

Output

C:\Users\Alex Anderson\Documents\EECS_658\AlexAnderson_Assignment4>python
CompareFeatureSelectionMethods.py

Output:

Part 1:

Accuracy:

0.92

Confusion Matrix:

[[50 0 0]

[0 48 2]

[0 10 40]]

Features:

['sepal-length', 'sepal-width', 'petal-length', 'petal-width', 'class']

Output:

Part 2:

Eigenvalues:

[4.22484077 0.24224357 0.07852391 0.02368303]

Eigenvectors:

[[0.36158968 -0.08226889 0.85657211 0.35884393]

[0.65653988 0.72971237 -0.1757674 -0.07470647]

[-0.58099728 0.59641809 0.07252408 0.54906091]

[0.31725455 -0.32409435 -0.47971899 0.75112056]]

PoV:

0.9279898839113285

Accuracy:

0.9466666666666667

Confusion Matrix:

[[50 0 0]

[0 46 4]

[0 4 46]]

Features:

[z1, Z2, Z3, Z4]

Part 3 - Simulated annaling

Iteration: 0

Accepted Features: ['sepal-length-pca', 'petal-width-pca', 'petal-width', 'sepal-width-pca', 'petal-length', 'petal-length-pca'] Accuracy: 0.9733333333333334 Pr[accept]: 0 Random uniform: 0 Status: Improved

Iteration: 1

Accepted Features: ['petal-length', 'petal-width-pca', 'petal-width', 'petal-length-pca', 'sepal-width-pca'] Accuracy: 0.9866666666666667 Pr[accept]: 0 Random uniform: 0 Status: Improved

Iteration: 2

Accepted Features: ['petal-length', 'petal-width-pca', 'petal-width'] Accuracy: 0.9533333333333334 Pr[accept]: 0.9346645654712513 Random uniform: 0.8239935007962791 Status: Accept

Iteration: 3

Accepted Features: ['petal-length', 'petal-width'] Accuracy: 0.9533333333333334 Pr[accept]: 1.0 Random uniform: 0.7071701766336956 Status: Accept

Iteration: 4

Accepted Features: ['petal-length', 'petal-width', 'sepal-length-pca', 'sepal-length'] Accuracy: 0.9733333333333334 Pr[accept]: 1.0 Random uniform: 0.7071701766336956 Status: Improved

Iteration: 5

Accepted Features: ['petal-length', 'petal-width', 'sepal-length-pca', 'sepal-length', 'sepal-width'] Accuracy: 0.98 Pr[accept]: 1.0 Random uniform: 0.7071701766336956 Status: Improved

Iteration: 6

Accepted Features: ['petal-length', 'petal-width', 'sepal-length-pca', 'sepal-length', 'sepal-width', 'petalwidth-pca'] Accuracy: 0.98 Pr[accept]: 1.0 Random uniform: 0.9302648124928479 Status: Accept

Iteration: 7

Accepted Features: ['petal-length', 'petal-width', 'sepal-length-pca', 'sepal-length', 'sepal-width', 'petalwidth-pca', 'sepal-width-pca', 'petal-length-pca'] Accuracy: 0.98 Pr[accept]: 1.0 Random uniform: 0.7500999181692093 Status: Accept

Iteration: 8

Accepted Features: ['sepal-length-pca', 'petal-width-pca', 'petal-width', 'sepal-width', 'sepal-width-pca', 'petal-length', 'sepal-length'] Accuracy: 0.98 Pr[accept]: 1.0 Random uniform: 0.6040169180616529
Status: Accept

Iteration: 9

Accepted Features: ['sepal-length-pca', 'petal-width-pca', 'petal-width', 'sepal-width', 'sepal-width-pca', 'petal-length', 'sepal-length', 'petal-length-pca'] Accuracy: 0.98 Pr[accept]: 1.0 Random uniform: 0.8847599803696605 Status: Accept

Iteration: 10

Accepted Features: ['sepal-length-pca', 'petal-width-pca', 'petal-width', 'sepal-width', 'sepal-width-pca', 'petal-length-pca'] Accuracy: 0.98 Pr[accept]: 1.0 Random uniform: 0.8130030878475782 Status: Accept

Iteration: 11

Accepted Features: ['petal-length', 'petal-width-pca', 'petal-width', 'petal-length-pca', 'sepal-width-pca'] Accuracy: 0.9866666666666667 Pr[accept]: 1.0 Random uniform: 0.4121061659554808 Status: Restart

Iteration: 12

Accepted Features: ['petal-length', 'petal-width-pca', 'petal-length-pca'] Accuracy: 0.9666666666666667 Pr[accept]: 0.7840807682246864 Random uniform: 0.05837559197604625 Status: Accept

Iteration: 13

Accepted Features: ['petal-length', 'petal-width-pca', 'petal-length-pca'] Accuracy: 0.9666666666666667 Pr[accept]: 1.0 Random uniform: 0.7773503319000962 Status: Accept

Iteration: 14

Accepted Features: ['petal-length', 'petal-width-pca', 'petal-length-pca', 'sepal-width-pca'] Accuracy: 0.98 Pr[accept]: 1.0 Random uniform: 0.7773503319000962 Status: Improved

Iteration: 15

Accepted Features: ['petal-length', 'petal-width-pca', 'petal-length-pca'] Accuracy: 0.9666666666666667 Pr[accept]: 0.8153958055474633 Random uniform: 0.04744880088053827 Status: Accept

Iteration: 16

Accepted Features: ['petal-length', 'petal-width-pca', 'petal-length-pca', 'sepal-length-pca', 'sepal-width'] Accuracy: 0.9733333333333334 Pr[accept]: 0.8153958055474633 Random uniform: 0.04744880088053827 Status: Improved

Iteration: 17

Accepted Features: ['petal-length', 'petal-width-pca', 'petal-length-pca', 'sepal-length-pca', 'sepal-width', 'sepal-width-pca'] Accuracy: 0.98 Pr[accept]: 0.8153958055474633 Random uniform: 0.04744880088053827 Status: Improved

Iteration: 18

Accepted Features: ['sepal-length-pca', 'petal-length', 'petal-width-pca', 'petal-length-pca'] Accuracy: 0.9333333333333333 Pr[accept]: 0.4243728456769502 Random uniform: 0.10376832243373191 Status: Accept

Iteration: 19

Accepted Features: ['sepal-length-pca', 'petal-length', 'petal-width-pca', 'petal-length-pca', 'sepal-width', 'sepal-width-pca'] Accuracy: 0.98 Pr[accept]: 0.4243728456769502 Random uniform: 0.10376832243373191 Status: Improved

Iteration: 20

Accepted Features: ['sepal-length-pca', 'petal-length', 'petal-width-pca', 'petal-length-pca', 'sepal-width', 'sepal-width-pca', 'petal-width'] Accuracy: 0.98 Pr[accept]: 1.0 Random uniform: 0.0805820904752721 Status: Accept

Iteration: 21

Accepted Features: ['petal-length', 'petal-width-pca', 'petal-width', 'petal-length-pca', 'sepal-width-pca'] Accuracy: 0.9866666666666667 Pr[accept]: 0.4243728456769496 Random uniform: 0.935531743446059 Status: Restart

Iteration: 22

Accepted Features: ['petal-length', 'petal-width-pca', 'petal-length-pca', 'sepal-width-pca'] Accuracy: 0.98 Pr[accept]: 0.8618718815573825 Random uniform: 0.667629738450455 Status: Accept

Iteration: 23

Accepted Features: ['petal-length', 'sepal-width-pca', 'petal-length-pca'] Accuracy: 0.96 Pr[accept]: 0.6253850398956965 Random uniform: 0.31169157372594514 Status: Accept

Iteration: 24

Accepted Features: ['petal-length', 'sepal-width-pca', 'petal-length-pca', 'petal-width'] Accuracy: 0.98 Pr[accept]: 0.6253850398956965 Random uniform: 0.31169157372594514 Status: Improved

Iteration: 25

Accepted Features: ['petal-length', 'sepal-width-pca', 'petal-length-pca', 'petal-width', 'petal-width-pca'] Accuracy: 0.9866666666666667 Pr[accept]: 0.6253850398956965 Random uniform: 0.31169157372594514 Status: Improved

Iteration: 26

Accepted Features: ['petal-length', 'sepal-width-pca', 'petal-length-pca', 'petal-width', 'petal-width-pca', 'sepal-length-pca', 'sepal-length'] Accuracy: 0.9733333333333334 Pr[accept]: 0.7037364516598992 Random uniform: 0.22934501242528593 Status: Accept

Iteration: 27

Accepted Features: ['petal-length', 'sepal-width-pca', 'petal-length-pca', 'petal-width', 'petal-width-pca', 'sepal-length-pca', 'sepal-length', 'sepal-width'] Accuracy: 0.98 Pr[accept]: 0.7037364516598992
Random uniform: 0.22934501242528593 Status: Improved

Iteration: 28

Accepted Features: ['petal-width-pca', 'sepal-width', 'sepal-width-pca', 'petal-length', 'petal-length-pca', 'sepal-length'] Accuracy: 0.9733333333333334 Pr[accept]: 0.8265654376242397 Random uniform: 0.22584307591202823 Status: Accept

Iteration: 29

Accepted Features: ['petal-width-pca', 'sepal-width', 'sepal-width-pca', 'petal-length', 'petal-length-pca', 'sepal-length', 'petal-width', 'sepal-length-pca'] Accuracy: 0.98 Pr[accept]: 0.8265654376242397
Random uniform: 0.22584307591202823 Status: Improved

Iteration: 30

Accepted Features: ['sepal-length-pca', 'petal-width-pca', 'petal-width', 'petal-length', 'petal-length-pca', 'sepal-length'] Accuracy: 0.96 Pr[accept]: 0.5421324699199648 Random uniform: 0.4496840175040837
Status: Accept

Iteration: 31

Accepted Features: ['petal-length', 'petal-width-pca', 'petal-width', 'petal-length-pca', 'sepal-width-pca'] Accuracy: 0.9866666666666667 Pr[accept]: 0.5421324699199648 Random uniform: 0.4496840175040837 Status: Restart

Iteration: 32

Accepted Features: ['petal-length', 'petal-width-pca', 'petal-width', 'petal-length-pca', 'sepal-width-pca'] Accuracy: 0.9866666666666667 Pr[accept]: 1.0 Random uniform: 0.0914888582003146 Status: Accept

Iteration: 33

Accepted Features: ['petal-length', 'petal-width-pca', 'petal-length-pca', 'sepal-width-pca'] Accuracy: 0.98 Pr[accept]: 0.8001364743124383 Random uniform: 0.36983540364216094 Status: Accept

Iteration: 34

Accepted Features: ['petal-length', 'petal-width-pca', 'petal-length-pca', 'sepal-width-pca'] Accuracy: 0.4733333333333333 Pr[accept]: 2.3220477597578997e-08 Random uniform: 0.8717142788564776
Status: Reject

Iteration: 35

Accepted Features: ['petal-length', 'petal-width-pca', 'petal-length-pca', 'sepal-width-pca', 'sepal-length'] Accuracy: 0.9733333333333334 Pr[accept]: 2.3220477597578997e-08 Random uniform: 0.8717142788564776 Status: Improved

Iteration: 36

Accepted Features: ['petal-length', 'petal-width-pca', 'petal-length-pca', 'sepal-width-pca', 'sepal-length']
Accuracy: 0.9733333333333334 Pr[accept]: 1.0 Random uniform: 0.659342008784204 Status: Accept

Iteration: 37

Accepted Features: ['petal-length', 'petal-width-pca', 'petal-length-pca', 'sepal-width-pca', 'sepal-length', 'sepal-width', 'sepal-length-pca'] Accuracy: 0.98 Pr[accept]: 1.0 Random uniform: 0.659342008784204
Status: Improved

Iteration: 38

Accepted Features: ['petal-length', 'petal-width-pca', 'petal-length-pca', 'sepal-width-pca', 'sepal-length', 'sepal-width', 'sepal-length-pca', 'petal-width'] Accuracy: 0.98 Pr[accept]: 1.0 Random uniform: 0.47171984684678514 Status: Accept

Iteration: 39

Accepted Features: ['petal-width-pca', 'petal-width', 'sepal-width', 'sepal-width-pca', 'petal-length', 'petal-length-pca', 'sepal-length'] Accuracy: 0.98 Pr[accept]: 1.0 Random uniform: 0.9616577460025977
Status: Accept

Iteration: 40

Accepted Features: ['petal-length', 'petal-width-pca', 'petal-width', 'sepal-width-pca', 'sepal-length']
Accuracy: 0.98 Pr[accept]: 1.0 Random uniform: 0.6750716456460696 Status: Accept

Iteration: 41

Accepted Features: ['petal-length', 'petal-width-pca', 'petal-width', 'petal-length-pca', 'sepal-width-pca']
Accuracy: 0.9866666666666667 Pr[accept]: 0.32770342932437313 Random uniform: 0.9297843615990665 Status: Restart

Iteration: 42

Accepted Features: ['petal-length', 'petal-width-pca', 'petal-width', 'petal-length-pca', 'sepal-width-pca']
Accuracy: 0.98 Pr[accept]: 0.7529294226587894 Random uniform: 0.9133248354849969 Status: Reject

Iteration: 43

Accepted Features: ['petal-length', 'petal-width-pca', 'petal-width', 'petal-length-pca', 'sepal-width-pca', 'sepal-length-pca', 'sepal-width'] Accuracy: 0.98 Pr[accept]: 1.0 Random uniform: 0.27964944429128646
Status: Accept

Iteration: 44

Accepted Features: ['sepal-length-pca', 'petal-length', 'petal-width-pca', 'petal-width', 'sepal-width']
Accuracy: 0.9533333333333334 Pr[accept]: 0.3020149040806339 Random uniform: 0.27769597113070366 Status: Accept

Iteration: 45

Accepted Features: ['sepal-length-pca', 'petal-length', 'petal-width-pca', 'petal-width', 'sepal-width', 'sepal-width-pca', 'sepal-length'] Accuracy: 0.98 Pr[accept]: 0.3020149040806339 Random uniform: 0.27769597113070366 Status: Improved

Iteration: 46

Accepted Features: ['sepal-length-pca', 'petal-length', 'petal-width-pca', 'petal-width', 'sepal-width', 'sepal-width-pca', 'sepal-length', 'petal-length-pca'] Accuracy: 0.98 Pr[accept]: 1.0 Random uniform: 0.5262026196847719 Status: Accept

Iteration: 47

Accepted Features: ['petal-width-pca', 'petal-width', 'sepal-width', 'sepal-width-pca', 'petal-length', 'sepal-length'] Accuracy: 0.98 Pr[accept]: 1.0 Random uniform: 0.5163919171269492 Status: Accept

Iteration: 48

Accepted Features: ['petal-width-pca', 'petal-width', 'sepal-width-pca', 'sepal-length'] Accuracy: 0.9733333333333334 Pr[accept]: 0.7214222903547586 Random uniform: 0.6199975854810362 Status: Accept

Iteration: 49

Accepted Features: ['sepal-width-pca', 'petal-width-pca', 'petal-width', 'sepal-length'] Accuracy: 0.9733333333333334 Pr[accept]: 1.0 Random uniform: 0.7248698471938934 Status: Accept

Iteration: 50

Accepted Features: ['sepal-width-pca', 'petal-width-pca', 'petal-width', 'sepal-length'] Accuracy: 0.96 Pr[accept]: 0.5041247574853256 Random uniform: 0.6505257644218501 Status: Reject

Iteration: 51

Accepted Features: ['petal-length', 'petal-width-pca', 'petal-width', 'petal-length-pca', 'sepal-width-pca'] Accuracy: 0.9866666666666667 Pr[accept]: 0.5041247574853256 Random uniform: 0.6505257644218501 Status: Restart

Iteration: 52

Accepted Features: ['petal-length', 'petal-width-pca', 'petal-width', 'petal-length-pca', 'sepal-width-pca', 'sepal-length-pca', 'sepal-length'] Accuracy: 0.9733333333333334 Pr[accept]: 0.49524499339486566 Random uniform: 0.3987616609420992 Status: Accept

Iteration: 53

Accepted Features: ['sepal-length-pca', 'petal-width-pca', 'petal-width', 'petal-length-pca', 'sepal-width-pca', 'sepal-length'] Accuracy: 0.98 Pr[accept]: 0.49524499339486566 Random uniform: 0.3987616609420992 Status: Improved

Iteration: 54

Accepted Features: ['sepal-length-pca', 'petal-width-pca', 'petal-width', 'petal-length-pca', 'sepal-widthpca', 'sepal-length', 'sepal-width'] Accuracy: 0.98 Pr[accept]: 1.0 Random uniform: 0.8398104562722929 Status: Accept

Iteration: 55

Accepted Features: ['sepal-length-pca', 'petal-width-pca', 'petal-width', 'petal-length-pca', 'sepal-widthpca', 'sepal-length', 'sepal-width'] Accuracy: 0.9733333333333334 Pr[accept]: 0.6878739570022548 Random uniform: 0.7344854253734607 Status: Reject

Iteration: 56

Accepted Features: ['sepal-length-pca', 'petal-width-pca', 'petal-width', 'petal-length-pca', 'sepal-widthpca', 'sepal-length', 'sepal-width', 'petal-length'] Accuracy: 0.98 Pr[accept]: 0.6878739570022548 Random uniform: 0.7344854253734607 Status: Improved

Iteration: 57

Accepted Features: ['sepal-length-pca', 'petal-width-pca', 'petal-width', 'sepal-width-pca', 'petal-length', 'petal-length-pca', 'sepal-length'] Accuracy: 0.9733333333333334 Pr[accept]: 0.6785785054080117 Random uniform: 0.3753076023010281 Status: Accept

Iteration: 58

Accepted Features: ['sepal-length-pca', 'petal-width-pca', 'petal-width', 'sepal-width-pca', 'petal-length', 'petal-length-pca', 'sepal-length', 'sepal-width'] Accuracy: 0.98 Pr[accept]: 0.6785785054080117 Random uniform: 0.3753076023010281 Status: Improved

Iteration: 59

Accepted Features: ['sepal-length-pca', 'petal-width-pca', 'sepal-width', 'sepal-width-pca', 'petal-length', 'petal-length-pca', 'sepal-length'] Accuracy: 0.98 Pr[accept]: 1.0 Random uniform: 0.6126891233228525 Status: Accept

Iteration: 60

Accepted Features: ['sepal-length-pca', 'petal-width-pca', 'petal-length-pca', 'sepal-width', 'sepal-length'] Accuracy: 0.98 Pr[accept]: 1.0 Random uniform: 0.9743221963261163 Status: Accept

Iteration: 61

Accepted Features: ['petal-length', 'petal-width-pca', 'petal-width', 'petal-length-pca', 'sepal-width-pca'] Accuracy: 0.9866666666666667 Pr[accept]: 0.43607895054726864 Random uniform: 0.5133557788070101 Status: Restart

Iteration: 62

Accepted Features: ['petal-length', 'petal-width-pca', 'petal-width', 'petal-length-pca', 'sepal-width-pca'] Accuracy: 0.9866666666666667 Pr[accept]: 1.0 Random uniform: 0.733286582643777 Status: Accept

Iteration: 63

Accepted Features: ['petal-length', 'petal-width-pca', 'petal-width', 'petal-length-pca', 'sepal-width-pca', 'sepal-width'] Accuracy: 0.98 Pr[accept]: 0.653328197990186 Random uniform: 0.6215789256819165 Status: Accept

Iteration: 64

Accepted Features: ['petal-length', 'petal-width-pca', 'petal-width', 'petal-length-pca', 'sepal-width-pca'] Accuracy: 0.9866666666666667 Pr[accept]: 0.653328197990186 Random uniform: 0.6215789256819165 Status: Improved

Iteration: 65

Accepted Features: ['petal-length', 'petal-width-pca', 'petal-width', 'petal-length-pca', 'sepal-width-pca'] Accuracy: 0.9666666666666667 Pr[accept]: 0.26778588146275834 Random uniform: 0.9912012997302022 Status: Reject

Iteration: 66

Accepted Features: ['petal-length', 'petal-width-pca', 'petal-length-pca', 'sepal-width-pca'] Accuracy: 0.98 Pr[accept]: 0.26778588146275834 Random uniform: 0.9912012997302022 Status: Improved

Iteration: 67

Accepted Features: ['petal-length', 'petal-width-pca', 'sepal-width-pca', 'petal-length-pca'] Accuracy: 0.98 Pr[accept]: 1.0 Random uniform: 0.7481557627149591 Status: Accept

Iteration: 68

Accepted Features: ['petal-length', 'petal-width-pca', 'sepal-width-pca', 'petal-length-pca'] Accuracy: 0.98 Pr[accept]: 1.0 Random uniform: 0.1107835061195358 Status: Accept

Iteration: 69

Accepted Features: ['petal-length', 'petal-width-pca', 'sepal-width-pca', 'petal-length-pca', 'sepal-lengthpca'] Accuracy: 0.98 Pr[accept]: 1.0 Random uniform: 0.6403796167728119 Status: Accept

Iteration: 70

Accepted Features: ['petal-length', 'petal-width-pca', 'sepal-width-pca', 'petal-length-pca', 'sepal-lengthpca', 'sepal-length', 'sepal-width'] Accuracy: 0.98 Pr[accept]: 1.0 Random uniform: 0.7561104736281525 Status: Accept

Iteration: 71

Accepted Features: ['petal-length', 'petal-width-pca', 'petal-width', 'petal-length-pca', 'sepal-width-pca'] Accuracy: 0.9866666666666667 Pr[accept]: 1.0 Random uniform: 0.23200345100410458 Status: Restart

Iteration: 72

Accepted Features: ['petal-length', 'petal-width-pca', 'petal-width', 'petal-length-pca', 'sepal-width-pca'] Accuracy: 0.98 Pr[accept]: 0.6147826510998128 Random uniform: 0.7373260451343858 Status: Reject

Iteration: 73

Accepted Features: ['petal-length', 'petal-width-pca', 'petal-width', 'petal-length-pca', 'sepal-width-pca', 'sepal-length'] Accuracy: 0.98 Pr[accept]: 1.0 Random uniform: 0.7562257209989167 Status: Accept

Iteration: 74

Accepted Features: ['petal-length', 'petal-width-pca', 'petal-width', 'petal-length-pca', 'sepal-width-pca', 'sepal-length'] Accuracy: 0.9733333333333334 Pr[accept]: 0.6044711348367547 Random uniform: 0.8470015065039513 Status: Reject

Iteration: 75

Accepted Features: ['petal-length', 'petal-width-pca', 'petal-width', 'petal-length-pca', 'sepal-width-pca', 'sepal-length', 'sepal-width'] Accuracy: 0.98 Pr[accept]: 0.6044711348367547 Random uniform: 0.8470015065039513 Status: Improved

Iteration: 76

Accepted Features: ['petal-length', 'petal-width-pca', 'petal-width', 'petal-length-pca', 'sepal-width-pca', 'sepal-length', 'sepal-width', 'sepal-length-pca'] Accuracy: 0.98 Pr[accept]: 1.0 Random uniform: 0.45799520462537713 Status: Accept

Iteration: 77

Accepted Features: ['petal-width-pca', 'petal-width', 'sepal-width', 'sepal-width-pca', 'petal-length', 'petal-length-pca'] Accuracy: 0.98 Pr[accept]: 1.0 Random uniform: 0.394398994522543 Status: Accept

Iteration: 78

Accepted Features: ['petal-length', 'petal-width-pca', 'petal-width', 'sepal-width', 'sepal-width-pca'] Accuracy: 0.9733333333333334 Pr[accept]: 0.5882447095837152 Random uniform: 0.10269112630598154 Status: Accept

Iteration: 79

Accepted Features: ['petal-length', 'petal-width', 'sepal-width', 'sepal-width-pca'] Accuracy: 0.98 Pr[accept]: 0.5882447095837152 Random uniform: 0.10269112630598154 Status: Improved

Iteration: 80

Accepted Features: ['petal-length', 'petal-width', 'sepal-width', 'sepal-width-pca'] Accuracy: 0.9733333333333334 Pr[accept]: 0.5802955785432925 Random uniform: 0.8716184826893366 Status: Reject

Iteration: 81

Accepted Features: ['petal-length', 'petal-width-pca', 'petal-width', 'petal-length-pca', 'sepal-width-pca'] Accuracy: 0.9866666666666667 Pr[accept]: 1.0 Random uniform: 0.4270814688275868 Status: Restart

Iteration: 82

Accepted Features: ['petal-length', 'petal-width-pca', 'petal-width', 'petal-length-pca', 'sepal-width-pca'] Accuracy: 0.9866666666666667 Pr[accept]: 1.0 Random uniform: 0.22670403878832446 Status: Accept

Iteration: 83

Accepted Features: ['petal-length', 'petal-width-pca', 'petal-width', 'petal-length-pca', 'sepal-width-pca', 'sepal-width', 'sepal-length-pca'] Accuracy: 0.98 Pr[accept]: 0.5707461090743419 Random uniform: 0.5510028174847029 Status: Accept

Iteration: 84

Accepted Features: ['petal-length', 'petal-width-pca', 'petal-width', 'petal-length-pca', 'sepal-width-pca', 'sepal-width', 'sepal-length-pca'] Accuracy: 0.9733333333333334 Pr[accept]: 0.5647181220077625 Random uniform: 0.9508867784808082 Status: Reject

Iteration: 85

Accepted Features: ['sepal-length-pca', 'petal-width-pca', 'petal-width', 'sepal-width', 'sepal-width-pca'] Accuracy: 0.9666666666666667 Pr[accept]: 0.5586725359301083 Random uniform: 0.5433763550449265 Status: Accept

Iteration: 86

Accepted Features: ['sepal-length-pca', 'petal-width-pca', 'petal-width', 'sepal-width', 'sepal-width-pca'] Accuracy: 0.5866666666666667 Pr[accept]: 2.0789851025852636e-15 Random uniform: 0.9968319846286023 Status: Reject

Iteration: 87

Accepted Features: ['sepal-length-pca', 'petal-width', 'sepal-width', 'sepal-width-pca'] Accuracy: 0.9733333333333334 Pr[accept]: 2.0789851025852636e-15 Random uniform: 0.9968319846286023 Status: Improved

Iteration: 88

Accepted Features: ['sepal-length-pca', 'petal-width', 'sepal-width', 'sepal-width-pca'] Accuracy: 0.9666666666666667 Pr[accept]: 0.5473101004079021 Random uniform: 0.8796121618338477 Status: Reject

Iteration: 89

Accepted Features: ['sepal-length-pca', 'petal-width', 'sepal-width', 'sepal-width-pca', 'sepal-length', 'petal-length-pca'] Accuracy: 0.98 Pr[accept]: 0.5473101004079021 Random uniform: 0.8796121618338477 Status: Improved

Iteration: 90

Accepted Features: ['sepal-length-pca', 'petal-length-pca', 'sepal-width', 'sepal-length'] Accuracy: 0.98 Pr[accept]: 1.0 Random uniform: 0.5647830784586962 Status: Accept

Iteration: 91

Accepted Features: ['petal-length', 'petal-width-pca', 'petal-width', 'petal-length-pca', 'sepal-width-pca'] Accuracy: 0.9866666666666667 Pr[accept]: 1.0 Random uniform: 0.680512695093749 Status: Restart

Iteration: 92

Accepted Features: ['petal-length', 'petal-width', 'petal-length-pca', 'sepal-width-pca'] Accuracy: 0.98
Pr[accept]: 0.5370728021858587 Random uniform: 0.512427264634942 Status: Accept

Iteration: 93

Accepted Features: ['petal-length', 'petal-width', 'petal-length-pca', 'sepal-width-pca'] Accuracy:
0.9733333333333334 Pr[accept]: 0.5311806750806186 Random uniform: 0.9778642558411942 Status:
Reject

Iteration: 94

Accepted Features: ['petal-length', 'petal-width', 'petal-length-pca', 'sepal-width-pca', 'sepal-length-pca']
Accuracy: 0.9733333333333334 Pr[accept]: 1.0 Random uniform: 0.18835787128085613 Status: Accept

Iteration: 95

Accepted Features: ['petal-length', 'petal-width', 'petal-length-pca', 'sepal-width-pca', 'sepal-length-pca',
'sepal-width', 'petal-width-pca'] Accuracy: 0.98 Pr[accept]: 1.0 Random uniform: 0.18835787128085613
Status: Improved

Iteration: 96

Accepted Features: ['petal-length', 'petal-width', 'petal-length-pca', 'sepal-width-pca', 'sepal-length-pca',
'sepal-width', 'petal-width-pca'] Accuracy: 0.9733333333333334 Pr[accept]: 0.5204501210207056
Random uniform: 0.7044923049715685 Status: Reject

Iteration: 97

Accepted Features: ['petal-length', 'petal-width-pca', 'petal-width', 'sepal-width', 'sepal-width-pca']
Accuracy: 0.9733333333333334 Pr[accept]: 1.0 Random uniform: 0.08531977059281015 Status: Accept

Iteration: 98

Accepted Features: ['petal-length', 'petal-width-pca', 'petal-width', 'sepal-width', 'sepal-width-pca',
'sepal-length', 'petal-length-pca'] Accuracy: 0.98 Pr[accept]: 1.0 Random uniform:
0.08531977059281015 Status: Improved

Iteration: 99

Accepted Features: ['petal-length', 'petal-width-pca', 'petal-width', 'sepal-width', 'sepal-width-pca',
'sepal-length', 'petal-length-pca'] Accuracy: 0.9533333333333334 Pr[accept]: 0.06761823721569382
Random uniform: 0.8229389067970032 Status: Reject

Confusion Matrix - Simulated annealing:

[[50 0 0]

[0 47 3]

[0 4 46]]

Part 4 - Genetic algorithm

Generation: 1

Feature set ['petal-length', 'petal-length-pca', 'petal-width', 'sepal-width', 'sepal-width-pca'] Accuracy 0.9866666666666667

Feature set ['petal-length', 'petal-length-pca', 'petal-width', 'sepal-width', 'sepal-width-pca', 'sepal-length'] Accuracy 0.9866666666666667

Feature set ['sepal-length-pca', 'sepal-length', 'sepal-width', 'petal-length', 'petal-width'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-width-pca', 'sepal-width', 'sepal-width-pca', 'petal-length', 'petal-length-pca', 'sepal-length'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-length-pca', 'petal-width-pca', 'sepal-width', 'sepal-length'] Accuracy 0.98

Generation: 2

Feature set ['petal-length', 'petal-length-pca', 'petal-width', 'sepal-width', 'sepal-width-pca', 'sepal-length'] Accuracy 0.9866666666666667

Feature set ['sepal-length-pca', 'sepal-length', 'sepal-width', 'petal-length', 'petal-width'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-width-pca', 'sepal-width', 'sepal-width-pca', 'petal-length', 'petal-length-pca', 'sepal-length'] Accuracy 0.98

Feature set ['sepal-length-pca', 'sepal-width-pca', 'petal-length-pca'] Accuracy 0.98

Feature set ['sepal-length-pca', 'sepal-length', 'petal-width'] Accuracy 0.98

Generation: 3

Feature set ['sepal-length-pca', 'sepal-length', 'sepal-width', 'petal-length', 'petal-width'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-width-pca', 'sepal-width', 'sepal-width-pca', 'petal-length', 'petal-length-pca'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-length-pca', 'sepal-width-pca', 'sepal-width'] Accuracy 0.98

Feature set ['sepal-length-pca', 'sepal-width-pca', 'petal-length-pca'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-length-pca', 'petal-width-pca', 'sepal-width', 'sepal-width-pca'] Accuracy 0.98

Generation: 4

Feature set ['sepal-length-pca', 'sepal-length', 'sepal-width', 'petal-length', 'petal-width'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-width-pca', 'sepal-width', 'sepal-width-pca', 'petal-length', 'petal-length-pca'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-width-pca', 'sepal-width', 'sepal-width-pca', 'petal-length-pca', 'sepal-length', 'petal-width'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-length', 'petal-width-pca', 'petal-length-pca', 'sepal-width', 'sepalwidth-pca', 'petal-width'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-width-pca', 'sepal-width', 'sepal-width-pca', 'petal-length', 'petallength-pca', 'sepal-length'] Accuracy 0.98

Generation: 5

Feature set ['petal-length', 'petal-length-pca', 'petal-width', 'sepal-width', 'sepal-width-pca'] Accuracy 0.9866666666666667

Feature set ['sepal-length-pca', 'sepal-length', 'sepal-width', 'petal-length', 'petal-width'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-width-pca', 'sepal-width', 'sepal-width-pca', 'petal-length', 'petallength-pca', 'sepal-length'] Accuracy 0.98

Feature set ['sepal-length-pca', 'sepal-width-pca', 'petal-length-pca'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-length-pca', 'petal-width-pca', 'sepal-width-pca', 'sepal-length', 'sepal-length-pca'] Accuracy 0.98

Generation: 6

Feature set ['sepal-length-pca', 'sepal-length', 'sepal-width', 'petal-length', 'petal-width'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-width-pca', 'sepal-width', 'sepal-width-pca', 'petal-length', 'petallength-pca'] Accuracy 0.98

Feature set ['sepal-length-pca', 'sepal-width', 'sepal-width-pca', 'petal-length-pca', 'petal-length'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-length-pca', 'sepal-width', 'sepal-width-pca', 'sepal-length'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-width-pca', 'sepal-width', 'sepal-width-pca', 'petal-length', 'petallength-pca', 'sepal-length', 'petal-width'] Accuracy 0.98

Generation: 7

Feature set ['petal-length', 'petal-width', 'sepal-width', 'sepal-width-pca', 'sepal-length'] Accuracy 0.9866666666666667

Feature set ['sepal-length-pca', 'sepal-length', 'sepal-width', 'petal-length', 'petal-width'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-width-pca', 'sepal-width', 'sepal-width-pca', 'petal-length-pca', 'sepal-length'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-length-pca', 'sepal-width-pca', 'sepal-length'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-width-pca', 'sepal-width', 'sepal-width-pca', 'sepal-length', 'sepallength-pca'] Accuracy 0.98

Generation: 8

Feature set ['sepal-length-pca', 'sepal-length', 'sepal-width', 'petal-length', 'petal-width'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-width-pca', 'sepal-width', 'sepal-width-pca', 'petal-length-pca', 'sepal-length'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-length-pca', 'sepal-width-pca', 'sepal-width'] Accuracy 0.98

Feature set ['sepal-length-pca', 'sepal-width-pca', 'petal-length-pca', 'sepal-width'] Accuracy 0.98

Feature set ['sepal-length-pca', 'sepal-width', 'petal-width', 'petal-length', 'sepal-length'] Accuracy 0.98

Generation: 9

Feature set ['petal-length', 'petal-width', 'sepal-width', 'sepal-width-pca', 'sepal-length'] Accuracy 0.9866666666666667

Feature set ['sepal-length-pca', 'sepal-length', 'sepal-width', 'petal-length', 'petal-width'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-width-pca', 'sepal-width', 'sepal-width-pca', 'petal-length', 'petallength-pca', 'sepal-length'] Accuracy 0.98

Feature set ['sepal-length-pca', 'sepal-length', 'petal-width'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-width-pca', 'sepal-width', 'sepal-width-pca', 'petal-length-pca', 'sepal-length', 'petal-width'] Accuracy 0.98

Generation: 10

Feature set ['petal-length', 'petal-width', 'sepal-width', 'sepal-width-pca', 'sepal-length'] Accuracy 0.9866666666666667

Feature set ['sepal-length-pca', 'sepal-length', 'sepal-width', 'petal-length', 'petal-width'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-width-pca', 'sepal-width', 'sepal-width-pca', 'petal-length', 'petallength-pca', 'sepal-length'] Accuracy 0.98

Feature set ['sepal-length-pca', 'sepal-width', 'sepal-width-pca', 'petal-length-pca'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-width-pca', 'sepal-width', 'sepal-width-pca', 'petal-length-pca', 'sepal-length', 'petal-width'] Accuracy 0.98

Generation: 11

Feature set ['sepal-length-pca', 'sepal-length', 'sepal-width', 'petal-length', 'petal-width'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-width-pca', 'sepal-width', 'sepal-width-pca', 'petal-length', 'petallength-pca', 'sepal-length'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-length-pca', 'sepal-width-pca', 'sepal-width'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-length-pca', 'petal-width-pca', 'sepal-width', 'sepal-width-pca']
Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-width-pca', 'petal-length-pca', 'sepal-width', 'sepal-width-pca',
'sepal-length'] Accuracy 0.98

Generation: 12

Feature set ['sepal-length-pca', 'sepal-length', 'sepal-width', 'petal-length', 'petal-width'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-width-pca', 'sepal-width', 'sepal-width-pca', 'petal-length',
'petallength-pca'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-length-pca', 'sepal-width-pca', 'sepal-length'] Accuracy 0.98

Feature set ['sepal-length-pca', 'sepal-width-pca', 'petal-length-pca'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-width-pca', 'sepal-width', 'sepal-width-pca', 'petal-length',
'petallength-pca', 'petal-width'] Accuracy 0.98

Generation: 13

Feature set ['sepal-length-pca', 'petal-length', 'petal-width-pca', 'petal-length-pca', 'sepal-width',
'sepalwidth-pca', 'sepal-width'] Accuracy 0.9866666666666667

Feature set ['sepal-length-pca', 'sepal-length', 'sepal-width', 'petal-length', 'petal-width'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-width-pca', 'sepal-width', 'sepal-width-pca', 'petal-length',
'petallength-pca', 'sepal-length'] Accuracy 0.98

Feature set ['sepal-length-pca', 'sepal-width-pca', 'petal-length-pca', 'sepal-length-pca'] Accuracy 0.98

Feature set ['sepal-length-pca', 'sepal-width-pca', 'petal-length-pca'] Accuracy 0.98 Generation: 14

Feature set ['sepal-length-pca', 'sepal-length', 'sepal-width', 'petal-length', 'petal-width'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-width-pca', 'sepal-width', 'sepal-width-pca', 'petal-length',
'petallength-pca', 'sepal-length'] Accuracy 0.98

Feature set ['sepal-length-pca', 'sepal-width', 'sepal-width-pca', 'petal-length-pca', 'petal-width-pca']
Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-width-pca', 'sepal-width', 'sepal-width-pca', 'petal-length-pca',
'sepal-length', 'petal-length'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-width-pca', 'sepal-width', 'sepal-width-pca', 'petal-length',
'petallength-pca', 'sepal-length', 'petal-width'] Accuracy 0.98

Generation: 15

Feature set ['sepal-length-pca', 'sepal-length', 'sepal-width', 'petal-length', 'petal-width'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-width-pca', 'sepal-width', 'sepal-width-pca', 'petal-length',
'petallength-pca', 'sepal-length'] Accuracy 0.98

Feature set ['sepal-length-pca', 'sepal-width-pca', 'petal-length-pca'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-length-pca', 'sepal-width', 'sepal-width-pca', 'sepal-length', 'sepalwidth-pca'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-width-pca', 'sepal-width', 'sepal-width-pca', 'petal-length', 'petallength-pca', 'sepal-length', 'petal-width'] Accuracy 0.98

Generation: 16

Feature set ['sepal-length-pca', 'sepal-length', 'sepal-width', 'petal-length', 'petal-width'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-width-pca', 'petal-width', 'sepal-width', 'sepal-width-pca', 'petallength', 'petal-length-pca'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-width-pca', 'sepal-width', 'sepal-width-pca', 'petal-length', 'petallength-pca', 'petal-width'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-length', 'petal-width', 'petal-length-pca', 'sepal-width', 'sepalwidth-pca', 'sepal-length-pca'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-length-pca', 'petal-width-pca', 'sepal-width-pca'] Accuracy 0.98

Generation: 17

Feature set ['sepal-length-pca', 'sepal-length', 'sepal-width', 'petal-length', 'petal-width'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-width-pca', 'sepal-width', 'sepal-width-pca', 'petal-length', 'petallength-pca'] Accuracy 0.98

Feature set ['sepal-length-pca', 'sepal-width-pca', 'petal-length-pca'] Accuracy 0.98

Feature set ['sepal-length-pca', 'sepal-length', 'petal-width'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-length-pca', 'petal-width-pca', 'sepal-width-pca', 'sepal-length'] Accuracy 0.98

Generation: 18

Feature set ['sepal-length-pca', 'sepal-length', 'sepal-width', 'petal-length', 'petal-width'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-width-pca', 'sepal-width', 'sepal-width-pca', 'petal-length', 'petallength-pca'] Accuracy 0.98

Feature set ['sepal-length-pca', 'sepal-width', 'sepal-width-pca', 'petal-length-pca', 'petal-width'] Accuracy 0.98

Feature set ['sepal-length-pca', 'sepal-width', 'sepal-width-pca', 'petal-length', 'petal-length-pca'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-length-pca', 'petal-width-pca', 'sepal-width-pca', 'sepal-length', 'petal-width-pca'] Accuracy 0.98

Generation: 19

Feature set ['sepal-length-pca', 'sepal-length', 'sepal-width', 'petal-length', 'petal-width'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-width-pca', 'sepal-width', 'sepal-width-pca', 'petal-length', 'petal-length-pca'] Accuracy 0.98

Feature set ['sepal-length-pca', 'sepal-width', 'sepal-width-pca', 'petal-length-pca', 'petal-width'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-length', 'petal-length-pca', 'sepal-width', 'sepal-width-pca', 'sepal-length'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-width-pca', 'sepal-width', 'sepal-width-pca', 'petal-length', 'petal-length-pca', 'petal-width'] Accuracy 0.98

Generation: 20

Feature set ['sepal-length-pca', 'sepal-length', 'sepal-width', 'petal-length', 'petal-width'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-width-pca', 'sepal-width', 'sepal-width-pca', 'petal-length-pca', 'sepal-length'] Accuracy 0.98

Feature set ['sepal-length-pca', 'sepal-width', 'petal-length-pca', 'sepal-length'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-width-pca', 'sepal-width', 'sepal-width-pca', 'petal-length-pca', 'sepal-length', 'petal-width'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-length', 'petal-width-pca', 'petal-length-pca', 'sepal-width-pca'] Accuracy 0.98

Generation: 21

Feature set ['sepal-length-pca', 'sepal-length', 'sepal-width', 'petal-length', 'petal-width'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-width-pca', 'sepal-width', 'sepal-width-pca', 'petal-length', 'petal-length-pca'] Accuracy 0.98

Feature set ['sepal-length-pca', 'sepal-width', 'sepal-width-pca', 'petal-length-pca', 'petal-width-pca'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-width-pca', 'petal-length-pca', 'sepal-width', 'sepal-width-pca', 'sepal-length', 'petal-length-pca'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-width-pca', 'sepal-width', 'sepal-width-pca', 'petal-length', 'petal-length-pca', 'sepal-length'] Accuracy 0.98

Generation: 22

Feature set ['sepal-length-pca', 'sepal-length', 'sepal-width', 'petal-length', 'petal-width'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-width-pca', 'sepal-width', 'sepal-width-pca', 'petal-length', 'petal-length-pca', 'sepal-length'] Accuracy 0.98

Feature set ['sepal-length-pca', 'sepal-width', 'sepal-width-pca', 'petal-length-pca', 'petal-width']
Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-width-pca', 'sepal-width', 'sepal-width-pca', 'petal-length-pca', 'sepal-length', 'petal-width'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-width-pca', 'petal-length-pca', 'sepal-width', 'sepal-width-pca', 'sepal-length', 'sepal-length-pca'] Accuracy 0.98

Generation: 23

Feature set ['petal-length', 'petal-width', 'sepal-width', 'sepal-width-pca', 'sepal-length'] Accuracy 0.9866666666666667

Feature set ['sepal-length-pca', 'sepal-length', 'sepal-width', 'petal-length', 'petal-width'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-width-pca', 'petal-width', 'sepal-width', 'sepal-width-pca', 'petallength', 'petal-length-pca', 'sepal-length'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-width-pca', 'sepal-width', 'sepal-width-pca', 'petal-length-pca', 'sepal-length', 'petal-length'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-width-pca', 'petal-width', 'sepal-width', 'sepal-width-pca', 'petallength', 'sepal-length', 'sepal-length'] Accuracy 0.98

Generation: 24

Feature set ['sepal-length-pca', 'petal-width-pca', 'petal-length-pca', 'sepal-width', 'sepal-width-pca', 'sepal-length-pca'] Accuracy 0.9866666666666667

Feature set ['sepal-length-pca', 'sepal-length', 'sepal-width', 'petal-length', 'petal-width'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-width-pca', 'sepal-width', 'sepal-width-pca', 'petal-length', 'petallength-pca', 'sepal-length'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-length-pca', 'sepal-width-pca', 'petal-width-pca'] Accuracy 0.98

Feature set ['sepal-length-pca', 'sepal-width', 'sepal-width-pca', 'petal-length', 'petal-length-pca'] Accuracy 0.98

Generation: 25

Feature set ['sepal-length-pca', 'sepal-length', 'sepal-width', 'petal-length', 'petal-width'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-width-pca', 'sepal-width', 'sepal-width-pca', 'petal-length-pca', 'sepal-length'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-length-pca', 'sepal-width-pca', 'petal-width-pca'] Accuracy 0.98

Feature set ['sepal-length-pca', 'sepal-width', 'sepal-width-pca', 'petal-length-pca', 'petal-length'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-length-pca', 'petal-width-pca', 'sepal-width', 'sepal-width-pca', 'sepal-length'] Accuracy 0.98

Generation: 26

Feature set ['sepal-length-pca', 'sepal-length', 'sepal-width', 'petal-length', 'petal-width'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-width-pca', 'sepal-width', 'sepal-width-pca', 'petal-length-pca', 'sepal-length'] Accuracy 0.98

Feature set ['sepal-length-pca', 'sepal-width-pca', 'petal-length-pca'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-length-pca', 'petal-width-pca', 'sepal-width', 'sepal-length'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-length', 'petal-width-pca', 'petal-length-pca', 'sepal-width-pca'] Accuracy 0.98

Generation: 27

Feature set ['sepal-length-pca', 'sepal-length', 'sepal-width', 'petal-length', 'petal-width'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-width-pca', 'sepal-width', 'sepal-width-pca', 'petal-length', 'petal-length-pca', 'sepal-length'] Accuracy 0.98

Feature set ['sepal-length-pca', 'sepal-width', 'petal-length-pca', 'sepal-width-pca'] Accuracy 0.98

Feature set ['sepal-length-pca', 'sepal-width', 'sepal-width-pca', 'sepal-length'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-length-pca', 'petal-width-pca', 'sepal-width', 'sepal-length', 'petal-length-pca'] Accuracy 0.98

Generation: 28

Feature set ['petal-length', 'petal-length-pca', 'petal-width', 'sepal-width', 'sepal-width-pca', 'sepal-length'] Accuracy 0.9866666666666667

Feature set ['sepal-length-pca', 'sepal-length', 'sepal-width', 'petal-length', 'petal-width'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-width-pca', 'sepal-width', 'sepal-width-pca', 'petal-length', 'petal-length-pca', 'sepal-length'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-width-pca', 'sepal-width', 'sepal-width-pca', 'sepal-length', 'petal-length-pca'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-width-pca', 'sepal-width', 'sepal-width-pca', 'petal-length', 'petal-length-pca', 'sepal-length', 'petal-width'] Accuracy 0.98

Generation: 29

Feature set ['sepal-length-pca', 'sepal-length', 'sepal-width', 'petal-length', 'petal-width'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-width-pca', 'sepal-width', 'sepal-width-pca', 'petal-length', 'petal-length-pca', 'sepal-length'] Accuracy 0.98

Feature set ['sepal-length-pca', 'sepal-width', 'sepal-width-pca', 'petal-length-pca', 'petal-width-pca']
Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-width-pca', 'sepal-width', 'sepal-width-pca', 'petal-length-pca', 'sepal-length', 'petal-width'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-length', 'petal-width-pca', 'petal-length-pca', 'sepal-width', 'sepal-length', 'sepal-length'] Accuracy 0.98

Generation: 30

Feature set ['sepal-length-pca', 'sepal-length', 'sepal-width', 'petal-length', 'petal-width'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-width-pca', 'sepal-width', 'sepal-width-pca', 'petal-length', 'petal-length-pca', 'sepal-length'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-length-pca', 'sepal-width', 'sepal-width-pca', 'sepal-length']
Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-width-pca', 'sepal-width', 'sepal-width-pca', 'petal-length', 'petal-length-pca', 'sepal-length', 'petal-width'] Accuracy 0.98

Feature set ['petal-width-pca', 'petal-width', 'sepal-width', 'sepal-width-pca', 'petal-length', 'petal-length-pca', 'sepal-length'] Accuracy 0.98

Generation: 31

Feature set ['sepal-length-pca', 'sepal-length', 'sepal-width', 'petal-length', 'petal-width'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-width-pca', 'sepal-width', 'sepal-width-pca', 'petal-length', 'petal-length-pca', 'sepal-length'] Accuracy 0.98

Feature set ['sepal-length-pca', 'sepal-width-pca', 'petal-length-pca'] Accuracy 0.98

Feature set ['sepal-length-pca', 'sepal-width', 'sepal-width-pca', 'sepal-length'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-length-pca', 'petal-width-pca', 'sepal-width-pca', 'sepal-length']
Accuracy 0.98

Generation: 32

Feature set ['sepal-length-pca', 'sepal-length', 'sepal-width', 'petal-length', 'petal-width'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-width-pca', 'petal-width', 'sepal-width', 'sepal-width-pca', 'petal-length', 'petal-length-pca', 'sepal-length'] Accuracy 0.98

Feature set ['sepal-length-pca', 'sepal-width', 'sepal-width-pca', 'sepal-length'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-length', 'petal-width', 'petal-length-pca', 'sepal-width', 'sepal-width-pca', 'petal-width'] Accuracy 0.98

Feature set ['petal-width-pca', 'petal-width', 'sepal-width', 'sepal-width-pca', 'petal-length', 'petal-length-pca', 'sepal-length'] Accuracy 0.98

Generation: 33

Feature set ['sepal-length-pca', 'sepal-length', 'sepal-width', 'petal-length', 'petal-width'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-width-pca', 'sepal-width', 'sepal-width-pca', 'petal-length', 'petallength-pca', 'sepal-length'] Accuracy 0.98

Feature set ['sepal-length-pca', 'sepal-width', 'sepal-width-pca', 'petal-length-pca', 'petal-length'] Accuracy 0.98

Feature set ['sepal-length-pca', 'sepal-width', 'petal-width', 'petal-length', 'sepal-length'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-width-pca', 'sepal-width', 'sepal-width-pca', 'petal-length-pca', 'sepal-length', 'petal-length'] Accuracy 0.98

Generation: 34

Feature set ['sepal-length-pca', 'sepal-length', 'sepal-width', 'petal-length', 'petal-width'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-width-pca', 'sepal-width', 'sepal-width-pca', 'petal-length', 'petallength-pca', 'sepal-length'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-length-pca', 'sepal-width-pca', 'petal-width-pca'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-width-pca', 'sepal-width', 'sepal-width-pca', 'petal-length-pca', 'sepal-length', 'petal-length'] Accuracy 0.98

Feature set ['petal-length', 'petal-width-pca', 'petal-width', 'petal-length-pca', 'sepal-width', 'sepal-width-pca'] Accuracy 0.98

Generation: 35

Feature set ['petal-length', 'petal-length-pca', 'petal-width', 'sepal-width', 'sepal-width-pca', 'sepal-length'] Accuracy 0.9866666666666667

Feature set ['sepal-length-pca', 'sepal-length', 'sepal-width', 'petal-length', 'petal-width'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-width-pca', 'sepal-width', 'sepal-width-pca', 'petal-length', 'petallength-pca'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-length-pca', 'petal-width-pca', 'sepal-width', 'sepal-width-pca'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-width-pca', 'petal-width', 'sepal-width-pca', 'petal-length', 'petallength-pca', 'sepal-length', 'sepal-width-pca'] Accuracy 0.98

Generation: 36

Feature set ['sepal-length-pca', 'sepal-length', 'sepal-width', 'petal-length', 'petal-width'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-width-pca', 'sepal-width', 'sepal-width-pca', 'petal-length-pca', 'sepal-length'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-length-pca', 'sepal-width-pca', 'sepal-width'] Accuracy 0.98

Feature set ['sepal-length-pca', 'sepal-width', 'sepal-width-pca', 'petal-length', 'petal-length-pca']
Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-width-pca', 'sepal-width', 'sepal-width-pca', 'petal-length-pca',
'sepal-length', 'petal-length'] Accuracy 0.98

Generation: 37

Feature set ['sepal-length-pca', 'sepal-length', 'sepal-width', 'petal-length', 'petal-width'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-width-pca', 'sepal-width', 'sepal-width-pca', 'petal-length',
'petallength-pca', 'sepal-length'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-length-pca', 'sepal-width-pca', 'sepal-width'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-length', 'petal-length-pca', 'sepal-width', 'sepal-width-pca']
Accuracy 0.98 Feature set ['sepal-length-pca', 'petal-width-pca', 'petal-width', 'sepal-width',
'sepal-width-pca', 'petallength', 'sepal-length'] Accuracy 0.98

Generation: 38

Feature set ['petal-length', 'petal-width', 'sepal-width', 'sepal-width-pca', 'sepal-length'] Accuracy
0.9866666666666667

Feature set ['sepal-length-pca', 'sepal-length', 'sepal-width', 'petal-length', 'petal-width'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-width-pca', 'sepal-width', 'sepal-width-pca', 'petal-length',
'petallength-pca', 'sepal-length'] Accuracy 0.98

Feature set ['sepal-length-pca', 'sepal-width', 'sepal-width-pca', 'sepal-length'] Accuracy 0.98

Feature set ['sepal-length-pca', 'sepal-width', 'petal-width', 'petal-length', 'sepal-length'] Accuracy 0.98

Generation: 39

Feature set ['sepal-length-pca', 'sepal-length', 'sepal-width', 'petal-length', 'petal-width'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-width-pca', 'sepal-width', 'sepal-width-pca', 'petal-length',
'petallength-pca', 'sepal-length'] Accuracy 0.98

Feature set ['sepal-length-pca', 'sepal-width', 'sepal-width-pca', 'petal-length-pca', 'sepal-length']
Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-width-pca', 'sepal-width', 'sepal-width-pca', 'petal-length-pca',
'sepal-length', 'petal-width'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-width-pca', 'sepal-width', 'sepal-width-pca', 'petal-length',
'petallength-pca', 'sepal-length', 'petal-width'] Accuracy 0.98

Generation: 40

Feature set ['sepal-length-pca', 'sepal-length', 'sepal-width', 'petal-length', 'petal-width'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-width-pca', 'sepal-width', 'sepal-width-pca', 'petal-length', 'petal-length-pca', 'sepal-length'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-length-pca', 'sepal-width-pca', 'petal-width-pca'] Accuracy 0.98

Feature set ['sepal-length-pca', 'sepal-width-pca', 'petal-length-pca', 'sepal-length'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-length-pca', 'petal-width-pca', 'sepal-width', 'sepal-width-pca', 'petal-length-pca'] Accuracy 0.98

Generation: 41

Feature set ['petal-length', 'petal-length-pca', 'petal-width', 'sepal-width', 'sepal-width-pca'] Accuracy 0.9866666666666667

Feature set ['sepal-length-pca', 'sepal-length', 'sepal-width', 'petal-length', 'petal-width'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-width-pca', 'sepal-width', 'sepal-width-pca', 'petal-length-pca', 'sepal-length'] Accuracy 0.98

Feature set ['sepal-length-pca', 'sepal-width', 'sepal-width-pca', 'petal-length-pca', 'sepal-length'] Accuracy 0.98

Feature set ['sepal-length-pca', 'sepal-width', 'sepal-width-pca', 'sepal-length'] Accuracy 0.98

Generation: 42

Feature set ['sepal-length-pca', 'petal-length', 'petal-length-pca', 'petal-width', 'sepal-width', 'sepal-width'] Accuracy 0.9866666666666667

Feature set ['sepal-length-pca', 'sepal-length', 'sepal-width', 'petal-length', 'petal-width'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-width-pca', 'sepal-width', 'sepal-width-pca', 'petal-length', 'petal-length-pca'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-length-pca', 'sepal-width-pca', 'petal-width-pca'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-length-pca', 'petal-width-pca', 'sepal-width-pca', 'sepal-length', 'petal-length-pca'] Accuracy 0.98

Generation: 43

Feature set ['petal-length', 'petal-width', 'sepal-width', 'sepal-width-pca', 'sepal-length', 'petal-length-pca'] Accuracy 0.9866666666666667

Feature set ['sepal-length-pca', 'sepal-length', 'sepal-width', 'petal-length', 'petal-width'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-width-pca', 'sepal-width', 'sepal-width-pca', 'petal-length-pca', 'sepal-length'] Accuracy 0.98

Feature set ['sepal-length-pca', 'sepal-width', 'sepal-width-pca', 'petal-length-pca', 'petal-width'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-width-pca', 'sepal-width', 'sepal-width-pca', 'petal-length-pca', 'sepal-length', 'petal-width'] Accuracy 0.98

Generation: 44

Feature set ['sepal-length-pca', 'sepal-length', 'sepal-width', 'petal-length', 'petal-width'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-width-pca', 'sepal-width', 'sepal-width-pca', 'petal-length', 'petal-length-pca', 'sepal-length'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-length-pca', 'sepal-width-pca', 'sepal-length'] Accuracy 0.98

Feature set ['sepal-length-pca', 'sepal-width-pca', 'petal-length-pca', 'sepal-width'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-width-pca', 'sepal-width', 'sepal-width-pca', 'petal-length-pca', 'sepal-length', 'petal-length'] Accuracy 0.98

Generation: 45

Feature set ['sepal-length-pca', 'sepal-length', 'sepal-width', 'petal-length', 'petal-width'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-width-pca', 'sepal-width', 'sepal-width-pca', 'petal-length-pca', 'sepal-length'] Accuracy 0.98

Feature set ['sepal-length-pca', 'sepal-width', 'sepal-width-pca', 'petal-length-pca', 'petal-width-pca'] Accuracy 0.98

Feature set ['sepal-length-pca', 'sepal-width-pca', 'petal-length-pca'] Accuracy 0.98

Feature set ['sepal-length-pca', 'sepal-width', 'petal-width', 'petal-length', 'sepal-length'] Accuracy 0.98

Generation: 46

Feature set ['sepal-length-pca', 'sepal-length', 'sepal-width', 'petal-length', 'petal-width'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-width-pca', 'sepal-width', 'sepal-width-pca', 'petal-length-pca', 'sepal-length'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-length-pca', 'sepal-width-pca', 'sepal-width'] Accuracy 0.98

Feature set ['sepal-length-pca', 'sepal-width', 'sepal-width-pca', 'petal-length-pca', 'petal-width-pca'] Accuracy 0.98

Feature set ['sepal-length-pca', 'sepal-width', 'sepal-width-pca', 'petal-length', 'petal-length-pca'] Accuracy 0.98

Generation: 47

Feature set ['petal-length', 'petal-length-pca', 'petal-width', 'sepal-width', 'sepal-width-pca'] Accuracy 0.9866666666666667

Feature set ['sepal-length-pca', 'sepal-length', 'sepal-width', 'petal-length', 'petal-width'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-width-pca', 'petal-width', 'sepal-width', 'sepal-width-pca', 'petallength', 'petal-length-pca', 'sepal-length'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-length-pca', 'petal-width-pca', 'sepal-width-pca', 'sepal-length', 'sepal-length-pca'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-width-pca', 'sepal-width', 'sepal-width-pca', 'petal-length', 'petallength-pca', 'sepal-length', 'petal-width'] Accuracy 0.98

Generation: 48

Feature set ['petal-length', 'petal-length-pca', 'petal-width', 'sepal-width', 'sepal-width-pca', 'sepalength'] Accuracy 0.9866666666666667

Feature set ['sepal-length-pca', 'sepal-length', 'sepal-width', 'petal-length', 'petal-width'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-width-pca', 'sepal-width', 'sepal-width-pca', 'petal-length', 'petallength-pca', 'sepal-length'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-length-pca', 'sepal-width-pca', 'sepal-length'] Accuracy 0.98

Feature set ['sepal-length-pca', 'sepal-width', 'sepal-width-pca', 'petal-length-pca', 'petal-length'] Accuracy 0.98

Generation: 49

Feature set ['petal-length', 'petal-width', 'sepal-width', 'sepal-width-pca', 'sepal-length'] Accuracy 0.9866666666666667

Confusion Matrix - Genetic algorithm:

[[50 0 0]

[0 48 2]

[0 0 50]]

Feature set ['sepal-length-pca', 'sepal-length', 'sepal-width', 'petal-length', 'petal-width'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-width-pca', 'sepal-width', 'sepal-width-pca', 'petal-length-pca', 'sepal-length'] Accuracy 0.98

Feature set ['sepal-length-pca', 'sepal-width-pca', 'petal-length-pca', 'petal-length-pca'] Accuracy 0.98

Feature set ['sepal-length-pca', 'petal-width-pca', 'sepal-width', 'sepal-width-pca', 'sepal-length'] Accuracy 0.98