University of Cape Town

STA5003W

Multivariate Statistics

Assignment 2

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Literature Review

Setup

Code for this assigment was written in Python version 3.7.1, using a random seed of 1234, a full list of the Python dependencies are listed in the appendencies in a YML file. This can be used, along with the code, to reproduce the analysis provided.

Data

Analysis

Appendixes

Environment

```
name: super-spirals
channels:
  - bioconda
  - conda-forge
  - intel
  - defaults
dependencies:
  - _libgcc_mutex=0.1=main
  - absl-py=0.7.1=py36_0
  - appdirs=1.4.3=py_1
  - asn1crypto=0.24.0=py36_3
  - astor=0.8.0=py36_0
  - attrs=19.1.0=py_0
  - backcall=0.1.0=py36_2
  - backports=1.0=py36_9
  - black=19.3b0=py_0
  - bleach=2.1.3=py36_2
  - bokeh=1.3.4=py36_0
  - c-ares=1.15.0=h7b6447c_1001
  - ca-certificates=2019.9.11=hecc5488_0
  - certifi=2019.9.11=py36_0
  - cffi=1.11.5=py36_3
  - chardet=3.0.4=py36_3
  - click=7.0=py_0
  - cryptography=2.3=py36_2
  - cycler=0.10.0=py36_7
  - daal=2019.5=intel_281
  - daal4py=2019.5=py36ha68da19_2
  - decorator=4.3.0=py36_3
  - entrypoints=0.2.3=py36_2
  - fastdtw=0.2.0=py_1
  - fontconfig=2.13.1=h86ecdb6_1001
  - freetype=2.9.1=h8a8886c_1
  - gast=0.2.2=py36_0
  - get_terminal_size=1.0.0=py36_7
  - glob2=0.7=py_0
  - google-pasta=0.1.7=py_0
  - grpcio=1.23.0=py36he9ae1f9_0
  - h5py=2.8.0=py36h989c5e5_3
  - hdf5=1.10.2=2
  - holoviews=1.12.3=py_2
  - html5lib=1.0.1=py36_4
  - hvplot=0.4.0=py_1
  - icc_rt=2019.5=intel_281
  - icu=64.2=he1b5a44_1
```

```
  - idna=2.6=py36_3
  - impi_rt=2019.5=intel_281
  - intel-openmp=2019.5=intel_281
  - intelpython=2019.5=0
  - ipykernel=4.6.1=py36_2
  - ipython=6.3.1=py36_3
  - ipython_genutils=0.2.0=py36_2
  - jedi=0.12.0=py36_2
  - jinja2=2.10.1=py_0
  - joblib=0.13.2=py36_1
  - jpeg=9b=h024ee3a_2
  - json5=0.8.5=py_0
  - jsonschema=2.6.0=py36_2
  - jupyter_client=5.1.0=py36_5
  - jupyter_core=4.4.0=py36_6
  - jupyterlab=1.1.4=py_0
  - jupyterlab_server=1.0.0=py_0
  - jupytext=1.2.4=0
  - kaggle=1.5.6=py36_0
  - keras=2.2.4=0
  - keras-applications=1.0.8=py_0
  - keras-base=2.2.4=py36_0
  - keras-preprocessing=1.1.0=py_1
  - kiwisolver=1.0.1=py36_2
  - libffi=3.2.1=11
  - libgcc-ng=9.1.0=hdf63c60_0
  - libiconv=1.15=h516909a_1005
  - libpng=1.6.36=2
  - libprotobuf=3.8.0=hd408876_0
  - libsodium=1.0.16=3
  - libstdcxx-ng=9.1.0=hdf63c60_0
  - libtiff=4.0.10=h2733197_2
  - libuuid=2.32.1=h14c3975_1000
  - libxml2=2.9.9=hee79883_5
  - markdown=3.1.1=py36_0
  - markupsafe=1.0=py36_3
  - matplotlib=3.1.1=py36_2
  - mistune=0.8.3=py36_2
  - mkl=2019.5=intel_281
  - mkl-service=2.3.0=py36_0
  - mkl_fft=1.0.14=py36ha68da19_1
  - mkl_random=1.0.4=py36ha68da19_2
  - nbconvert=5.2.1=py36_2
  - nbformat=4.4.0=py36_2
  - ncurses=6.1=he6710b0_1
  - nodejs=10.13.0=he6710b0_0
  - notebook=5.2.2=py36_1
  - numexpr=2.6.9=py36_0
  - numpy=1.17.0=py36ha68da19_13
```

```
  - numpy-base=1.17.0=py36_13
  - olefile=0.46=py36_0
  - openssl=1.1.1c=h516909a_0
  - packaging=19.1=py36_0
  - pandas=0.25.0=py36_5
  - pandocfilters=1.4.1=py36_2
  - panel=0.6.2=h39e3cac_0
  - param=1.9.1=py_0
  - parso=0.2.0=py36_2
  - path.py=11.0.1=py36_2
  - pexpect=4.2.1=py36_4
  - phantomjs=2.1.1=1
  - pickleshare=0.7.4=py36_3
  - pillow=6.1.0=py36h34e0f95_0
  - pip=19.1.1=py36_0
  - prompt_toolkit=1.0.15=py36_2
  - protobuf=3.8.0=py36he6710b0_0
  - ptyprocess=0.5.2=py36_2
  - pycparser=2.18=py36_2
  - pyct=0.4.6=py36_0
  - pygments=2.2.0=py36_5
  - pyopenssl=17.5.0=py36_2
  - pyparsing=2.2.0=py36_2
  - pysocks=1.6.7=py36_1
  - python=3.6.8=h0371630_0
  - python-dateutil=2.8.0=py36_0
  - python-slugify=3.0.3=py_0
  - pytz=2019.1=py36_0
  - pyviz_comms=0.7.2=py_0
  - pyyaml=5.1.1=py36_0
  - pyzmq=16.0.2=py36_6
  - readline=7.0=h7b6447c_5
  - requests=2.20.1=py36_1
  - scikit-learn=0.21.3=py36ha68da19_4
  - scipy=1.3.1=py36ha68da19_2
  - selenium=3.141.0=py36h7b6447c_0
  - setuptools=41.0.1=py36_0
  - simplegeneric=0.8.1=py36_7
  - six=1.12.0=py36_0
  - sqlite=3.28.0=0
  - tbb=2019.8=intel_281
  - tbb4py=2019.8=py36_intel_0
  - tcl=8.6.4=24
  - tensorboard=1.14.0=py36hf484d3e_0
  - tensorflow=1.14.0=py36_0
  - tensorflow-base=1.14.0=0
  - tensorflow-estimator=1.14.0=py_0
  - termcolor=1.1.0=py36_1
  - terminado=0.8.1=py36_2
```

```
  - testpath=0.3.1=py36_2
  - text-unidecode=1.2=py_0
  - tk=8.6.8=hbc83047_0
  - toml=0.10.0=py_0
  - toolz=0.10.0=py_0
  - tornado=4.5.2=py36_5
  - tqdm=4.36.1=py_0
  - traitlets=4.3.2=py36_3
  - unidecode=1.1.1=py_0
  - urllib3=1.24.1=py36_2
  - wcwidth=0.1.7=py36_6
  - webencodings=0.5.1=py36_0
  - werkzeug=0.14.1=py36_0
  - wheel=0.31.0=py36_3
  - wrapt=1.11.2=py36h7b6447c_0
  - xz=5.2.4=5
  - yaml=0.1.7=2
  - zeromq=4.2.3=2
  - zip=3.0=0
  - zlib=1.2.11=5
  - zstd=1.3.7=h0b5b093_0
  - pip:
    - intel-tensorflow==1.14.0
prefix: /home/marcusskky/.conda/envs/super-spirals
```

References

[1] Michael Widenius and Davis Axmark. *Mysql Reference Manual*. O'Reilly & Associates, Inc., Sebastopol, CA, USA, 1st edition, 2002.