Machine learning models

April 4, 2022

```
[82]: import sys
      !{sys.executable} -m pip install -U pandas-profiling[notebook]
      !jupyter nbextension enable --py widgetsnbextension
      !pip install matplotlib
      !pip install graphviz --user
      !pip3 install imblearn --trusted-host pypi.org --trusted-host pypi.python.org
       →--trusted-host files.pythonhosted.org --user
     Requirement already satisfied: pandas-profiling[notebook] in
     c:\programdata\anaconda3\lib\site-packages (3.1.0)
     Requirement already satisfied: missingno>=0.4.2 in
     c:\programdata\anaconda3\lib\site-packages (from pandas-profiling[notebook])
     (0.5.0)
     Requirement already satisfied: PyYAML>=5.0.0 in
     c:\programdata\anaconda3\lib\site-packages (from pandas-profiling[notebook])
     (6.0)
     Requirement already satisfied: tangled-up-in-unicode==0.1.0 in
     c:\programdata\anaconda3\lib\site-packages (from pandas-profiling[notebook])
     (0.1.0)
     Requirement already satisfied: jinja2>=2.11.1 in
     c:\programdata\anaconda3\lib\site-packages (from pandas-profiling[notebook])
     (2.11.3)
     Requirement already satisfied: scipy>=1.4.1 in
     c:\programdata\anaconda3\lib\site-packages (from pandas-profiling[notebook])
     (1.7.1)
     Requirement already satisfied: matplotlib>=3.2.0 in
     c:\programdata\anaconda3\lib\site-packages (from pandas-profiling[notebook])
     (3.4.3)
     Requirement already satisfied: seaborn>=0.10.1 in
     c:\programdata\anaconda3\lib\site-packages (from pandas-profiling[notebook])
     (0.11.2)
     Requirement already satisfied: tqdm>=4.48.2 in
     c:\programdata\anaconda3\lib\site-packages (from pandas-profiling[notebook])
     (4.62.3)
     Requirement already satisfied: phik>=0.11.1 in
     c:\programdata\anaconda3\lib\site-packages (from pandas-profiling[notebook])
     (0.12.0)
     Requirement already satisfied: pydantic>=1.8.1 in
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c:\programdata\anaconda3\lib\site-packages (from pandas-profiling[notebook])
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Requirement already satisfied: htmlmin>=0.1.12 in
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(0.1.12)
Requirement already satisfied: pandas!=1.0.0,!=1.0.1,!=1.0.2,!=1.1.0,>=0.25.3 in
c:\programdata\anaconda3\lib\site-packages (from pandas-profiling[notebook])
(1.3.4)
Requirement already satisfied: numpy>=1.16.0 in
c:\programdata\anaconda3\lib\site-packages (from pandas-profiling[notebook])
(1.20.3)
Requirement already satisfied: visions[type_image_path] == 0.7.4 in
c:\programdata\anaconda3\lib\site-packages (from pandas-profiling[notebook])
(0.7.4)
Requirement already satisfied: multimethod>=1.4 in
c:\programdata\anaconda3\lib\site-packages (from pandas-profiling[notebook])
(1.7)
Requirement already satisfied: markupsafe~=2.0.1 in
c:\programdata\anaconda3\lib\site-packages (from pandas-profiling[notebook])
(2.0.1)
Requirement already satisfied: joblib~=1.0.1 in
c:\programdata\anaconda3\lib\site-packages (from pandas-profiling[notebook])
Requirement already satisfied: requests>=2.24.0 in
c:\programdata\anaconda3\lib\site-packages (from pandas-profiling[notebook])
Requirement already satisfied: jupyter-client>=6.0.0 in
c:\programdata\anaconda3\lib\site-packages (from pandas-profiling[notebook])
Requirement already satisfied: jupyter-core>=4.6.3 in
c:\programdata\anaconda3\lib\site-packages (from pandas-profiling[notebook])
Requirement already satisfied: ipywidgets>=7.5.1 in
c:\programdata\anaconda3\lib\site-packages (from pandas-profiling[notebook])
Requirement already satisfied: attrs>=19.3.0 in
c:\programdata\anaconda3\lib\site-packages (from
visions[type_image_path] == 0.7.4 -> pandas - profiling[notebook]) (21.2.0)
Requirement already satisfied: networkx>=2.4 in
c:\programdata\anaconda3\lib\site-packages (from
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Requirement already satisfied: imagehash in c:\programdata\anaconda3\lib\site-
packages (from visions[type_image_path] == 0.7.4 -> pandas - profiling[notebook])
(4.2.1)
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(8.4.0)
Requirement already satisfied: nbformat>=4.2.0 in
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c:\programdata\anaconda3\lib\site-packages (from ipywidgets>=7.5.1->pandas-
profiling[notebook]) (5.1.3)
Requirement already satisfied: traitlets>=4.3.1 in
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profiling[notebook]) (5.1.0)
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c:\programdata\anaconda3\lib\site-packages (from ipywidgets>=7.5.1->pandas-
profiling[notebook]) (1.0.0)
Requirement already satisfied: ipython>=4.0.0 in
c:\programdata\anaconda3\lib\site-packages (from ipywidgets>=7.5.1->pandas-
profiling[notebook]) (7.29.0)
Requirement already satisfied: ipython-genutils~=0.2.0 in
c:\programdata\anaconda3\lib\site-packages (from ipywidgets>=7.5.1->pandas-
profiling[notebook]) (0.2.0)
Requirement already satisfied: widgetsnbextension~=3.5.0 in
c:\programdata\anaconda3\lib\site-packages (from ipywidgets>=7.5.1->pandas-
profiling[notebook]) (3.5.1)
Requirement already satisfied: ipykernel>=4.5.1 in
c:\programdata\anaconda3\lib\site-packages (from ipywidgets>=7.5.1->pandas-
profiling[notebook]) (6.4.1)
Requirement already satisfied: tornado<7.0,>=4.2 in
c:\programdata\anaconda3\lib\site-packages (from
ipykernel>=4.5.1->ipywidgets>=7.5.1->pandas-profiling[notebook]) (6.1)
Requirement already satisfied: debugpy<2.0,>=1.0.0 in
c:\programdata\anaconda3\lib\site-packages (from
ipykernel>=4.5.1->ipywidgets>=7.5.1->pandas-profiling[notebook]) (1.4.1)
Requirement already satisfied: matplotlib-inline<0.2.0,>=0.1.0 in
c:\programdata\anaconda3\lib\site-packages (from
ipykernel>=4.5.1->ipywidgets>=7.5.1->pandas-profiling[notebook]) (0.1.2)
Requirement already satisfied: prompt-toolkit!=3.0.0,!=3.0.1,<3.1.0,>=2.0.0 in
c:\programdata\anaconda3\lib\site-packages (from
ipython>=4.0.0->ipywidgets>=7.5.1->pandas-profiling[notebook]) (3.0.20)
Requirement already satisfied: pygments in c:\programdata\anaconda3\lib\site-
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Requirement already satisfied: jedi>=0.16 in c:\programdata\anaconda3\lib\site-
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Requirement already satisfied: backcall in c:\programdata\anaconda3\lib\site-
packages (from ipython>=4.0.0->ipywidgets>=7.5.1->pandas-profiling[notebook])
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Requirement already satisfied: setuptools>=18.5 in
c:\programdata\anaconda3\lib\site-packages (from
ipython>=4.0.0->ipywidgets>=7.5.1->pandas-profiling[notebook]) (58.0.4)
Requirement already satisfied: colorama in c:\programdata\anaconda3\lib\site-
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Requirement already satisfied: decorator in c:\programdata\anaconda3\lib\site-
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packages (from ipython>=4.0.0->ipywidgets>=7.5.1->pandas-profiling[notebook])
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Requirement already satisfied: pickleshare in c:\programdata\anaconda3\lib\site-
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Requirement already satisfied: parso<0.9.0,>=0.8.0 in
c:\programdata\anaconda3\lib\site-packages (from
jedi>=0.16->ipython>=4.0.0->ipywidgets>=7.5.1->pandas-profiling[notebook])
(0.8.2)
Requirement already satisfied: python-dateutil>=2.1 in
c:\programdata\anaconda3\lib\site-packages (from jupyter-client>=6.0.0->pandas-
profiling[notebook]) (2.8.2)
Requirement already satisfied: pyzmq>=13 in c:\programdata\anaconda3\lib\site-
packages (from jupyter-client>=6.0.0->pandas-profiling[notebook]) (22.2.1)
Requirement already satisfied: pywin32>=1.0 in
c:\programdata\anaconda3\lib\site-packages (from jupyter-core>=4.6.3->pandas-
profiling[notebook]) (228)
Requirement already satisfied: kiwisolver>=1.0.1 in
c:\programdata\anaconda3\lib\site-packages (from matplotlib>=3.2.0->pandas-
profiling[notebook]) (1.3.1)
Requirement already satisfied: pyparsing>=2.2.1 in
c:\programdata\anaconda3\lib\site-packages (from matplotlib>=3.2.0->pandas-
profiling[notebook]) (3.0.4)
Requirement already satisfied: cycler>=0.10 in
c:\programdata\anaconda3\lib\site-packages (from matplotlib>=3.2.0->pandas-
profiling[notebook]) (0.10.0)
Requirement already satisfied: six in c:\programdata\anaconda3\lib\site-packages
(from cycler>=0.10->matplotlib>=3.2.0->pandas-profiling[notebook]) (1.16.0)
Requirement already satisfied: jsonschema!=2.5.0,>=2.4 in
c:\programdata\anaconda3\lib\site-packages (from
nbformat>=4.2.0->ipywidgets>=7.5.1->pandas-profiling[notebook]) (3.2.0)
Requirement already satisfied: pyrsistent>=0.14.0 in
c:\programdata\anaconda3\lib\site-packages (from
jsonschema!=2.5.0,>=2.4->nbformat>=4.2.0->ipywidgets>=7.5.1->pandas-
profiling[notebook]) (0.18.0)
Requirement already satisfied: pytz>=2017.3 in
c:\programdata\anaconda3\lib\site-packages (from
pandas!=1.0.0,!=1.0.1,!=1.0.2,!=1.1.0,>=0.25.3->pandas-profiling[notebook])
(2021.3)
Requirement already satisfied: wcwidth in c:\programdata\anaconda3\lib\site-
packages (from prompt-toolkit!=3.0.0,!=3.0.1,<3.1.0,>=2.0.0->ipython>=4.0.0->ipy
widgets>=7.5.1->pandas-profiling[notebook]) (0.2.5)
Requirement already satisfied: typing-extensions>=3.7.4.3 in
c:\programdata\anaconda3\lib\site-packages (from pydantic>=1.8.1->pandas-
profiling[notebook]) (3.10.0.2)
Requirement already satisfied: urllib3<1.27,>=1.21.1 in
c:\programdata\anaconda3\lib\site-packages (from requests>=2.24.0->pandas-
profiling[notebook]) (1.26.7)
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Requirement already satisfied: certifi>=2017.4.17 in
c:\programdata\anaconda3\lib\site-packages (from requests>=2.24.0->pandas-
profiling[notebook]) (2021.10.8)
Requirement already satisfied: idna<4,>=2.5 in
c:\programdata\anaconda3\lib\site-packages (from requests>=2.24.0->pandas-
profiling[notebook]) (3.2)
Requirement already satisfied: charset-normalizer~=2.0.0 in
c:\programdata\anaconda3\lib\site-packages (from requests>=2.24.0->pandas-
profiling[notebook]) (2.0.4)
Requirement already satisfied: notebook>=4.4.1 in
c:\programdata\anaconda3\lib\site-packages (from
widgetsnbextension~=3.5.0->ipywidgets>=7.5.1->pandas-profiling[notebook])
(6.4.5)
Requirement already satisfied: Send2Trash>=1.5.0 in
c:\programdata\anaconda3\lib\site-packages (from
notebook>=4.4.1->widgetsnbextension~=3.5.0->ipywidgets>=7.5.1->pandas-
profiling[notebook]) (1.8.0)
Requirement already satisfied: argon2-cffi in c:\programdata\anaconda3\lib\site-
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notebook>=4.4.1->widgetsnbextension~=3.5.0->ipywidgets>=7.5.1->pandas-
profiling[notebook]) (20.1.0)
Requirement already satisfied: nbconvert in c:\programdata\anaconda3\lib\site-
packages (from
notebook>=4.4.1->widgetsnbextension~=3.5.0->ipywidgets>=7.5.1->pandas-
profiling[notebook]) (6.1.0)
Requirement already satisfied: prometheus-client in
c:\programdata\anaconda3\lib\site-packages (from
notebook>=4.4.1->widgetsnbextension~=3.5.0->ipywidgets>=7.5.1->pandas-
profiling[notebook]) (0.11.0)
Requirement already satisfied: terminado>=0.8.3 in
c:\programdata\anaconda3\lib\site-packages (from
notebook>=4.4.1->widgetsnbextension~=3.5.0->ipywidgets>=7.5.1->pandas-
profiling[notebook]) (0.9.4)
Requirement already satisfied: pywinpty>=0.5 in
c:\programdata\anaconda3\lib\site-packages (from terminado>=0.8.3->notebook>=4.4
.1->widgetsnbextension~=3.5.0->ipywidgets>=7.5.1->pandas-profiling[notebook])
Requirement already satisfied: cffi>=1.0.0 in c:\programdata\anaconda3\lib\site-
packages (from argon2-cffi->notebook>=4.4.1->widgetsnbextension~=3.5.0->ipywidge
ts>=7.5.1->pandas-profiling[notebook]) (1.14.6)
Requirement already satisfied: pycparser in c:\programdata\anaconda3\lib\site-
packages (from cffi>=1.0.0->argon2-cffi->notebook>=4.4.1->widgetsnbextension~=3.
5.0->ipywidgets>=7.5.1->pandas-profiling[notebook]) (2.20)
Requirement already satisfied: PyWavelets in c:\programdata\anaconda3\lib\site-
packages (from imagehash->visions[type_image_path] == 0.7.4->pandas-
profiling[notebook]) (1.1.1)
Requirement already satisfied: jupyterlab-pygments in
c:\programdata\anaconda3\lib\site-packages (from nbconvert->notebook>=4.4.1->wid
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getsnbextension~=3.5.0->ipywidgets>=7.5.1->pandas-profiling[notebook]) (0.1.2)
Requirement already satisfied: testpath in c:\programdata\anaconda3\lib\site-
packages (from nbconvert->notebook>=4.4.1->widgetsnbextension~=3.5.0->ipywidgets
>=7.5.1->pandas-profiling[notebook]) (0.5.0)
Requirement already satisfied: mistune<2,>=0.8.1 in
c:\programdata\anaconda3\lib\site-packages (from nbconvert->notebook>=4.4.1->wid
getsnbextension~=3.5.0~>ipywidgets>=7.5.1~>pandas-profiling[notebook]) (0.8.4)
Requirement already satisfied: defusedxml in c:\programdata\anaconda3\lib\site-
packages (from nbconvert->notebook>=4.4.1->widgetsnbextension~=3.5.0->ipywidgets
>=7.5.1->pandas-profiling[notebook]) (0.7.1)
Requirement already satisfied: entrypoints>=0.2.2 in
c:\programdata\anaconda3\lib\site-packages (from nbconvert->notebook>=4.4.1->wid
getsnbextension~=3.5.0~>ipywidgets>=7.5.1~>pandas-profiling[notebook]) (0.3)
Requirement already satisfied: bleach in c:\programdata\anaconda3\lib\site-
packages (from nbconvert->notebook>=4.4.1->widgetsnbextension~=3.5.0->ipywidgets
>=7.5.1->pandas-profiling[notebook]) (4.0.0)
Requirement already satisfied: pandocfilters>=1.4.1 in
c:\programdata\anaconda3\lib\site-packages (from nbconvert->notebook>=4.4.1->wid
getsnbextension~=3.5.0->ipywidgets>=7.5.1->pandas-profiling[notebook]) (1.4.3)
Requirement already satisfied: nbclient<0.6.0,>=0.5.0 in
c:\programdata\anaconda3\lib\site-packages (from nbconvert->notebook>=4.4.1->wid
getsnbextension~=3.5.0~>ipywidgets>=7.5.1~>pandas-profiling[notebook]) (0.5.3)
Requirement already satisfied: async-generator in
c:\programdata\anaconda3\lib\site-packages (from nbclient<0.6.0,>=0.5.0->nbconve
rt->notebook>=4.4.1->widgetsnbextension~=3.5.0->ipywidgets>=7.5.1->pandas-
profiling[notebook]) (1.10)
Requirement already satisfied: nest-asyncio in
c:\programdata\anaconda3\lib\site-packages (from nbclient<0.6.0,>=0.5.0->nbconve
rt->notebook>=4.4.1->widgetsnbextension~=3.5.0->ipywidgets>=7.5.1->pandas-
profiling[notebook]) (1.5.1)
Requirement already satisfied: packaging in c:\programdata\anaconda3\lib\site-
packages (from bleach->nbconvert->notebook>=4.4.1->widgetsnbextension~=3.5.0->ip
ywidgets>=7.5.1->pandas-profiling[notebook]) (21.0)
Requirement already satisfied: webencodings in
c:\programdata\anaconda3\lib\site-packages (from bleach->nbconvert->notebook>=4.
4.1->widgetsnbextension~=3.5.0->ipywidgets>=7.5.1->pandas-profiling[notebook])
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WARNING: Ignoring invalid distribution -ikit-learn
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WARNING: Ignoring invalid distribution -cikit-learn
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Enabling notebook extension jupyter-js-widgets/extension...
      - Validating: ok
Requirement already satisfied: matplotlib in c:\programdata\anaconda3\lib\site-
packages (3.4.3)
Requirement already satisfied: pillow>=6.2.0 in
c:\programdata\anaconda3\lib\site-packages (from matplotlib) (8.4.0)
Requirement already satisfied: cycler>=0.10 in
c:\programdata\anaconda3\lib\site-packages (from matplotlib) (0.10.0)
Requirement already satisfied: pyparsing>=2.2.1 in
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c:\programdata\anaconda3\lib\site-packages (from matplotlib) (3.0.4)
Requirement already satisfied: numpy>=1.16 in c:\programdata\anaconda3\lib\site-
packages (from matplotlib) (1.20.3)
Requirement already satisfied: python-dateutil>=2.7 in
c:\programdata\anaconda3\lib\site-packages (from matplotlib) (2.8.2)
Requirement already satisfied: kiwisolver>=1.0.1 in
c:\programdata\anaconda3\lib\site-packages (from matplotlib) (1.3.1)
Requirement already satisfied: six in c:\programdata\anaconda3\lib\site-packages
(from cycler>=0.10->matplotlib) (1.16.0)
WARNING: Ignoring invalid distribution -ikit-learn
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WARNING: Ignoring invalid distribution -cikit-learn
(c:\programdata\anaconda3\lib\site-packages)
Requirement already satisfied: graphviz in c:\programdata\anaconda3\lib\site-
packages (0.19.1)
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c:\programdata\anaconda3\lib\site-packages (from imbalanced-learn->imblearn)
(1.20.3)
Requirement already satisfied: scipy>=1.1.0 in
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(1.7.1)
Requirement already satisfied: scikit-learn>=1.0.1 in
c:\users\zdehg\appdata\roaming\python\python39\site-packages (from imbalanced-
learn->imblearn) (1.0.2)
Requirement already satisfied: joblib>=0.11 in
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     packages)
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[83]: import os
     import numpy as np
     import pandas as pd
     import imblearn
[84]: df= pd.read_csv(r'C:\Users\zdehg\Downloads\archive\DASS_data_21.02.19\data.
      C:\ProgramData\Anaconda3\lib\site-packages\pandas\util\_decorators.py:311:
     ParserWarning: Falling back to the 'python' engine because the 'c' engine does
     not support regex separators (separators > 1 char and different from '\s+' are
     interpreted as regex); you can avoid this warning by specifying engine='python'.
```

return func(*args, **kwargs)

C:\ProgramData\Anaconda3\lib\site-packages\IPython\core\interactiveshell.py:3444: FutureWarning: The error_bad_lines argument has been deprecated and will be removed in a future version.

exec(code_obj, self.user_global_ns, self.user_ns)
C:\ProgramData\Anaconda3\lib\sitepackages\IPython\core\interactiveshell.py:3444: FutureWarning: The
warn_bad_lines argument has been deprecated and will be removed in a future
version.

exec(code_obj, self.user_global_ns, self.user_ns)

[85]:	df	. head	(10)													
[85]:		Q1A	Q1I	Q1E	Q2A	Q2I	Q2E	QЗА	Q3I	Q3E	Q4A		screens			
	0	4	28	3890	4	25	2122	2	16	1944	4	•••		1		
	1	4	2	8118	1	36	2890	2	35	4777	3	•••		2		
	2	3	7	5784	1	33	4373	4	41	3242	1	•••		2		
	3	2	23	5081	3	11	6837	2	37	5521	1	•••		2		
	4	2	36	3215	2	13	7731	3	5	4156	4	•••		2		
	5	1	18	6116	1	28	3193	2	2	12542	1	•••		2		
	6	1	20	4325	1	34	4009	2	38	3604	3	•••		2		
	7	1	34	4796	1	9	2618	1	39	5823	1	•••		2		
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7 2 Music
8 4 Psychology
9 3 computer programming
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[10 rows x 172 columns]

[86]: df.describe()

[86]:		Q1A	Q1I	Q1E	Q2A	Q2I	\
	count	39775.000000	39775.000000	3.977500e+04	39775.000000	39775.000000	
	mean	2.619485	21.555977	6.970591e+03	2.172269	21.248070	
	std	1.032117	12.133621	8.670513e+04	1.111563	12.125288	
	min	1.000000	1.000000	1.800000e+02	1.000000	1.000000	
	25%	2.000000	11.000000	2.664000e+03	1.000000	11.000000	
	50%	3.000000	22.000000	3.609000e+03	2.000000	21.000000	
	75%	4.000000	32.000000	5.358000e+03	3.000000	32.000000	
	max	4.000000	42.000000	1.210228e+07	4.000000	42.000000	
		Q2E	Q3A	Q3I	Q3E	Q4A	\
	count	3.977500e+04	39775.000000	39775.000000	3.977500e+04	39775.000000	`
	mean	5.332376e+03	2.226097	21.583004	7.426446e+03	1.950170	
	std	2.651361e+04	1.038526	12.115637	1.587024e+05	1.042218	
	min	1.760000e+02	1.000000		-1.081400e+04	1.000000	
	25%	2.477000e+03	1.000000	11.000000	2.857000e+03	1.000000	
	50%	3.511000e+03	2.000000	22.000000	3.898000e+03	2.000000	
	75%	5.216000e+03	3.000000	32.000000	5.766000e+03	3.000000	
	max	2.161057e+06	4.000000	42.000000	2.858269e+07	4.000000	
		a	ge screensi	ze uniquenetv	vorklocation	hand \	
	count	39775.0000		_		39775.00000	
	mean	23.6121	68 1.2745	19	1.200025	1.13516	
	std	21.5817	22 0.4462	77	0.400024	0.40030	
	min	13.0000	00 1.0000	00	1.000000	0.00000	
	25%	18.0000	00 1.0000	00	1.000000	1.00000	
	50%	21.0000	00 1.0000	00	1.000000	1.00000	
	75%	25.0000	00 2.0000	00	1.000000	1.00000	
	max	1998.0000	00 2.0000	00	2.000000	3.00000	
		religion	orientation	race	voted	married	\
	count	39775.000000	39775.000000	39775.000000	39775.000000	39775.000000	
	mean	7.555852	1.642992	31.312885	1.705795	1.159547	
	std	3.554395	1.351362	25.871272	0.473388	0.445882	
	min	0.000000	0.000000	10.000000	0.000000	0.000000	
	25%	4.000000	1.000000	10.000000	1.000000	1.000000	
	50%	10.000000	1.000000	10.000000	2.000000	1.000000	

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       [8 rows x 170 columns]
[87]: df.drop(['Q1I', 'Q1E', 'Q2I', 'Q2E', 'Q3I', 'Q3E', 'Q4I', 'Q4E', 'Q5I', __
        _{\hookrightarrow}'Q5E','Q6I', 'Q6E','Q7I', 'Q7E', 'Q8I', 'Q8E','Q9I', 'Q9E','Q10I', 'Q10E', _{\sqcup}
        _{\hookrightarrow} 'Q11I', 'Q11E', 'Q12I', 'Q12E', 'Q13I', 'Q13E', 'Q14I', 'Q14E', 'Q15I', _{\sqcup}
        _{\hookrightarrow}'Q15E','Q16I', 'Q16E','Q17I', 'Q17E', 'Q18I', 'Q18E','Q19I', 'Q19E', 'Q20I',_{\sqcup}
        {}_{\hookrightarrow} \text{'Q20E', 'Q21I', 'Q21E', 'Q22I', 'Q22E', 'Q23I', 'Q23E', 'Q24I', 'Q24E', 'Q25I',}_{\square}
        \hookrightarrow 'Q25E', 'Q26I', 'Q26E', 'Q27I', 'Q27E', 'Q28I', 'Q28E', 'Q29I', 'Q29E', 'Q30I', \Box
        _{\hookrightarrow}'Q30E', 'Q31I', 'Q31E', 'Q32I', 'Q32E', 'Q33I', 'Q33E', 'Q34I', 'Q34E', 'Q35I', _{\sqcup}
        _{\hookrightarrow}'Q35E','Q36I', 'Q36E','Q37I', 'Q37E', 'Q38I', 'Q38E','Q39I', 'Q39E','Q40I',_{\sqcup}
        \leftrightarrow 'Q40E', 'Q41I', 'Q41E', 'Q42I', 'Q42E', 'source', 'introelapse',
        [87]:
               Q1A
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      [39775 rows x 84 columns]
[88]: df = df[df['VCL6']==0]
      df = df[df['VCL9']==0]
      df = df[df['VCL12']==0]
[88]:
               Q1A
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                                   Cognitive Science
      [34583 rows x 172 columns]
[89]: DASS keys = {'Depression': [3, 5, 10, 13, 16, 17, 21, 24, 26, 31, 34, 37, 38, 11]
       →42],
                   'Anxiety': [2, 4, 7, 9, 15, 19, 20, 23, 25, 28, 30, 36, 40, 41],
                   'Stress': [1, 6, 8, 11, 12, 14, 18, 22, 27, 29, 32, 33, 35, 39]}
      DASS_bins = {'Depression': [(0, 10), (10, 14), (14, 21), (21, 28)],
                   'Anxiety': [(0, 8), (8, 10), (10, 15), (15, 20)],
                   'Stress': [(0, 15), (15, 19), (19, 26), (26, 34)]}
      for name, keys in DASS_keys.items():
          # Subtract one to match definition of DASS score in source
          df[name] = (df.filter(regex='Q(%s)A' % '|'.join(map(str, keys))) - 1).
       \rightarrowsum(axis=1)
          bins = DASS_bins[name]
          bins.append( (DASS_bins[name][-1][-1], df[name].max() + 1))
          bins = pd.IntervalIndex.from tuples(bins, closed='left')
          df[name + '_cat'] = np.arange(len(bins))[pd.cut(df[name], bins=bins).cat.
       -codes1
      dass = df[DASS_keys.keys()]
      dass_cat = df[[k + '_cat' for k in DASS_keys.keys()]]
[90]: # Add personality types to data
      personality_types = ['Extraversion', 'Agreeableness', 'Conscientiousness', |
       →'EmotionalStability', 'Openness']
```

```
# Invert some entries
      tipi = df.filter(regex='TIPI\d+').copy()
      tipi_inv = tipi.filter(regex='TIPI(2|4|6|8|10)').apply(lambda d: 7 - d)
      tipi[tipi.columns.intersection(tipi_inv.columns)] = tipi_inv
      # Calculate scores
      for idx, pt in enumerate( personality_types ):
          df[pt] = tipi[['TIPI{}'.format(idx + 1), 'TIPI{}'.format(6 + idx)]].
       \rightarrowmean(axis=1)
      personalities = df[personality_types]
      personalities[['Extraversion', 'Agreeableness', 'Conscientiousness', |
       [90]:
             Extraversion Agreeableness Conscientiousness EmotionalStability \
                             34583.000000
             34583.000000
                                                 34583.000000
                                                                      34583.000000
      count
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                                                                          2.733973
                                                     3.716335
      std
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                                 1.213524
                                                     1.482219
                                                                          1.514738
      min
                 0.000000
                                 0.000000
                                                     0.000000
                                                                          0.00000
      25%
                 2,000000
                                 3.500000
                                                     2,500000
                                                                          1.500000
      50%
                 3.000000
                                 4.000000
                                                     3.500000
                                                                          2.500000
      75%
                 4.000000
                                 5.000000
                                                     5.000000
                                                                          3.500000
      max
                 7.000000
                                 7.000000
                                                     7.000000
                                                                          7.000000
                 Openness
      count
             34583.000000
      mean
                 4.057225
      std
                 1.322600
      min
                 0.000000
      25%
                 3.500000
      50%
                 4.000000
      75%
                 5.000000
                 7.000000
      max
[91]: #extracting the questions of DASS out of dataset
      only_q = df.filter(regex='Q\d{1,2}A')
      only_q.head(10)
[91]:
                               Q5A
                                    Q6A
                                         Q7A
                                              Q8A
                                                    Q9A
                                                         Q10A
                                                                  Q33A
                                                                         Q34A
                                                                               Q35A
          Q1A
               Q2A
                    Q3A
                          Q4A
            4
                       2
                                 4
                                      4
                                           4
                                                      2
                                                                      2
                                                                            3
                                                                                  4
      0
                            4
                                                 4
                                                            1
                       2
                                                      3
                                                                            2
                                                                                  2
      1
            4
                            3
                                 4
                                           3
                                                                      3
            3
                                                      2
      2
                 1
                       4
                            1
                                 4
                                      3
                                           1
                                                 3
                                                            4
                                                                      1
                                                                            4
                                                                                  3
            2
      3
                 3
                       2
                            1
                                 3
                                      3
                                           4
                                                 2
                                                      3
                                                            3
                                                                      2
                                                                            4
                                                                                  1
                                                               •••
      4
            2
                 2
                       3
                            4
                                 4
                                      2
                                           4
                                                 4
                                                      4
                                                            3
                                                                      4
                                                                            4
                                                                                  3
      5
            1
                 1
                       2
                            1
                                 3
                                      1
                                           1
                                                 3
                                                      3
                                                            2
                                                                      4
                                                                            1
                                                                                  3
                       2
                                 4
                                                            4
                                                                                  2
      6
            1
                 1
                            3
                                      1
                                           3
                                                 3
                                                      3
                                                                      4
                                                                            3
      9
            3
                 2
                       4
                            1
                                 4
                                      4
                                           3
                                                 4
                                                            4
                                                                            4
                                                                                  3
                                                      4
                                                                      4
```

10	3	1	2	1 3	3	1	3	1	1	 1	L	2	3
11	3	3	2	2 4	: 3	1	3	4	3	 4	1	3	2
	Q36A	Q37A	Q38A	Q39A	Q40A	Q41A	Q42A						
0	4	1	2	4	3	4	4						
1	3	4	2	2	1	2	2						
2	4	4	4	2	2	1	4						
3	1	2	1	3	4	4	2						
4	4	3	3	3	4	4	3						
5	2	2	2	1	1	1	2						
6	2	4	4	4	2	2	3						
9	4	4	4	4	4	3	4						
10	1	1	2	3	1	1	2						
11	3	1	2	4	3	1	2						

[10 rows x 42 columns]

[92]: only_q.info()

<class 'pandas.core.frame.DataFrame'>
Int64Index: 34583 entries, 0 to 39774
Data columns (total 42 columns):

#	Column	Non-Null Count Dtype
0	Q1A	34583 non-null int64
1	Q2A	34583 non-null int64
2	QЗА	34583 non-null int64
3	Q4A	34583 non-null int64
4	Q5A	34583 non-null int64
5	Q6A	34583 non-null int64
6	Q7A	34583 non-null int64
7	Q8A	34583 non-null int64
8	Q9A	34583 non-null int64
9	Q10A	34583 non-null int64
10	Q11A	34583 non-null int64
11	Q12A	34583 non-null int64
12	Q13A	34583 non-null int64
13	Q14A	34583 non-null int64
14	Q15A	34583 non-null int64
15	Q16A	34583 non-null int64
16	Q17A	34583 non-null int64
17	Q18A	34583 non-null int64
18	Q19A	34583 non-null int64
19	Q20A	34583 non-null int64
20	Q21A	34583 non-null int64
21	Q22A	34583 non-null int64
22	Q23A	34583 non-null int64
23	Q24A	34583 non-null int64

```
Q25A
                   34583 non-null
      24
                                    int64
      25
          Q26A
                   34583 non-null
                                    int64
      26
           Q27A
                   34583 non-null
                                    int64
      27
           Q28A
                   34583 non-null
                                    int64
          Q29A
      28
                   34583 non-null
                                    int64
      29
           Q30A
                   34583 non-null
                                    int64
           Q31A
      30
                   34583 non-null
                                    int64
           Q32A
                   34583 non-null
                                    int64
      31
      32
           Q33A
                   34583 non-null
                                    int64
      33
          Q34A
                   34583 non-null
                                    int64
      34
           Q35A
                   34583 non-null
                                    int64
      35
           Q36A
                   34583 non-null
                                    int64
           Q37A
      36
                   34583 non-null
                                    int64
           Q38A
                   34583 non-null
      37
                                    int64
      38
           Q39A
                   34583 non-null
                                    int64
           Q40A
      39
                   34583 non-null
                                    int64
      40
           Q41A
                   34583 non-null
                                    int64
          Q42A
                   34583 non-null
                                    int64
      41
     dtypes: int64(42)
     memory usage: 11.3 MB
[93]: only_q.isnull().sum()
              0
      Q2A
              0
```

[93]: Q1A QЗА 0 Q4A 0 Q5A 0 Q6A 0 Q7A 0 Q8A 0 Q9A 0 Q10A 0 Q11A 0 Q12A 0 Q13A 0 Q14A 0 Q15A 0 Q16A 0 Q17A 0 Q18A 0 Q19A 0 Q20A 0 Q21A 0 Q22A 0

Q23A

Q24A

0

```
Q25A
        0
Q26A
        0
Q27A
        0
Q28A
        0
Q29A
        0
Q30A
        0
Q31A
        0
Q32A
        0
Q33A
        0
Q34A
        0
Q35A
        0
Q36A
        0
Q37A
        0
Q38A
        0
Q39A
        0
Q40A
        0
Q41A
        0
Q42A
        0
dtype: int64
```

[94]: only_t = df.filter(regex='TIPI\d+')
only_t

[94]:	TIPI1	TIPI2	TIPI3	TIPI4	TIPI5	TIPI6	TIPI7	TIPI8	TIPI9	TIPI10
0	1	5	7	7	7	7	7	5	1	1
1	6	5	4	7	5	4	7	7	1	5
2	2	5	2	2	5	6	5	5	3	2
3	1	1	7	4	6	4	6	1	6	1
4	2	5	3	6	5	5	5	6	3	3
•••	•••		•••		•••					
39769	6	5	4	5	6	3	5	2	5	7
39770	2	2	3	5	6	5	5	3	3	6
39772	6	6	7	5	6	3	6	1	5	4
39773	1	6	5	7	3	5	3	5	3	4
39774	. 6	2	3	5	6	3	5	5	1	2

[34583 rows x 10 columns]

[95]: only_t.info()

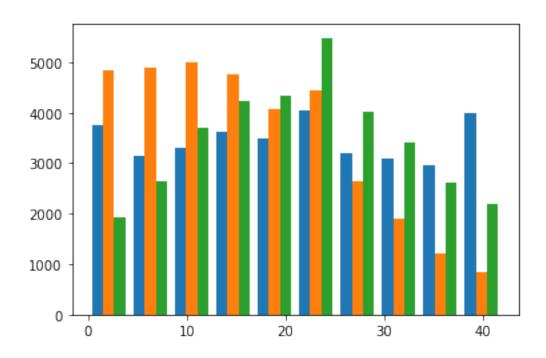
<class 'pandas.core.frame.DataFrame'>
Int64Index: 34583 entries, 0 to 39774
Data columns (total 10 columns):

```
4
          TIPI5
                  34583 non-null int64
      5
          TIPI6
                  34583 non-null int64
      6
          TIPI7
                  34583 non-null int64
                  34583 non-null int64
      7
          TIPI8
      8
          TIPI9
                  34583 non-null int64
          TIPI10 34583 non-null int64
     dtypes: int64(10)
     memory usage: 2.9 MB
[96]: only_t.isnull().sum()
[96]: TIPI1
                0
      TIPI2
                0
      TIPI3
                0
      TIPI4
                0
      TIPI5
                0
     TIPI6
                0
     TIPI7
                0
     TIPI8
                0
     TIPI9
                0
                0
      TIPI10
      dtype: int64
[97]: import matplotlib.pyplot as plt
[98]: plt.hist(dass)
      #It can be sen that this class variable is not imbalanced toward a certain,
       \rightarrow result
[98]: (array([[3741., 3152., 3300., 3629., 3490., 4057., 3189., 3091., 2950.,
               3984.],
              [4835., 4887., 4999., 4748., 4069., 4452., 2648., 1891., 1221.,
                833.],
              [1929., 2652., 3692., 4237., 4337., 5482., 4031., 3416., 2605.,
               2202.]]),
       array([ 0. , 4.2, 8.4, 12.6, 16.8, 21. , 25.2, 29.4, 33.6, 37.8, 42. ]),
       <a list of 3 BarContainer objects>)
```

3

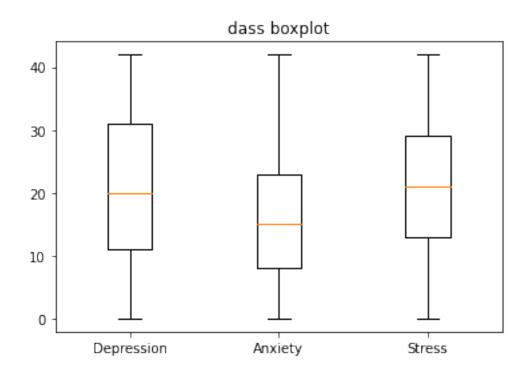
TIPI4

34583 non-null int64

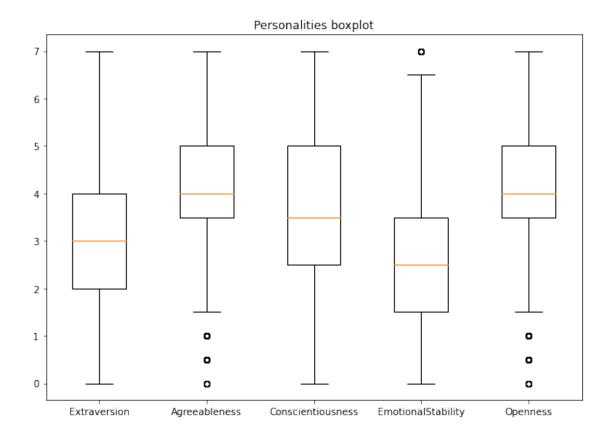


```
[99]: fig, axs = plt.subplots()
  axs.boxplot(dass, labels = ['Depression', 'Anxiety', 'Stress'], )
  axs.set_title('dass boxplot')
```

[99]: Text(0.5, 1.0, 'dass boxplot')



[100]: Text(0.5, 1.0, 'Personalities boxplot')



```
plt.xticks(range(df.select_dtypes(['number']).shape[1]), df.

select_dtypes(['number']).columns, fontsize=14, rotation=90)

plt.yticks(range(df.select_dtypes(['number']).shape[1]), df.

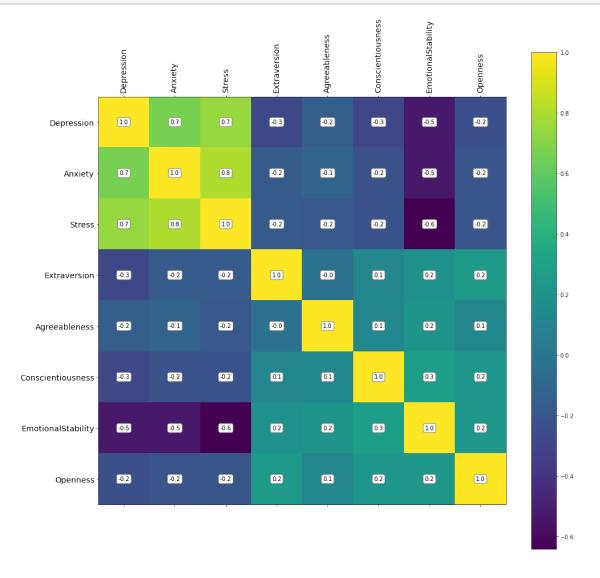
select_dtypes(['number']).columns, fontsize=14)

cb = plt.colorbar(im)

ax.tick_params(labelsize=14)

plt.show()
```

```
[102]: character = pd.concat([dass, personalities], axis=1)
plot_correlation(character, cmap='viridis')
```

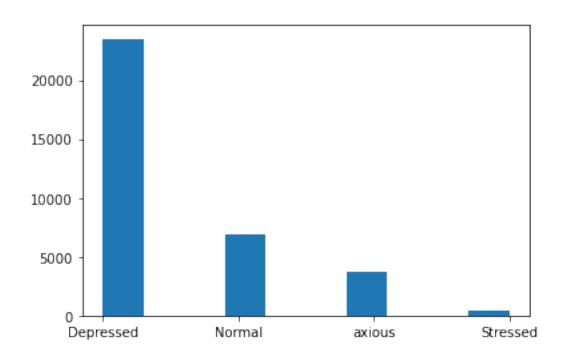


```
(df['Depression'] >= 14) ,
            (df['Anxiety'] >= 10) ,
            (df['Stress'] >= 19),
            ((df['Depression'] < 14) & (df['Anxiety'] < 10) & (df['Stress'] < 19)),
           values = ['Depressed', 'axious', 'Stressed', 'Normal']
           df['diagnosis Category'] = np.select(conditions, values)
           return df
[104]: dfNew = clasVar(df)
       dfNew.head(10)
[104]:
           Q1A
                 Q1I
                       Q1E
                            Q2A
                                  Q2I
                                         Q2E
                                              QЗА
                                                   Q3I
                                                           Q3E
                                                                Q4A
                                                                         Anxiety \
             4
                  28
                      3890
                               4
                                   25
                                       2122
                                                2
                                                     16
                                                          1944
                                                                   4
                                                                               34
       0
       1
              4
                   2
                      8118
                                   36
                                       2890
                                                2
                                                     35
                                                          4777
                                                                   3
                                                                               17
       2
              3
                   7
                      5784
                                   33
                                       4373
                                                     41
                                                          3242
                                                                               12
                                                                   1
       3
              2
                  23
                     5081
                               3
                                   11
                                       6837
                                                2
                                                     37
                                                          5521
                                                                   1
                                                                               17
       4
              2
                  36 3215
                               2
                                   13
                                       7731
                                                3
                                                      5
                                                          4156
                                                                   4
                                                                               40
                                                                      ...
       5
                  18 6116
                                   28
                                       3193
                                                2
                                                         12542
                                                                   1
                                                                                6
              1
                               1
                                                      2
       6
                  20 4325
                                       4009
              1
                               1
                                   34
                                                2
                                                     38
                                                          3604
                                                                   3
                                                                               19
       9
              3
                  38 5187
                               2
                                   28
                                       2600
                                                4
                                                      9
                                                          2015
                                                                   1
                                                                               28
       10
              3
                                       4322
                                                2
                                                     28
                                                          3083
                                                                                2
                  38 3352
                               1
                                   16
                                                                   1
              3
                  37 4024
                                                2
                                                                   2
       11
                               3
                                   35
                                       2116
                                                     18
                                                          3408
                                                                               20
                                                                      •••
           Anxiety_cat
                         Stress
                                  Stress_cat
                                               Extraversion Agreeableness
       0
                      4
                              40
                                                         0.5
                                                                         4.5
                                            4
       1
                      3
                              27
                                            3
                                                         4.5
                                                                         4.5
       2
                      2
                              17
                                            1
                                                         1.5
                                                                         3.5
       3
                      3
                                                         2.0
                                                                         6.0
                              16
                                            1
       4
                      4
                              29
                                            3
                                                         2.0
                                                                         3.5
                      0
                                                         1.0
                                                                         6.5
       5
                              12
                                            0
                      3
                                                                         4.0
       6
                              14
                                            0
                                                         3.5
       9
                      4
                              34
                                            4
                                                         0.5
                                                                         0.5
       10
                      0
                              24
                                            2
                                                         4.0
                                                                         4.0
                              27
       11
                      4
                                            3
                                                         5.5
                                                                         3.5
           Conscientiousness EmotionalStability Openness
                                                                diagnosis Category
                                                0.5
                                                           6.5
       0
                          4.5
                                                                          Depressed
       1
                           2.0
                                                0.5
                                                           3.5
                                                                          Depressed
       2
                           2.0
                                                4.0
                                                           5.0
                                                                          Depressed
       3
                           6.5
                                                4.5
                                                           6.0
                                                                          Depressed
       4
                           2.0
                                                2.0
                                                           4.5
                                                                          Depressed
       5
                           5.5
                                                6.0
                                                           3.5
                                                                              Normal
       6
                           5.0
                                                3.5
                                                           2.5
                                                                          Depressed
       9
                           5.0
                                                0.5
                                                           2.5
                                                                          Depressed
       10
                           3.0
                                                3.0
                                                           1.5
                                                                          Depressed
                                                                          Depressed
       11
                           5.0
                                                2.0
                                                           5.0
```

[10 rows x 184 columns]

```
→ 'EmotionalStability', 'Openness', 'diagnosis Category']]
       dfNew
              Extraversion Agreeableness Conscientiousness
[105]:
                                                                 EmotionalStability \
       0
                        0.5
                                        4.5
                                                            4.5
                                                                                 0.5
       1
                        4.5
                                        4.5
                                                            2.0
                                                                                 0.5
       2
                                                            2.0
                                                                                 4.0
                        1.5
                                        3.5
       3
                        2.0
                                        6.0
                                                            6.5
                                                                                 4.5
       4
                        2.0
                                        3.5
                                                            2.0
                                                                                 2.0
                        5.0
                                        3.5
                                                            4.5
                                                                                 3.5
       39769
                                        5.0
                                                            3.5
                                                                                 2.5
       39770
                        2.0
       39772
                        5.0
                                        3.5
                                                            6.5
                                                                                 3.5
       39773
                        1.5
                                                            3.5
                                                                                 1.5
                                        2.0
       39774
                        5.0
                                        5.0
                                                            2.5
                                                                                 1.5
              Openness diagnosis Category
       0
                   6.5
                                 Depressed
                    3.5
                                 Depressed
       1
       2
                   5.0
                                 Depressed
       3
                    6.0
                                 Depressed
                    4.5
       4
                                 Depressed
       39769
                   3.0
                                 Depressed
                    3.5
       39770
                                 Depressed
       39772
                   4.5
                                    Normal
                                 Depressed
       39773
                    3.0
       39774
                   5.5
                                 Depressed
       [34583 rows x 6 columns]
[106]: plt.hist(dfNew['diagnosis Category'])
[106]: (array([23503.,
                                    0., 6879.,
                            0.,
                                                     0.,
                                                              0.,
                                                                   3754.,
                                                                               0.,
                   0.,
                          447.]),
        array([0., 0.3, 0.6, 0.9, 1.2, 1.5, 1.8, 2.1, 2.4, 2.7, 3.]),
        <BarContainer object of 10 artists>)
```

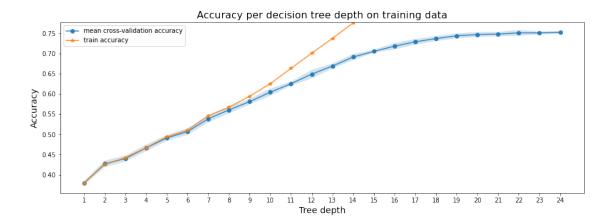
[105]: dfNew = dfNew.loc[:,['Extraversion', 'Agreeableness', 'Conscientiousness', '



[107]:	dfNew.describe()											
[107]:		Extraversion	Agreeableness	Conscientiousness	EmotionalStability	\						
	count	34583.000000	34583.000000	34583.000000	34583.000000							
	mean	2.971764	4.052237	3.716335	2.733973							
	std	1.538398	1.213524	1.482219	1.514738							
	min	0.000000	0.000000	0.000000	0.000000							
	25%	2.000000	3.500000	2.500000	1.500000							
	50%	3.000000	4.000000	3.500000	2.500000							
	75%	4.000000	5.000000	5.000000	3.500000							
	max	7.000000	7.000000	7.000000	7.000000							
		Openness										
	count	34583.000000										
	mean	4.057225										
	std	1.322600										
	min	0.000000										
	25%	3.500000										
	50%	4.000000										
	75%	5.000000										
	max	7.000000										
[400]	c											
[108]:		ollections imp										
			s import make_c	lassillcation								
		atplotlib impo										
	from numpy import where											

```
[109]: y = dfNew['diagnosis Category']
       counter = Counter(y)
       print(counter)
      Counter({'Depressed': 23503, 'Normal': 6879, 'axious': 3754, 'Stressed': 447})
[110]: from imblearn.over_sampling import SMOTENC
       sm = SMOTENC(random_state=42, categorical_features=[5])
       dfNew_res, y_res = sm.fit_resample(dfNew, y)
       print(f'Resampled dataset samples per class {Counter(y_res)}')
      Resampled dataset samples per class Counter({'Depressed': 23503, 'Normal':
      23503, 'axious': 23503, 'Stressed': 23503})
[111]: from sklearn.model_selection import KFold
       kf = KFold(n_splits=5, shuffle=False)
       X=dfNew.columns[dfNew.columns != class col name]
       for train_index, test_index in kf.split(X):
             print("Train:", train_index, "Validation:",test_index)
             X_train, X_test = X[train_index], X[test_index]
             y_train, y_test = y[train_index], y[test_index]
      Train: [1 2 3 4] Validation: [0]
      Train: [0 2 3 4] Validation: [1]
      Train: [0 1 3 4] Validation: [2]
      Train: [0 1 2 4] Validation: [3]
      Train: [0 1 2 3] Validation: [4]
[112]: from sklearn.model_selection import train_test_split
       # Split dataset into training set and test set
       # class column is Creditability here and everything else will be used as u
       \rightarrow features
       class_col_name='diagnosis Category'
       feature_names=dfNew_res.columns[dfNew.columns != class_col_name ]
       # 70% training and 30% test
       X_train, X_test, y_train, y_test = train_test_split(dfNew_res.loc[:,_
       →feature_names], dfNew_res[class_col_name], test_size=0.25,random_state=1)
       print(X_train.shape, y_train.shape, X_test.shape, y_test.shape)
      (70509, 5) (70509,) (23503, 5) (23503,)
[113]: from sklearn.tree import DecisionTreeClassifier
       from sklearn.model_selection import cross_val_score
       import numpy as np
       import matplotlib.pyplot as plt
       X = dfNew res
       y = y_res
```

```
# function for fitting trees of various depths on the training data using \Box
\hookrightarrow cross-validation
def run_cross_validation_on_trees(X, y, tree_depths, cv=5, scoring='accuracy'):
    cv scores list = []
    cv_scores_std = []
    cv scores mean = []
    accuracy_scores = []
    for depth in tree_depths:
        tree_model = DecisionTreeClassifier(max_depth=depth)
        cv_scores = cross_val_score(tree model, X, y, cv=cv, scoring=scoring)
        cv_scores_list.append(cv_scores)
        cv_scores_mean.append(cv_scores.mean())
        cv_scores_std.append(cv_scores.std())
        accuracy_scores.append(tree_model.fit(X, y).score(X, y))
    cv_scores_mean = np.array(cv_scores_mean)
    cv_scores_std = np.array(cv_scores_std)
    accuracy_scores = np.array(accuracy_scores)
    return cv_scores_mean, cv_scores_std, accuracy_scores
# function for plotting cross-validation results
def plot_cross_validation_on_trees(depths, cv_scores_mean, cv_scores_std,_
→accuracy_scores, title):
    fig, ax = plt.subplots(1,1, figsize=(15,5))
    ax.plot(depths, cv_scores_mean, '-o', label='mean cross-validation_u
→accuracy', alpha=0.9)
    ax.fill_between(depths, cv_scores_mean-2*cv_scores_std,_
→cv_scores_mean+2*cv_scores_std, alpha=0.2)
    ylim = plt.ylim()
    ax.plot(depths, accuracy_scores, '-*', label='train accuracy', alpha=0.9)
    ax.set_title(title, fontsize=16)
    ax.set_xlabel('Tree depth', fontsize=14)
    ax.set_ylabel('Accuracy', fontsize=14)
    ax.set_ylim(ylim)
    ax.set_xticks(depths)
    ax.legend()
# fitting trees of depth 1 to 24
sm_tree_depths = range(1,25)
sm_cv_scores_mean, sm_cv_scores_std, sm_accuracy_scores =_
→run_cross_validation_on_trees(X_train, y_train, sm_tree_depths)
# plotting accuracy
plot_cross_validation_on_trees(sm_tree_depths, sm_cv_scores_mean,_
→sm_cv_scores_std, sm_accuracy_scores,
                                'Accuracy per decision tree depth on training_
 →data')
```



The depth-24 tree achieves the best mean cross-validation accuracy 75.20316 +/-0.17681% on training dataset

Single tree depth: 24
Accuracy, Training Set: 96.86848 %

```
Accuracy, Test Set: 76.37323 %
[116]: clf = DecisionTreeClassifier()
       # Train Decision Tree Classifer
       clf = clf.fit(X_train,y_train)
       #Predict the response for test dataset
       y_pred = clf.predict(X_test)
[121]: from sklearn.tree import DecisionTreeClassifier
       from sklearn.tree import export_text
       clf = DecisionTreeClassifier(random_state=0 , max_depth=24)
       decision_tree = clf.fit(X_train, y_train)
       r = export_text(decision_tree, feature_names= ('Extraversion', 'Agreeableness', |
        → 'Conscientiousness', 'EmotionalStability', 'Openness'))
       print(r)
      |--- EmotionalStability <= 3.50
          |--- EmotionalStability <= 1.00
              |--- EmotionalStability <= 0.50
                  |--- Openness <= 6.00
                       |--- Conscientiousness <= 3.52
                          |--- Extraversion <= 4.01
                               |--- Agreeableness <= 1.99
                                   |--- Agreeableness <= 1.50
                                       |--- Extraversion <= 2.75
                                           |--- Conscientiousness <= 1.63
                                               |--- class: Depressed
                                           |--- Conscientiousness > 1.63
                                               |--- Conscientiousness <= 1.99
                                                   |--- class: Normal
                                               |--- Conscientiousness > 1.99
                                                   |--- truncated branch of depth 6
                                       |--- Extraversion > 2.75
                                           |--- Extraversion \leq 3.25
                                               |--- Conscientiousness <= 1.75
                                                   |--- truncated branch of depth 3
                                               |--- Conscientiousness > 1.75
                                                   |--- truncated branch of depth 3
                                           |--- Extraversion > 3.25
                                               |--- Extraversion <= 3.75
                                                   |--- class: Depressed
                                               |--- Extraversion > 3.75
                                                   |--- truncated branch of depth 3
                                   |--- Agreeableness > 1.50
                                       |--- Extraversion <= 3.28
```

|--- class: Stressed

```
|--- Extraversion > 3.28
            |--- class: axious
         -- Agreeableness > 1.99
     |--- Openness <= 4.04
         |--- EmotionalStability <= 0.41
             |--- EmotionalStability <= 0.13
                 |--- Conscientiousness <= 2.00
                     |--- truncated branch of depth 2
                 |--- Conscientiousness > 2.00
                     |--- truncated branch of depth 3
             |--- EmotionalStability > 0.13
                 |--- class: Normal
           -- EmotionalStability > 0.41
             |--- Extraversion <= 0.25
                 |--- Conscientiousness <= 2.75
                     |--- class: Depressed
                 |--- Conscientiousness > 2.75
                     |--- truncated branch of depth 3
             |--- Extraversion > 0.25
                 |--- Extraversion <= 2.75
                     |--- truncated branch of depth 12
                 |--- Extraversion > 2.75
                     |--- truncated branch of depth 11
       -- Openness > 4.04
         |--- Openness <= 4.40
             |--- class: axious
         |--- Openness > 4.40
             |--- Conscientiousness <= 3.05
                 |--- Agreeableness <= 2.97
                     |--- truncated branch of depth 7
                 |--- Agreeableness > 2.97
                     |--- truncated branch of depth 10
             |--- Conscientiousness > 3.05
                 |--- Conscientiousness <= 3.48
                     |--- class: axious
                 |--- Conscientiousness > 3.48
                 |--- truncated branch of depth 8
- Extraversion > 4.01
   -- Openness <= 1.00
     |--- Openness <= 0.53
         |--- Agreeableness <= 3.50
             |--- class: Depressed
         |--- Agreeableness > 3.50
             |--- Extraversion <= 5.75
                 |--- class: axious
             |--- Extraversion > 5.75
                 |--- class: Depressed
     |--- Openness > 0.53
```

```
|--- class: axious
     --- Openness > 1.00
        |--- Extraversion <= 4.47
            |--- Conscientiousness <= 1.52
                |--- class: axious
            |--- Conscientiousness > 1.52
                |--- class: Normal
        |--- Extraversion > 4.47
              -- Agreeableness <= 3.48
                |--- Agreeableness <= 3.01
                    |--- Extraversion <= 6.10
                        |--- truncated branch of depth 9
                    |--- Extraversion > 6.10
                        |--- class: axious
                |--- Agreeableness > 3.01
                    |--- class: axious
               - Agreeableness > 3.48
                |--- Openness <= 1.25
                    |--- Extraversion <= 4.75
                        |--- class: axious
                    |--- Extraversion > 4.75
                        |--- truncated branch of depth 3
                   - Openness > 1.25
                    |--- Agreeableness <= 4.75
                        |--- truncated branch of depth 7
                    |--- Agreeableness > 4.75
                        |--- truncated branch of depth 6
Conscientiousness >
|--- Conscientiousness <= 4.00
    |--- Agreeableness <= 6.25
        |--- Openness <= 1.63
            |--- class: Normal
        |--- Openness > 1.63
           |--- class: axious
       - Agreeableness > 6.25
        |--- class: Normal
    Conscientiousness > 4.00
    |--- Openness <= 3.69
        |--- Agreeableness <= 5.54
            |--- Extraversion <= 5.12
                  -- Agreeableness <= 1.41
                    |--- Openness <= 0.75
                        |--- class: Normal
                    |--- Openness > 0.75
                        |--- truncated branch of depth 5
                |--- Agreeableness > 1.41
                    |--- Conscientiousness <= 5.75
                    1
                       |--- truncated branch of depth 10
```

```
|--- Conscientiousness > 5.75
               | |--- truncated branch of depth 12
         -- Extraversion > 5.12
           |--- Agreeableness <= 3.63
               |--- Agreeableness <= 1.75
                   |--- class: Normal
               |--- Agreeableness > 1.75
                   |--- class: Depressed
              - Agreeableness > 3.63
               |--- Conscientiousness <= 5.25
                   |--- class: axious
               |--- Conscientiousness > 5.25
                   |--- class: Depressed
   |--- Agreeableness > 5.54
       |--- Agreeableness <= 5.93
           |--- class: axious
       |--- Agreeableness > 5.93
           |--- Conscientiousness <= 4.75
               |--- Conscientiousness <= 4.25
                  |--- class: Depressed
               |--- Conscientiousness > 4.25
                   |--- truncated branch of depth 6
           |--- Conscientiousness > 4.75
               |--- class: Depressed
--- Openness > 3.69
   --- Openness <= 4.50
       |--- Openness <= 4.01
           |--- Extraversion <= 1.57
               |--- Openness <= 3.94
                   |--- class: axious
               |--- Openness > 3.94
                   |--- truncated branch of depth 5
           |--- Extraversion > 1.57
               |--- Agreeableness <= 3.63
                   |--- truncated branch of depth 5
               |--- Agreeableness > 3.63
                   |--- truncated branch of depth 8
         -- Openness > 4.01
           |--- class: axious
       Openness > 4.50
       |--- Openness <= 5.51
           |--- Conscientiousness <= 5.75
               |--- Conscientiousness <= 5.02
                   |--- truncated branch of depth 12
               |--- Conscientiousness > 5.02
                   |--- truncated branch of depth 7
           |--- Conscientiousness > 5.75
              |--- class: Depressed
```

```
|--- Openness > 5.51
                    |--- Extraversion <= 4.75
                        |--- Extraversion <= 0.91
                            |--- truncated branch of depth 5
                        |--- Extraversion > 0.91
                            |--- truncated branch of depth 8
                      -- Extraversion > 4.75
                        |--- Extraversion <= 5.96
                            |--- truncated branch of depth 4
                        |--- Extraversion > 5.96
                           |--- class: Depressed
Openness > 6.00
|--- Conscientiousness <= 5.50
   |--- Openness <= 6.45
       |--- class: axious
   |--- Openness > 6.45
        |--- Conscientiousness <= 5.21
            |--- Openness <= 6.48
                |--- class: Normal
            |--- Openness > 6.48
                |--- Agreeableness <= 3.75
                   |--- Extraversion <= 1.25
                        |--- Conscientiousness <= 3.25
                            |--- class: Depressed
                        |--- Conscientiousness > 3.25
                            |--- truncated branch of depth 2
                    |--- Extraversion > 1.25
                        |--- class: Depressed
                |--- Agreeableness > 3.75
                    |--- Agreeableness <= 4.25
                        |--- Conscientiousness <= 3.04
                            |--- truncated branch of depth 3
                        |--- Conscientiousness > 3.04
                           |--- truncated branch of depth 2
                    |--- Agreeableness > 4.25
                        |--- Agreeableness <= 6.25
                            |--- truncated branch of depth 5
                        |--- Agreeableness > 6.25
                            |--- truncated branch of depth 4
          -- Conscientiousness > 5.21
            |--- Agreeableness <= 3.25
                |--- class: Depressed
            |--- Agreeableness > 3.25
                |--- class: axious
  -- Conscientiousness > 5.50
   |--- Conscientiousness <= 6.25
       |--- Extraversion <= 4.48
          |--- Agreeableness <= 4.50
```

```
|--- class: Stressed
                |--- Agreeableness > 4.50
                    |--- class: Depressed
               - Extraversion > 4.48
                --- Extraversion <= 6.00
                    |--- EmotionalStability <= 0.25
                        |--- class: Depressed
                    |--- EmotionalStability > 0.25
                        |--- Agreeableness <= 3.75
                            |--- class: Depressed
                        |--- Agreeableness > 3.75
                            |--- class: Stressed
                 --- Extraversion > 6.00
                    |--- class: axious
           - Conscientiousness > 6.25
            |--- Extraversion <= 5.00
                |--- class: Depressed
            |--- Extraversion > 5.00
                |--- Agreeableness <= 1.75
                    |--- class: Depressed
                |--- Agreeableness > 1.75
                    |--- class: Normal
EmotionalStability > 0.50
|--- EmotionalStability <= 1.00
   |--- Agreeableness <= 4.49
        |--- Openness <= 3.50
            |--- Conscientiousness <= 2.63
                |--- Conscientiousness <= 1.46
                    |--- Extraversion <= 1.48
                        |--- class: Normal
                    |--- Extraversion > 1.48
                        |--- class: axious
                 --- Conscientiousness > 1.46
                      -- Openness <= 2.46
                        |--- Extraversion <= 2.05
                            |--- class: Normal
                        |--- Extraversion > 2.05
                            |--- class: axious
                      -- Openness > 2.46
                        |--- Conscientiousness <= 1.89
                            |--- Extraversion <= 2.57
                                |--- class: Normal
                            |--- Extraversion > 2.57
                                |--- class: Stressed
                          -- Conscientiousness > 1.89
                            |--- class: Stressed
               - Conscientiousness > 2.63
                |--- Extraversion <= 5.97
```

```
|--- Openness <= 0.98
                |--- class: Normal
            |--- Openness > 0.98
                |--- Extraversion <= 0.29
                    |--- class: Normal
                |--- Extraversion > 0.29
                    |--- EmotionalStability <= 0.53
                        |--- class: Normal
                    |--- EmotionalStability > 0.53
                        |--- truncated branch of depth 5
        --- Extraversion > 5.97
            |--- EmotionalStability <= 0.83
                |--- class: axious
            |--- EmotionalStability > 0.83
               |--- class: Stressed
|--- Openness >
                3.50
    |--- Agreeableness <= 3.98
        |--- Openness <= 5.50
            |--- Extraversion <= 2.93
                |--- Openness <= 4.97
                    |--- Agreeableness <= 3.72
                       |--- class: axious
                    |--- Agreeableness > 3.72
                        |--- truncated branch of depth 2
                |--- Openness > 4.97
                    |--- class: Stressed
              -- Extraversion > 2.93
                |--- Agreeableness <= 2.50
                    |--- Extraversion <= 5.73
                        |--- truncated branch of depth 4
                    |--- Extraversion > 5.73
                        |--- class: axious
                |--- Agreeableness > 2.50
                    |--- Openness <= 4.50
                        |--- truncated branch of depth 8
                    |--- Openness > 4.50
                        |--- truncated branch of depth 4
          -- Openness > 5.50
              -- Conscientiousness <= 6.24
                |--- Openness <= 6.08
                    |--- Conscientiousness <= 5.46
                        |--- class: Stressed
                    |--- Conscientiousness > 5.46
                        |--- truncated branch of depth 2
                |--- Openness > 6.08
                    |--- Conscientiousness <= 4.03
                        |--- class: axious
                    |--- Conscientiousness > 4.03
```

```
|--- truncated branch of depth 2
             -- Conscientiousness > 6.24
               |--- Agreeableness <= 2.18
                   |--- class: Stressed
               |--- Agreeableness > 2.18
                   |--- Agreeableness <= 3.53
                       |--- class: Normal
                   |--- Agreeableness > 3.53
                       |--- class: axious
     -- Agreeableness > 3.98
       |--- Extraversion <= 2.46
           |--- EmotionalStability <= 0.95
               |--- class: axious
           |--- EmotionalStability > 0.95
               |--- class: Normal
       |--- Extraversion > 2.46
           |--- Extraversion <= 4.84
               |--- EmotionalStability <= 0.93
                   |--- Conscientiousness <= 4.38
                       |--- truncated branch of depth 3
                   |--- Conscientiousness > 4.38
                       |--- truncated branch of depth 2
                 -- EmotionalStability > 0.93
                   |--- Conscientiousness <= 4.54
                       |--- truncated branch of depth 2
                   |--- Conscientiousness > 4.54
                       |--- class: axious
             -- Extraversion > 4.84
               |--- Agreeableness <= 4.44
                   |--- Extraversion <= 5.58
                       |--- class: axious
                   |--- Extraversion > 5.58
                       |--- class: Normal
                  - Agreeableness > 4.44
                   |--- class: Normal
Agreeableness >
    Extraversion <= 3.02
    --- Openness <= 1.76
       |--- class: Normal
   |--- Openness > 1.76
       |--- Extraversion <= 0.69
           |--- Agreeableness <= 4.51
               |--- class: axious
           |--- Agreeableness > 4.51
               |--- Agreeableness <= 4.60
                   |--- class: Stressed
               |--- Agreeableness > 4.60
                  |--- class: Normal
```

```
|--- Extraversion > 0.69
                 |--- Conscientiousness <= 5.07
                     |--- class: axious
                 |--- Conscientiousness > 5.07
                     |--- Agreeableness <= 6.05
                         |--- class: axious
                     |--- Agreeableness > 6.05
                         |--- class: Normal
         Extraversion >
         |--- Conscientiousness <= 3.69
             |--- Conscientiousness <= 2.63
                 |--- Extraversion <= 5.37
                     |--- class: axious
                 |--- Extraversion > 5.37
                     |--- class: Normal
             |--- Conscientiousness > 2.63
                 |--- Agreeableness <= 5.61
                     |--- Conscientiousness <= 3.55
                         |--- Extraversion <= 4.19
                             |--- truncated branch of depth 4
                         |--- Extraversion > 4.19
                             |--- class: Stressed
                       -- Conscientiousness > 3.55
                         |--- Agreeableness <= 5.02
                             |--- truncated branch of depth 2
                         |--- Agreeableness > 5.02
                             |--- class: Stressed
                   -- Agreeableness > 5.61
                     |--- Extraversion <= 3.55
                         |--- class: Stressed
                     |--- Extraversion > 3.55
                         |--- class: axious
             Conscientiousness > 3.69
             |--- Openness <= 6.49
                 |--- class: axious
             |--- Openness > 6.49
                 |--- Agreeableness <= 5.41
                     |--- class: Stressed
                 |--- Agreeableness > 5.41
                     |--- class: axious
                 1
- EmotionalStability > 1.00
 |--- Extraversion <= 4.50
     |--- Conscientiousness <= 4.01
         |--- Openness <= 2.51
             |--- Conscientiousness <= 2.25
                 |--- Agreeableness <= 1.75
                 |--- Agreeableness <= 1.25
                    | |--- class: Depressed
```

```
|--- Agreeableness > 1.25
            |--- Conscientiousness <= 1.25
                |--- truncated branch of depth 3
            |--- Conscientiousness > 1.25
                |--- class: Depressed
       - Agreeableness > 1.75
        |--- Agreeableness <= 5.25
            |--- Extraversion <= 3.25
                |--- class: Depressed
            |--- Extraversion > 3.25
                |--- truncated branch of depth 5
        |--- Agreeableness > 5.25
            |--- Extraversion <= 0.75
                |--- truncated branch of depth 3
            |--- Extraversion > 0.75
                |--- class: Depressed
    Conscientiousness > 2.25
    |--- Conscientiousness <= 2.82
        |--- Conscientiousness <= 2.57
            |--- Openness <= 2.25
                |--- truncated branch of depth 6
            |--- Openness > 2.25
                |--- truncated branch of depth 4
          -- Conscientiousness > 2.57
            |--- class: axious
        Conscientiousness > 2.82
        |--- Extraversion <= 4.25
            |--- Openness <= 0.75
                |--- truncated branch of depth 3
            |--- Openness > 0.75
                |--- truncated branch of depth 12
        |--- Extraversion > 4.25
            |--- Conscientiousness <= 3.75
               |--- class: Depressed
            |--- Conscientiousness > 3.75
            1
                |--- truncated branch of depth 2
Openness > 2.51
|--- Openness <= 2.99
    |--- Agreeableness <= 3.51
       |--- class: axious
   |--- Agreeableness > 3.51
        |--- Agreeableness <= 4.33
            |--- class: Stressed
        |--- Agreeableness > 4.33
            |--- class: axious
|--- Openness > 2.99
    |--- Extraversion <= 3.00
       |--- Agreeableness <= 4.52
```

```
|--- Openness <= 4.01
                       |--- truncated branch of depth 13
                    |--- Openness > 4.01
                        |--- truncated branch of depth 13
                  -- Agreeableness > 4.52
                    |--- Agreeableness <= 4.96
                        |--- class: axious
                    |--- Agreeableness > 4.96
                        |--- truncated branch of depth 13
              -- Extraversion > 3.00
                |--- Extraversion <= 3.48
                    |--- class: axious
                |--- Extraversion > 3.48
                    |--- Openness <= 5.11
                        |--- truncated branch of depth 11
                    |--- Openness > 5.11
                        |--- truncated branch of depth 10
|--- Conscientiousness > 4.01
      - Extraversion <= 3.00
       |--- Openness <= 4.32
            |--- Conscientiousness <= 5.50
                |--- Openness <= 3.50
                    |--- Conscientiousness <= 4.43
                        |--- class: axious
                    |--- Conscientiousness > 4.43
                        |--- truncated branch of depth 8
                |--- Openness > 3.50
                    |--- Agreeableness <= 4.25
                        |--- truncated branch of depth 6
                    |--- Agreeableness > 4.25
                        |--- truncated branch of depth 8
           |--- Conscientiousness > 5.50
                |--- Conscientiousness <= 5.99
                    |--- class: Stressed
                |--- Conscientiousness > 5.99
                    |--- Agreeableness <= 3.98
                       |--- truncated branch of depth 8
                    |--- Agreeableness > 3.98
                        |--- truncated branch of depth 5
        --- Openness > 4.32
            |--- Conscientiousness <= 5.92
                |--- Conscientiousness <= 4.70
                    |--- Conscientiousness <= 4.46
                        |--- class: axious
                    |--- Conscientiousness > 4.46
                        |--- truncated branch of depth 8
                |--- Conscientiousness > 4.70
                   |--- Agreeableness <= 3.88
```

```
|--- truncated branch of depth 7
            |--- Agreeableness > 3.88
                |--- truncated branch of depth 9
     -- Conscientiousness > 5.92
        |--- Extraversion <= 1.25
            |--- class: Depressed
        |--- Extraversion > 1.25
            |--- Openness <= 5.25
                |--- truncated branch of depth 5
            |--- Openness > 5.25
                |--- truncated branch of depth 7
Extraversion > 3.00
|--- Openness <= 3.51
    |--- Extraversion <= 3.75
       |--- Agreeableness <= 5.25
            |--- Conscientiousness <= 4.44
                |--- class: Normal
            |--- Conscientiousness > 4.44
                |--- truncated branch of depth 3
        |--- Agreeableness > 5.25
            |--- class: Normal
     -- Extraversion > 3.75
        |--- Agreeableness <= 4.25
            |--- Conscientiousness <= 6.25
                |--- truncated branch of depth 7
            |--- Conscientiousness > 6.25
                |--- class: Depressed
        |--- Agreeableness > 4.25
            |--- class: Depressed
    Openness > 3.51
    |--- Extraversion <= 4.50
        |--- Openness <= 4.50
            |--- Extraversion <= 3.92
            | |--- truncated branch of depth 6
            |--- Extraversion > 3.92
                |--- truncated branch of depth 5
          -- Openness > 4.50
            |--- Openness <= 6.15
               |--- truncated branch of depth 10
            |--- Openness > 6.15
                |--- truncated branch of depth 5
      -- Extraversion > 4.50
       |--- Openness <= 6.25
            |--- Openness <= 4.25
           | |--- truncated branch of depth 4
            |--- Openness > 4.25
                |--- class: Depressed
       |--- Openness > 6.25
```

```
|--- Agreeableness <= 3.25
                       |--- class: Normal
                   |--- Agreeableness > 3.25
                       |--- class: Depressed
                4.50
Extraversion >
   Agreeableness <= 3.99
   |--- Openness <= 2.50
       |--- Conscientiousness <= 4.12
           |--- Extraversion <= 5.75
               |--- class: Depressed
           |--- Extraversion > 5.75
               |--- Openness <= 1.25
                   |--- class: Depressed
               |--- Openness > 1.25
                   |--- Extraversion <= 6.25
                     |--- truncated branch of depth 2
                   |--- Extraversion > 6.25
                       |--- class: axious
           Conscientiousness > 4.12
           |--- Openness <= 2.35
               |--- class: axious
             -- Openness > 2.35
               |--- Agreeableness <= 2.75
                   |--- class: Depressed
               |--- Agreeableness > 2.75
                   |--- class: axious
     -- Openness > 2.50
       |--- Conscientiousness <= 5.07
           |--- Conscientiousness <= 1.09
               |--- class: Depressed
             -- Conscientiousness > 1.09
               |--- Openness <= 4.51
                   |--- Extraversion <= 5.00
                       |--- truncated branch of depth 3
                   |--- Extraversion > 5.00
                       |--- truncated branch of depth 8
                  -- Openness > 4.51
                   |--- Agreeableness <= 3.52
                       |--- truncated branch of depth 10
                   |--- Agreeableness > 3.52
                       |--- class: Normal
           Conscientiousness > 5.07
           |--- Extraversion <= 6.00
               |--- Openness <= 3.93
                   |--- Conscientiousness <= 5.75
                       |--- truncated branch of depth 2
                   |--- Conscientiousness > 5.75
                   |--- class: Depressed
```

```
|--- Openness > 3.93
                                    |--- class: Depressed
                               - Extraversion > 6.00
                                |--- Extraversion <= 6.50
                                    |--- class: Stressed
                                |--- Extraversion > 6.50
                                    |--- class: Depressed
                    Agreeableness > 3.99
                         Conscientiousness <= 6.25
                         --- Extraversion <= 4.87
                            |--- Extraversion <= 4.51
                                |--- class: axious
                            |--- Extraversion > 4.51
                                |--- class: Stressed
                         --- Extraversion > 4.87
                              -- Conscientiousness <= 0.92
                                 --- Extraversion <= 5.25
                                    |--- Openness <= 5.75
                                        |--- class: axious
                                    |--- Openness > 5.75
                                        |--- class: Depressed
                                |--- Extraversion > 5.25
                                    |--- class: Depressed
                               - Conscientiousness > 0.92
                                |--- Extraversion <= 5.06
                                    |--- Openness <= 1.50
                                        |--- class: Normal
                                    |--- Openness > 1.50
                                        |--- truncated branch of depth 7
                                  -- Extraversion > 5.06
                                    |--- Extraversion <= 5.37
                                        |--- truncated branch of depth 2
                                    |--- Extraversion > 5.37
                                        |--- truncated branch of depth 11
                        Conscientiousness > 6.25
                        |--- Extraversion <= 5.75
                            |--- Conscientiousness <= 6.75
                                |--- class: axious
                            |--- Conscientiousness > 6.75
                                |--- class: Depressed
                          -- Extraversion > 5.75
                            |--- Openness <= 3.99
                                |--- class: Stressed
                            |--- Openness > 3.99
                                |--- class: Depressed
|--- EmotionalStability >
    |--- Agreeableness <= 4.00
       |--- Agreeableness <= 3.50
```

```
|--- Openness <= 4.00
   |--- Conscientiousness <= 3.00
        |--- EmotionalStability <= 1.49
            |--- Openness <= 2.51
                |--- Conscientiousness <= 0.77
                   |--- class: Normal
                |--- Conscientiousness > 0.77
                    |--- class: axious
                Openness > 2.51
                |--- Extraversion <= 1.66
                    |--- Agreeableness <= 3.15
                        |--- class: axious
                    |--- Agreeableness > 3.15
                        |--- Conscientiousness <= 2.85
                            |--- class: Stressed
                        |--- Conscientiousness > 2.85
                            |--- truncated branch of depth 2
                |--- Extraversion > 1.66
                    |--- Agreeableness <= 2.05
                        |--- Openness <= 3.06
                            |--- class: Normal
                        |--- Openness > 3.06
                            |--- class: Stressed
                       - Agreeableness > 2.05
                        |--- Extraversion <= 6.20
                            |--- truncated branch of depth 3
                        |--- Extraversion > 6.20
                            |--- class: Normal
            EmotionalStability > 1.49
            --- EmotionalStability <= 1.50
                |--- Agreeableness <= 3.03
                    |--- Extraversion <= 4.75
                        |--- Agreeableness <= 0.75
                            |--- truncated branch of depth 2
                        |--- Agreeableness > 0.75
                            |--- truncated branch of depth 11
                       - Extraversion > 4.75
                        |--- Agreeableness <= 2.49
                            |--- truncated branch of depth 3
                        |--- Agreeableness > 2.49
                            |--- truncated branch of depth 6
                  -- Agreeableness > 3.03
                    |--- Agreeableness <= 3.43
                        |--- Conscientiousness <= 0.95
                            |--- class: Normal
                        |--- Conscientiousness > 0.95
                            |--- class: axious
                    |--- Agreeableness > 3.43
```

```
|--- Conscientiousness <= 0.75
                  |--- truncated branch of depth 2
                |--- Conscientiousness > 0.75
                    |--- truncated branch of depth 10
        EmotionalStability > 1.50
        |--- EmotionalStability <= 2.00
            |--- Openness <= 3.98
                |--- Openness <= 2.39
                   |--- truncated branch of depth 2
                |--- Openness > 2.39
                    |--- truncated branch of depth 8
            |--- Openness > 3.98
                |--- Conscientiousness <= 1.89
                    |--- class: Normal
                |--- Conscientiousness > 1.89
                    |--- class: axious
          -- EmotionalStability > 2.00
            |--- Extraversion <= 3.51
                |--- Agreeableness <= 3.49
                  |--- truncated branch of depth 14
                |--- Agreeableness > 3.49
                    |--- truncated branch of depth 14
              -- Extraversion > 3.51
                |--- Extraversion <= 4.00
                    |--- truncated branch of depth 6
                |--- Extraversion > 4.00
                    |--- truncated branch of depth 14
Conscientiousness > 3.00
|--- Extraversion <= 2.50
    |--- Extraversion <= 1.00
        |--- EmotionalStability <= 1.50
            |--- Agreeableness <= 2.57
                |--- Conscientiousness <= 4.49
                   |--- class: axious
                |--- Conscientiousness > 4.49
                    |--- class: Stressed
             --- Agreeableness > 2.57
                |--- class: axious
           - EmotionalStability > 1.50
            |--- Extraversion <= 0.51
                |--- Agreeableness <= 3.07
                    |--- truncated branch of depth 11
                |--- Agreeableness > 3.07
                    |--- truncated branch of depth 8
            |--- Extraversion > 0.51
                |--- Extraversion <= 0.99
                    |--- truncated branch of depth 5
                |--- Extraversion > 0.99
```

```
|--- truncated branch of depth 14
    Extraversion > 1.00
    |--- Openness <= 2.50
       |--- Openness <= 2.50
           |--- Openness <= 2.01
               |--- truncated branch of depth 13
           |--- Openness > 2.01
               |--- truncated branch of depth 7
         -- Openness > 2.50
           |--- EmotionalStability <= 3.16
               |--- truncated branch of depth 10
           |--- EmotionalStability > 3.16
               |--- class: axious
     -- Openness > 2.50
       |--- Conscientiousness <= 5.50
           |--- Agreeableness <= 3.36
               |--- truncated branch of depth 13
           |--- Agreeableness > 3.36
               |--- truncated branch of depth 14
         -- Conscientiousness > 5.50
           |--- Conscientiousness <= 6.50
               |--- truncated branch of depth 10
           |--- Conscientiousness > 6.50
               |--- truncated branch of depth 4
Extraversion > 2.50
--- EmotionalStability <= 2.48
   |--- Openness <= 4.00
       |--- Agreeableness <= 3.50
           |--- Agreeableness <= 3.01
               |--- truncated branch of depth 14
           |--- Agreeableness > 3.01
               |--- truncated branch of depth 8
       |--- Agreeableness > 3.50
           |--- EmotionalStability <= 2.01
               |--- truncated branch of depth 14
           |--- EmotionalStability > 2.01
               |--- truncated branch of depth 8
           -- Openness > 4.00
       |--- EmotionalStability <= 2.01
           |--- EmotionalStability <= 1.50
           | |--- truncated branch of depth 12
           |--- EmotionalStability > 1.50
               |--- truncated branch of depth 13
       |--- EmotionalStability > 2.01
           |--- Extraversion <= 3.25
               |--- class: axious
           |--- Extraversion > 3.25
              |--- truncated branch of depth 5
```

```
|--- EmotionalStability > 2.48
             |--- EmotionalStability <= 3.00
                 |--- EmotionalStability <= 2.50
                     |--- Extraversion <= 3.55
                         |--- truncated branch of depth 14
                     |--- Extraversion > 3.55
                         |--- truncated branch of depth 13
                 |--- EmotionalStability > 2.50
                     |--- EmotionalStability <= 3.00
                         |--- truncated branch of depth 10
                     |--- EmotionalStability > 3.00
                         |--- truncated branch of depth 14
             |--- EmotionalStability > 3.00
                 |--- Conscientiousness <= 3.64
                     |--- Extraversion <= 3.70
                         |--- truncated branch of depth 10
                     |--- Extraversion > 3.70
                         |--- truncated branch of depth 6
                 |--- Conscientiousness > 3.64
                     |--- Openness <= 3.59
                         |--- truncated branch of depth 8
                     |--- Openness > 3.59
                         |--- truncated branch of depth 5
- Openness >
            4.00
 |--- Extraversion <= 4.51
     |--- Conscientiousness <= 2.00
         |--- Openness <= 4.50
             |--- Extraversion <= 3.55
                 |--- Agreeableness <= 1.59
                     |--- class: Normal
                 |--- Agreeableness > 1.59
                     |--- Agreeableness <= 2.39
                         |--- truncated branch of depth 2
                     |--- Agreeableness > 2.39
                         |--- class: axious
               -- Extraversion > 3.55
                 |--- Agreeableness <= 2.73
                     |--- class: Stressed
                 |--- Agreeableness > 2.73
                     |--- Openness <= 4.13
                         |--- class: axious
                     |--- Openness > 4.13
                         |--- class: Normal
         |--- Openness > 4.50
             |--- Agreeableness <= 3.00
                |--- Extraversion <= 3.16
                     |--- EmotionalStability <= 3.21
                    | |--- truncated branch of depth 10
```

```
|--- EmotionalStability > 3.21
               |--- class: Normal
        |--- Extraversion > 3.16
           |--- EmotionalStability <= 1.51
               |--- truncated branch of depth 6
           |--- EmotionalStability > 1.51
               |--- truncated branch of depth 10
      - Agreeableness > 3.00
        |--- Openness <= 6.01
           |--- EmotionalStability <= 3.01
               |--- truncated branch of depth 11
           |--- EmotionalStability > 3.01
               |--- class: Stressed
        |--- Openness > 6.01
           |--- Conscientiousness <= 1.51
           | |--- truncated branch of depth 3
           |--- Conscientiousness > 1.51
              |--- truncated branch of depth 2
Conscientiousness > 2.00
|--- Openness <= 5.00
    |--- Openness <= 4.50
        |--- Extraversion <= 3.00
           |--- Conscientiousness <= 2.93
               |--- truncated branch of depth 4
           |--- Conscientiousness > 2.93
               |--- truncated branch of depth 12
        |--- Extraversion > 3.00
           |--- EmotionalStability <= 1.67
               |--- truncated branch of depth 4
           |--- EmotionalStability > 1.67
               |--- truncated branch of depth 11
    |--- Openness > 4.50
        |--- Openness <= 4.50
           |--- EmotionalStability <= 2.51
               |--- truncated branch of depth 14
           |--- EmotionalStability > 2.51
               |--- truncated branch of depth 14
        |--- Openness > 4.50
           |--- Openness <= 5.00
               |--- truncated branch of depth 14
           |--- Openness > 5.00
               |--- truncated branch of depth 14
|--- Openness > 5.00
   |--- EmotionalStability <= 2.50
        |--- EmotionalStability <= 1.50
           |--- EmotionalStability <= 1.50
           1
               |--- truncated branch of depth 11
           |--- EmotionalStability > 1.50
```

```
|--- truncated branch of depth 14
               |--- EmotionalStability > 1.50
                   |--- Extraversion <= 1.09
                       |--- truncated branch of depth 8
                   |--- Extraversion > 1.09
                       |--- truncated branch of depth 14
              -- EmotionalStability > 2.50
               |--- Agreeableness <= 3.00
                   |--- EmotionalStability <= 2.52
                       |--- truncated branch of depth 8
                   |--- EmotionalStability > 2.52
                       |--- truncated branch of depth 9
               |--- Agreeableness > 3.00
                   |--- Openness <= 5.50
                       |--- truncated branch of depth 7
                   |--- Openness > 5.50
                       |--- truncated branch of depth 14
|--- Extraversion > 4.51
     -- Agreeableness <= 2.06
       |--- Conscientiousness <= 1.91
            |--- Conscientiousness <= 1.46
               |--- Conscientiousness <= 0.75
                   |--- class: Depressed
               |--- Conscientiousness > 0.75
                   I--- class: axious
            |--- Conscientiousness > 1.46
               |--- Openness <= 5.78
                   |--- class: Stressed
               |--- Openness > 5.78
                   |--- class: Normal
            Conscientiousness > 1.91
            |--- Openness <= 5.95
               |--- Extraversion <= 6.00
                   |--- EmotionalStability <= 1.12
                       |--- class: Stressed
                   |--- EmotionalStability > 1.12
                       |--- truncated branch of depth 9
               |--- Extraversion > 6.00
                   |--- Agreeableness <= 1.01
                       |--- truncated branch of depth 3
                   |--- Agreeableness > 1.01
                       |--- truncated branch of depth 6
           |--- Openness > 5.95
               |--- Conscientiousness <= 5.90
                   |--- Conscientiousness <= 5.62
                       |--- truncated branch of depth 5
                   |--- Conscientiousness > 5.62
                   1
                       |--- class: Stressed
```

```
|--- Conscientiousness > 5.90
              |--- class: axious
       --- Agreeableness > 2.06
   |--- Conscientiousness <= 4.00
       |--- Conscientiousness <= 3.50
           |--- Openness <= 5.97
               |--- EmotionalStability <= 2.50
                  |--- truncated branch of depth 14
               |--- EmotionalStability > 2.50
                   |--- truncated branch of depth 11
           |--- Openness > 5.97
               |--- EmotionalStability <= 1.57
                   |--- truncated branch of depth 7
               |--- EmotionalStability > 1.57
                   |--- truncated branch of depth 10
         -- Conscientiousness > 3.50
           |--- Conscientiousness <= 3.52
               |--- Openness <= 5.42
                   |--- truncated branch of depth 11
               |--- Openness > 5.42
                   |--- truncated branch of depth 6
           |--- Conscientiousness > 3.52
               |--- Openness <= 4.51
                   |--- truncated branch of depth 8
               |--- Openness > 4.51
                   |--- truncated branch of depth 8
   --- Conscientiousness > 4.00
       |--- EmotionalStability <= 2.98
           |--- Extraversion <= 5.52
               |--- Extraversion <= 5.50
                   |--- truncated branch of depth 13
               |--- Extraversion > 5.50
                   |--- truncated branch of depth 10
             -- Extraversion > 5.52
               |--- Agreeableness <= 2.45
                   |--- truncated branch of depth 2
               |--- Agreeableness > 2.45
                   |--- truncated branch of depth 9
         - EmotionalStability > 2.98
           |--- Extraversion <= 6.00
               |--- Openness <= 5.65
                   |--- truncated branch of depth 9
               |--- Openness > 5.65
                   |--- truncated branch of depth 5
           |--- Extraversion > 6.00
               |--- Conscientiousness <= 6.25
                   |--- truncated branch of depth 6
              |--- Conscientiousness > 6.25
```

```
|--- Agreeableness >
   |--- EmotionalStability <= 2.48
       |--- Conscientiousness <= 1.47
           |--- EmotionalStability <= 2.03
               |--- Conscientiousness <= 0.96
                   |--- EmotionalStability <= 1.52
                       |--- class: Normal
                   |--- EmotionalStability > 1.52
                       |--- class: axious
               |--- Conscientiousness > 0.96
                   |--- class: axious
             -- EmotionalStability > 2.03
               |--- EmotionalStability <= 2.32
                   |--- Extraversion <= 1.32
                       |--- class: Normal
                   |--- Extraversion > 1.32
                       |--- class: Stressed
               |--- EmotionalStability > 2.32
                   |--- Agreeableness <= 3.72
                       |--- class: axious
                   |--- Agreeableness > 3.72
                       I--- class: Stressed
          - Conscientiousness > 1.47
           |--- Openness <= 5.52
               |--- Conscientiousness <= 6.50
                   |--- Conscientiousness <= 3.50
                       |--- Openness <= 5.00
                           |--- Openness <= 1.82
                               |--- truncated branch of depth 3
                           |--- Openness > 1.82
                               |--- truncated branch of depth 14
                       |--- Openness > 5.00
                           |--- Extraversion <= 4.85
                               |--- class: axious
                           |--- Extraversion > 4.85
                               |--- truncated branch of depth 4
                     -- Conscientiousness > 3.50
                       |--- Conscientiousness <= 6.00
                           |--- EmotionalStability <= 1.80
                           | |--- truncated branch of depth 8
                           |--- EmotionalStability > 1.80
                               |--- truncated branch of depth 14
                       |--- Conscientiousness > 6.00
                           |--- Openness <= 4.34
                               |--- truncated branch of depth 4
                           |--- Openness > 4.34
                              |--- class: axious
```

```
|--- Conscientiousness > 6.50
            |--- class: axious
       -- Openness > 5.52
         |--- Conscientiousness <= 3.79
             |--- Conscientiousness <= 3.40
                 |--- Extraversion <= 3.98
                     |--- Conscientiousness <= 2.69
                         |--- truncated branch of depth 2
                     |--- Conscientiousness > 2.69
                         |--- truncated branch of depth 3
                 |--- Extraversion > 3.98
                     |--- Extraversion <= 5.93
                         |--- class: axious
                     |--- Extraversion > 5.93
                         |--- truncated branch of depth 2
               -- Conscientiousness > 3.40
                 |--- Openness <= 5.74
                     |--- Conscientiousness <= 3.54
                         |--- truncated branch of depth 2
                     |--- Conscientiousness > 3.54
                         |--- class: Stressed
                 |--- Openness > 5.74
                     I--- class: axious
             Conscientiousness > 3.79
             |--- Extraversion <= 1.27
                 |--- class: axious
             |--- Extraversion > 1.27
                 |--- Agreeableness <= 3.83
                     |--- Openness <= 5.60
                         |--- class: Normal
                     |--- Openness > 5.60
                         |--- truncated branch of depth 5
                 |--- Agreeableness > 3.83
                     |--- Agreeableness <= 3.84
                         |--- truncated branch of depth 2
                     |--- Agreeableness > 3.84
                         |--- truncated branch of depth 7
- EmotionalStability >
   -- Conscientiousness <= 4.01
     |--- Extraversion <= 3.50
         |--- Extraversion <= 3.01
             |--- Openness <= 5.74
                 |--- Openness <= 2.60
                     |--- Openness <= 2.13
                     | |--- truncated branch of depth 4
                     |--- Openness > 2.13
                         |--- truncated branch of depth 4
                 |--- Openness > 2.60
```

```
|--- EmotionalStability <= 2.99
            | |--- truncated branch of depth 7
            |--- EmotionalStability > 2.99
               |--- truncated branch of depth 5
     -- Openness > 5.74
        |--- Conscientiousness <= 2.65
            |--- class: Normal
        |--- Conscientiousness > 2.65
            |--- Extraversion <= 1.25
                |--- class: axious
            |--- Extraversion > 1.25
                |--- class: Stressed
|--- Extraversion > 3.01
    |--- Conscientiousness <= 1.51
        |--- Conscientiousness <= 1.12
           |--- class: axious
        |--- Conscientiousness > 1.12
            |--- class: Normal
      -- Conscientiousness > 1.51
        |--- Agreeableness <= 3.99
            |--- Openness <= 5.32
               |--- truncated branch of depth 4
            |--- Openness > 5.32
                |--- truncated branch of depth 2
       |--- Agreeableness > 3.99
            |--- Agreeableness <= 3.99
                |--- class: Normal
            |--- Agreeableness > 3.99
                |--- class: Stressed
Extraversion > 3.50
|--- Conscientiousness <= 3.63
    |--- Openness <= 3.51
        |--- Conscientiousness <= 3.24
            |--- Agreeableness <= 3.92
                |--- truncated branch of depth 3
            |--- Agreeableness > 3.92
                |--- class: Normal
        |--- Conscientiousness > 3.24
            |--- Extraversion <= 4.09
                |--- truncated branch of depth 3
            |--- Extraversion > 4.09
                |--- truncated branch of depth 4
   |--- Openness > 3.51
        |--- Extraversion <= 4.02
            |--- Conscientiousness <= 1.98
                |--- class: axious
            |--- Conscientiousness > 1.98
           | |--- truncated branch of depth 4
```

```
|--- Extraversion > 4.02
               |--- Openness <= 3.94
                   |--- class: Normal
               |--- Openness > 3.94
                   |--- truncated branch of depth 8
      - Conscientiousness > 3.63
       |--- Extraversion <= 5.57
           |--- Extraversion <= 5.41
               |--- Extraversion <= 3.64
                   |--- class: axious
               |--- Extraversion > 3.64
                   |--- truncated branch of depth 4
           |--- Extraversion > 5.41
               |--- class: axious
       |--- Extraversion > 5.57
           |--- Extraversion <= 6.05
               |--- Openness <= 3.30
                 |--- class: axious
               |--- Openness > 3.30
               | |--- truncated branch of depth 2
           |--- Extraversion > 6.05
               |--- class: Normal
Conscientiousness > 4.01
--- Extraversion <= 3.02
   |--- Openness <= 4.35
       |--- Conscientiousness <= 5.15
           |--- Extraversion <= 2.43
               |--- Conscientiousness <= 5.04
                   |--- truncated branch of depth 6
               |--- Conscientiousness > 5.04
                   |--- class: axious
           |--- Extraversion > 2.43
               |--- class: axious
          - Conscientiousness > 5.15
           |--- Conscientiousness <= 5.99
               |--- Extraversion <= 2.50
                   |--- truncated branch of depth 4
               |--- Extraversion > 2.50
               | |--- class: axious
           |--- Conscientiousness > 5.99
               |--- EmotionalStability <= 2.83
                   |--- truncated branch of depth 2
               |--- EmotionalStability > 2.83
                   |--- truncated branch of depth 3
               |--- Openness > 4.35
       |--- Conscientiousness <= 6.08
           |--- EmotionalStability <= 2.50
           | |--- class: Normal
```

```
|--- EmotionalStability > 2.50
                                |--- EmotionalStability <= 2.85
                                    |--- truncated branch of depth 6
                                |--- EmotionalStability > 2.85
                                    I--- class: axious
                           - Conscientiousness > 6.08
                            |--- class: Stressed
                    Extraversion > 3.02
                     --- EmotionalStability <= 3.01
                        |--- Extraversion <= 3.99
                            |--- Openness <= 3.01
                                |--- Extraversion <= 3.33
                                    |--- class: Stressed
                                |--- Extraversion > 3.33
                                    |--- class: Normal
                            |--- Openness > 3.01
                                |--- Extraversion <= 3.50
                                    |--- truncated branch of depth 6
                                |--- Extraversion > 3.50
                                    |--- truncated branch of depth 3
                          -- Extraversion > 3.99
                            |--- Extraversion <= 5.00
                                |--- EmotionalStability <= 2.52
                                    |--- truncated branch of depth 5
                                |--- EmotionalStability > 2.52
                                    |--- truncated branch of depth 8
                            |--- Extraversion > 5.00
                                |--- Conscientiousness <= 6.00
                                    |--- truncated branch of depth 5
                                |--- Conscientiousness > 6.00
                                    |--- truncated branch of depth 4
                    |--- EmotionalStability > 3.01
                        |--- Extraversion <= 6.31
                            |--- Openness <= 3.92
                                |--- Openness <= 2.75
                                    |--- class: Stressed
                                |--- Openness > 2.75
                                    |--- truncated branch of depth 2
                            |--- Openness > 3.92
                                |--- Extraversion <= 5.98
                                | |--- truncated branch of depth 6
                                |--- Extraversion > 5.98
                                    |--- truncated branch of depth 3
                        |--- Extraversion > 6.31
                            |--- class: Normal
|--- Agreeableness > 4.00
   |--- EmotionalStability <= 2.00
       |--- EmotionalStability <= 1.50
```

```
|--- Openness <= 4.31
    |--- Openness <= 2.18
        |--- EmotionalStability <= 1.41
            |--- EmotionalStability <= 1.12
                |--- class: Normal
              -- EmotionalStability > 1.12
                |--- Conscientiousness <= 1.72
                    |--- Extraversion <= 1.27
                        |--- class: Normal
                    |--- Extraversion > 1.27
                        |--- class: axious
                |--- Conscientiousness > 1.72
                    |--- class: axious
          -- EmotionalStability > 1.41
            |--- Conscientiousness <= 5.20
                |--- class: Normal
            |--- Conscientiousness > 5.20
                |--- class: axious
        Openness > 2.18
        |--- Conscientiousness <= 5.51
            |--- Conscientiousness <= 5.50
                |--- Openness <= 3.49
                    |--- Agreeableness <= 5.95
                        |--- truncated branch of depth 8
                    |--- Agreeableness > 5.95
                        |--- class: axious
                |--- Openness > 3.49
                    |--- Agreeableness <= 4.99
                        |--- truncated branch of depth 9
                    |--- Agreeableness > 4.99
                        |--- truncated branch of depth 4
            |--- Conscientiousness > 5.50
                |--- class: axious
            Conscientiousness > 5.51
            |--- Agreeableness <= 5.73
                |--- Openness <= 2.82
                    |--- class: Normal
                |--- Openness > 2.82
                    |--- Extraversion <= 1.01
                        |--- class: Normal
                    |--- Extraversion > 1.01
                        |--- truncated branch of depth 5
            |--- Agreeableness > 5.73
                |--- class: axious
  -- Openness > 4.31
    |--- Openness <= 5.00
        |--- Extraversion <= 0.64
           |--- Openness <= 4.84
```

```
|--- class: axious
     |--- Openness > 4.84
         |--- class: Normal
|--- Extraversion > 0.64
     |--- Extraversion <= 6.01
         |--- Conscientiousness <= 5.05
             |--- Extraversion <= 5.47
                 |--- truncated branch of depth 6
             |--- Extraversion > 5.47
                 |--- truncated branch of depth 2
         |--- Conscientiousness > 5.05
             |--- EmotionalStability <= 1.35
                 |--- truncated branch of depth 2
             |--- EmotionalStability > 1.35
                 |--- truncated branch of depth 2
        - Extraversion > 6.01
         |--- Openness <= 4.73
             |--- class: Stressed
         --- Openness > 4.73
             |--- class: axious
- Openness > 5.00
 --- Extraversion <= 5.45
     |--- Extraversion <= 1.27
         |--- Extraversion <= 0.55
             |--- class: Normal
         |--- Extraversion > 0.55
             |--- class: axious
       - Extraversion > 1.27
         |--- Agreeableness <= 6.04
             |--- Extraversion <= 4.56
                 |--- truncated branch of depth 7
             |--- Extraversion > 4.56
                 |--- truncated branch of depth 4
            - Agreeableness > 6.04
             |--- Extraversion <= 1.47
                 |--- class: axious
             |--- Extraversion > 1.47
                 |--- class: Stressed
     Extraversion > 5.45
     |--- Openness <= 6.22
         |--- Openness <= 5.75
             |--- class: axious
         |--- Openness > 5.75
             |--- Openness <= 5.85
                 |--- class: Normal
             |--- Openness > 5.85
                 |--- class: axious
    |--- Openness > 6.22
```

```
|--- EmotionalStability <= 1.03
                   |--- class: axious
               |--- EmotionalStability > 1.03
                  |--- class: Normal
EmotionalStability > 1.50
    EmotionalStability <= 1.50
    --- Openness <= 5.51
       |--- Extraversion <= 3.00
           |--- Openness <= 5.01
               |--- Agreeableness <= 4.01
                   |--- Conscientiousness <= 3.25
                       |--- truncated branch of depth 8
                   |--- Conscientiousness > 3.25
                       |--- truncated branch of depth 11
               |--- Agreeableness > 4.01
                   |--- Agreeableness <= 4.49
                       |--- truncated branch of depth 6
                   |--- Agreeableness > 4.49
                       |--- truncated branch of depth 14
              - Openness > 5.01
               |--- Conscientiousness <= 3.75
                   |--- Openness <= 5.42
                       |--- class: Normal
                   |--- Openness > 5.42
                       |--- truncated branch of depth 5
               |--- Conscientiousness > 3.75
                   |--- Conscientiousness <= 4.48
                       |--- truncated branch of depth 3
                   |--- Conscientiousness > 4.48
                       |--- truncated branch of depth 9
           Extraversion > 3.00
           |--- Extraversion <= 3.47
               |--- Openness <= 4.47
                   |--- Conscientiousness <= 4.47
                       |--- class: Stressed
                   |--- Conscientiousness > 4.47
                       |--- class: axious
               |--- Openness > 4.47
                   |--- class: axious
             -- Extraversion > 3.47
               |--- Extraversion <= 5.51
                   |--- Conscientiousness <= 2.51
                       |--- truncated branch of depth 13
                   |--- Conscientiousness > 2.51
                       |--- truncated branch of depth 14
               |--- Extraversion > 5.51
                   |--- Agreeableness <= 4.37
                   | |--- truncated branch of depth 7
```

```
|--- Agreeableness > 4.37
       | |--- truncated branch of depth 8
|--- Openness > 5.51
   |--- Openness <= 5.99
       |--- Extraversion <= 0.91
           |--- class: Normal
        |--- Extraversion > 0.91
           |--- Conscientiousness <= 1.24
               |--- Conscientiousness <= 0.82
                   |--- class: axious
               |--- Conscientiousness > 0.82
                   |--- class: Normal
           |--- Conscientiousness > 1.24
               |--- Extraversion <= 1.44
                   |--- truncated branch of depth 2
               |--- Extraversion > 1.44
                   |--- truncated branch of depth 3
   |--- Openness > 5.99
         -- Conscientiousness <= 5.43
           |--- Conscientiousness <= 3.05
               |--- Conscientiousness <= 0.76
               | |--- class: axious
               |--- Conscientiousness > 0.76
                   |--- truncated branch of depth 11
           |--- Conscientiousness > 3.05
               |--- Extraversion <= 2.50
                   |--- truncated branch of depth 7
               |--- Extraversion > 2.50
                   |--- truncated branch of depth 11
         -- Conscientiousness > 5.43
           |--- Extraversion <= 3.75
               |--- Openness <= 6.25
                   |--- class: Depressed
               |--- Openness > 6.25
                   |--- truncated branch of depth 4
           |--- Extraversion > 3.75
               |--- Openness <= 6.31
                   |--- truncated branch of depth 5
               |--- Openness > 6.31
               1
                   |--- truncated branch of depth 3
EmotionalStability > 1.50
|--- EmotionalStability <= 2.00
   |--- Conscientiousness <= 3.50
       |--- Openness <= 2.99
           |--- Agreeableness <= 4.99
               |--- Conscientiousness <= 1.50
               1
                   |--- truncated branch of depth 2
               |--- Conscientiousness > 1.50
```

```
|--- truncated branch of depth 4
        |--- Agreeableness > 4.99
            |--- Agreeableness <= 5.07
                |--- truncated branch of depth 2
            |--- Agreeableness > 5.07
                |--- class: axious
       -- Openness > 2.99
        |--- Openness <= 6.49
            |--- Extraversion <= 1.49
                |--- truncated branch of depth 3
            |--- Extraversion > 1.49
                |--- truncated branch of depth 14
        |--- Openness > 6.49
            |--- Agreeableness <= 4.41
                |--- class: Stressed
            |--- Agreeableness > 4.41
                |--- class: Normal
|--- Conscientiousness > 3.50
       -- Agreeableness <= 4.49
        |--- Openness <= 5.63
            |--- Openness <= 2.55
                |--- truncated branch of depth 2
            |--- Openness > 2.55
                |--- truncated branch of depth 12
        |--- Openness > 5.63
            |--- Conscientiousness <= 5.08
                |--- truncated branch of depth 2
            |--- Conscientiousness > 5.08
                |--- truncated branch of depth 4
      -- Agreeableness > 4.49
        |--- Agreeableness <= 5.72
            |--- Conscientiousness <= 3.98
                |--- truncated branch of depth 8
            |--- Conscientiousness > 3.98
                |--- truncated branch of depth 10
        |--- Agreeableness > 5.72
            |--- Conscientiousness <= 4.52
                |--- truncated branch of depth 7
            |--- Conscientiousness > 4.52
            1
                |--- truncated branch of depth 7
- EmotionalStability > 2.00
 |--- Openness <= 4.50
    |--- Extraversion <= 2.51
        |--- Openness <= 4.00
            |--- Agreeableness <= 4.00
                |--- truncated branch of depth 11
            |--- Agreeableness > 4.00
            | |--- truncated branch of depth 14
```

```
|--- Openness > 4.00
                         |--- Openness <= 4.49
                             |--- truncated branch of depth 3
                         |--- Openness > 4.49
                             |--- truncated branch of depth 11
                    - Extraversion > 2.51
                     |--- Extraversion <= 2.99
                         |--- Conscientiousness <= 3.95
                            |--- truncated branch of depth 2
                         |--- Conscientiousness > 3.95
                             |--- truncated branch of depth 3
                     |--- Extraversion > 2.99
                         |--- Openness <= 2.00
                             |--- truncated branch of depth 5
                         |--- Openness > 2.00
                             |--- truncated branch of depth 14
              --- Openness > 4.50
                 |--- Agreeableness <= 4.50
                     |--- Agreeableness <= 4.00
                         |--- Conscientiousness <= 3.25
                             |--- truncated branch of depth 11
                         |--- Conscientiousness > 3.25
                             |--- truncated branch of depth 10
                     |--- Agreeableness > 4.00
                         |--- Openness <= 5.02
                             |--- truncated branch of depth 4
                         |--- Openness > 5.02
                             |--- truncated branch of depth 7
                 |--- Agreeableness > 4.50
                     |--- Agreeableness <= 5.49
                         |--- Agreeableness <= 5.00
                             |--- truncated branch of depth 14
                         |--- Agreeableness > 5.00
                            |--- truncated branch of depth 4
                     |--- Agreeableness > 5.49
                         |--- Conscientiousness <= 5.19
                             |--- truncated branch of depth 11
                         |--- Conscientiousness > 5.19
                             |--- truncated branch of depth 8
                         - EmotionalStability >
                       2.00
   -- Extraversion <= 3.50
     |--- EmotionalStability <= 3.00
        |--- EmotionalStability <= 2.50
             |--- Agreeableness <= 4.48
                 |--- Openness <= 2.72
                    |--- Extraversion <= 3.09
                         |--- Openness <= 1.49
                        | |--- class: Normal
```

```
|--- Openness > 1.49
                |--- truncated branch of depth 4
        |--- Extraversion > 3.09
            |--- Agreeableness <= 4.00
                |--- class: axious
            |--- Agreeableness > 4.00
                |--- class: Normal
       - Openness > 2.72
        |--- Openness <= 3.50
            |--- Extraversion <= 1.87
               |--- truncated branch of depth 2
            |--- Extraversion > 1.87
                |--- truncated branch of depth 3
        |--- Openness > 3.50
            |--- Openness <= 6.13
                |--- truncated branch of depth 9
            |--- Openness > 6.13
                |--- class: Stressed
    Agreeableness > 4.48
    |--- Openness <= 4.57
        |--- Extraversion <= 1.62
            |--- Conscientiousness <= 4.39
                |--- truncated branch of depth 9
            |--- Conscientiousness > 4.39
                |--- truncated branch of depth 5
        |--- Extraversion > 1.62
            |--- Agreeableness <= 4.99
                |--- truncated branch of depth 9
            |--- Agreeableness > 4.99
                |--- truncated branch of depth 9
      -- Openness > 4.57
        |--- Openness <= 5.96
            |--- Agreeableness <= 5.50
               |--- truncated branch of depth 9
            |--- Agreeableness > 5.50
                |--- truncated branch of depth 6
           - Openness > 5.96
            |--- Agreeableness <= 6.13
                |--- truncated branch of depth 5
            |--- Agreeableness > 6.13
                |--- class: axious
EmotionalStability > 2.50
|--- EmotionalStability <= 2.50
    |--- Conscientiousness <= 2.00
        |--- Openness <= 2.54
            |--- Openness <= 2.25
            |--- class: Depressed
            |--- Openness > 2.25
```

```
|--- truncated branch of depth 8
           |--- Openness > 2.54
               |--- Openness <= 2.95
                   |--- truncated branch of depth 2
               |--- Openness > 2.95
                   |--- truncated branch of depth 13
         -- Conscientiousness > 2.00
           |--- Extraversion <= 3.00
               |--- Openness <= 4.02
                   |--- truncated branch of depth 14
               |--- Openness > 4.02
                   |--- truncated branch of depth 14
           |--- Extraversion > 3.00
               |--- Extraversion <= 3.50
                   |--- truncated branch of depth 8
               |--- Extraversion > 3.50
                   |--- truncated branch of depth 14
    --- EmotionalStability > 2.50
         -- EmotionalStability <= 3.00
           |--- Extraversion <= 2.54
               |--- Extraversion <= 0.99
                   |--- truncated branch of depth 9
               |--- Extraversion > 0.99
                   |--- truncated branch of depth 13
           |--- Extraversion > 2.54
               |--- Agreeableness <= 5.47
                   |--- truncated branch of depth 10
               |--- Agreeableness > 5.47
                   |--- truncated branch of depth 6
         -- EmotionalStability > 3.00
           |--- Conscientiousness <= 3.00
               |--- Conscientiousness <= 1.59
                   |--- truncated branch of depth 8
               |--- Conscientiousness > 1.59
                   |--- truncated branch of depth 14
           |--- Conscientiousness > 3.00
               |--- Conscientiousness <= 3.49
                   |--- truncated branch of depth 5
               |--- Conscientiousness > 3.49
               |--- truncated branch of depth 14
EmotionalStability > 3.00
--- Extraversion <= 2.00
   |--- Openness <= 5.24
       |--- Openness <= 2.53
           |--- class: axious
       |--- Openness > 2.53
           |--- Agreeableness <= 4.46
           | |--- Agreeableness <= 4.26
```

```
|--- truncated branch of depth 8
            |--- Agreeableness > 4.26
                |--- truncated branch of depth 3
        |--- Agreeableness > 4.46
            |--- Conscientiousness <= 4.35
                |--- truncated branch of depth 11
            |--- Conscientiousness > 4.35
                |--- truncated branch of depth 9
     Openness > 5.24
     |--- Agreeableness <= 5.24
        |--- Conscientiousness <= 3.48
            |--- class: Normal
        |--- Conscientiousness > 3.48
            |--- Agreeableness <= 4.93
                |--- class: axious
            |--- Agreeableness > 4.93
                |--- class: Normal
     |--- Agreeableness > 5.24
        |--- Openness <= 6.14
            |--- Extraversion <= 1.88
                |--- truncated branch of depth 6
            |--- Extraversion > 1.88
                |--- truncated branch of depth 3
           -- Openness > 6.14
            |--- Conscientiousness <= 6.40
                |--- class: axious
            |--- Conscientiousness > 6.40
                 |--- truncated branch of depth 2
- Extraversion > 2.00
 --- Extraversion <= 3.00
     |--- Agreeableness <= 5.50
        |--- Conscientiousness <= 5.48
            |--- Extraversion <= 2.51
                |--- truncated branch of depth 8
            |--- Extraversion > 2.51
                |--- truncated branch of depth 8
           - Conscientiousness > 5.48
            |--- Openness <= 5.50
                |--- truncated branch of depth 4
            |--- Openness > 5.50
                |--- class: Stressed
            -- Agreeableness > 5.50
        |--- Openness <= 5.51
            |--- Openness <= 3.48
            | |--- truncated branch of depth 3
            |--- Openness > 3.48
                |--- truncated branch of depth 5
        |--- Openness > 5.51
```

```
|--- Agreeableness <= 6.25
                       |--- truncated branch of depth 2
                    |--- Agreeableness > 6.25
                       |--- class: Normal
         --- Extraversion > 3.00
              -- Conscientiousness <= 5.00
                |--- Openness <= 2.76
                    |--- EmotionalStability <= 3.23
                    | |--- truncated branch of depth 2
                    |--- EmotionalStability > 3.23
                       |--- class: Normal
                |--- Openness > 2.76
                    |--- Extraversion <= 3.40
                       |--- truncated branch of depth 12
                    |--- Extraversion > 3.40
                       |--- truncated branch of depth 11
              -- Conscientiousness > 5.00
                |--- Openness <= 5.47
                    |--- Conscientiousness <= 6.49
                       |--- truncated branch of depth 8
                    |--- Conscientiousness > 6.49
                       |--- truncated branch of depth 3
                  -- Openness > 5.47
                    |--- Agreeableness <= 5.75
                       |--- truncated branch of depth 3
                    |--- Agreeableness > 5.75
                       |--- class: Normal
Extraversion > 3.50
|--- Conscientiousness <= 5.00
   |--- Extraversion <= 4.00
        |--- Agreeableness <= 5.00
            |--- Agreeableness <= 4.00
                |--- Openness <= 4.25
                    |--- Conscientiousness <= 2.95
                       |--- truncated branch of depth 2
                    |--- Conscientiousness > 2.95
                       |--- truncated branch of depth 7
                |--- Openness > 4.25
                    |--- EmotionalStability <= 2.97
                       |--- truncated branch of depth 5
                    |--- EmotionalStability > 2.97
                       |--- truncated branch of depth 4
           |--- Agreeableness > 4.00
                |--- Conscientiousness <= 2.00
                    |--- Openness <= 4.55
                       |--- class: axious
                    |--- Openness > 4.55
                       |--- class: Normal
```

```
|--- Conscientiousness > 2.00
            |--- EmotionalStability <= 3.00
                |--- truncated branch of depth 8
            |--- EmotionalStability > 3.00
                |--- truncated branch of depth 6
            1
   - Agreeableness > 5.00
    |--- Conscientiousness <= 1.99
        |--- class: Normal
      -- Conscientiousness > 1.99
        |--- Conscientiousness <= 4.15
            |--- Conscientiousness <= 2.49
                |--- truncated branch of depth 3
            |--- Conscientiousness > 2.49
                |--- truncated branch of depth 7
        |--- Conscientiousness > 4.15
            |--- EmotionalStability <= 2.47
                |--- truncated branch of depth 3
            |--- EmotionalStability > 2.47
                |--- truncated branch of depth 3
- Extraversion > 4.00
|--- EmotionalStability <= 3.00
    |--- Extraversion <= 4.48
        |--- Agreeableness <= 4.00
            |--- Extraversion <= 4.03
                |--- truncated branch of depth 14
            |--- Extraversion > 4.03
                |--- truncated branch of depth 4
        |--- Agreeableness > 4.00
            |--- Agreeableness <= 5.00
                |--- truncated branch of depth 14
            |--- Agreeableness > 5.00
                |--- truncated branch of depth 11
      -- Extraversion > 4.48
        |--- Extraversion <= 6.13
            |--- EmotionalStability <= 2.50
                |--- truncated branch of depth 14
            |--- EmotionalStability > 2.50
                |--- truncated branch of depth 10
           - Extraversion > 6.13
            |--- Agreeableness <= 5.32
                |--- truncated branch of depth 9
            |--- Agreeableness > 5.32
                |--- truncated branch of depth 2
|--- EmotionalStability > 3.00
    |--- EmotionalStability <= 3.00
        |--- Conscientiousness <= 3.01
            |--- Extraversion <= 4.05
            | |--- truncated branch of depth 12
```

```
|--- Extraversion > 4.05
                 |--- truncated branch of depth 12
           |--- Conscientiousness > 3.01
               |--- Conscientiousness <= 3.50
                   |--- truncated branch of depth 6
               |--- Conscientiousness > 3.50
                   |--- truncated branch of depth 14
         -- EmotionalStability > 3.00
           |--- Openness <= 5.01
               |--- Agreeableness <= 4.25
                   |--- truncated branch of depth 7
               |--- Agreeableness > 4.25
                   |--- truncated branch of depth 11
           |--- Openness > 5.01
               |--- Extraversion <= 4.02
                  |--- class: axious
               |--- Extraversion > 4.02
                   |--- truncated branch of depth 9
Conscientiousness > 5.00
 -- Agreeableness <= 6.03
   |--- Openness <= 5.50
       |--- Agreeableness <= 4.00
           |--- Conscientiousness <= 6.01
               |--- EmotionalStability <= 2.48
                   |--- class: axious
               |--- EmotionalStability > 2.48
                   |--- truncated branch of depth 9
           |--- Conscientiousness > 6.01
               |--- Conscientiousness <= 6.41
                   |--- truncated branch of depth 5
               |--- Conscientiousness > 6.41
                   |--- truncated branch of depth 5
         -- Agreeableness > 4.00
           |--- Extraversion <= 5.01
               |--- EmotionalStability <= 2.98
                   |--- truncated branch of depth 11
               |--- EmotionalStability > 2.98
                   |--- truncated branch of depth 14
             -- Extraversion > 5.01
               |--- Conscientiousness <= 5.54
                   |--- truncated branch of depth 7
               |--- Conscientiousness > 5.54
                   |--- truncated branch of depth 11
   |--- Openness > 5.50
       |--- Openness <= 6.46
           |--- Extraversion <= 6.48
               |--- EmotionalStability <= 2.50
               | |--- truncated branch of depth 6
```

```
|--- EmotionalStability > 2.50
                                     | |--- truncated branch of depth 8
                                  --- Extraversion > 6.48
                                     |--- class: Normal
                             |--- Openness > 6.46
                                 |--- Openness <= 6.51
                                     |--- Conscientiousness <= 6.50
                                         |--- truncated branch of depth 9
                                     |--- Conscientiousness > 6.50
                                         |--- truncated branch of depth 5
                                 |--- Openness > 6.51
                                     |--- class: Normal
                       -- Agreeableness > 6.03
                         |--- Extraversion <= 4.52
                             |--- Openness <= 3.89
                                 |--- EmotionalStability <= 2.96
                                     |--- class: axious
                                 |--- EmotionalStability > 2.96
                                     |--- class: Normal
                                - Openness > 3.89
                                 |--- EmotionalStability <= 2.57
                                     |--- class: Depressed
                                 |--- EmotionalStability > 2.57
                                     |--- class: Normal
                         |--- Extraversion > 4.52
                             |--- Extraversion <= 6.25
                                 |--- Openness <= 4.00
                                     |--- class: Depressed
                                 |--- Openness > 4.00
                                     |--- Conscientiousness <= 6.44
                                         |--- class: axious
                                     |--- Conscientiousness > 6.44
                                         |--- truncated branch of depth 3
                                - Extraversion > 6.25
                                 |--- class: Depressed
- EmotionalStability >
   -- EmotionalStability <= 5.00
     |--- Agreeableness <= 3.50
         |--- EmotionalStability <= 4.00
             |--- Extraversion <= 3.50
                 |--- Agreeableness <= 3.00
                     |--- Extraversion <= 0.50
                         |--- Openness <= 2.75
                             |--- class: Depressed
                         |--- Openness > 2.75
                             |--- Agreeableness <= 1.25
                             |--- Openness <= 5.74
                                | |--- Agreeableness <= 0.75
```

```
|--- class: Depressed
           |--- Agreeableness > 0.75
               |--- truncated branch of depth 3
         -- Openness > 5.74
           |--- Openness <= 6.32
               |--- class: Stressed
           |--- Openness > 6.32
               |--- class: Depressed
      - Agreeableness > 1.25
       |--- Agreeableness <= 2.90
           |--- Conscientiousness <= 5.67
               |--- truncated branch of depth 10
           |--- Conscientiousness > 5.67
               |--- truncated branch of depth 4
       |--- Agreeableness > 2.90
           |--- Openness <= 6.25
               |--- class: Depressed
           |--- Openness > 6.25
               |--- class: axious
Extraversion > 0.50
--- Conscientiousness <= 2.54
   |--- Openness <= 1.99
       |--- Openness <= 1.64
           |--- Conscientiousness <= 1.25
               I--- class: axious
           |--- Conscientiousness > 1.25
               |--- class: Depressed
       |--- Openness > 1.64
           |--- Conscientiousness <= 1.28
               |--- class: Stressed
           |--- Conscientiousness > 1.28
               |--- class: axious
     -- Openness > 1.99
       |--- Openness <= 3.55
           |--- Openness <= 2.87
               |--- truncated branch of depth 5
           |--- Openness > 2.87
               |--- truncated branch of depth 6
          - Openness > 3.55
           |--- Openness <= 4.52
               |--- truncated branch of depth 8
           |--- Openness > 4.52
               |--- truncated branch of depth 8
   Conscientiousness > 2.54
   |--- EmotionalStability <= 4.00
       |--- EmotionalStability <= 3.50
           |--- Agreeableness <= 2.50
           | |--- truncated branch of depth 13
```

```
|--- Agreeableness > 2.50
                   |--- truncated branch of depth 12
            |--- EmotionalStability > 3.50
                |--- Extraversion <= 1.96
                    |--- truncated branch of depth 9
                |--- Extraversion > 1.96
                    |--- truncated branch of depth 12
          - EmotionalStability > 4.00
            |--- Extraversion <= 2.06
                |--- Conscientiousness <= 6.22
                   |--- truncated branch of depth 11
                |--- Conscientiousness > 6.22
                    |--- truncated branch of depth 2
            |--- Extraversion > 2.06
                |--- Extraversion <= 3.00
                    |--- truncated branch of depth 8
                |--- Extraversion > 3.00
                   |--- truncated branch of depth 10
Agreeableness > 3.00
|--- Openness <= 3.47
    |--- EmotionalStability <= 3.99
        |--- EmotionalStability <= 3.50
            |--- Conscientiousness <= 5.06
                |--- Agreeableness <= 3.22
                    |--- truncated branch of depth 2
                |--- Agreeableness > 3.22
                   |--- class: Normal
            |--- Conscientiousness > 5.06
                |--- class: axious
         -- EmotionalStability > 3.50
            |--- Extraversion <= 2.40
                |--- Conscientiousness <= 3.03
                    |--- class: Normal
                |--- Conscientiousness > 3.03
                    |--- class: Stressed
            |--- Extraversion > 2.40
                |--- class: Normal
    --- EmotionalStability > 3.99
       |--- class: Normal
   - Openness > 3.47
   |--- Extraversion <= 3.04
        |--- Conscientiousness <= 2.72
            |--- class: axious
        |--- Conscientiousness > 2.72
            |--- Extraversion <= 2.48
                |--- Openness <= 4.49
                    |--- truncated branch of depth 3
               |--- Openness > 4.49
```

```
|--- truncated branch of depth 4
                |--- Extraversion > 2.48
                    |--- Conscientiousness <= 6.16
                        |--- truncated branch of depth 5
                    |--- Conscientiousness > 6.16
                        |--- class: Normal
         -- Extraversion > 3.04
            |--- Conscientiousness <= 4.77
                |--- Agreeableness <= 3.34
                    |--- Agreeableness <= 3.07
                       |--- truncated branch of depth 2
                    |--- Agreeableness > 3.07
                        |--- class: Normal
                |--- Agreeableness > 3.34
                    |--- Openness <= 4.51
                        |--- truncated branch of depth 4
                    |--- Openness > 4.51
                        |--- class: axious
               - Conscientiousness > 4.77
                |--- Extraversion <= 3.40
                    |--- Agreeableness <= 3.10
                        |--- class: axious
                    |--- Agreeableness > 3.10
                        |--- class: Stressed
                  -- Extraversion > 3.40
                    |--- Agreeableness <= 3.07
                        |--- class: axious
                    |--- Agreeableness > 3.07
                        |--- truncated branch of depth 4
Extraversion >
                3.50
|--- Openness <= 3.50
    |--- EmotionalStability <= 3.99
        |--- Openness <= 2.50
            |--- Openness <= 2.17
                |--- Agreeableness <= 2.59
                    |--- Extraversion <= 5.64
                        |--- truncated branch of depth 3
                    |--- Extraversion > 5.64
                        |--- class: Depressed
                |--- Agreeableness > 2.59
                    |--- EmotionalStability <= 3.60
                        |--- truncated branch of depth 2
                    |--- EmotionalStability > 3.60
                        |--- class: axious
              -- Openness > 2.17
                |--- EmotionalStability <= 3.62
                    |--- Openness <= 2.45
                    | |--- class: Normal
```

```
|--- Openness > 2.45
                 | |--- truncated branch of depth 5
              |--- EmotionalStability > 3.62
                 |--- Extraversion <= 5.58
                     |--- class: Stressed
                 |--- Extraversion > 5.58
                     |--- class: Normal
          Openness > 2.50
          |--- Extraversion <= 6.18
              |--- Conscientiousness <= 2.54
                 |--- Extraversion <= 5.00
                     |--- truncated branch of depth 2
                 |--- Extraversion > 5.00
                     |--- truncated branch of depth 3
              |--- Conscientiousness > 2.54
                 |--- Conscientiousness <= 3.50
                     |--- truncated branch of depth 4
                 |--- Conscientiousness > 3.50
                     |--- truncated branch of depth 7
           -- Extraversion > 6.18
             |--- class: axious
      EmotionalStability > 3.99
      --- Conscientiousness <= 3.61
          |--- Conscientiousness <= 2.66
              |--- class: Depressed
          |--- Conscientiousness > 2.66
              |--- Agreeableness <= 2.84
                 |--- class: axious
              |--- Agreeableness > 2.84
                 |--- class: Depressed
       -- Conscientiousness > 3.61
          |--- Extraversion <= 4.75
              |--- Conscientiousness <= 4.95
                 |--- class: Normal
              |--- Conscientiousness > 4.95
                 |--- Conscientiousness <= 5.75
                     |--- truncated branch of depth 3
                 |--- Conscientiousness > 5.75
                    |--- class: Normal
          |--- Extraversion > 4.75
             |--- class: Depressed
         -- Openness > 3.50
 |--- Extraversion <= 5.47
     |--- Openness <= 5.49
         |--- Extraversion <= 3.97
             |--- EmotionalStability <= 3.94
                 |--- Agreeableness <= 2.75
             1
                 | |--- truncated branch of depth 3
```

```
|--- Agreeableness > 2.75
               |--- truncated branch of depth 4
        --- EmotionalStability > 3.94
           |--- Openness <= 4.75
               |--- class: Normal
           |--- Openness > 4.75
               |--- class: axious
      - Extraversion > 3.97
        --- Agreeableness <= 2.99
           |--- Conscientiousness <= 3.49
               |--- truncated branch of depth 7
           |--- Conscientiousness > 3.49
               |--- truncated branch of depth 14
       |--- Agreeableness > 2.99
           |--- Agreeableness <= 3.01
               |--- truncated branch of depth 12
           |--- Agreeableness > 3.01
               |--- truncated branch of depth 7
    Openness > 5.49
   |--- Conscientiousness <= 4.73
       |--- Conscientiousness <= 3.25
           |--- Conscientiousness <= 1.39
               |--- class: Normal
           |--- Conscientiousness > 1.39
               |--- truncated branch of depth 6
       |--- Conscientiousness > 3.25
           |--- Extraversion <= 3.84
               |--- truncated branch of depth 2
           |--- Extraversion > 3.84
               |--- truncated branch of depth 7
      - Conscientiousness > 4.73
       |--- Conscientiousness <= 5.99
           |--- EmotionalStability <= 3.50
               |--- truncated branch of depth 4
           |--- EmotionalStability > 3.50
               |--- truncated branch of depth 8
          - Conscientiousness > 5.99
           |--- Openness <= 6.00
               |--- class: Normal
           |--- Openness > 6.00
               |--- truncated branch of depth 3
Extraversion > 5.47
|--- Conscientiousness <= 6.26
   |--- Agreeableness <= 2.67
       |--- Agreeableness <= 2.48
           |--- Openness <= 5.74
               |--- truncated branch of depth 7
           |--- Openness > 5.74
```

```
|--- truncated branch of depth 4
                     |--- Agreeableness > 2.48
                         |--- Extraversion <= 5.99
                             |--- truncated branch of depth 8
                         |--- Extraversion > 5.99
                             |--- truncated branch of depth 5
                    - Agreeableness > 2.67
                     |--- Agreeableness <= 3.29
                         |--- Extraversion <= 5.58
                             |--- truncated branch of depth 7
                         |--- Extraversion > 5.58
                             |--- truncated branch of depth 7
                     |--- Agreeableness > 3.29
                         |--- Openness <= 5.65
                             |--- truncated branch of depth 7
                         |--- Openness > 5.65
                             |--- truncated branch of depth 3
              --- Conscientiousness > 6.26
                   -- EmotionalStability <= 4.00
                     |--- Agreeableness <= 0.75
                         |--- class: Depressed
                     |--- Agreeableness > 0.75
                         |--- class: Stressed
                    - EmotionalStability > 4.00
                     |--- Agreeableness <= 2.25
                         |--- Openness <= 4.75
                             |--- class: Stressed
                         |--- Openness > 4.75
                             |--- class: Normal
                     |--- Agreeableness > 2.25
                         |--- class: Depressed
- EmotionalStability > 4.00
 --- EmotionalStability <= 4.48
        - Openness <= 3.01
         |--- Conscientiousness <= 5.95
             |--- Extraversion <= 0.84
                 |--- Agreeableness <= 2.46
                     |--- class: axious
                 |--- Agreeableness > 2.46
                     |--- class: Normal
               -- Extraversion > 0.84
                 |--- Conscientiousness <= 4.96
                     |--- Conscientiousness <= 2.43
                         |--- Openness <= 1.93
                             |--- class: Stressed
                         |--- Openness > 1.93
                             |--- truncated branch of depth 2
                     |--- Conscientiousness > 2.43
```

```
|--- Openness <= 2.15
                      |--- truncated branch of depth 2
                   |--- Openness > 2.15
                       |--- truncated branch of depth 3
             -- Conscientiousness > 4.96
               |--- Agreeableness <= 3.00
                   |--- EmotionalStability <= 4.17
                       |--- class: Stressed
                   |--- EmotionalStability > 4.17
                       |--- class: Normal
               |--- Agreeableness > 3.00
                   |--- class: Stressed
   |--- Conscientiousness > 5.95
       |--- class: Normal
|--- Openness > 3.01
   |--- Extraversion <= 5.42
        |--- Extraversion <= 3.51
            |--- Extraversion <= 1.85
               |--- Conscientiousness <= 6.33
                   |--- Openness <= 5.75
                       |--- truncated branch of depth 7
                   |--- Openness > 5.75
                       |--- truncated branch of depth 2
               |--- Conscientiousness > 6.33
                   |--- class: Normal
            |--- Extraversion > 1.85
               |--- Conscientiousness <= 5.98
                   |--- Conscientiousness <= 4.51
                       |--- truncated branch of depth 4
                   |--- Conscientiousness > 4.51
                   | |--- truncated branch of depth 4
               |--- Conscientiousness > 5.98
                   |--- class: Normal
          - Extraversion > 3.51
            |--- Openness <= 4.52
               |--- Conscientiousness <= 6.43
                   |--- EmotionalStability <= 4.31
                       |--- truncated branch of depth 5
                   |--- EmotionalStability > 4.31
                       |--- class: Normal
               |--- Conscientiousness > 6.43
                   |--- class: Stressed
           |--- Openness > 4.52
               |--- Agreeableness <= 3.00
                   |--- Openness <= 6.47
                       |--- truncated branch of depth 7
                   |--- Openness > 6.47
                   | |--- class: axious
```

```
|--- Agreeableness > 3.00
                      |--- Agreeableness <= 3.02
                         |--- class: Normal
                      |--- Agreeableness > 3.02
                         |--- truncated branch of depth 2
         - Extraversion > 5.42
          --- Agreeableness <= 2.94
             |--- Openness <= 5.47
                 |--- EmotionalStability <= 4.31
                      |--- class: Stressed
                  |--- EmotionalStability > 4.31
                      |--- class: axious
             |--- Openness > 5.47
                  |--- class: Normal
         |--- Agreeableness > 2.94
              |--- Extraversion <= 6.47
                  |--- Extraversion <= 5.59
                      |--- class: axious
                  |--- Extraversion > 5.59
                      |--- Extraversion <= 5.87
                         |--- class: Normal
                      |--- Extraversion > 5.87
                         |--- truncated branch of depth 3
               -- Extraversion > 6.47
                 |--- class: Normal
-- EmotionalStability > 4.48
 |--- EmotionalStability <= 4.50
     |--- Extraversion <= 1.51
         |--- Extraversion <= 0.53
             |--- Openness <= 5.75
                  |--- Agreeableness <= 2.25
                      |--- Openness <= 3.25
                         |--- truncated branch of depth 4
                      |--- Openness > 3.25
                         |--- truncated branch of depth 2
                  |--- Agreeableness > 2.25
                     |--- class: Depressed
                -- Openness > 5.75
                  |--- Conscientiousness <= 3.25
                      |--- class: Depressed
                  |--- Conscientiousness > 3.25
                     |--- class: Normal
         |--- Extraversion > 0.53
             |--- Openness <= 3.47
                  |--- Conscientiousness <= 6.00
                      |--- Agreeableness <= 2.31
                         |--- truncated branch of depth 2
                     |--- Agreeableness > 2.31
```

```
|--- truncated branch of depth 2
       |--- Conscientiousness > 6.00
           |--- class: Depressed
   |--- Openness > 3.47
       |--- Openness <= 4.11
           |--- Agreeableness <= 2.75
               |--- truncated branch of depth 3
           |--- Agreeableness > 2.75
               |--- truncated branch of depth 3
       |--- Openness > 4.11
           |--- Extraversion <= 1.46
               |--- truncated branch of depth 7
           |--- Extraversion > 1.46
               |--- truncated branch of depth 4
Extraversion > 1.51
--- Conscientiousness <= 4.47
   |--- Conscientiousness <= 4.00
       |--- Conscientiousness <= 2.87
           |--- Openness <= 4.47
               |--- truncated branch of depth 7
           |--- Openness > 4.47
               |--- truncated branch of depth 6
          - Conscientiousness > 2.87
           |--- Openness <= 4.90
               |--- truncated branch of depth 11
           |--- Openness > 4.90
               |--- truncated branch of depth 6
      -- Conscientiousness > 4.00
       |--- Extraversion <= 4.25
           |--- Agreeableness <= 2.07
               |--- class: axious
           |--- Agreeableness > 2.07
               |--- truncated branch of depth 3
          - Extraversion > 4.25
           |--- Openness <= 6.11
               |--- class: axious
           |--- Openness > 6.11
               |--- truncated branch of depth 2
   Conscientiousness > 4.47
   |--- Openness <= 6.08
       |--- Agreeableness <= 1.59
           |--- Agreeableness <= 1.25
               |--- class: Normal
           |--- Agreeableness > 1.25
               |--- truncated branch of depth 3
       |--- Agreeableness > 1.59
           |--- Extraversion <= 3.05
           | |--- truncated branch of depth 6
```

```
|--- Extraversion > 3.05
               | |--- truncated branch of depth 11
        |--- Openness > 6.08
            |--- Agreeableness <= 3.05
               |--- Agreeableness <= 2.75
                   |--- class: Depressed
               |--- Agreeableness > 2.75
                   |--- truncated branch of depth 2
              - Agreeableness > 3.05
               |--- Extraversion <= 3.45
                   |--- class: Normal
               |--- Extraversion > 3.45
                   |--- class: Stressed
EmotionalStability > 4.50
|--- Agreeableness <= 0.91
    |--- class: Stressed
--- Agreeableness > 0.91
   |--- Conscientiousness <= 3.22
        |--- Agreeableness <= 2.94
            |--- Openness <= 5.03
               |--- Agreeableness <= 1.89
               | |--- class: Stressed
               |--- Agreeableness > 1.89
                   |--- truncated branch of depth 4
            |--- Openness > 5.03
               |--- Openness <= 5.75
                   |--- class: Stressed
               |--- Openness > 5.75
                   |--- truncated branch of depth 2
          -- Agreeableness > 2.94
            |--- EmotionalStability <= 4.64
               |--- Agreeableness <= 3.00
                   |--- class: axious
               |--- Agreeableness > 3.00
                   |--- class: Normal
            |--- EmotionalStability > 4.64
               |--- Extraversion <= 1.89
                   |--- class: Normal
               |--- Extraversion > 1.89
                   |--- truncated branch of depth 2
      -- Conscientiousness > 3.22
        |--- Conscientiousness <= 5.02
           |--- Extraversion <= 1.52
               |--- Agreeableness <= 2.16
               | |--- truncated branch of depth 3
               |--- Agreeableness > 2.16
                   |--- truncated branch of depth 2
            |--- Extraversion > 1.52
```

```
|--- Agreeableness <= 1.80
                               |--- truncated branch of depth 3
                            |--- Agreeableness > 1.80
                                |--- truncated branch of depth 14
                         Conscientiousness > 5.02
                        |--- Conscientiousness <= 6.00
                            |--- Agreeableness <= 2.50
                                \mid --- truncated branch of depth 4
                            |--- Agreeableness > 2.50
                                |--- truncated branch of depth 5
                        |--- Conscientiousness > 6.00
                            |--- Openness <= 5.28
                                |--- truncated branch of depth 3
                            |--- Openness > 5.28
                                |--- truncated branch of depth 2
Agreeableness >
|--- Conscientiousness <= 3.50
   |--- EmotionalStability <= 3.50
        |--- Openness <= 2.50
            |--- Extraversion <= 3.61
                |--- Agreeableness <= 4.16
                    |--- Openness <= 2.25
                        |--- class: Depressed
                       - Openness > 2.25
                        |--- Conscientiousness <= 2.75
                            |--- Agreeableness <= 3.75
                                |--- class: Depressed
                            |--- Agreeableness > 3.75
                                |--- truncated branch of depth 2
                        |--- Conscientiousness >
                            |--- Agreeableness <= 3.75
                                |--- truncated branch of depth 3
                            |--- Agreeableness > 3.75
                                |--- truncated branch of depth 3
                    Agreeableness > 4.16
                    |--- Openness <= 2.40
                        |--- Openness <= 1.51
                            |--- Conscientiousness <= 1.42
                                |--- truncated branch of depth 3
                            |--- Conscientiousness > 1.42
                                |--- truncated branch of depth 3
                        |--- Openness > 1.51
                            |--- Openness <= 1.93
                                |--- class: axious
                            |--- Openness > 1.93
                                |--- truncated branch of depth 8
                      -- Openness > 2.40
                        |--- Agreeableness <= 4.41
```

```
|--- class: axious
                |--- Agreeableness > 4.41
                    |--- Extraversion <= 3.25
                        |--- class: Depressed
                    |--- Extraversion > 3.25
                        |--- truncated branch of depth 3
       - Extraversion > 3.61
        |--- Openness <= 2.14
            |--- Extraversion <= 3.86
                |--- class: Normal
            |--- Extraversion > 3.86
                |--- Extraversion <= 4.25
                    |--- Openness <= 1.75
                        |--- truncated branch of depth 2
                    |--- Openness > 1.75
                        |--- class: Depressed
                |--- Extraversion > 4.25
                    |--- Agreeableness <= 3.96
                        |--- truncated branch of depth 2
                    |--- Agreeableness > 3.96
                        |--- class: Depressed
           - Openness > 2.14
            |--- Agreeableness <= 4.42
                |--- Extraversion <= 4.73
                    |--- Conscientiousness <= 3.25
                        |--- truncated branch of depth 2
                    |--- Conscientiousness > 3.25
                        |--- class: Depressed
                |--- Extraversion > 4.73
                    |--- Extraversion <= 5.75
                        |--- class: axious
                    |--- Extraversion > 5.75
                        |--- class: Depressed
               - Agreeableness > 4.42
                |--- Conscientiousness <= 2.53
                    |--- Extraversion <= 4.26
                        |--- truncated branch of depth 4
                    |--- Extraversion > 4.26
                        |--- class: Normal
                  -- Conscientiousness > 2.53
                    |--- Agreeableness <= 5.36
                        |--- class: axious
                    |--- Agreeableness > 5.36
                        |--- class: Depressed
|--- Openness > 2.50
    |--- Extraversion <= 2.01
        |--- Conscientiousness <= 3.01
           |--- Openness <= 4.97
```

```
|--- Agreeableness <= 4.47
            |--- Extraversion <= 0.96
                |--- truncated branch of depth 6
            |--- Extraversion > 0.96
                |--- truncated branch of depth 10
          -- Agreeableness > 4.47
            |--- Openness <= 3.97
                |--- truncated branch of depth 8
            |--- Openness > 3.97
                |--- truncated branch of depth 8
   |--- Openness > 4.97
        |--- Agreeableness <= 5.25
            |--- Extraversion <= 1.25
                |--- truncated branch of depth 5
            |--- Extraversion > 1.25
                |--- class: Depressed
        |--- Agreeableness > 5.25
            |--- Openness <= 5.25
                |--- truncated branch of depth 3
            |--- Openness > 5.25
                |--- truncated branch of depth 3
--- Conscientiousness > 3.01
     -- Openness <= 3.18
        |--- Extraversion <= 1.89
            |--- Agreeableness <= 5.00
                |--- truncated branch of depth 4
            |--- Agreeableness > 5.00
                |--- truncated branch of depth 2
        |--- Extraversion > 1.89
            |--- class: Depressed
      -- Openness > 3.18
        |--- Conscientiousness <= 3.49
            |--- Extraversion <= 1.55
               |--- truncated branch of depth 2
            |--- Extraversion > 1.55
                |--- truncated branch of depth 3
          -- Conscientiousness > 3.49
            |--- Openness <= 4.86
                |--- truncated branch of depth 8
            |--- Openness > 4.86
                |--- truncated branch of depth 9
Extraversion > 2.01
|--- Agreeableness <= 3.52
   |--- Conscientiousness <= 3.00
        |--- Openness <= 5.03
            |--- Agreeableness <= 3.50
            1
                |--- truncated branch of depth 14
           |--- Agreeableness > 3.50
```

```
|--- truncated branch of depth 2
                 |--- Openness > 5.03
                     |--- Extraversion <= 5.25
                         |--- truncated branch of depth 4
                     |--- Extraversion > 5.25
                         |--- class: Depressed
               -- Conscientiousness > 3.00
                 |--- Extraversion <= 3.41
                     |--- Openness <= 3.73
                         |--- truncated branch of depth 6
                     |--- Openness > 3.73
                         |--- truncated branch of depth 5
                 |--- Extraversion > 3.41
                     |--- Extraversion <= 6.01
                         |--- truncated branch of depth 14
                     |--- Extraversion > 6.01
                         |--- truncated branch of depth 4
         --- Agreeableness > 3.52
              -- Openness <= 5.49
                 |--- Conscientiousness <= 3.00
                     |--- Conscientiousness <= 2.50
                         |--- truncated branch of depth 14
                     |--- Conscientiousness > 2.50
                         |--- truncated branch of depth 8
                 |--- Conscientiousness > 3.00
                     |--- Agreeableness <= 3.97
                         |--- truncated branch of depth 4
                     |--- Agreeableness > 3.97
                         |--- truncated branch of depth 14
              -- Openness > 5.49
                 |--- Openness <= 6.10
                     |--- Extraversion <= 3.49
                         |--- truncated branch of depth 6
                     |--- Extraversion > 3.49
                         |--- truncated branch of depth 10
                |--- Openness > 6.10
                     |--- Extraversion <= 3.75
                         |--- truncated branch of depth 2
                     |--- Extraversion > 3.75
                     1
                         |--- truncated branch of depth 5
- EmotionalStability > 3.50
 |--- EmotionalStability <= 4.00
    |--- Agreeableness <= 4.51
         |--- Openness <= 5.55
            |--- Extraversion <= 6.03
                 |--- Extraversion <= 0.98
                     |--- class: Normal
                |--- Extraversion > 0.98
```

```
|--- EmotionalStability <= 3.80
             | |--- truncated branch of depth 14
             |--- EmotionalStability > 3.80
                |--- truncated branch of depth 8
       - Extraversion > 6.03
         |--- Openness <= 3.47
             |--- class: Stressed
         |--- Openness > 3.47
             |--- Openness <= 4.29
                |--- class: Normal
             |--- Openness > 4.29
                |--- truncated branch of depth 2
|--- Openness > 5.55
     |--- Extraversion <= 5.77
        |--- Agreeableness <= 4.03
             |--- Conscientiousness <= 3.48
                |--- truncated branch of depth 3
             |--- Conscientiousness > 3.48
                |--- truncated branch of depth 4
           -- Agreeableness > 4.03
             |--- Conscientiousness <= 2.21
                |--- class: Normal
             |--- Conscientiousness > 2.21
                |--- truncated branch of depth 2
       -- Extraversion > 5.77
         |--- Agreeableness <= 4.25
             |--- class: axious
         |--- Agreeableness > 4.25
             |--- class: Normal
- Agreeableness > 4.51
 |--- Extraversion <= 2.94
     |--- Openness <= 4.00
         |--- Extraversion <= 0.73
            |--- class: axious
         |--- Extraversion > 0.73
             |--- Extraversion <= 2.59
                |--- truncated branch of depth 4
             |--- Extraversion > 2.59
                |--- class: Stressed
       -- Openness > 4.00
         |--- Openness <= 4.49
             |--- class: Stressed
         |--- Openness > 4.49
             |--- Conscientiousness <= 3.47
            | |--- truncated branch of depth 5
             |--- Conscientiousness > 3.47
                |--- truncated branch of depth 3
 |--- Extraversion > 2.94
```

```
|--- Openness <= 1.90
            |--- Openness <= 1.49
                |--- class: axious
            |--- Openness > 1.49
                |--- Conscientiousness <= 2.00
                    |--- class: axious
                |--- Conscientiousness > 2.00
                    |--- class: Stressed
           - Openness > 1.90
            |--- Openness <= 5.81
                |--- Agreeableness <= 6.30
                    |--- truncated branch of depth 7
                |--- Agreeableness > 6.30
                    |--- truncated branch of depth 2
            |--- Openness > 5.81
                |--- Extraversion <= 4.49
                    |--- class: Normal
                |--- Extraversion > 4.49
                    |--- truncated branch of depth 3
- EmotionalStability > 4.00
|--- Extraversion <= 2.79
    |--- EmotionalStability <= 4.50
         |--- Conscientiousness <= 2.51
            |--- Openness <= 2.61
                |--- Agreeableness <= 3.75
                    |--- truncated branch of depth 3
                |--- Agreeableness > 3.75
                    |--- truncated branch of depth 6
            |--- Openness > 2.61
                |--- Extraversion <= 0.51
                    |--- truncated branch of depth 5
                |--- Extraversion > 0.51
                    |--- truncated branch of depth 14
           - Conscientiousness > 2.51
            |--- Extraversion <= 1.51
                |--- Extraversion <= 0.51
                    |--- truncated branch of depth 11
                |--- Extraversion > 0.51
                    |--- truncated branch of depth 12
              -- Extraversion > 1.51
                |--- Extraversion <= 1.98
                    |--- truncated branch of depth 6
                |--- Extraversion > 1.98
                    |--- truncated branch of depth 14
    |--- EmotionalStability > 4.50
         |--- Extraversion <= 1.50
            |--- Openness <= 4.91
            | |--- Conscientiousness <= 2.51
```

```
|--- class: Normal
           |--- Conscientiousness > 2.51
               |--- truncated branch of depth 5
         -- Openness > 4.91
           |--- Conscientiousness <= 2.25
               |--- class: axious
           |--- Conscientiousness > 2.25
               |--- truncated branch of depth 2
      - Extraversion > 1.50
       |--- Extraversion <= 2.08
           |--- Conscientiousness <= 3.22
               |--- truncated branch of depth 2
           |--- Conscientiousness > 3.22
               |--- truncated branch of depth 4
       |--- Extraversion > 2.08
           I--- class: Normal
Extraversion > 2.79
--- Conscientiousness <= 3.00
   |--- Conscientiousness <= 1.50
       |--- Conscientiousness <= 1.00
           |--- Extraversion <= 6.25
               |--- truncated branch of depth 8
           |--- Extraversion > 6.25
               |--- class: axious
       |--- Conscientiousness > 1.00
           |--- Agreeableness <= 6.17
               |--- truncated branch of depth 2
           |--- Agreeableness > 6.17
               |--- class: Normal
        Conscientiousness > 1.50
       |--- EmotionalStability <= 4.00
           |--- Openness <= 5.98
               |--- truncated branch of depth 14
           |--- Openness > 5.98
               |--- truncated branch of depth 8
         -- EmotionalStability > 4.00
           |--- EmotionalStability <= 4.49
               |--- truncated branch of depth 9
           |--- EmotionalStability > 4.49
               |--- truncated branch of depth 14
   Conscientiousness > 3.00
   |--- Extraversion <= 6.13
       |--- Extraversion <= 4.38
           |--- Agreeableness <= 4.05
               |--- truncated branch of depth 13
           |--- Agreeableness > 4.05
               |--- truncated branch of depth 14
       |--- Extraversion > 4.38
```

```
|--- Conscientiousness <= 3.44
                          | |--- truncated branch of depth 7
                          |--- Conscientiousness > 3.44
                              |--- truncated branch of depth 11
                  |--- Extraversion > 6.13
                      |--- Agreeableness <= 4.02
                          |--- class: Stressed
                      |--- Agreeableness > 4.02
                          |--- Agreeableness <= 5.76
                              |--- class: Normal
                          |--- Agreeableness > 5.76
                              |--- truncated branch of depth 2
-- Conscientiousness >
                       3.50
 |--- EmotionalStability <= 4.00
     |--- EmotionalStability <= 3.50
          |--- Conscientiousness <= 6.00
              |--- Extraversion <= 3.00
                  |--- Conscientiousness <= 4.50
                      |--- Extraversion <= 2.55
                          |--- Openness <= 3.00
                              |--- truncated branch of depth 11
                          |--- Openness > 3.00
                              |--- truncated branch of depth 14
                        -- Extraversion > 2.55
                          |--- Conscientiousness <= 4.06
                              |--- truncated branch of depth 6
                          |--- Conscientiousness > 4.06
                              |--- truncated branch of depth 2
                  |--- Conscientiousness > 4.50
                      |--- Agreeableness <= 4.00
                          |--- Extraversion <= 2.02
                              |--- truncated branch of depth 9
                          |--- Extraversion > 2.02
                             |--- truncated branch of depth 11
                        -- Agreeableness > 4.00
                          |--- Openness <= 4.00
                              |--- truncated branch of depth 7
                          |--- Openness > 4.00
                              |--- truncated branch of depth 12
               --- Extraversion > 3.00
                    -- Conscientiousness <= 5.50
                      |--- Openness <= 2.24
                          |--- Extraversion <= 3.26
                              |--- truncated branch of depth 3
                          |--- Extraversion > 3.26
                              |--- class: Depressed
                      |--- Openness > 2.24
                         |--- Openness <= 6.08
```

```
|--- truncated branch of depth 14
           |--- Openness > 6.08
               |--- truncated branch of depth 9
     -- Conscientiousness > 5.50
       |--- Agreeableness <= 4.50
           |--- Agreeableness <= 4.00
               |--- truncated branch of depth 12
           |--- Agreeableness > 4.00
               |--- truncated branch of depth 4
        --- Agreeableness > 4.50
           |--- Extraversion <= 4.25
               |--- truncated branch of depth 10
           |--- Extraversion > 4.25
               |--- truncated branch of depth 9
Conscientiousness > 6.00
--- Extraversion <= 2.32
   |--- Conscientiousness <= 6.48
       |--- Extraversion <= 2.03
           |--- Agreeableness <= 5.00
               |--- class: Normal
           |--- Agreeableness > 5.00
               |--- class: axious
         -- Extraversion > 2.03
           |--- class: axious
     -- Conscientiousness > 6.48
       |--- Openness <= 6.25
           |--- Openness <= 4.38
               |--- truncated branch of depth 8
           |--- Openness > 4.38
               |--- truncated branch of depth 5
       |--- Openness > 6.25
           |--- Agreeableness <= 4.98
               |--- class: axious
           |--- Agreeableness > 4.98
               |--- class: Normal
--- Extraversion > 2.32
      - Agreeableness <= 3.50
       |--- Openness <= 4.75
           |--- Openness <= 3.54
               |--- truncated branch of depth 4
           |--- Openness > 3.54
               |--- truncated branch of depth 3
       |--- Openness > 4.75
           |--- Openness <= 6.25
               |--- truncated branch of depth 6
           |--- Openness > 6.25
               |--- truncated branch of depth 3
   |--- Agreeableness > 3.50
```

```
|--- Agreeableness <= 5.50
                    |--- Extraversion <= 3.33
                        |--- truncated branch of depth 7
                    |--- Extraversion > 3.33
                        |--- truncated branch of depth 10
                  -- Agreeableness > 5.50
                    |--- Extraversion <= 3.21
                        |--- truncated branch of depth 5
                    |--- Extraversion > 3.21
                        |--- truncated branch of depth 8
|--- EmotionalStability > 3.50
    |--- Agreeableness <= 5.99
        |--- Openness <= 3.00
            |--- Agreeableness <= 5.50
                |--- Openness <= 1.50
                    |--- class: Normal
                |--- Openness > 1.50
                    |--- Conscientiousness <= 5.53
                        |--- truncated branch of depth 8
                    |--- Conscientiousness > 5.53
                        |--- truncated branch of depth 6
               - Agreeableness > 5.50
                |--- EmotionalStability <= 3.70
                    |--- class: axious
                |--- EmotionalStability > 3.70
                    |--- class: Normal
        |--- Openness > 3.00
            |--- Extraversion <= 2.42
                |--- Extraversion <= 0.99
                    |--- Agreeableness <= 4.16
                        |--- class: Normal
                    |--- Agreeableness > 4.16
                        |--- truncated branch of depth 4
                  - Extraversion > 0.99
                    |--- Agreeableness <= 3.51
                        |--- truncated branch of depth 5
                    |--- Agreeableness > 3.51
                        |--- truncated branch of depth 12
               - Extraversion > 2.42
                |--- Openness <= 4.34
                    |--- Conscientiousness <= 3.74
                        |--- truncated branch of depth 2
                    |--- Conscientiousness > 3.74
                        |--- truncated branch of depth 14
                |--- Openness > 4.34
                    |--- Extraversion <= 4.54
                        |--- truncated branch of depth 14
                    |--- Extraversion > 4.54
```

```
| | |--- truncated branch of depth 11
     --- Agreeableness > 5.99
        |--- Openness <= 5.97
            |--- Conscientiousness <= 3.98
                |--- Openness <= 4.83
                    |--- EmotionalStability <= 3.52
                        |--- class: Normal
                    |--- EmotionalStability > 3.52
                        |--- class: axious
                |--- Openness > 4.83
                    |--- EmotionalStability <= 3.75
                        |--- truncated branch of depth 2
                    |--- EmotionalStability > 3.75
                        |--- truncated branch of depth 4
            |--- Conscientiousness > 3.98
                |--- Openness <= 3.81
                    |--- Conscientiousness <= 4.38
                        |--- truncated branch of depth 2
                    |--- Conscientiousness > 4.38
                       |--- truncated branch of depth 6
                |--- Openness > 3.81
                    |--- Openness <= 4.78
                        |--- truncated branch of depth 6
                    |--- Openness > 4.78
                        |--- truncated branch of depth 9
            Openness > 5.97
            |--- Conscientiousness <= 4.24
                |--- Extraversion <= 3.98
                    |--- Extraversion <= 2.21
                        |--- class: axious
                    |--- Extraversion > 2.21
                        |--- class: Stressed
                |--- Extraversion > 3.98
                   |--- class: Normal
             -- Conscientiousness > 4.24
               |--- class: Normal
EmotionalStability > 4.00
|--- Extraversion <= 6.00
    |--- Extraversion <= 2.00
        |--- Agreeableness <= 4.53
            |--- Extraversion <= 1.98
                |--- Extraversion <= 1.00
                    |--- Agreeableness <= 3.50
                        |--- truncated branch of depth 7
                    |--- Agreeableness > 3.50
                        |--- truncated branch of depth 10
                |--- Extraversion > 1.00
                   |--- Openness <= 5.00
```

```
|--- truncated branch of depth 14
             |--- Openness > 5.00
                 |--- truncated branch of depth 7
     |--- Extraversion > 1.98
         |--- Openness <= 4.52
             |--- EmotionalStability <= 4.68
                 |--- truncated branch of depth 11
             |--- EmotionalStability > 4.68
                 |--- class: Normal
         |--- Openness > 4.52
             |--- Conscientiousness <= 4.52
                 |--- truncated branch of depth 6
             |--- Conscientiousness > 4.52
                 |--- truncated branch of depth 5
     Agreeableness > 4.53
     |--- EmotionalStability <= 4.10
         |--- Conscientiousness <= 3.99
             |--- Conscientiousness <= 3.53
                 |--- class: Stressed
             |--- Conscientiousness > 3.53
                 |--- truncated branch of depth 4
         |--- Conscientiousness > 3.99
             |--- Openness <= 4.40
                 |--- truncated branch of depth 12
             |--- Openness > 4.40
                 |--- truncated branch of depth 14
       -- EmotionalStability > 4.10
         |--- Conscientiousness <= 3.96
             |--- Openness <= 6.07
                 |--- truncated branch of depth 4
             |--- Openness > 6.07
                 |--- class: axious
         |--- Conscientiousness > 3.96
             |--- Extraversion <= 0.51
                 |--- truncated branch of depth 9
             |--- Extraversion > 0.51
                 |--- truncated branch of depth 12
- Extraversion >
 |--- Extraversion <= 5.00
     |--- EmotionalStability <= 4.00
         |--- Extraversion <= 2.46
             |--- Conscientiousness <= 4.69
                 |--- truncated branch of depth 5
             |--- Conscientiousness > 4.69
                 |--- truncated branch of depth 4
         |--- Extraversion > 2.46
             |--- Conscientiousness <= 4.99
             | |--- truncated branch of depth 14
```

```
|--- Conscientiousness > 4.99
                | |--- truncated branch of depth 14
        |--- EmotionalStability > 4.00
            |--- Extraversion <= 4.00
                |--- EmotionalStability <= 4.49
                   |--- truncated branch of depth 14
                |--- EmotionalStability > 4.49
                    |--- truncated branch of depth 14
              - Extraversion > 4.00
                |--- Conscientiousness <= 4.49
                    |--- truncated branch of depth 14
                |--- Conscientiousness > 4.49
                    |--- truncated branch of depth 14
    --- Extraversion > 5.00
        |--- EmotionalStability <= 4.48
            |--- Agreeableness <= 3.96
                |--- Conscientiousness <= 5.00
                    |--- truncated branch of depth 10
                |--- Conscientiousness > 5.00
                    |--- truncated branch of depth 5
              -- Agreeableness > 3.96
                |--- Openness <= 3.93
                    |--- truncated branch of depth 6
                |--- Openness > 3.93
                    |--- truncated branch of depth 14
            EmotionalStability > 4.48
            |--- Openness <= 6.00
                |--- Agreeableness <= 5.67
                    |--- truncated branch of depth 14
                |--- Agreeableness > 5.67
                    |--- truncated branch of depth 6
            |--- Openness > 6.00
                |--- Openness <= 6.40
                   |--- truncated branch of depth 2
                |--- Openness > 6.40
                    |--- truncated branch of depth 5
Extraversion >
|--- Agreeableness <= 4.50
    |--- Conscientiousness <= 5.82
        |--- Openness <= 3.51
            |--- class: Normal
        |--- Openness > 3.51
            |--- Agreeableness <= 4.00
                |--- Openness <= 6.75
                   |--- truncated branch of depth 4
                |--- Openness > 6.75
                    |--- class: axious
           |--- Agreeableness > 4.00
```

```
|--- Extraversion <= 6.44
                                | |--- truncated branch of depth 3
                                |--- Extraversion > 6.44
                                    |--- truncated branch of depth 3
                     |--- Conscientiousness > 5.82
                         |--- Agreeableness <= 3.57
                            |--- class: Depressed
                         |--- Agreeableness > 3.57
                            |--- Openness <= 5.00
                                |--- class: Depressed
                            |--- Openness > 5.00
                                |--- class: Normal
                  -- Agreeableness > 4.50
                     |--- Agreeableness <= 5.71
                         |--- Openness <= 5.39
                            |--- Conscientiousness <= 4.14
                                |--- Agreeableness <= 4.62
                                    |--- class: Normal
                                |--- Agreeableness > 4.62
                                | |--- truncated branch of depth 2
                            |--- Conscientiousness > 4.14
                                |--- Conscientiousness <= 5.34
                                  |--- class: Normal
                                |--- Conscientiousness > 5.34
                                    |--- truncated branch of depth 5
                          -- Openness > 5.39
                            |--- Conscientiousness <= 4.81
                                |--- Openness <= 5.99
                                    |--- truncated branch of depth 3
                                |--- Openness > 5.99
                                | |--- class: Normal
                            |--- Conscientiousness > 4.81
                                |--- Openness <= 5.61
                                | |--- truncated branch of depth 2
                                |--- Openness > 5.61
                                    |--- truncated branch of depth 3
                                1
                      -- Agreeableness > 5.71
                        |--- class: Normal
- EmotionalStability > 5.00
|--- EmotionalStability <= 5.99
    |--- Extraversion <= 1.50
        |--- EmotionalStability <= 5.00
            |--- Conscientiousness <= 2.52
                |--- Extraversion <= 0.25
                    |--- class: Normal
                |--- Extraversion > 0.25
                    |--- Openness <= 3.75
                       |--- Conscientiousness <= 0.75
```

```
|--- Openness <= 2.25
               |--- class: Normal
           |--- Openness > 2.25
               |--- class: Depressed
         -- Conscientiousness > 0.75
           |--- class: Depressed
     -- Openness > 3.75
       |--- Extraversion <= 1.25
           |--- Conscientiousness <= 2.25
               |--- Agreeableness <= 5.25
                   |--- class: Depressed
               |--- Agreeableness > 5.25
                   |--- truncated branch of depth 2
             -- Conscientiousness >
               |--- Agreeableness <= 3.75
                   |--- class: Depressed
               |--- Agreeableness > 3.75
                   |--- class: Normal
          - Extraversion > 1.25
           |--- Agreeableness <= 5.57
               |--- class: Depressed
           |--- Agreeableness > 5.57
               |--- Openness <= 4.72
                   |--- class: Depressed
               |--- Openness > 4.72
                   |--- truncated branch of depth 2
Conscientiousness > 2.52
--- Extraversion <= 0.50
   |--- Openness <= 3.00
       |--- class: Depressed
   |--- Openness > 3.00
       |--- Openness <= 4.75
           |--- Agreeableness <= 5.25
               |--- Conscientiousness <= 5.25
                   |--- truncated branch of depth 6
               |--- Conscientiousness > 5.25
                   |--- truncated branch of depth 2
             -- Agreeableness > 5.25
               |--- Conscientiousness <= 5.25
                   |--- class: Depressed
               |--- Conscientiousness > 5.25
                   |--- truncated branch of depth 2
       |--- Openness > 4.75
           |--- Agreeableness <= 5.00
               |--- Openness <= 6.25
                   |--- class: Depressed
               |--- Openness > 6.25
               |--- truncated branch of depth 3
```

```
|--- Agreeableness > 5.00
                    |--- class: axious
       - Extraversion > 0.50
        |--- Conscientiousness <= 4.07
            |--- Conscientiousness <= 3.60
                |--- Conscientiousness <= 3.48
                    |--- Openness <= 4.51
                        |--- truncated branch of depth 4
                    |--- Openness > 4.51
                        |--- class: Normal
                |--- Conscientiousness > 3.48
                    |--- Agreeableness <= 5.09
                        |--- truncated branch of depth 7
                    |--- Agreeableness > 5.09
                        |--- truncated branch of depth 4
               - Conscientiousness > 3.60
                |--- Agreeableness <= 2.25
                    |--- class: Depressed
                |--- Agreeableness > 2.25
                    |--- Openness <= 6.26
                        |--- truncated branch of depth 8
                    |--- Openness > 6.26
                        |--- class: Depressed
            Conscientiousness > 4.07
             -- Agreeableness <= 4.88
                |--- Openness <= 3.54
                   |--- Openness <= 3.39
                        |--- truncated branch of depth 2
                    |--- Openness > 3.39
                        |--- class: Normal
                |--- Openness > 3.54
                    |--- Agreeableness <= 4.04
                        |--- truncated branch of depth 6
                    |--- Agreeableness > 4.04
                        |--- class: axious
               - Agreeableness > 4.88
                --- Extraversion <= 0.95
                    |--- class: Normal
                |--- Extraversion > 0.95
                    |--- Openness <= 5.75
                        |--- truncated branch of depth 9
                    |--- Openness > 5.75
                        |--- class: Normal
EmotionalStability >
|--- Agreeableness <= 5.51
   |--- EmotionalStability <= 5.49
       |--- Openness <= 5.96
       | |--- Extraversion <= 0.97
```

```
|--- class: Normal
      - Extraversion > 0.97
       |--- Openness <= 2.70
           |--- class: Normal
       |--- Openness > 2.70
           |--- Agreeableness <= 5.16
               |--- truncated branch of depth 7
           |--- Agreeableness > 5.16
               |--- class: axious
--- Openness > 5.96
   |--- Extraversion <= 0.77
       |--- class: axious
   |--- Extraversion > 0.77
       |--- class: Normal
EmotionalStability > 5.49
    EmotionalStability <= 5.50
   |--- Conscientiousness <= 4.05
       |--- Extraversion <= 1.43
           |--- Openness <= 4.25
               |--- truncated branch of depth 8
           |--- Openness > 4.25
               |--- truncated branch of depth 5
          - Extraversion > 1.43
           |--- Openness <= 4.75
               |--- truncated branch of depth 5
           |--- Openness > 4.75
               |--- truncated branch of depth 2
      -- Conscientiousness > 4.05
       |--- Agreeableness <= 2.75
           |--- Agreeableness <= 1.75
               |--- class: Depressed
           |--- Agreeableness > 1.75
               |--- truncated branch of depth 5
          - Agreeableness > 2.75
           |--- Extraversion <= 0.55
               |--- truncated branch of depth 9
           |--- Extraversion > 0.55
               |--- truncated branch of depth 9
   EmotionalStability > 5.50
   |--- Agreeableness <= 3.81
       |--- EmotionalStability <= 5.74
           |--- Extraversion <= 1.44
               |--- class: Normal
           |--- Extraversion > 1.44
               |--- truncated branch of depth 2
       |--- EmotionalStability > 5.74
           |--- Extraversion <= 1.11
           | |--- truncated branch of depth 2
```

```
|--- Extraversion > 1.11
                   | |--- truncated branch of depth 2
            |--- Agreeableness > 3.81
                |--- Conscientiousness <= 4.43
                    |--- Openness <= 5.38
                       |--- truncated branch of depth 2
                    |--- Openness > 5.38
                        |--- class: Normal
                  -- Conscientiousness > 4.43
                    |--- class: Normal
|--- Agreeableness > 5.51
    |--- Openness <= 5.41
        |--- Conscientiousness <= 5.09
            |--- Extraversion <= 1.43
               |--- EmotionalStability <= 5.71
                    |--- Openness <= 4.76
                        |--- truncated branch of depth 6
                    |--- Openness > 4.76
                        |--- truncated branch of depth 3
                |--- EmotionalStability > 5.71
                    |--- EmotionalStability <= 5.93
                    | |--- class: Normal
                    |--- EmotionalStability > 5.93
                        |--- truncated branch of depth 2
              -- Extraversion > 1.43
                |--- Openness <= 4.51
                    |--- EmotionalStability <= 5.49
                        |--- class: Normal
                    |--- EmotionalStability > 5.49
                        |--- truncated branch of depth 2
                |--- Openness > 4.51
                    |--- Agreeableness <= 6.24
                        |--- class: Stressed
                    |--- Agreeableness > 6.24
                        |--- class: Normal
        |--- Conscientiousness > 5.09
             -- Conscientiousness <= 6.21
                |--- Openness <= 4.99
                    |--- class: axious
                |--- Openness > 4.99
                    |--- EmotionalStability <= 5.58
                        |--- class: Depressed
                    |--- EmotionalStability > 5.58
                        |--- class: axious
             -- Conscientiousness > 6.21
                |--- Openness <= 3.00
                   |--- class: axious
               |--- Openness > 3.00
```

```
| |--- class: Normal
          --- Openness > 5.41
              |--- Extraversion <= 1.46
                  |--- Conscientiousness <= 2.75
                     |--- class: Depressed
                  |--- Conscientiousness > 2.75
                      |--- class: Normal
             |--- Extraversion > 1.46
                  |--- EmotionalStability <= 5.38
                      |--- class: Normal
                  |--- EmotionalStability > 5.38
                      |--- class: Depressed
-- Extraversion >
                 1.50
 |--- EmotionalStability <= 5.50
     |--- Conscientiousness <= 3.50
         |--- Conscientiousness <= 3.00
              |--- Agreeableness <= 2.49
                  |--- Openness <= 5.50
                      |--- Extraversion <= 3.75
                          |--- class: Depressed
                      |--- Extraversion > 3.75
                          |--- Agreeableness <= 1.96
                             |--- truncated branch of depth 3
                          |--- Agreeableness > 1.96
                             |--- class: Depressed
                   -- Openness > 5.50
                      |--- Openness <= 5.99
                          |--- Conscientiousness <= 1.16
                             |--- class: Normal
                          |--- Conscientiousness > 1.16
                             |--- class: Stressed
                      |--- Openness > 5.99
                          |--- Openness <= 6.11
                             |--- class: Depressed
                          |--- Openness > 6.11
                             |--- class: axious
                  Agreeableness > 2.49
                  |--- Openness <= 4.44
                      |--- Agreeableness <= 5.00
                          |--- Agreeableness <= 3.46
                             |--- truncated branch of depth 7
                          |--- Agreeableness > 3.46
                             |--- truncated branch of depth 13
                      |--- Agreeableness > 5.00
                          |--- Openness <= 3.66
                              |--- truncated branch of depth 9
                          |--- Openness > 3.66
                             |--- truncated branch of depth 5
```

```
|--- Openness > 4.44
       |--- Extraversion <= 1.98
           |--- Agreeableness <= 5.04
               |--- class: Normal
           |--- Agreeableness > 5.04
               |--- class: axious
          -- Extraversion > 1.98
           |--- Extraversion <= 4.27
               |--- truncated branch of depth 14
           |--- Extraversion > 4.27
               |--- truncated branch of depth 9
Conscientiousness > 3.00
|--- Openness <= 4.50
    |--- Openness <= 3.50
       |--- Extraversion <= 2.18
           |--- Openness <= 2.13
               |--- class: Normal
           |--- Openness > 2.13
               |--- class: Stressed
          -- Extraversion > 2.18
           |--- Agreeableness <= 5.40
               |--- truncated branch of depth 3
           |--- Agreeableness > 5.40
               |--- class: axious
     -- Openness > 3.50
        --- Extraversion <= 3.58
           |--- Openness <= 4.24
                |--- truncated branch of depth 2
           |--- Openness > 4.24
               |--- class: Stressed
          -- Extraversion > 3.58
           |--- Openness <= 4.25
               |--- truncated branch of depth 3
           |--- Openness > 4.25
               |--- class: Normal
  - Openness > 4.50
        EmotionalStability <= 5.36</pre>
       |--- Openness <= 6.50
           |--- Conscientiousness <= 3.49
               |--- truncated branch of depth 4
           |--- Conscientiousness > 3.49
               |--- class: axious
       |--- Openness > 6.50
           |--- class: axious
      - EmotionalStability > 5.36
       |--- Conscientiousness <= 3.14
           |--- class: axious
       |--- Conscientiousness > 3.14
```

```
|--- Extraversion <= 3.99
                   |--- class: axious
               |--- Extraversion > 3.99
                   |--- class: Normal
Conscientiousness > 3.50
   EmotionalStability <= 5.50
   |--- EmotionalStability <= 5.00
       |--- Extraversion <= 5.50
           |--- Extraversion <= 2.51
               |--- Openness <= 5.48
                   |--- truncated branch of depth 14
               |--- Openness > 5.48
                   |--- truncated branch of depth 10
             -- Extraversion > 2.51
               |--- Openness <= 4.92
                   |--- truncated branch of depth 14
               |--- Openness > 4.92
                   |--- truncated branch of depth 12
         -- Extraversion > 5.50
           |--- Conscientiousness <= 4.63
               |--- Conscientiousness <= 4.38
                   |--- truncated branch of depth 7
               |--- Conscientiousness > 4.38
                   |--- truncated branch of depth 5
           |--- Conscientiousness > 4.63
               |--- Openness <= 5.51
                   |--- truncated branch of depth 7
               |--- Openness > 5.51
                   |--- truncated branch of depth 3
       EmotionalStability > 5.00
       |--- Agreeableness <= 3.50
           |--- Extraversion <= 2.30
               |--- Openness <= 5.26
                   |--- truncated branch of depth 3
               |--- Openness > 5.26
                   |--- truncated branch of depth 2
              - Extraversion > 2.30
               |--- Openness <= 3.25
                   |--- truncated branch of depth 4
               |--- Openness > 3.25
                   |--- truncated branch of depth 9
         -- Agreeableness > 3.50
           |--- Extraversion <= 5.51
               |--- Conscientiousness <= 4.50
                   |--- truncated branch of depth 13
               |--- Conscientiousness > 4.50
                   |--- truncated branch of depth 12
           |--- Extraversion > 5.51
```

```
|--- Conscientiousness <= 4.28
               |--- truncated branch of depth 4
            |--- Conscientiousness > 4.28
                |--- truncated branch of depth 8
EmotionalStability > 5.50
|--- Agreeableness <= 4.03
    |--- Openness <= 4.01
        |--- Extraversion <= 4.13
            |--- Extraversion <= 2.48
                |--- truncated branch of depth 3
            |--- Extraversion > 2.48
                |--- truncated branch of depth 9
        |--- Extraversion > 4.13
            |--- Extraversion <= 5.40
                |--- truncated branch of depth 5
            |--- Extraversion > 5.40
                |--- truncated branch of depth 7
    |--- Openness > 4.01
        |--- Conscientiousness <= 6.06
            |--- Openness <= 6.44
                |--- truncated branch of depth 12
            |--- Openness > 6.44
                |--- truncated branch of depth 7
          -- Conscientiousness > 6.06
            |--- Openness <= 5.49
                |--- truncated branch of depth 5
            |--- Openness > 5.49
                |--- truncated branch of depth 7
--- Agreeableness > 4.03
    |--- Openness <= 4.03
        |--- Conscientiousness <= 3.99
            |--- Openness <= 3.46
                |--- truncated branch of depth 3
            |--- Openness > 3.46
                |--- truncated branch of depth 5
        |--- Conscientiousness > 3.99
            |--- Conscientiousness <= 6.46
                |--- truncated branch of depth 13
            |--- Conscientiousness > 6.46
            1
                |--- truncated branch of depth 4
       - Openness > 4.03
        |--- Extraversion <= 2.94
            |--- Openness <= 5.07
                |--- truncated branch of depth 8
            |--- Openness > 5.07
                |--- truncated branch of depth 10
        |--- Extraversion > 2.94
           |--- Agreeableness <= 5.38
```

```
|--- truncated branch of depth 14
                     |--- Agreeableness > 5.38
                         |--- truncated branch of depth 12
- EmotionalStability > 5.50
 |--- Extraversion <= 5.50
       -- Extraversion <= 5.01
         --- Conscientiousness <= 4.33
             |--- Agreeableness <= 4.01
                 |--- Openness <= 6.26
                     |--- Extraversion <= 4.01
                     | |--- truncated branch of depth 5
                     |--- Extraversion > 4.01
                         |--- truncated branch of depth 5
                 |--- Openness > 6.26
                     |--- class: axious
               -- Agreeableness > 4.01
                 |--- Openness <= 5.30
                     |--- Agreeableness <= 4.84
                         |--- truncated branch of depth 6
                     |--- Agreeableness > 4.84
                         |--- truncated branch of depth 10
                 |--- Openness > 5.30
                     |--- Conscientiousness <= 3.42
                         |--- truncated branch of depth 3
                     |--- Conscientiousness > 3.42
                         |--- truncated branch of depth 5
         --- Conscientiousness > 4.33
             |--- Extraversion <= 3.50
                 |--- Conscientiousness <= 5.95
                     |--- Extraversion <= 2.54
                         |--- truncated branch of depth 6
                     |--- Extraversion > 2.54
                         |--- truncated branch of depth 9
                   -- Conscientiousness > 5.95
                     |--- Openness <= 6.01
                         |--- truncated branch of depth 6
                     |--- Openness > 6.01
                         |--- truncated branch of depth 4
                - Extraversion > 3.50
                 |--- Agreeableness <= 4.56
                     |--- Extraversion <= 4.92
                         |--- truncated branch of depth 7
                     |--- Extraversion > 4.92
                         |--- truncated branch of depth 4
                 |--- Agreeableness > 4.56
                     |--- Agreeableness <= 5.94
                         |--- truncated branch of depth 9
                     |--- Agreeableness > 5.94
```

```
| |--- truncated branch of depth 4
  - Extraversion > 5.01
    |--- Agreeableness <= 5.98
        |--- Conscientiousness <= 6.26
            |--- Openness <= 6.24
                |--- Agreeableness <= 4.48
                    |--- truncated branch of depth 4
                |--- Agreeableness > 4.48
                    |--- truncated branch of depth 4
             --- Openness > 6.24
                |--- Conscientiousness <= 5.71
                    |--- class: Normal
                |--- Conscientiousness > 5.71
                    |--- class: axious
         -- Conscientiousness > 6.26
            |--- Openness <= 5.64
                |--- EmotionalStability <= 5.80
                    |--- class: axious
                |--- EmotionalStability > 5.80
                    |--- truncated branch of depth 2
            |--- Openness > 5.64
                |--- class: Normal
        Agreeableness > 5.98
        |--- Openness <= 5.75
           |--- class: Normal
        |--- Openness > 5.75
            |--- class: axious
Extraversion > 5.50
|--- Agreeableness <= 5.98
    |--- Agreeableness <= 5.50
        |--- Extraversion <= 5.98
            |--- Openness <= 4.48
                |--- Agreeableness <= 4.75
                   |--- truncated branch of depth 5
                |--- Agreeableness > 4.75
                    |--- class: Normal
               - Openness > 4.48
                |--- Agreeableness <= 1.56
                    |--- class: Stressed
                |--- Agreeableness > 1.56
                    |--- truncated branch of depth 2
           - Extraversion > 5.98
            |--- Conscientiousness <= 1.83
                |--- class: Stressed
            |--- Conscientiousness > 1.83
                |--- class: Normal
    --- Agreeableness > 5.50
       |--- Openness <= 6.00
```

```
|--- EmotionalStability <= 5.87
                              |--- class: Normal
                          |--- EmotionalStability > 5.87
                              |--- class: axious
                       -- Openness > 6.00
                          |--- class: Stressed
                  Agreeableness > 5.98
                  --- Conscientiousness <= 5.20
                      |--- Extraversion <= 5.92
                          |--- class: Normal
                      |--- Extraversion > 5.92
                          |--- Agreeableness <= 6.16
                              |--- class: Normal
                          |--- Agreeableness > 6.16
                              |--- Openness <= 6.33
                                  |--- truncated branch of depth 3
                              |--- Openness > 6.33
                                  |--- class: Normal
                      Conscientiousness > 5.20
                      |--- class: Normal
-- EmotionalStability > 5.99
 |--- Extraversion <= 3.45
     |--- EmotionalStability <= 6.00
          |--- Conscientiousness <= 4.50
              --- Conscientiousness <= 2.26
                  |--- Agreeableness <= 5.51
                      |--- Extraversion <= 2.75
                          |--- Agreeableness <= 3.25
                              |--- Conscientiousness <= 1.49
                                  |--- class: Normal
                              |--- Conscientiousness > 1.49
                                  |--- truncated branch of depth 2
                          |--- Agreeableness > 3.25
                              |--- Extraversion <= 2.00
                                  |--- class: Depressed
                              |--- Extraversion > 2.00
                                  |--- truncated branch of depth 4
                        -- Extraversion > 2.75
                          |--- Conscientiousness <= 1.75
                              |--- Openness <= 3.50
                                  |--- class: Depressed
                              |--- Openness > 3.50
                                  |--- class: Normal
                          |--- Conscientiousness > 1.75
                              |--- Openness <= 3.50
                                  |--- class: axious
                              |--- Openness > 3.50
                                 |--- truncated branch of depth 2
```

```
|--- Agreeableness > 5.51
    |--- Extraversion <= 0.91
        |--- Openness <= 3.75
            |--- class: axious
        |--- Openness > 3.75
            |--- class: Depressed
      - Extraversion > 0.91
        |--- Conscientiousness <= 2.19
            \mid--- Extraversion <= 2.76
                |--- class: Normal
            |--- Extraversion > 2.76
                |--- class: axious
          -- Conscientiousness > 2.19
            |--- class: axious
Conscientiousness > 2.26
    Extraversion <= 1.10
    |--- Openness <= 4.50
        |--- Extraversion <= 0.25
            |--- class: Normal
          -- Extraversion > 0.25
            |--- Conscientiousness <= 4.25
                |--- class: Depressed
            |--- Conscientiousness > 4.25
                |--- truncated branch of depth 2
      -- Openness > 4.50
        --- Agreeableness <= 2.75
            |--- class: Depressed
        |--- Agreeableness > 2.75
            |--- Conscientiousness <= 4.09
                |--- truncated branch of depth 3
            |--- Conscientiousness > 4.09
                |--- class: Normal
    Extraversion > 1.10
      - Openness <= 6.46
        |--- Openness <= 3.51
            |--- Extraversion <= 1.99
                |--- truncated branch of depth 2
            |--- Extraversion > 1.99
                |--- truncated branch of depth 9
          -- Openness > 3.51
            |--- Agreeableness <= 0.75
                |--- class: Depressed
            |--- Agreeableness > 0.75
                |--- truncated branch of depth 8
      - Openness > 6.46
        |--- Agreeableness <= 5.50
            |--- class: Depressed
       |--- Agreeableness > 5.50
```

```
|--- class: Normal
Conscientiousness > 4.50
|--- Extraversion <= 2.00
    |--- Openness <= 2.69
        |--- Openness <= 1.30
            |--- class: Normal
          -- Openness > 1.30
            |--- Conscientiousness <= 5.75
                |--- class: Depressed
             --- Conscientiousness > 5.75
                |--- Openness <= 2.25
                    |--- class: Depressed
                |--- Openness > 2.25
                    |--- class: Normal
                    2.69
     --- Openness >
        |--- Extraversion <= 0.55
            --- Agreeableness <= 4.75
                |--- class: Depressed
            |--- Agreeableness > 4.75
                |--- Agreeableness <= 6.31
                    |--- truncated branch of depth 5
                |--- Agreeableness > 6.31
                    |--- class: Depressed
           - Extraversion > 0.55
            |--- Agreeableness <= 1.95
                |--- Conscientiousness <= 5.73
                    |--- class: Depressed
                |--- Conscientiousness > 5.73
                    |--- truncated branch of depth 2
              -- Agreeableness > 1.95
                |--- Agreeableness <= 4.50
                    |--- truncated branch of depth 5
                |--- Agreeableness > 4.50
                    |--- truncated branch of depth 8
    Extraversion > 2.00
    --- Agreeableness <= 5.46
           - Conscientiousness <= 6.00
             --- Agreeableness <= 3.14
                |--- Agreeableness <= 2.25
                    |--- class: Depressed
                |--- Agreeableness >
                    |--- class: Normal
            |--- Agreeableness > 3.14
                |--- Openness <= 3.75
                    |--- truncated branch of depth 2
                |--- Openness > 3.75
                    |--- truncated branch of depth 7
         -- Conscientiousness > 6.00
```

```
|--- Agreeableness <= 3.42
                    |--- Conscientiousness <= 6.02
                        |--- class: Depressed
                    |--- Conscientiousness > 6.02
                        |--- class: Stressed
                   - Agreeableness > 3.42
                    |--- Agreeableness <= 4.75
                        |--- truncated branch of depth 3
                    |--- Agreeableness > 4.75
                        |--- truncated branch of depth 3
        --- Agreeableness > 5.46
            --- Extraversion <= 3.31
                |--- Conscientiousness <= 5.51
                    |--- Openness <= 4.25
                        |--- truncated branch of depth 2
                    |--- Openness > 4.25
                        |--- class: Normal
                |--- Conscientiousness > 5.51
                    |--- Extraversion <= 2.75
                        |--- truncated branch of depth 3
                    |--- Extraversion > 2.75
                        |--- truncated branch of depth 2
                Extraversion > 3.31
                |--- Agreeableness <= 5.97
                    |--- class: Stressed
                |--- Agreeableness > 5.97
                    |--- class: Normal
EmotionalStability > 6.00
|--- EmotionalStability <= 6.52
    |--- Conscientiousness <= 0.92
        |--- Agreeableness <= 5.61
            |--- class: axious
        |--- Agreeableness > 5.61
            |--- class: Normal
       - Conscientiousness > 0.92
        |--- Extraversion <= 0.51
            |--- EmotionalStability <= 6.48
                |--- class: Normal
              -- EmotionalStability > 6.48
                |--- Agreeableness <= 0.75
                    |--- class: Depressed
                |--- Agreeableness > 0.75
                    |--- Openness <= 5.25
                        |--- truncated branch of depth 6
                    |--- Openness > 5.25
                        |--- truncated branch of depth 4
         --- Extraversion > 0.51
            |--- Conscientiousness <= 4.49
```

```
|--- Extraversion <= 2.38
                        |--- EmotionalStability <= 6.36
                            |--- truncated branch of depth 8
                        |--- EmotionalStability > 6.36
                            |--- truncated branch of depth 12
                      -- Extraversion > 2.38
                        |--- Conscientiousness <= 4.47
                            |--- truncated branch of depth 12
                        |--- Conscientiousness > 4.47
                            |--- class: Stressed
                  -- Conscientiousness > 4.49
                    |--- Agreeableness <= 4.50
                        |--- Conscientiousness <= 5.89
                            |--- truncated branch of depth 5
                        |--- Conscientiousness > 5.89
                            |--- truncated branch of depth 6
                    |--- Agreeableness > 4.50
                        |--- Extraversion <= 2.00
                            |--- truncated branch of depth 6
                        |--- Extraversion > 2.00
                            |--- class: Normal
        EmotionalStability > 6.52
          -- Agreeableness <= 3.96
            |--- Extraversion <= 0.82
                |--- class: Normal
            |--- Extraversion > 0.82
               |--- class: axious
          -- Agreeableness > 3.96
            |--- Conscientiousness <= 3.69
                |--- class: Depressed
            |--- Conscientiousness > 3.69
                |--- class: Stressed
Extraversion > 3.45
   - Agreeableness <= 0.99
    |--- Openness <= 6.23
        |--- Extraversion <= 5.85
           |--- class: Depressed
        |--- Extraversion > 5.85
           |--- class: Normal
    |--- Openness > 6.23
        |--- Conscientiousness <= 2.16
            |--- class: Stressed
        |--- Conscientiousness > 2.16
            |--- class: Normal
|--- Agreeableness > 0.99
    |--- Conscientiousness <= 4.14
       |--- Openness <= 5.00
       | |--- Extraversion <= 4.09
```

```
|--- Conscientiousness <= 1.50
       |--- class: Depressed
     -- Conscientiousness > 1.50
       |--- Agreeableness <= 3.00
           |--- Extraversion <= 3.99
               |--- truncated branch of depth 2
           |--- Extraversion > 3.99
               I--- class: Normal
          - Agreeableness > 3.00
           |--- EmotionalStability <= 6.01
               |--- truncated branch of depth 7
           |--- EmotionalStability > 6.01
               |--- truncated branch of depth 7
   Extraversion > 4.09
   |--- Extraversion <= 4.98
       |--- Conscientiousness <= 3.95
           |--- Openness <= 3.56
               |--- truncated branch of depth 3
           |--- Openness > 3.56
               |--- truncated branch of depth 4
         -- Conscientiousness > 3.95
           |--- Openness <= 4.04
               |--- truncated branch of depth 3
           |--- Openness > 4.04
               |--- truncated branch of depth 3
       Extraversion > 4.98
       |--- Conscientiousness <= 3.99
           |--- Agreeableness <= 6.45
               |--- truncated branch of depth 8
           |--- Agreeableness > 6.45
               |--- truncated branch of depth 3
       |--- Conscientiousness > 3.99
           |--- Extraversion <= 5.34
               |--- truncated branch of depth 5
           |--- Extraversion > 5.34
               |--- truncated branch of depth 4
           5.00
Openness >
--- Agreeableness <= 2.25
     -- Openness <= 6.40
       |--- Agreeableness <= 1.17
           |--- Openness <= 6.15
               |--- class: Normal
           |--- Openness > 6.15
               |--- class: Stressed
         -- Agreeableness > 1.17
           |--- class: Stressed
   |--- Openness > 6.40
       |--- class: Depressed
```

```
|--- Agreeableness > 2.25
       |--- Extraversion <= 4.01
           |--- Agreeableness <= 3.82
               |--- Conscientiousness <= 3.44
                   |--- truncated branch of depth 5
               |--- Conscientiousness > 3.44
                   |--- truncated branch of depth 5
             -- Agreeableness > 3.82
               |--- Agreeableness <= 4.67
                   |--- truncated branch of depth 6
               |--- Agreeableness > 4.67
                   |--- truncated branch of depth 7
                           4.01
         -- Extraversion >
           |--- Conscientiousness <= 1.01
               |--- class: Depressed
           |--- Conscientiousness > 1.01
               |--- Agreeableness <= 6.48
                   |--- truncated branch of depth 9
               |--- Agreeableness > 6.48
                   |--- truncated branch of depth 5
Conscientiousness > 4.14
  - Agreeableness <= 6.01
   --- Extraversion <= 5.56
       |--- Extraversion <= 4.81
           |--- Agreeableness <= 4.00
               |--- EmotionalStability <= 6.10
                   |--- truncated branch of depth 10
               |--- EmotionalStability > 6.10
                   |--- truncated branch of depth 8
             -- Agreeableness > 4.00
               |--- Conscientiousness <= 4.61
                   |--- truncated branch of depth 6
               |--- Conscientiousness > 4.61
                   |--- truncated branch of depth 10
          - Extraversion > 4.81
           |--- EmotionalStability <= 6.12
               |--- Agreeableness <= 2.25
                   |--- class: Depressed
               |--- Agreeableness > 2.25
                   |--- truncated branch of depth 10
              - EmotionalStability > 6.12
               |--- Agreeableness <= 5.40
                   |--- truncated branch of depth 8
               |--- Agreeableness > 5.40
                   |--- truncated branch of depth 3
   |--- Extraversion > 5.56
       |--- Agreeableness <= 3.99
           |--- class: Normal
```

```
|--- Agreeableness > 3.99
       |--- Agreeableness <= 4.02
           |--- Extraversion <= 6.00
               |--- class: Normal
           |--- Extraversion > 6.00
               |--- truncated branch of depth 4
          -- Agreeableness > 4.02
           |--- Openness <= 3.51
               |--- truncated branch of depth 3
           |--- Openness > 3.51
               |--- truncated branch of depth 8
Agreeableness > 6.01
|--- EmotionalStability <= 6.50
    |--- Openness <= 6.05
       |--- Conscientiousness <= 5.64
           |--- Conscientiousness <= 5.01
               |--- truncated branch of depth 4
           |--- Conscientiousness > 5.01
                |--- truncated branch of depth 6
          -- Conscientiousness > 5.64
           |--- Extraversion <= 6.42
               |--- truncated branch of depth 3
           |--- Extraversion > 6.42
               |--- truncated branch of depth 2
     -- Openness > 6.05
        |--- Extraversion <= 4.52
           |--- class: Normal
       |--- Extraversion > 4.52
           |--- EmotionalStability <= 6.00
               |--- truncated branch of depth 5
           |--- EmotionalStability > 6.00
               |--- truncated branch of depth 5
--- EmotionalStability > 6.50
      -- Conscientiousness <= 4.41
       |--- class: axious
      - Conscientiousness > 4.41
        --- Extraversion <= 6.29
           |--- Openness <= 6.47
               |--- class: Normal
           |--- Openness > 6.47
               |--- truncated branch of depth 2
          -- Extraversion > 6.29
           |--- Conscientiousness <= 5.50
                |--- class: axious
           |--- Conscientiousness > 5.50
               |--- truncated branch of depth 5
```

```
[117]: from sklearn.metrics import classification_report, confusion_matrix
       print(confusion_matrix(y_test, y_pred))
       print(classification_report(y_test, y_pred))
      [[4450 816
                    95
                        574]
       Γ 884 4047 175
                        7631
       [ 101 183 5446 156]
       [ 771 781 232 4029]]
                    precision
                                  recall f1-score
                                                     support
         Depressed
                         0.72
                                    0.75
                                              0.73
                                                        5935
                          0.69
                                    0.69
                                              0.69
            Normal
                                                        5869
          Stressed
                                    0.93
                          0.92
                                              0.92
                                                        5886
                         0.73
            axious
                                    0.69
                                              0.71
                                                        5813
                                              0.76
                                                       23503
          accuracy
                         0.76
                                    0.76
                                              0.76
                                                       23503
         macro avg
      weighted avg
                         0.76
                                    0.76
                                              0.76
                                                       23503
[124]: from sklearn.naive_bayes import GaussianNB
       from sklearn.metrics import plot_confusion_matrix
       from sklearn.metrics import f1_score
       model_d = GaussianNB()
       model_d.fit(X_train,y_train)
       plot_confusion_matrix(model_d, X_test, y_test)
       predictions = model_d.predict(X_test)
       print(f1_score(y_test,predictions, average = 'micro'))
       print(classification_report(y_test,predictions))
      C:\Users\zdehg\AppData\Roaming\Python\Python39\site-
      packages\sklearn\utils\deprecation.py:87: FutureWarning: Function
      plot_confusion_matrix is deprecated; Function `plot_confusion_matrix` is
      deprecated in 1.0 and will be removed in 1.2. Use one of the class methods:
      ConfusionMatrixDisplay.from_predictions or
      ConfusionMatrixDisplay.from_estimator.
        warnings.warn(msg, category=FutureWarning)
      0.46662128238948225
                    precision
                                  recall f1-score
                                                     support
         Depressed
                          0.49
                                    0.55
                                              0.52
                                                        5935
                         0.53
                                    0.58
                                              0.56
                                                        5869
            Normal
          Stressed
                         0.45
                                    0.46
                                              0.45
                                                        5886
                         0.36
                                    0.27
                                              0.31
            axious
                                                        5813
                                              0.47
                                                       23503
          accuracy
```

0.46

0.46

23503

23503

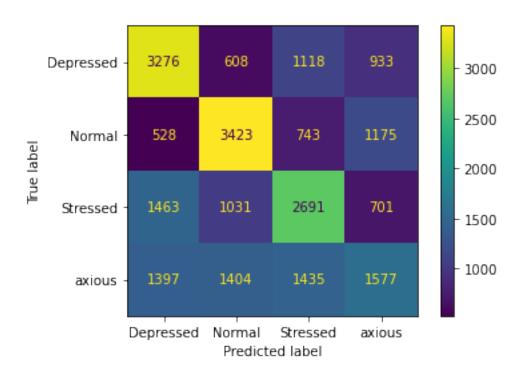
0.46

0.46

macro avg weighted avg

0.47

0.47



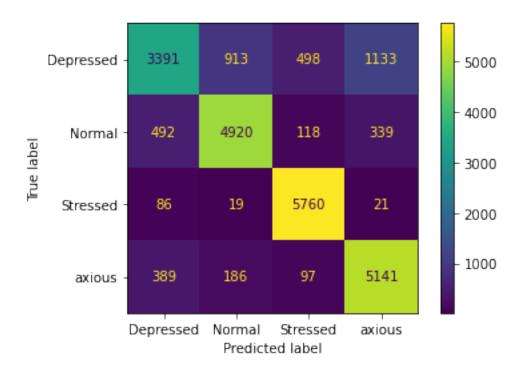
```
[125]: from sklearn.neighbors import KNeighborsClassifier
  model2 = KNeighborsClassifier(n_neighbors=3)
  model2.fit(X_train,y_train)
  plot_confusion_matrix(model2, X_test, y_test)
  predictions = model2.predict(X_test)
  print(f1_score(y_test,predictions, average = 'micro'))
  print(classification_report(y_test,predictions))
```

C:\Users\zdehg\AppData\Roaming\Python\Python39\sitepackages\sklearn\utils\deprecation.py:87: FutureWarning: Function
plot_confusion_matrix is deprecated; Function `plot_confusion_matrix` is
deprecated in 1.0 and will be removed in 1.2. Use one of the class methods:
ConfusionMatrixDisplay.from_predictions or
ConfusionMatrixDisplay.from_estimator.
 warnings.warn(msg, category=FutureWarning)

0.8174275624388376

	precision	recall	f1-score	support
Depressed	0.78	0.57	0.66	5935
Normal	0.81	0.84	0.83	5869
Stressed	0.89	0.98	0.93	5886
axious	0.77	0.88	0.83	5813

accuracy			0.82	23503
macro avg	0.81	0.82	0.81	23503
weighted avg	0.81	0.82	0.81	23503



```
[126]: from sklearn.ensemble import RandomForestClassifier
  model1 = RandomForestClassifier(random_state=0)
  model1.fit(X_train,y_train)
  plot_confusion_matrix(model1, X_test, y_test)
  predictions = model1.predict(X_test)
  print(f1_score(y_test,predictions, average = 'micro'))
  print(classification_report(y_test,predictions))
```

C:\Users\zdehg\AppData\Roaming\Python\Python39\sitepackages\sklearn\utils\deprecation.py:87: FutureWarning: Function
plot_confusion_matrix is deprecated; Function `plot_confusion_matrix` is
deprecated in 1.0 and will be removed in 1.2. Use one of the class methods:
ConfusionMatrixDisplay.from_predictions or
ConfusionMatrixDisplay.from_estimator.
 warnings.warn(msg, category=FutureWarning)

0.8479343062587755

	precision	recall	f1-score	support
Depressed	0.79	0.82	0.81	5935
Normal	0.79	0.80	0.80	5869

Stressed	0.95	0.97	0.96	5886
axious	0.85	0.80	0.82	5813
accuracy			0.85	23503
macro avg	0.85	0.85	0.85	23503
weighted avg	0.85	0.85	0.85	23503

