

GENDER RECOGNITION BY VOICE

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ÍNDEX



O2 ANÀLISI DE DADES



OI INTRODUCCIÓ

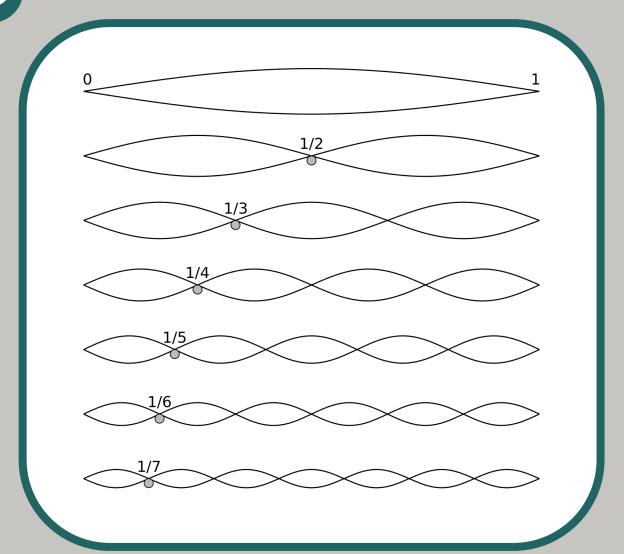
INTRODUCCIÓ

RECONEIXEMENT DE GÈNERE PER LA VEU



| Q25 0.015 | Q75 | IQR | skew | kurt | sp.ent | a fina | | | | | | | | | | | |
|--------------|--|--|--------|--|---------|--|---|---|--|--|---|---|--|---|---|---|---|
| 0.015 | 0.000 | | | | opionic | SIIII | | centroid | meanfun | minfun | maxfun | meandom | mindom | maxdom | dfrange | modindx | label |
| | 0.090 | 0.075 | 12.863 | 274.403 | 0.893 | 0.492 | | 0.060 | 0.084 | 0.016 | 0.276 | 0.008 | 0.008 | 0.008 | 0.000 | 0.000 | 0 |
| 0.019 | 0.093 | 0.073 | 22.423 | 634.614 | 0.892 | 0.514 | | 0.066 | 0.108 | 0.016 | 0.250 | 0.009 | 0.008 | 0.055 | 0.047 | 0.053 | 0 |
| 0.009 | 0.132 | 0.123 | 30.757 | 1024.928 | 0.846 | 0.479 | | 0.077 | 0.099 | 0.016 | 0.271 | 0.008 | 0.008 | 0.016 | 0.008 | 0.047 | 0 |
| 0.097 | 0.208 | 0.111 | 1.233 | 4.177 | 0.963 | 0.727 | | 0.151 | 0.089 | 0.018 | 0.250 | 0.201 | 0.008 | 0.562 | 0.555 | 0.247 | 0 |
| 0.079 | 0.206 | 0.127 | 1.101 | 4.334 | 0.972 | 0.784 | | 0.135 | 0.106 | 0.017 | 0.267 | 0.713 | 0.008 | 5.484 | 5.477 | 0.208 | 0 |
| | | | | | | | | | | | | ••• | • | | | | |
| 0.049 | 0.201 | 0.152 | 1.762 | 6.630 | 0.963 | 0.763 | | 0.132 | 0.183 | 0.084 | 0.262 | 0.833 | 0.008 | 4.211 | 4.203 | 0.162 | 1 |
| 0.043 | 0.205 | 0.162 | 0.694 | 2.504 | 0.961 | 0.710 | | 0.116 | 0.189 | 0.034 | 0.276 | 0.910 | 0.039 | 3.680 | 3.641 | 0.278 | 1 |
| 0.033 | 0.224 | 0.191 | 1.877 | 6.605 | 0.947 | 0.654 | | 0.142 | 0.210 | 0.040 | 0.276 | 0.494 | 0.008 | 2.938 | 2.930 | 0.195 | 1 |
| 0.044 | 0.220 | 0.176 | 1.591 | 5.388 | 0.950 | 0.675 | | 0.144 | 0.172 | 0.034 | 0.250 | 0.791 | 0.008 | 3.594 | 3.586 | 0.311 | 1 |
| 0.070 | 0.251 | 0.181 | 1.705 | 5.769 | 0.939 | 0.602 | | 0.166 | 0.186 | 0.062 | 0.271 | 0.227 | 0.008 | 0.555 | 0.547 | 0.350 | 1 |
| 0 | .097 .079 .049 .043 .033 | .097 0.208 .079 0.206 .049 0.201 .043 0.205 .033 0.224 .044 0.220 | | .097 0.208 0.111 1.233 .079 0.206 0.127 1.101 | | .097 0.208 0.111 1.233 4.177 0.963 .079 0.206 0.127 1.101 4.334 0.972 .049 0.201 0.152 1.762 6.630 0.963 .043 0.205 0.162 0.694 2.504 0.961 .033 0.224 0.191 1.877 6.605 0.947 .044 0.220 0.176 1.591 5.388 0.950 | .097 0.208 0.111 1.233 4.177 0.963 0.727 .079 0.206 0.127 1.101 4.334 0.972 0.784 | .097 0.208 0.111 1.233 4.177 0.963 0.727 .079 0.206 0.127 1.101 4.334 0.972 0.784 .049 0.201 0.152 1.762 6.630 0.963 0.763 .043 0.205 0.162 0.694 2.504 0.961 0.710 .033 0.224 0.191 1.877 6.605 0.947 0.654 .044 0.220 0.176 1.591 5.388 0.950 0.675 | .097 0.208 0.111 1.233 4.177 0.963 0.727 0.151 .079 0.206 0.127 1.101 4.334 0.972 0.784 0.135 .049 0.201 0.152 1.762 6.630 0.963 0.763 0.132 .043 0.205 0.162 0.694 2.504 0.961 0.710 0.116 .033 0.224 0.191 1.877 6.605 0.947 0.654 0.142 .044 0.220 0.176 1.591 5.388 0.950 0.675 0.144 | .097 0.208 0.111 1.233 4.177 0.963 0.727 0.151 0.089 .079 0.206 0.127 1.101 4.334 0.972 0.784 0.135 0.106 </td <td>.097 0.208 0.111 1.233 4.177 0.963 0.727 0.151 0.089 0.018 .079 0.206 0.127 1.101 4.334 0.972 0.784 0.135 0.106 0.017 </td> <td>.097 0.208 0.111 1.233 4.177 0.963 0.727 0.151 0.089 0.018 0.250 .079 0.206 0.127 1.101 4.334 0.972 0.784 0.135 0.106 0.017 0.267 </td> <td>.097 0.208 0.111 1.233 4.177 0.963 0.727 0.151 0.089 0.018 0.250 0.201 .079 0.206 0.127 1.101 4.334 0.972 0.784 0.135 0.106 0.017 0.267 0.713 <td>.097 0.208 0.111 1.233 4.177 0.963 0.727 0.151 0.089 0.018 0.250 0.201 0.008 .079 0.206 0.127 1.101 4.334 0.972 0.784 0.135 0.106 0.017 0.267 0.713 0.008 </td><td>.097 0.208 0.111 1.233 4.177 0.963 0.727 0.151 0.089 0.018 0.250 0.201 0.008 0.562 .079 0.206 0.127 1.101 4.334 0.972 0.784 0.135 0.106 0.017 0.267 0.713 0.008 5.484 <td< td=""><td>.097 0.208 0.111 1.233 4.177 0.963 0.727 0.151 0.089 0.018 0.250 0.201 0.008 0.562 0.555 .079 0.206 0.127 1.101 4.334 0.972 0.784 0.135 0.106 0.017 0.267 0.713 0.008 5.484 5.477 </td><td>.097 0.208 0.111 1.233 4.177 0.963 0.727 0.151 0.089 0.018 0.250 0.201 0.008 0.562 0.555 0.247 .079 0.206 0.127 1.101 4.334 0.972 0.784 0.135 0.106 0.017 0.267 0.713 0.008 5.484 5.477 0.208 </td></td<></td></td> | .097 0.208 0.111 1.233 4.177 0.963 0.727 0.151 0.089 0.018 .079 0.206 0.127 1.101 4.334 0.972 0.784 0.135 0.106 0.017 | .097 0.208 0.111 1.233 4.177 0.963 0.727 0.151 0.089 0.018 0.250 .079 0.206 0.127 1.101 4.334 0.972 0.784 0.135 0.106 0.017 0.267 | .097 0.208 0.111 1.233 4.177 0.963 0.727 0.151 0.089 0.018 0.250 0.201 .079 0.206 0.127 1.101 4.334 0.972 0.784 0.135 0.106 0.017 0.267 0.713 <td>.097 0.208 0.111 1.233 4.177 0.963 0.727 0.151 0.089 0.018 0.250 0.201 0.008 .079 0.206 0.127 1.101 4.334 0.972 0.784 0.135 0.106 0.017 0.267 0.713 0.008 </td> <td>.097 0.208 0.111 1.233 4.177 0.963 0.727 0.151 0.089 0.018 0.250 0.201 0.008 0.562 .079 0.206 0.127 1.101 4.334 0.972 0.784 0.135 0.106 0.017 0.267 0.713 0.008 5.484 <td< td=""><td>.097 0.208 0.111 1.233 4.177 0.963 0.727 0.151 0.089 0.018 0.250 0.201 0.008 0.562 0.555 .079 0.206 0.127 1.101 4.334 0.972 0.784 0.135 0.106 0.017 0.267 0.713 0.008 5.484 5.477 </td><td>.097 0.208 0.111 1.233 4.177 0.963 0.727 0.151 0.089 0.018 0.250 0.201 0.008 0.562 0.555 0.247 .079 0.206 0.127 1.101 4.334 0.972 0.784 0.135 0.106 0.017 0.267 0.713 0.008 5.484 5.477 0.208 </td></td<></td> | .097 0.208 0.111 1.233 4.177 0.963 0.727 0.151 0.089 0.018 0.250 0.201 0.008 .079 0.206 0.127 1.101 4.334 0.972 0.784 0.135 0.106 0.017 0.267 0.713 0.008 | .097 0.208 0.111 1.233 4.177 0.963 0.727 0.151 0.089 0.018 0.250 0.201 0.008 0.562 .079 0.206 0.127 1.101 4.334 0.972 0.784 0.135 0.106 0.017 0.267 0.713 0.008 5.484 <td< td=""><td>.097 0.208 0.111 1.233 4.177 0.963 0.727 0.151 0.089 0.018 0.250 0.201 0.008 0.562 0.555 .079 0.206 0.127 1.101 4.334 0.972 0.784 0.135 0.106 0.017 0.267 0.713 0.008 5.484 5.477 </td><td>.097 0.208 0.111 1.233 4.177 0.963 0.727 0.151 0.089 0.018 0.250 0.201 0.008 0.562 0.555 0.247 .079 0.206 0.127 1.101 4.334 0.972 0.784 0.135 0.106 0.017 0.267 0.713 0.008 5.484 5.477 0.208 </td></td<> | .097 0.208 0.111 1.233 4.177 0.963 0.727 0.151 0.089 0.018 0.250 0.201 0.008 0.562 0.555 .079 0.206 0.127 1.101 4.334 0.972 0.784 0.135 0.106 0.017 0.267 0.713 0.008 5.484 5.477 | .097 0.208 0.111 1.233 4.177 0.963 0.727 0.151 0.089 0.018 0.250 0.201 0.008 0.562 0.555 0.247 .079 0.206 0.127 1.101 4.334 0.972 0.784 0.135 0.106 0.017 0.267 0.713 0.008 5.484 5.477 0.208 |

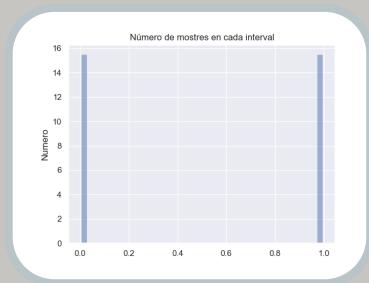
VALOR OBJECTIU

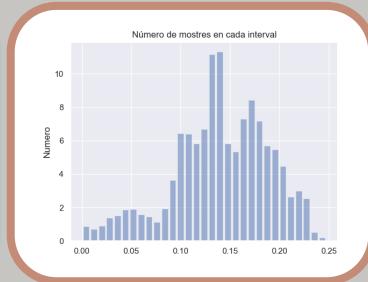


ELECCIÓ DE CANDIDATS

| meanfreq | 1 | -0.74 | 0.93 | 0.91 | 0.74 | -0.63 | -0.32 | -0.32 | -0.6 | -0.78 | 0.69 | 1 | 0.46 | 0.38 | 0.27 | 0.54 | 0.23 | 0.52 | 0.52 | -0.22 | 0.34 |
|----------|----------|-------|--------|-------|--------|--------|--------|--------|--------|-------|-------|----------|---------|--------|--------|---------|--------|--------|---------|---------|--------------------|
| sd | -0.74 | 1 | -0.56 | -0.85 | -0.16 | 0.87 | 0.31 | 0.35 | 0.72 | 0.84 | -0.53 | -0.74 | -0.47 | -0.35 | -0.13 | -0.48 | -0.36 | -0.48 | -0.48 | 0.12 | -0.48 |
| median | 0.93 | -0.56 | 1 | 0.77 | 0.73 | -0.48 | -0.26 | -0.24 | -0.5 | -0.66 | 0.68 | 0.93 | 0.41 | 0.34 | 0.25 | 0.46 | 0.19 | | 0.44 | -0.21 | 0.28 |
| Q25 | 0.91 | -0.85 | 0.77 | 1 | 0.48 | -0.87 | -0.32 | -0.35 | -0.65 | -0.77 | 0.59 | 0.91 | 0.55 | 0.32 | 0.2 | | 0.3 | 0.46 | | -0.14 | |
| Q75 | 0.74 | -0.16 | 0.73 | 0.48 | 1 | 0.0096 | -0.21 | -0.15 | -0.17 | -0.38 | | 0.74 | 0.16 | 0.26 | 0.29 | 0.36 | -0.024 | 0.34 | 0.34 | -0.22 | -0.06 |
| IQR | -0.63 | 0.87 | -0.48 | -0.87 | 0.0096 | 1 | 0.25 | 0.32 | 0.64 | 0.66 | -0.4 | -0.63 | -0.53 | -0.22 | -0.07 | -0.33 | -0.36 | -0.34 | -0.33 | 0.041 | -0.62 |
| skew | -0.32 | 0.31 | -0.26 | -0.32 | -0.21 | 0.25 | 1 | 0.98 | -0.2 | 0.08 | -0.43 | -0.32 | -0.17 | -0.22 | -0.081 | -0.34 | -0.062 | -0.31 | -0.3 | -0.17 | -0.03 |
| kurt | -0.32 | 0.35 | -0.24 | -0.35 | -0.15 | 0.32 | 0.98 | 1 | -0.13 | 0.11 | -0.41 | -0.32 | -0.19 | -0.2 | -0.046 | -0.3 | -0.1 | -0.27 | -0.27 | -0.21 | -0.08 |
| sp.ent | -0.6 | 0.72 | -0.5 | -0.65 | -0.17 | 0.64 | -0.2 | -0.13 | 1 | 0.87 | -0.33 | -0.6 | -0.51 | -0.31 | -0.12 | -0.29 | -0.29 | -0.32 | -0.32 | 0.2 | -0.49 |
| sfm | -0.78 | 0.84 | -0.66 | -0.77 | -0.38 | 0.66 | 0.08 | 0.11 | 0.87 | 1 | -0.49 | -0.78 | -0.42 | -0.36 | -0.19 | -0.43 | -0.29 | -0.44 | -0.43 | 0.21 | -0.36 |
| mode | 0.69 | -0.53 | 0.68 | 0.59 | | -0.4 | -0.43 | -0.41 | -0.33 | -0.49 | 1 | 0.69 | 0.32 | 0.39 | 0.17 | | 0.2 | | | -0.18 | 0.17 |
| centroid | 1 | -0.74 | 0.93 | 0.91 | 0.74 | -0.63 | -0.32 | -0.32 | -0.6 | -0.78 | 0.69 | 1 | 0.46 | 0.38 | 0.27 | | 0.23 | | | -0.22 | 0.34 |
| meanfun | 0.46 | -0.47 | 0.41 | | 0.16 | -0.53 | -0.17 | -0.19 | -0.51 | -0.42 | 0.32 | 0.46 | 1 | 0.34 | 0.31 | 0.27 | 0.16 | 0.28 | 0.28 | -0.055 | 0.83 |
| minfun | 0.38 | -0.35 | 0.34 | 0.32 | 0.26 | -0.22 | -0.22 | -0.2 | -0.31 | -0.36 | 0.39 | 0.38 | 0.34 | 1 | 0.21 | 0.38 | 0.082 | 0.32 | 0.32 | 0.002 | 0.14 |
| maxfun | 0.27 | -0.13 | 0.25 | 0.2 | 0.29 | -0.07 | -0.081 | -0.046 | -0.12 | -0.19 | 0.17 | 0.27 | 0.31 | 0.21 | 1 | 0.34 | -0.24 | 0.36 | 0.36 | -0.36 | 0.17 |
| meandom | 0.54 | -0.48 | | 0.47 | 0.36 | -0.33 | -0.34 | -0.3 | -0.29 | -0.43 | 0.49 | | 0.27 | 0.38 | 0.34 | 1 | 0.1 | 0.81 | 0.81 | -0.18 | 0.19 |
| mindom | 0.23 | -0.36 | 0.19 | 0.3 | -0.024 | -0.36 | -0.062 | -0.1 | -0.29 | -0.29 | 0.2 | 0.23 | 0.16 | 0.082 | -0.24 | 0.1 | 1 | 0.027 | 0.0087 | 0.2 | 0.19 |
| maxdom | 0.52 | -0.48 | 0.44 | 0.46 | 0.34 | -0.34 | -0.31 | -0.27 | -0.32 | -0.44 | | | 0.28 | 0.32 | 0.36 | 0.81 | 0.027 | 1 | 1 | -0.43 | 0.2 |
| dfrange | 0.52 | -0.48 | 0.44 | 0.45 | 0.34 | -0.33 | -0.3 | -0.27 | -0.32 | -0.43 | 0.47 | 0.52 | 0.28 | 0.32 | 0.36 | 0.81 | 0.0087 | 1 | 1 | -0.43 | 0.19 |
| modindx | -0.22 | 0.12 | -0.21 | -0.14 | -0.22 | 0.041 | -0.17 | -0.21 | 0.2 | 0.21 | -0.18 | -0.22 | -0.055 | 0.002 | -0.36 | -0.18 | 0.2 | -0.43 | -0.43 | 1 | -0.03 ⁻ |
| label | 0.34 | -0.48 | 0.28 | 0.51 | -0.067 | -0.62 | -0.037 | -0.087 | -0.49 | -0.36 | 0.17 | 0.34 | 0.83 | 0.14 | 0.17 | 0.19 | 0.19 | 0.2 | 0.19 | -0.031 | 1 |
| | meanfreq | s | median | 025 | Q75 | IQR | skew | kurt | sp.ent | sfm | mode | centroid | meanfun | minfun | maxfun | meandom | mindom | maxdom | dfrange | modindx | label |

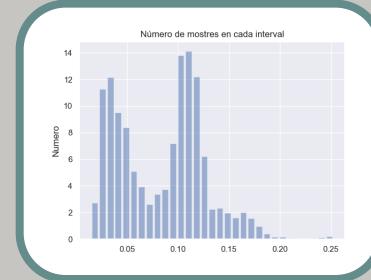
GENERE

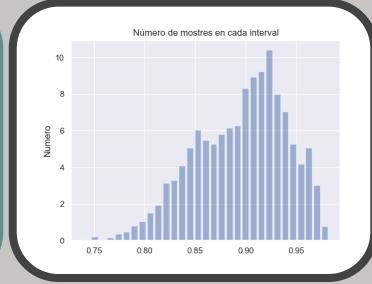




Q25

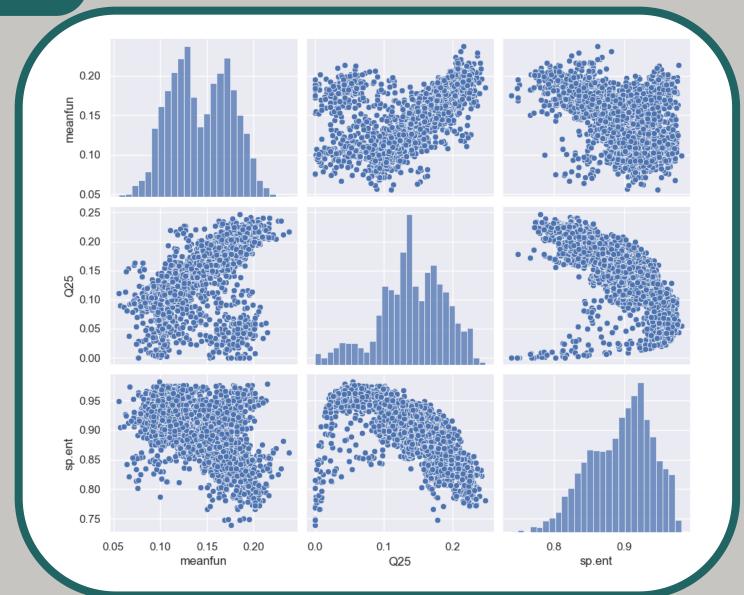
IQR



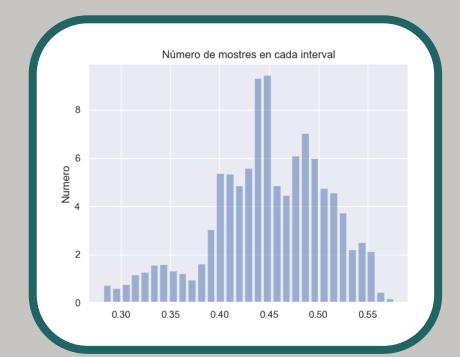


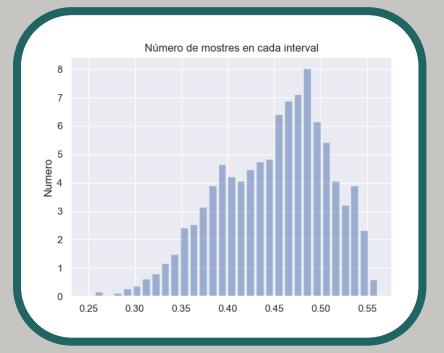
SP.ENT

RESUM



NORMALITZACIÓ

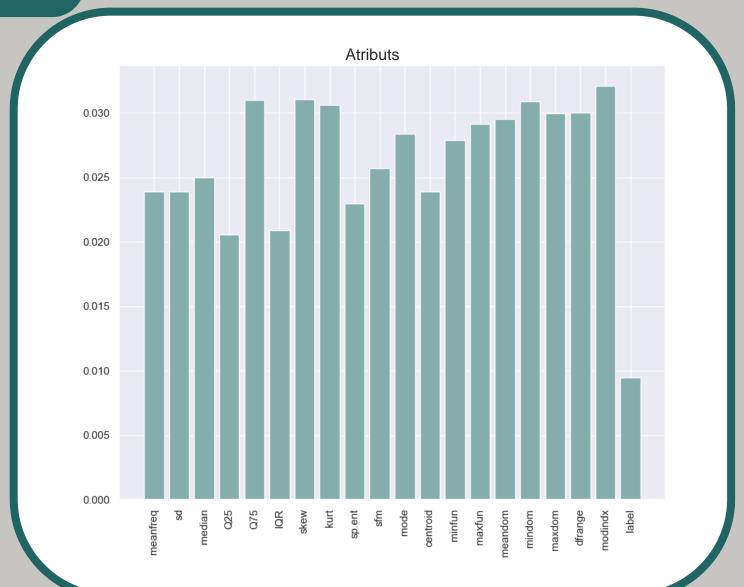




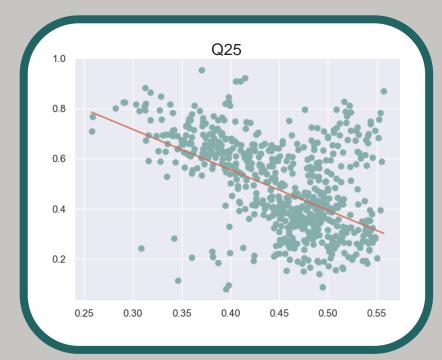
CROSS VALIDATION 60% TRAIN
0% VALIDATION

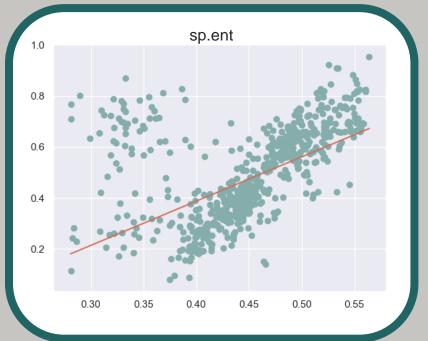
20% TEST

ERROR QUADRÀTIC MITG

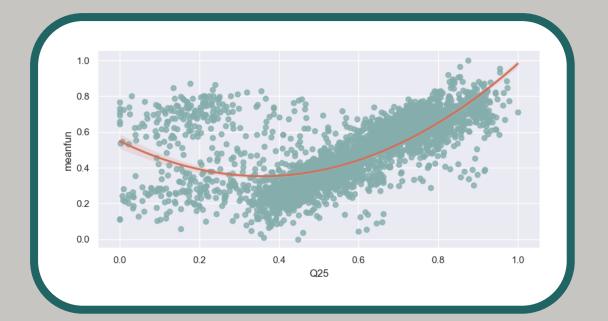


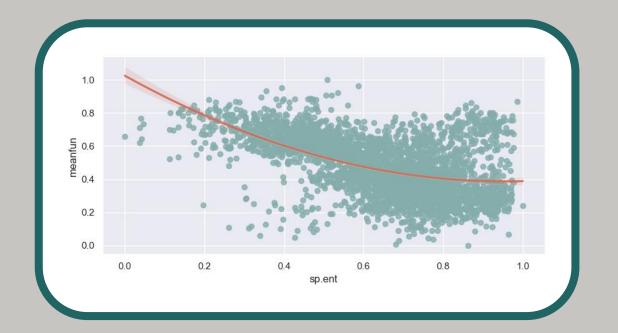
RESULTATS





RESULTATS MULTIVARIATS



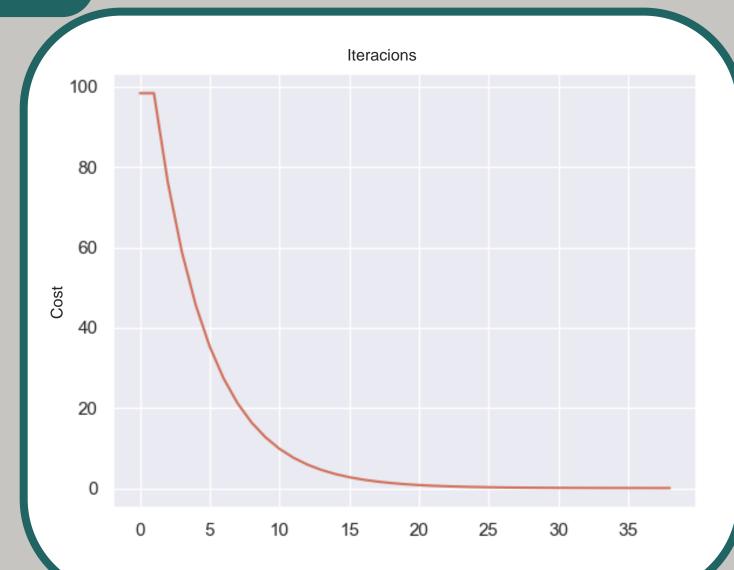


O4 MODEL REGRESSOR

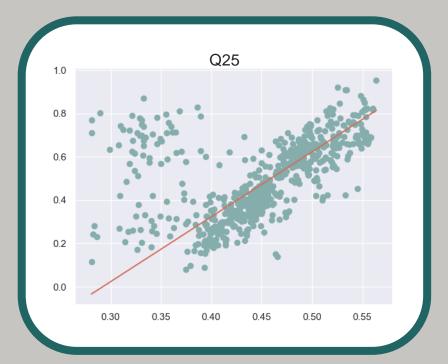
MODEL REGRESSOR

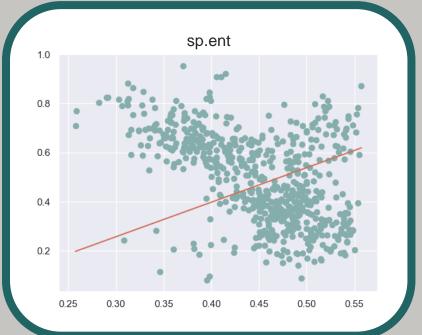
$$J(w) = \frac{1}{2m} \left[\sum_{i=1}^{m} (f(x^{i}; w) - y^{i})^{2} + \lambda \sum_{j=1}^{n} (w_{j}^{2}) \right]$$
$$w_{0} = w_{0} - \alpha \frac{1}{m} \left[\sum_{i=1}^{m} (f(x^{i}; w) - y^{i}) \right]$$

DESCENS DEL GRADIENT



RESULTATS





DATABASE

CONCLUSIONS

PROJECTE

TREBALL

GRÀCIES