

K Means

| Analysis | Heart Failure | Stroke |
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| K Means | Inertia: 536383.4378788657 Silhouette score: 0.31470530874273067 (AMI) score: 0.07125792107704289 Homogeneity: 0.053 Completeness: 0.034 V-measure: 0.041 | Inertia: 315830607.5924069 Silhouette score: 0.5549769080101734 (AMI) score: 0.0022377114187563853 Homogeneity: 0.009 Completeness: 0.002 V-measure: 0.003 |
| Silhouette | clusters: 3 score: 0.36321856909542777 clusters: 5 score: 0.3147138441295178 clusters: 7 score: 0.28291871431728216 clusters: 9 score: 0.26279488643027477 clusters: 11 score: 0.2383506920510026 clusters: 13 score: 0.237991172235641 clusters: 15 score: 0.24069805656135856 | clusters: 3 score: 0.5549769080101734 clusters: 5 score: 0.5052794740319683 clusters: 7 score: 0.46030416399358887 clusters: 9 score: 0.42305484551917333 clusters: 11 score: 0.3876432995017267 clusters: 13 score: 0.3587252897144079 clusters: 15 score: 0.3307233408027331 |

Gaussian Mixture

| Analysis | Heart Failure | Stroke |
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| GMM | Components: 20 BIC: 13934.496928751203 Silhouette score: -0.39245262615555654 (AMI) score: 0.16771101719284717 Homogeneity: 0.072 Completeness: 0.076 V-measure: 0.074 | Components: 22 BIC: 19770.28652707095 Silhouette score: -0.748878943440196 (AMI) score: 0.015573212315605106 Homogeneity: 0.096 Completeness: 0.010 V-measure: 0.018 |

Dimensionality Reduction

| Analysis | Heart Failure | Stroke |
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| Decision Tree | max_features: 1 cross_val_score (mean): 0.805 cross_val_score (std): 0.044 max_features: 2 cross_val_score (mean): 0.799 cross_val_score (std): 0.045 max_features: 3 cross_val_score | max_features: 1 cross_val_score (mean): 0.952 cross_val_score (std): 0.003 max_features: 2 cross_val_score (mean): 0.952 cross_val_score (std): 0.004 max_features: 3 cross_val_score |

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| | (mean): 0.793 cross_val_score (std): 0.046 max_features: 4 cross_val_score (mean): 0.789 cross_val_score (std): 0.047 max_features: 5 cross_val_score (mean): 0.783 cross_val_score (std): 0.038 max_features: 6 cross_val_score (mean): 0.790 cross_val_score (std): 0.035 max_features: 7 cross_val_score (mean): 0.789 cross_val_score (std): 0.036 max_features: 8 cross_val_score (mean): 0.792 cross_val_score (std): 0.037 | (mean): 0.952 cross_val_score (std): 0.004 max_features: 4 cross_val_score (mean): 0.952 cross_val_score (std): 0.005 max_features: 5 cross_val_score (mean): 0.953 cross_val_score (std): 0.005 max_features: 6 cross_val_score (mean): 0.952 cross_val_score (std): 0.006 max_features: 7 cross_val_score (mean): 0.952 cross_val_score (std): 0.006 max_features: 8 cross_val_score (mean): 0.951 cross_val_score (std): 0.006 max_features: 9 ... cross_val_score (std): 0.006 max_features: 10 cross_val_score (mean): 0.951 cross_val_score (std): 0.006 |
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Clustering After Dimensionality Reduction

| Analysis | Heart Failure | Stroke |
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| K Means on PCA | Inertia: 757156.7749323624 Silhouette score: 0.3633837595372558 (AMI) score: 0.03951763002964904 Homogeneity: 0.053 Completeness: 0.034 V-measure: 0.041 | Inertia: 315820770.2039703 Silhouette score: 0.5549896788913372 (AMI) score: 0.0022377114187563853 Homogeneity: 0.009 Completeness: 0.002 V-measure: 0.003 |
| Silhouette on PCA | clusters: 3 score: 0.3633837595372558 clusters: 5 score: 0.3149392817265534 clusters: 7 score: 0.2786246649411282 clusters: 9 score: 0.2465884897585507 clusters: 11 score: 0.2557561107730626 clusters: 13 score: 0.2380811510700963 | clusters: 3 score: 0.5549679201483855 clusters: 5 score: 0.505328946341878 clusters: 7 score: 0.4603888544983625 clusters: 9 score: 0.4230556715636865 |
| GMM on PCA | Components: 3 BIC: 21554.781338907167 Silhouette score: 0.09465034306009475 | Components: 19 BIC: 130686.60008184305 Silhouette score: 0.0782945409299142 |

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| | (AMI) score: 0.2100134107379079 Homogeneity: 0.266 Completeness: 0.175 V-measure: 0.211 | (AMI) score: 0.011472724631161231 Homogeneity: 0.107 Completeness: 0.007 V-measure: 0.013 |
| K Means on ICA | Inertia: 1.8636559077531176 Silhouette score: 0.18105301744871288 (AMI) score: 0.05479505399380798 Homogeneity: 0.142 Completeness: 0.038 V-measure: 0.060 | Inertia: 0.8884888136995581 Silhouette score: 0.28439224227779725 (AMI) score: 0.02155723912281581 Homogeneity: 0.124 Completeness: 0.012 V-measure: 0.022 |
| Silhouette on ICA | clusters: 3 score: 0.16965671763357298 clusters: 5 score: 0.1789279591223898 clusters: 7 score: 0.17508562510957545 clusters: 9 score: 0.17890669385282976 clusters: 11 score: 0.1794019365221699 clusters: 13 score: 0.18346513866394476 clusters: 15 score: 0.17208034808751646 | clusters: 3 score: 0.2791172660385307 clusters: 5 score: 0.28115707017609254 clusters: 7 score: 0.28409657076628897 clusters: 9 score: 0.2652023254982522 clusters: 11 score: 0.25715388006898526 clusters: 13 score: 0.26448809145826835 clusters: 15 score: 0.2673657608054322 |
| GMM on ICA | Components: 19 BIC: -12158.61925557184 Silhouette score: - 0.02149752184459894 (AMI) score: 0.12106780518697577 Homogeneity: 0.290 Completeness: 0.083 V-measure: 0.130 | Components: 10 BIC: -59449.125759204544 Silhouette score: 0.21380203272451015 (AMI) score: 0.02231509990764062 Homogeneity: 0.148 Completeness: 0.013 V-measure: 0.023 |
| K Means on RP | Inertia: 722215.0901398895 Silhouette score: 0.4694730612521441 (AMI) score: 0.05984235262394524 Homogeneity: 0.079 Completeness: 0.050 V-measure: 0.061 | Inertia: 386811019.6018271 Silhouette score: 0.5676747838232551 (AMI) score: 0.002829101203050036 Homogeneity: 0.011 Completeness: 0.002 V-measure: 0.003 |
| Silhouette on RP | clusters: 3 score: 0.4694730612521441 | clusters: 3 score: 0.5678168711953342 |

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| | clusters: 5 score: 0.37318488925486976 clusters: 7 score: 0.3072336556569502 clusters: 9 score: 0.3067956670421548 clusters: 11 score: 0.2947301066022065 clusters: 13 score: 0.2850326734251269 clusters: 15 score: 0.27077255838974973 | clusters: 5 score: 0.5216333902707568 clusters: 7 score: 0.491366108776677 clusters: 9 score: 0.4596844492962815 clusters: 11 score: 0.43188245321443486 clusters: 13 score: 0.41026074290298425 clusters: 15 score: 0.39343797588861995 |
| GMM on RP | Components: 16 BIC: 15074.344956397243 Silhouette score: - 0.3458330060133303 (AMI) score: 0.15458976236173627 Homogeneity: 0.338 Completeness: 0.106 V-measure: 0.162 | Components: 15 BIC: 92315.15403508367 Silhouette score: - 0.5464261119928374 (AMI) score: 0.017157351077869656 Homogeneity: 0.094 Completeness: 0.011 V-measure: 0.019 |
| K Means on DT | Inertia: 757262.4640509918 Silhouette score: 0.3633403332864446 (AMI) score: 0.03951763002964904 Homogeneity: 0.053 Completeness: 0.034 V-measure: 0.041 | Inertia: 315819223.2890625 Silhouette score: 0.5549911992469715 (AMI) score: 0.0022377114187563853 Homogeneity: 0.009 Completeness: 0.002 V-measure: 0.003 |
| Silhouette on DT | clusters: 3 score: 0.3633403332864446 clusters: 5 score: 0.31487493184936327 clusters: 7 score: 0.27855739326924045 clusters: 9 score: 0.2526387386591563 clusters: 11 score: 0.25565884323989363 clusters: 13 score: 0.23797947464908134 clusters: 15 score: 0.2341091461141715 | clusters: 3 score: 0.5549694401961032 clusters: 5 score: 0.5053318049122288 clusters: 7 score: 0.4603929877259831 clusters: 9 score: 0.42306126236117103 clusters: 11 score: 0.38754767184298466 clusters: 13 score: 0.35890281261708185 clusters: 15 score: 0.33049455343606066 |
| GMM on DT | Components: 22 BIC: 14832.32645036293 Silhouette score: - 0.17869782824256072 | Components: 19 BIC: 130685.43118686817 Silhouette score: 0.078030986270299 |

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| | (AMI) score: 0.16961198894658452 | (AMI) score: 0.011502422999651233 |
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Neural Network

| Analysis | |
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| NN with PCA | Accuracy: 0.708171206225681 Training time: 0.23044943809509277 seconds Testing time: 0.0 seconds |
| NN with ICA | Accuracy: 0.7431906614785992 Training time: 0.17983555793762207 seconds Testing time: 0.0 seconds |
| NN with RP | Accuracy: 0.6381322957198443 Training time: 0.20260882377624512 seconds Testing time: 0.001585245132446289 seconds |
| NN with DT | Accuracy: 0.688715953307393 Training time: 0.22626256942749023 seconds Testing time: 0.0005364418029785156 seconds |
| NN with K Means | Accuracy: 0.5875486381322957 Training time: 0.15725493431091309 seconds Testing time: 0.0 seconds |
| NN with GMM | Accuracy: 0.7859922178988327 Training time: 0.3193354606628418 seconds Testing time: 0.0008857250213623047 seconds |