000000000000000000000000 | 0000000000000000000000000000000000000000000000000000000 |
0000000000000000000000000000000000000000000000000000000 | 0000000000000000000000000000000000000000000000000000000 | 1111111111101011 | 1111111111101011 |
693 Best Fitness: 506519
694 Best Weight: 505689
695 Time Taken: 2200ms
696 -----
697 [INFO] Running iteration 58...
698 -----
699 Iteration 58
700 -----
701 Population: 34576
702 Gene Length: 400
703 Best Individual: 0000000000000000000000000000000000000000000000000000000 | 0000000000000000000000000000000000000000000000000000000 |
0000000000000000000000000000000000000000000000000000000 | 0000000000000000000000000000000000000000000000000000000 |
0000000000000000000000000000000000000000000000000000000 | 0000000000000000000000000000000000000000000000000000000 | 1111111111101011 | 1111111111101011 |
704 Best Fitness: 506558
705 Best Weight: 505766
706 Time Taken: 1200ms
707 -----
708 [INFO] Running iteration 59...
709 -----
710 Iteration 59
711 -----
712 Population: 34576
713 Gene Length: 400
714 Best Individual: 0000000000000000000000000000000000000000000000000000000 | 0000000000000000000000000000000000000000000000000000000 |
0000000000000000000000000000000000000000000000000000000 | 0000000000000000000000000000000000000000000000000000000 |
0000000000000000000000000000000000000000000000000000000 | 0000000000000000000000000000000000000000000000000000000 | 1111111111101011 | 1111111111101011 |
715 Best Fitness: 506558
716 Best Weight: 505766
717 Time Taken: 1196ms
718 -----
719 [INFO] Running iteration 60...
720 [WARNING] pMutation reset to 0.32164223514265644
721 [WARNING] pMutation reset to 0.32164223514265644
```



```
722 [WARNING] pMutation reset to 0.32164223514265644
723 [WARNING] pMutation reset to 0.32164223514265644
724 [WARNING] pMutation reset to 0.32164223514265644
725 [WARNING] pMutation reset to 0.32164223514265644
726 -----
727 Iteration 60
728 -----
729 Population: 34576
730 Gene Length: 400
731 Best Individual: 0000000000000000000000000000000000000000000000000000000 | 0000000000000000000000000000000000000000000000000000000 |
    0000000000000000000000000000000000000000000000000000000 | 0000000000000000000000000000000000000000000000000000000 |
    0000000000000000000000000000000000000000000000000000000 | 0000000000000000000000000000000000000000000000000000000 | 1111111111110111 | 1111111111110111 |
732 Best Fitness: 506605
733 Best Weight: 505890
734 Time Taken: 2199ms
735
736 [INFO] Running iteration 61...
737 [WARNING] pMutation reset to 0.2
738 -----
739 Iteration 61
740 -----
741 Population: 34576
742 Gene Length: 400
743 Best Individual: 0000000000000000000000000000000000000000000000000000000 | 0000000000000000000000000000000000000000000000000000000 |
    0000000000000000000000000000000000000000000000000000000 | 0000000000000000000000000000000000000000000000000000000 |
    0000000000000000000000000000000000000000000000000000000 | 0000000000000000000000000000000000000000000000000000000 | 1111111111110111 | 1111111111110111 |
744 Best Fitness: 506614
745 Best Weight: 505934
746 Time Taken: 1197ms
747
748 [INFO] Running iteration 62...
749 -----
750 Iteration 62
751 -----
752 Population: 34576
753 Gene Length: 400
754 Best Individual: 0000000000000000000000000000000000000000000000000000000 | 0000000000000000000000000000000000000000000000000000000 |
    0000000000000000000000000000000000000000000000000000000 | 0000000000000000000000000000000000000000000000000000000 |
    0000000000000000000000000000000000000000000000000000000 | 0000000000000000000000000000000000000000000000000000000 | 1111111111110111 | 1111111111110111 |
755 Best Fitness: 506646
756 Best Weight: 506029
757 Time Taken: 1193ms
758
759 [INFO] Running iteration 63...
760 -----
761 Iteration 63
762 -----
763 Population: 34576
764 Gene Length: 400
765 Best Individual: 0000000000000000000000000000000000000000000000000000000 | 0000000000000000000000000000000000000000000000000000000 |
    0000000000000000000000000000000000000000000000000000000 | 0000000000000000000000000000000000000000000000000000000 |
    0000000000000000000000000000000000000000000000000000000 | 0000000000000000000000000000000000000000000000000000000 | 1111111111110111 | 1111111111110111 |
766 Best Fitness: 506646
767 Best Weight: 506029
768 Time Taken: 1198ms
769
770 [INFO] Running iteration 64...
771 [WARNING] pMutation reset to 0.32164223514265644
```

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```
772 [WARNING] pMutation reset to 0.32164223514265644  
773 [WARNING] pMutation reset to 0.32164223514265644  
774 [WARNING] pMutation reset to 0.32164223514265644  
775 [WARNING] pMutation reset to 0.32164223514265644  
776 [WARNING] pMutation reset to 0.32164223514265644  
777 -----  
778 Iteration 64  
779 -----  
780 Population: 34576  
781 Gene Length: 400  
782 Best Individual: 0000000000000000000000000000000000000000000000000000000 | 0000000000000000000000000000000000000000000000000000000 |  
0000000000000000000000000000000000000000000000000000000 | 0000000000000000000000000000000000000000000000000000000 |  
0000000000000000000000000000000000000000000000000000000 | 0000000000000000000000000000000000000000000000000000000 | 1111111111110111 | 1111111111110111 |  
783 Best Fitness: 506646  
784 Best Weight: 506029  
785 Time Taken: 2197ms  
786  
787 [INFO] Running iteration 65 ...  
788 [WARNING] pMutation reset to 0.5568454017721551  
789 [WARNING] pMutation reset to 0.5568454017721551  
790 [WARNING] pMutation reset to 0.5568454017721551  
791 [WARNING] pMutation reset to 0.5568454017721551  
792 [WARNING] pMutation reset to 0.5568454017721551  
793 [WARNING] pMutation reset to 0.5568454017721551  
794 -----  
795 Iteration 65  
796 -----  
797 Population: 34576  
798 Gene Length: 400  
799 Best Individual: 0000000000000000000000000000000000000000000000000000000 | 0000000000000000000000000000000000000000000000000000000 |  
0000000000000000000000000000000000000000000000000000000 | 0000000000000000000000000000000000000000000000000000000 | 1000000000000000 |  
0000000000000000000000000000000000000000000000000000000 | 0000000000000000000000000000000000000000000000000000000 | 1111111111110111 | 1111111111110111 |  
800 Best Fitness: 506655  
801 Best Weight: 506073  
802 Time Taken: 2197ms  
803  
804 [INFO] Running iteration 66 ...  
805 [WARNING] pMutation reset to 0.2  
806 -----  
807 Iteration 66  
808 -----  
809 Population: 34576  
810 Gene Length: 400  
811 Best Individual: 0000000000000000000000000000000000000000000000000000000 | 0000000000000000000000000000000000000000000000000000000 |  
0000000000000000000000000000000000000000000000000000000 | 0000000000000000000000000000000000000000000000000000000 |  
0000000000000000000000000000000000000000000000000000000 | 0000000000000000000000000000000000000000000000000000000 | 1111111111110111 | 1111111111110111 |  
812 Best Fitness: 506666  
813 Best Weight: 506265  
814 Time Taken: 2204ms  
815  
816 [INFO] Running iteration 67 ...  
817 -----  
818 Iteration 67  
819 -----  
820 Population: 34576  
821 Gene Length: 400  
822 Best Individual: 0000000000000000000000000000000000000000000000000000000 | 0000000000000000000000000000000000000000000000000000000 |  
0000000000000000000000000000000000000000000000000000000 | 0000000000000000000000000000000000000000000000000000000 |
```

```
822 00000000000000000000000000000000000000000000000000000 | 00000000000000000000000000000000000000000000000000000 | 1111111111111111 |
823 Best Fitness: 506682
824 Best Weight: 506105
825 Time Taken: 1204ms
826
827 [INFO] Running iteration 68 ...
828 -----
829 Iteration 68
830 -----
831 Population: 34576
832 Gene Length: 400
833 Best Individual: 00000000000000000000000000000000000000000000000000000 | 00000000000000000000000000000000000000000000000000000 |
      00000000000000000000000000000000000000000000000000000 | 00000000000000000000000000000000000000000000000000000 | 10000000000000 |
      00000000000000000000000000000000000000000000000000000 | 00000000000000000000000000000000000000000000000000000 | 1111111111111111 | 1111111111111111 |
834 Best Fitness: 506691
835 Best Weight: 506149
836 Time Taken: 1197ms
837
838 [INFO] Running iteration 69 ...
839 -----
840 Iteration 69
841 -----
842 Population: 34576
843 Gene Length: 400
844 Best Individual: 00000000000000000000000000000000000000000000000000000 | 00000000000000000000000000000000000000000000000000000 |
      00000000000000000000000000000000000000000000000000000 | 00000000000000000000000000000000000000000000000000000 | 10000000000000 |
      00000000000000000000000000000000000000000000000000000 | 00000000000000000000000000000000000000000000000000000 | 1111111111111111 | 1111111111111111 |
845 Best Fitness: 506691
846 Best Weight: 506149
847 Time Taken: 1200ms
848
849 [INFO] Running iteration 70 ...
850 [WARNING] pMutation reset to 0.32164223514265644
851 [WARNING] pMutation reset to 0.32164223514265644
852 [WARNING] pMutation reset to 0.32164223514265644
853 [WARNING] pMutation reset to 0.32164223514265644
854 [WARNING] pMutation reset to 0.32164223514265644
855 [WARNING] pMutation reset to 0.32164223514265644
856 -----
857 Iteration 70
858 -----
859 Population: 34576
860 Gene Length: 400
861 Best Individual: 00000000000000000000000000000000000000000000000000000 | 00000000000000000000000000000000000000000000000000000 |
      00000000000000000000000000000000000000000000000000000 | 00000000000000000000000000000000000000000000000000000 | 10000000000000 |
      00000000000000000000000000000000000000000000000000000 | 00000000000000000000000000000000000000000000000000000 | 1111111111111111 | 1111111111111111 |
862 Best Fitness: 506702
863 Best Weight: 506341
864 Time Taken: 1199ms
865
866 [INFO] Running iteration 71 ...
867 [WARNING] pMutation reset to 0.2
868 -----
869 Iteration 71
870 -----
871 Population: 34576
872 Gene Length: 400
873 Best Individual: 00000000000000000000000000000000000000000000000000000 | 00000000000000000000000000000000000000000000000000000 |
```

```
873 0000000000000000000000000000000000000000000000000000000 | 0000000000000000000000000000000000000000000000000000000 |  
    0000000000000000000000000000000000000000000000000000000 | 0000000000000000000000000000000000000000000000000000000 |  
874 Best Fitness: 506702  
875 Best Weight: 506341  
876 Time Taken: 2201ms  
877  
878 [INFO] Running iteration 72...  
879 [WARNING] pMutation reset to 0.32164223514265644  
880 [WARNING] pMutation reset to 0.32164223514265644  
881 [WARNING] pMutation reset to 0.32164223514265644  
882 [WARNING] pMutation reset to 0.32164223514265644  
883 [WARNING] pMutation reset to 0.32164223514265644  
884 [WARNING] pMutation reset to 0.32164223514265644  
885 -----  
886 Iteration 72  
887 -----  
888 Population: 34576  
889 Gene Length: 400  
890 Best Individual: 0000000000000000000000000000000000000000000000000000000 | 0000000000000000000000000000000000000000000000000000000 |  
    0000000000000000000000000000000000000000000000000000000 | 0000000000000000000000000000000000000000000000000000000 |  
    0000000000000000000000000000000000000000000000000000000 | 0000000000000000000000000000000000000000000000000000000 |  
891 Best Fitness: 506711  
892 Best Weight: 506385  
893 Time Taken: 2208ms  
894  
895 [INFO] Running iteration 73...  
896 [WARNING] pMutation reset to 0.2  
897 -----  
898 Iteration 73  
899 -----  
900 Population: 34576  
901 Gene Length: 400  
902 Best Individual: 0000000000000000000000000000000000000000000000000000000 | 0000000000000000000000000000000000000000000000000000000 |  
    0000000000000000000000000000000000000000000000000000000 | 0000000000000000000000000000000000000000000000000000000 |  
    0000000000000000000000000000000000000000000000000000000 | 0000000000000000000000000000000000000000000000000000000 |  
903 Best Fitness: 506711  
904 Best Weight: 506385  
905 Time Taken: 1188ms  
906  
907 [INFO] Running iteration 74...  
908 [WARNING] pMutation reset to 0.32164223514265644  
909 [WARNING] pMutation reset to 0.32164223514265644  
910 [WARNING] pMutation reset to 0.32164223514265644  
911 [WARNING] pMutation reset to 0.32164223514265644  
912 [WARNING] pMutation reset to 0.32164223514265644  
913 [WARNING] pMutation reset to 0.32164223514265644  
914 -----  
915 Iteration 74  
916 -----  
917 Population: 34576  
918 Gene Length: 400  
919 Best Individual: 0000000000000000000000000000000000000000000000000000000 | 0000000000000000000000000000000000000000000000000000000 |  
    0000000000000000000000000000000000000000000000000000000 | 0000000000000000000000000000000000000000000000000000000 |  
    0000000000000000000000000000000000000000000000000000000 | 0000000000000000000000000000000000000000000000000000000 |  
920 Best Fitness: 506711  
921 Best Weight: 506385  
922 Time Taken: 1209ms  
923
```

```
924 [INFO] Running iteration 75 ...
925 [WARNING] pMutation reset to 0.5568454017721551
926 [WARNING] pMutation reset to 0.5568454017721551
927 [WARNING] pMutation reset to 0.5568454017721551
928 [WARNING] pMutation reset to 0.5568454017721551
929 [WARNING] pMutation reset to 0.5568454017721551
930 [WARNING] pMutation reset to 0.5568454017721551
931 -----
932 Iteration 75
933 -----
934 Population: 34576
935 Gene Length: 400
936 Best Individual: 0000000000000000000000000000000000000000000000000000000 | 0000000000000000000000000000000000000000000000000000000 |
0000000000000000000000000000000000000000000000000000000 | 0000000000000000000000000000000000000000000000000000000 |
0000000000000000000000000000000000000000000000000000000 | 0000000000000000000000000000000000000000000000000000000 |
937 Best Fitness: 506711
938 Best Weight: 506385
939 Time Taken: 2288ms
940
941 [INFO] Running iteration 76 ...
942 [WARNING] pMutation reset to 0.6458363461854616
943 [WARNING] pMutation reset to 0.6458363461854616
944 [WARNING] pMutation reset to 0.6458363461854616
945 [WARNING] pMutation reset to 0.6458363461854616
946 [WARNING] pMutation reset to 0.6458363461854616
947 [WARNING] pMutation reset to 0.6458363461854616
948 -----
949 Iteration 76
950 -----
951 Population: 34576
952 Gene Length: 400
953 Best Individual: 0000000000000000000000000000000000000000000000000000000 | 0000000000000000000000000000000000000000000000000000000 |
0000000000000000000000000000000000000000000000000000000 | 0000000000000000000000000000000000000000000000000000000 |
0000000000000000000000000000000000000000000000000000000 | 0000000000000000000000000000000000000000000000000000000 |
954 Best Fitness: 506711
955 Best Weight: 506385
956 Time Taken: 2201ms
957
958 [INFO] Running iteration 77 ...
959 [WARNING] pMutation reset to 0.6795067610062243
960 [WARNING] pMutation reset to 0.6795067610062243
961 [WARNING] pMutation reset to 0.6795067610062243
962 [WARNING] pMutation reset to 0.6795067610062243
963 [WARNING] pMutation reset to 0.6795067610062243
964 [WARNING] pMutation reset to 0.6795067610062243
965 -----
966 Iteration 77
967 -----
968 Population: 34576
969 Gene Length: 400
970 Best Individual: 0000000000000000000000000000000000000000000000000000000 | 0000000000000000000000000000000000000000000000000000000 |
0000000000000000000000000000000000000000000000000000000 | 0000000000000000000000000000000000000000000000000000000 |
0000000000000000000000000000000000000000000000000000000 | 0000000000000000000000000000000000000000000000000000000 |
971 Best Fitness: 506711
972 Best Weight: 506385
973 Time Taken: 2205ms
974
975 [INFO] Running iteration 78 ...
```

File - Hard

```
976 [WARNING] pMutation reset to 0.6922462238996278  
977 [WARNING] pMutation reset to 0.6922462238996278  
978 [WARNING] pMutation reset to 0.6922462238996278  
979 [WARNING] pMutation reset to 0.6922462238996278  
980 [WARNING] pMutation reset to 0.6922462238996278  
981 [WARNING] pMutation reset to 0.6922462238996278  
982 -----  
983 Iteration 78  
984 -----  
985 Population: 34576  
986 Gene Length: 400  
987 Best Individual: 0000000000000000000000000000000000000000000000000000000 | 0000000000000000000000000000000000000000000000000000000 |  
0000000000000000000000000000000000000000000000000000000 | 0000000000000000000000000000000000000000000000000000000 |  
0000000000000000000000000000000000000000000000000000000 | 0000000000000000000000000000000000000000000000000000000 |  
988 Best Fitness: 506711  
989 Best Weight: 506385  
990 Time Taken: 2204ms  
991  
992 [INFO] Running iteration 79...  
993 [WARNING] pMutation reset to 0.6970662986054589  
994 [WARNING] pMutation reset to 0.6970662986054589  
995 [WARNING] pMutation reset to 0.6970662986054589  
996 [WARNING] pMutation reset to 0.6970662986054589  
997 [WARNING] pMutation reset to 0.6970662986054589  
998 [WARNING] pMutation reset to 0.6970662986054589  
999 -----  
1000 Iteration 79  
1001 -----  
1002 Population: 34576  
1003 Gene Length: 400  
1004 Best Individual: 0000000000000000000000000000000000000000000000000000000 | 0000000000000000000000000000000000000000000000000000000 |  
0000000000000000000000000000000000000000000000000000000 | 0000000000000000000000000000000000000000000000000000000 |  
0000000000000000000000000000000000000000000000000000000 | 0000000000000000000000000000000000000000000000000000000 |  
1005 Best Fitness: 506711  
1006 Best Weight: 506385  
1007 Time Taken: 2195ms  
1008  
1009 [INFO] Running iteration 80...  
1010 [WARNING] pMutation reset to 0.6988900112976026  
1011 [WARNING] pMutation reset to 0.6988900112976026  
1012 [WARNING] pMutation reset to 0.6988900112976026  
1013 [WARNING] pMutation reset to 0.6988900112976026  
1014 [WARNING] pMutation reset to 0.6988900112976026  
1015 [WARNING] pMutation reset to 0.6988900112976026  
1016 -----  
1017 Iteration 80  
1018 -----  
1019 Population: 34576  
1020 Gene Length: 400  
1021 Best Individual: 0000000000000000000000000000000000000000000000000000000 | 0000000000000000000000000000000000000000000000000000000 |  
0000000000000000000000000000000000000000000000000000000 | 0000000000000000000000000000000000000000000000000000000 |  
0000000000000000000000000000000000000000000000000000000 | 0000000000000000000000000000000000000000000000000000000 |  
1022 Best Fitness: 506711  
1023 Best Weight: 506385  
1024 Time Taken: 2208ms  
1025  
1026 [INFO] Running iteration 81...  
1027 [WARNING] pMutation reset to 0.699580027155544
```

```

1028 [WARNING] pMutation reset to 0.699580027155544
1029 [WARNING] pMutation reset to 0.699580027155544
1030 [WARNING] pMutation reset to 0.699580027155544
1031 [WARNING] pMutation reset to 0.699580027155544
1032 [WARNING] pMutation reset to 0.699580027155544
1033 -----
1034 Iteration 81
1035 -----
1036 Population: 34576
1037 Gene Length: 400
1038 Best Individual: 00000000000000000000000000000000000000000000000000000000000000000000 | 00000000000000000000000000000000000000000000000000000000000000000000 |
00000000000000000000000000000000000000000000000000000000000000000000 | 00000000000000000000000000000000000000000000000000000000000000000000 |
00000000000000000000000000000000000000000000000000000000000000000000 | 00000000000000000000000000000000000000000000000000000000000000000000 | 111111111111111111 | 1111111111111111 |
1039 Best Fitness: 506711
1040 Best Weight: 506385
1041 Time Taken: 2198ms
1042
1043 [INFO] Running iteration 82...
1044 [WARNING] pMutation reset to 0.6998411000132709
1045 [WARNING] pMutation reset to 0.6998411000132709
1046 [WARNING] pMutation reset to 0.6998411000132709
1047 [WARNING] pMutation reset to 0.6998411000132709
1048 [WARNING] pMutation reset to 0.6998411000132709
1049 [WARNING] pMutation reset to 0.6998411000132709
1050 -----
1051 Iteration 82
1052 -----
1053 Population: 34576
1054 Gene Length: 400
1055 Best Individual: 00000000000000000000000000000000000000000000000000000000000000000000 | 00000000000000000000000000000000000000000000000000000000000000000000 |
00000000000000000000000000000000000000000000000000000000000000000000 | 00000000000000000000000000000000000000000000000000000000000000000000 | 10000000000000 |
00000000000000000000000000000000000000000000000000000000000000000000 | 00000000000000000000000000000000000000000000000000000000000000000000 | 111111111111111111 | 1111111111111111 |
1056 Best Fitness: 506711
1057 Best Weight: 506385
1058 Time Taken: 2203ms
1059
1060 [INFO] Running iteration 83...
1061 [WARNING] pMutation reset to 0.6999398789561854
1062 [WARNING] pMutation reset to 0.6999398789561854
1063 [WARNING] pMutation reset to 0.6999398789561854
1064 [WARNING] pMutation reset to 0.6999398789561854
1065 [WARNING] pMutation reset to 0.6999398789561854
1066 [WARNING] pMutation reset to 0.6999398789561854
1067 -----
1068 Iteration 83
1069 -----
1070 Population: 34576
1071 Gene Length: 400
1072 Best Individual: 00000000000000000000000000000000000000000000000000000000000000000000 | 00000000000000000000000000000000000000000000000000000000000000000000 |
00000000000000000000000000000000000000000000000000000000000000000000 | 00000000000000000000000000000000000000000000000000000000000000000000 | 10000000000000 |
00000000000000000000000000000000000000000000000000000000000000000000 | 00000000000000000000000000000000000000000000000000000000000000000000 | 111111111111111111 | 1111111111111111 |
1073 Best Fitness: 506711
1074 Best Weight: 506385
1075 Time Taken: 2202ms
1076
1077 [INFO] Running iteration 84...
1078 [WARNING] pMutation reset to 0.6999772527362415
1079 [WARNING] pMutation reset to 0.6999772527362415

```

```

1080 [WARNING] pMutation reset to 0.6999772527362415
1081 [WARNING] pMutation reset to 0.6999772527362415
1082 [WARNING] pMutation reset to 0.6999772527362415
1083 [WARNING] pMutation reset to 0.6999772527362415
1084 -----
1085 Iteration 84
1086 -----
1087 Population: 34576
1088 Gene Length: 400
1089 Best Individual: 00000000000000000000000000000000000000000000000000000000000000000000 | 00000000000000000000000000000000000000000000000000000000000000000000 |
    00000000000000000000000000000000000000000000000000000000000000000000 | 00000000000000000000000000000000000000000000000000000000000000000000 |
    00000000000000000000000000000000000000000000000000000000000000000000 | 00000000000000000000000000000000000000000000000000000000000000000000 |
1090 Best Fitness: 506711
1091 Best Weight: 506385
1092 Time Taken: 2198ms
1093
1094 [INFO] Running iteration 85...
1095 [WARNING] pMutation reset to 0.6999913933961277
1096 [WARNING] pMutation reset to 0.6999913933961277
1097 [WARNING] pMutation reset to 0.6999913933961277
1098 [WARNING] pMutation reset to 0.6999913933961277
1099 [WARNING] pMutation reset to 0.6999913933961277
1100 [WARNING] pMutation reset to 0.6999913933961277
1101 -----
1102 Iteration 85
1103 -----
1104 Population: 34576
1105 Gene Length: 400
1106 Best Individual: 00000000000000000000000000000000000000000000000000000000000000000000 | 00000000000000000000000000000000000000000000000000000000000000000000 |
    00000000000000000000000000000000000000000000000000000000000000000000 | 00000000000000000000000000000000000000000000000000000000000000000000 |
    00000000000000000000000000000000000000000000000000000000000000000000 | 00000000000000000000000000000000000000000000000000000000000000000000 |
1107 Best Fitness: 506711
1108 Best Weight: 506385
1109 Time Taken: 2199ms
1110
1111 [INFO] Running iteration 86...
1112 [WARNING] pMutation reset to 0.699996743624596
1113 [WARNING] pMutation reset to 0.699996743624596
1114 [WARNING] pMutation reset to 0.699996743624596
1115 [WARNING] pMutation reset to 0.699996743624596
1116 [WARNING] pMutation reset to 0.699996743624596
1117 [WARNING] pMutation reset to 0.699996743624596
1118 -----
1119 Iteration 86
1120 -----
1121 Population: 34576
1122 Gene Length: 400
1123 Best Individual: 00000000000000000000000000000000000000000000000000000000000000000000 | 00000000000000000000000000000000000000000000000000000000000000000000 |
    00000000000000000000000000000000000000000000000000000000000000000000 | 00000000000000000000000000000000000000000000000000000000000000000000 |
    00000000000000000000000000000000000000000000000000000000000000000000 | 00000000000000000000000000000000000000000000000000000000000000000000 |
1124 Best Fitness: 506711
1125 Best Weight: 506385
1126 Time Taken: 2201ms
1127
1128 [INFO] Convergence is reached. Job terminated.
1129 [INFO] Program run time: 134s
1130
1131 Process finished with exit code 0

```