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```
[53]: from google.colab import drive
drive.mount('/content/drive')
```

Drive already mounted at /content/drive; to attempt to forcibly remount, call drive.mount("/content/drive", force_remount=True).

```
[54]: cd /content/drive/My Drive/AAIC
```

/content/drive/My Drive/AAIC

Importing the necessary libraries

```
[0]: import pandas as pd
import seaborn as sns
import matplotlib as plt
import numpy as np
import matplotlib.pyplot as plt
```

Importing the dataset

1 Haberman's cancer survival dataset

```
[0]: dataset = pd.read_csv('haberman.csv')
```

2 About the dataset

As the description in its kaggle website tells us that it contains cases from a study which was conducted between 1958 and 1970 at the University of Chicago's Billings Hospital on the survival of patients who had undergone surgery for breast cancer.

```
[157]: dataset.isna().sum()
```

```
[157]: age      0
year      0
nodes     0
status    0
dtype: int64
```

No missing values can be seen in dataset

```
[57]: dataset.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 306 entries, 0 to 305
Data columns (total 4 columns):
age          306 non-null int64
year         306 non-null int64
nodes        306 non-null int64
status       306 non-null int64
dtypes: int64(4)
memory usage: 9.6 KB
```

Number of instances found in the dataset : **306** Number of variables or columns present in the dataset :**4** Namely - Age , Year , Nodes , Status. The description of each variable is as follows

1. **Age** : The age of the person at the time of operation
2. **Year**: The year of operation
3. **Nodes**: The number of auxiliary nodes detected
4. **Status**: The status of the survival of the person . It consists of two numerics 1 and 2 where 1 represents that the person has survived within 5 years of operation and 2 represents that the patient has died within 5 years of operation

All the variables are of numeric nature except the status variable.

P.S. As stated on <https://www.medicalnewstoday.com/articles/319713.php> The axillary nodes are usually the first set of lymph nodes where breast cancer will spread. As a general rule, the more a cancer has spread from its starting point, the worse the prognosis may be for a person.

```
[58]: dataset.describe()
```

```
[58]:
```

	age	year	nodes	status
count	306.000000	306.000000	306.000000	306.000000
mean	52.457516	62.852941	4.026144	1.264706
std	10.803452	3.249405	7.189654	0.441899
min	30.000000	58.000000	0.000000	1.000000
25%	44.000000	60.000000	0.000000	1.000000
50%	52.000000	63.000000	1.000000	1.000000
75%	60.750000	65.750000	4.000000	2.000000
max	83.000000	69.000000	52.000000	2.000000

These stats say that around 75 % of people who were undergone the operation aged below 61 and 50% of people contain one or no auxiliary nodes

```
[59]: dataset.values
```

```
[59]: array([[30, 64, 1, 1],
        [30, 62, 3, 1],
        [30, 65, 0, 1],
        ...,
        [77, 65, 3, 1],
        [78, 65, 1, 2],
        [83, 58, 2, 2]])
```

```
[60]: dataset.columns
```

```
[60]: Index(['age', 'year', 'nodes', 'status'], dtype='object')
```

```
[0]: for i in range(0,306):  
      if dataset.iloc[i,3]==1:  
          dataset.iloc[i,3]='Survived'  
      elif dataset.iloc[i,3]==2:  
          dataset.iloc[i,3]='Died'
```

To be comfortable with the dataset, changing the classes of status from 1 and 2 to survived and died respectively.

```
[0]: dataset
```

```
[65]: print(dataset['status'].value_counts())  
      dataset['status'].value_counts(normalize='True')
```

```
Survived    225  
Died         81  
Name: status, dtype: int64
```

```
[65]: Survived    0.735294  
      Died        0.264706  
      Name: status, dtype: float64
```

OBJECTIVE :Our objective is to perform exploratory data analysis on the dataset to select a feature or multiple features that is/are helpful to classify the people.

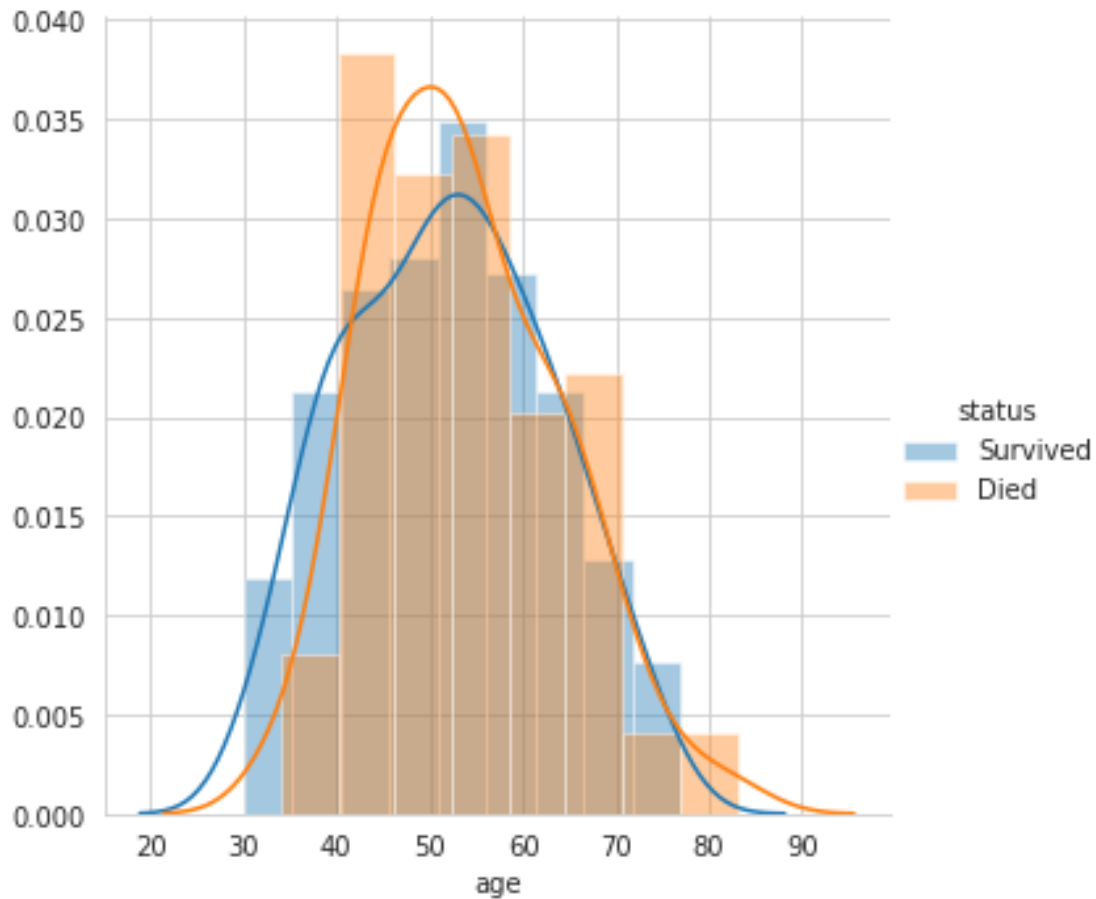
We clearly see that 225 instances (About 73.6%) of the data contains status as survived and rest of the data (26.4%) contains status as died.

To see which variables are useful to classify the patients , uni-variate , multi-variate and bi-variate anlysis should be done

3 UNI-VARIATE ANALYSIS

```
[73]: sns.set_style("whitegrid")  
      sns.FacetGrid(dataset,hue='status',height=5).map(sns.distplot,'age').  
      →add_legend()  
      plt
```

```
[73]: <module 'matplotlib' from '/usr/local/lib/python3.6/dist-  
      packages/matplotlib/__init__.py'>
```

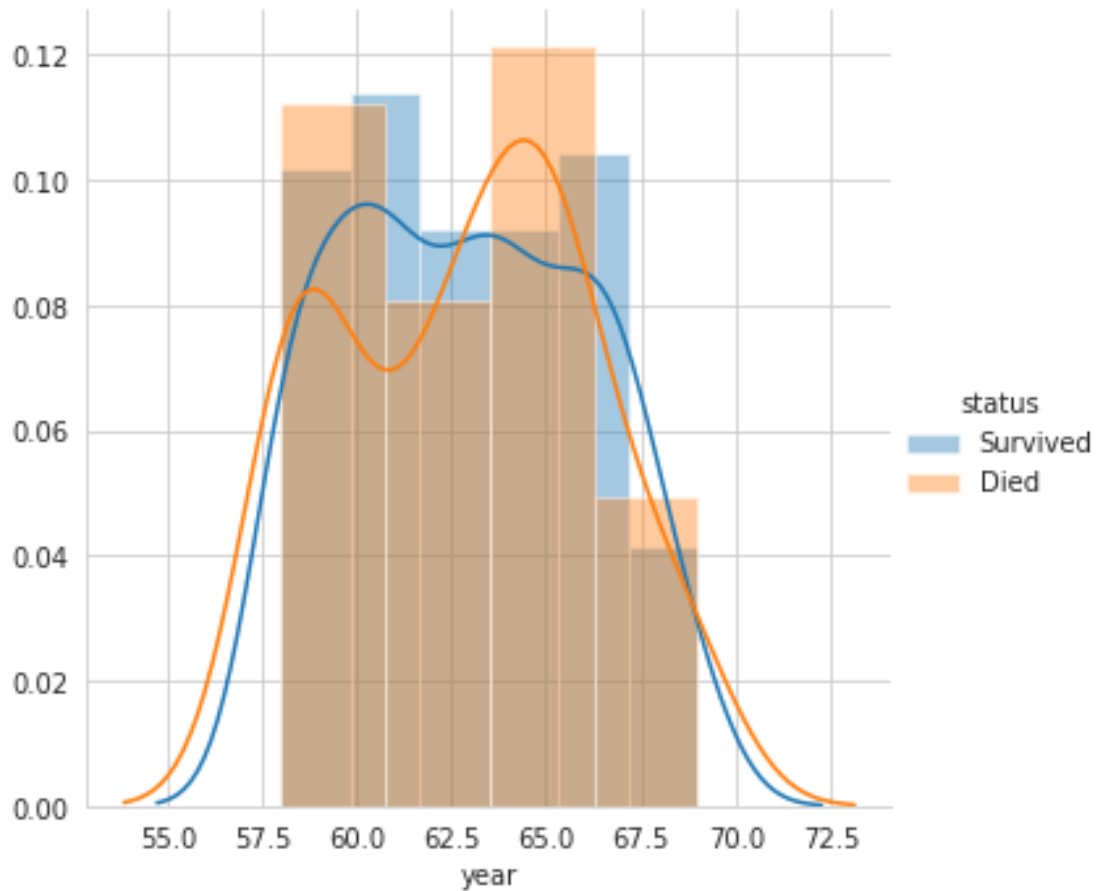


Clearly, both the histograms of survived and died over the distribution of age are overlapping. So nothing useful can be found with the variable age.

But to mention as a point, most of the people died are aged between 35 and 70.

```
[74]: sns.set_style("whitegrid")
sns.FacetGrid(dataset, hue='status', height=5).map(sns.distplot, 'year').
    → add_legend()
plt
```

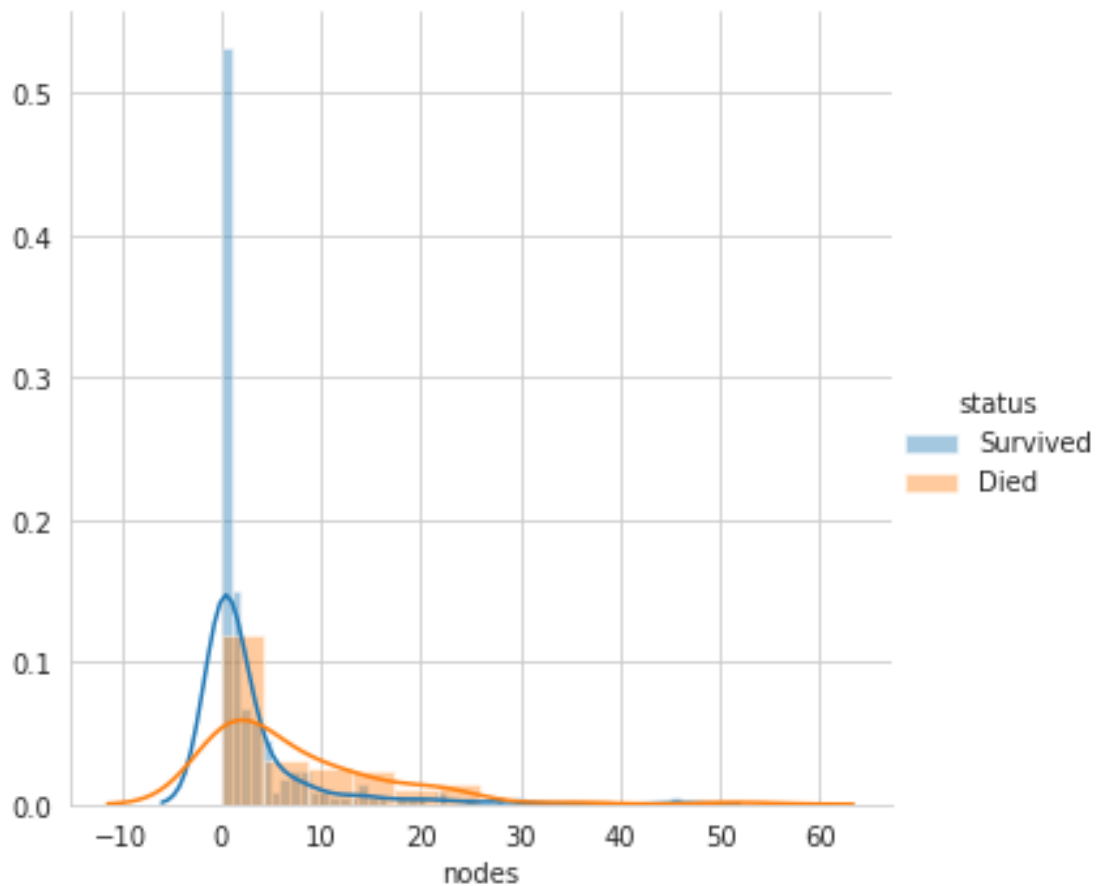
```
[74]: <module 'matplotlib' from '/usr/local/lib/python3.6/dist-
packages/matplotlib/__init__.py'>
```



Same scenario with the variable year. Nothing useful can be seen for the purpose of classification.

```
[75]: sns.set_style("whitegrid")
sns.FacetGrid(dataset, hue='status', height=5).map(sns.distplot, 'nodes').
    → add_legend()
plt
```

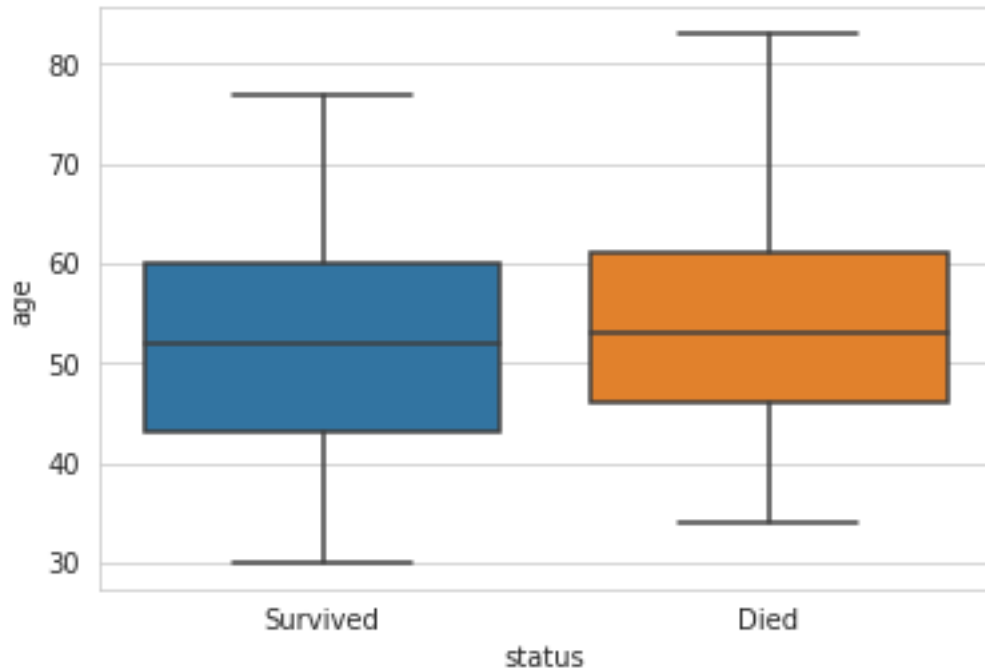
```
[75]: <module 'matplotlib' from '/usr/local/lib/python3.6/dist-
packages/matplotlib/__init__.py'>
```



This plot seems interesting. Most of the people having 0 or 1 lymph nodes have survived.

```
[76]: sns.boxplot(dataset['status'], dataset['age'])  
plt
```

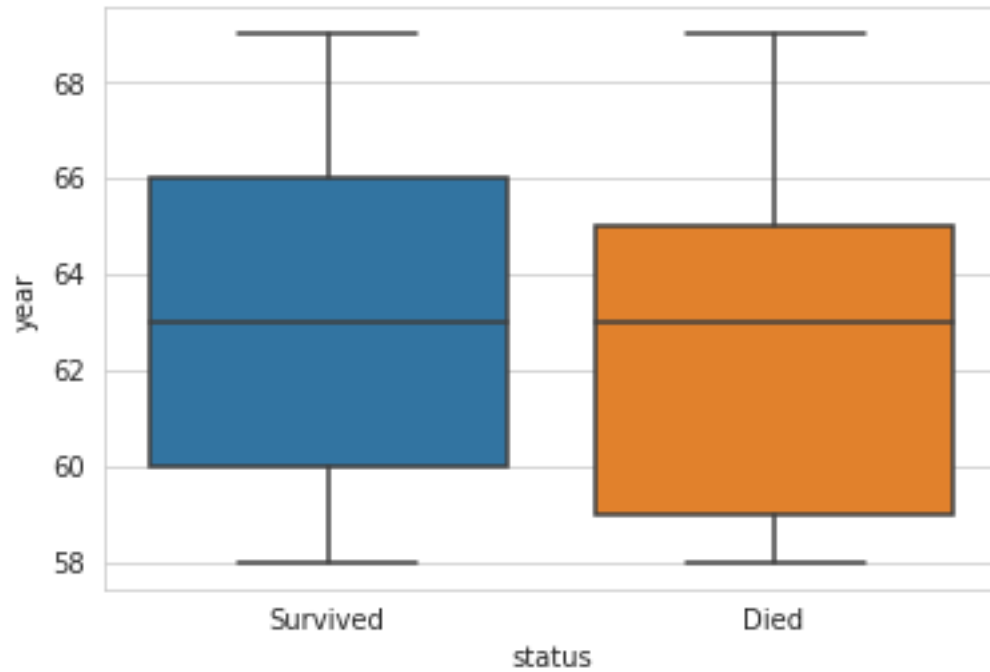
```
[76]: <module 'matplotlib' from '/usr/local/lib/python3.6/dist-  
packages/matplotlib/__init__.py'>
```



Similarly ,when we consider the box plot of the variable age both plots are almost the same. Hence age does not say anything about survival status.

```
[77]: sns.boxplot(dataset['status'],dataset['year'])  
plt
```

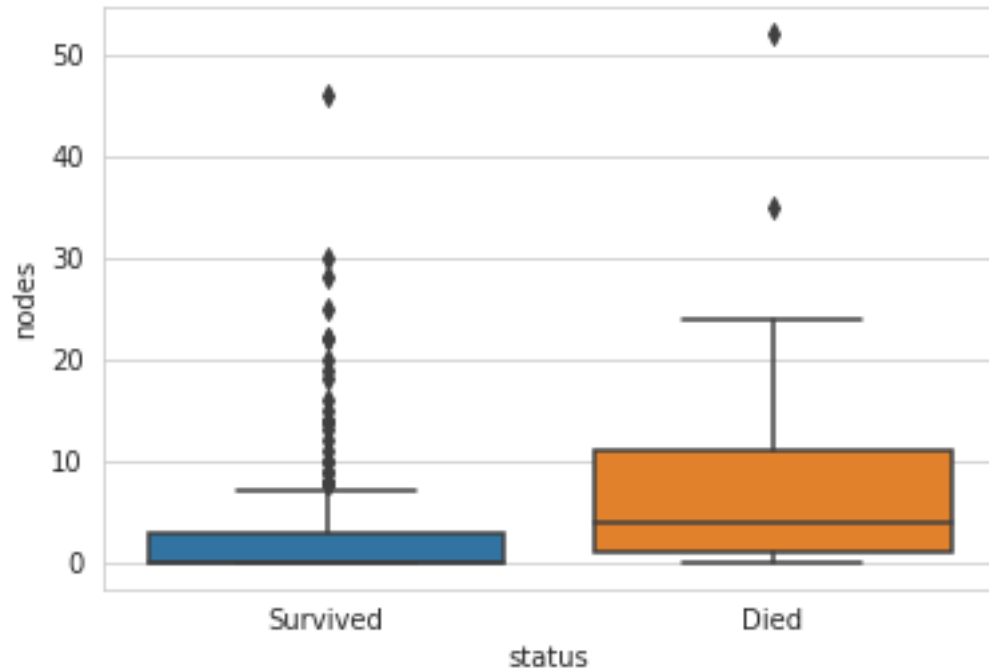
```
[77]: <module 'matplotlib' from '/usr/local/lib/python3.6/dist-  
packages/matplotlib/__init__.py'>
```



Similarly , year also has nothing to play.

```
[78]: sns.boxplot(dataset['status'],dataset['nodes'])  
plt
```

```
[78]: <module 'matplotlib' from '/usr/local/lib/python3.6/dist-  
packages/matplotlib/__init__.py'>
```

The plot states that the status of survival strongly depends on the variable nodes. People with less number of auxillary nodes are likely to survive.

4 MULTI-VARIATE ANALYSIS

The combination of features may be helpful for the purpose of classification . The pair plot plots all possible plots between the variables . From the pair plot , useful plots can be selected.

```
[81]: sns.set_style("whitegrid")
sns.pairplot(dataset,hue='status',size=4)
plt
```

```
/usr/local/lib/python3.6/dist-packages/seaborn/axisgrid.py:2065: UserWarning:
The `size` parameter has been renamed to `height`; please update your code.
warnings.warn(msg, UserWarning)
```

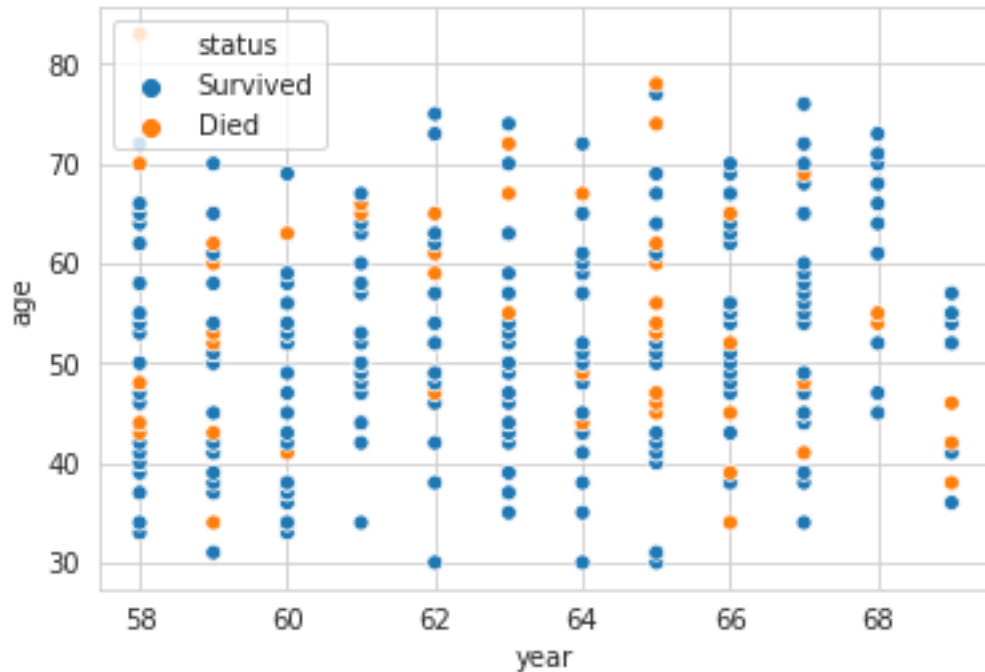
```
[81]: <module 'matplotlib' from '/usr/local/lib/python3.6/dist-
packages/matplotlib/__init__.py'>
```



Except 2 plots , all the other plots are not really useful for the purpose of classification.

```
[88]: sns.scatterplot(dataset['year'],dataset['age'],hue=dataset['status'])
plt
```

```
[88]: <module 'matplotlib' from '/usr/local/lib/python3.6/dist-packages/matplotlib/__init__.py'>
```



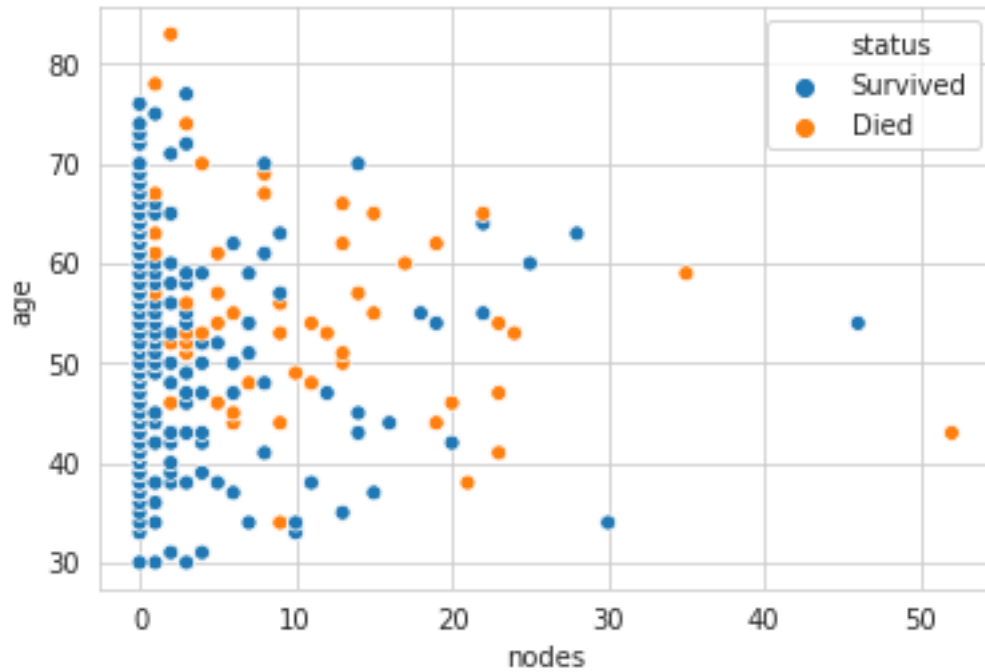
This plot between age and year , although it doesnt states the survival status of the person , it do have some interesting things to say.

1.Very few people were died between the age 30 to 50 whose operation was done during 1958 to 1964.

2.Almost everyone survived between the age 30 to 40 whose operation was done during 1958 to 1965.

```
[87]: sns.scatterplot(dataset['nodes'],dataset['age'],hue=dataset['status'])
plt
```

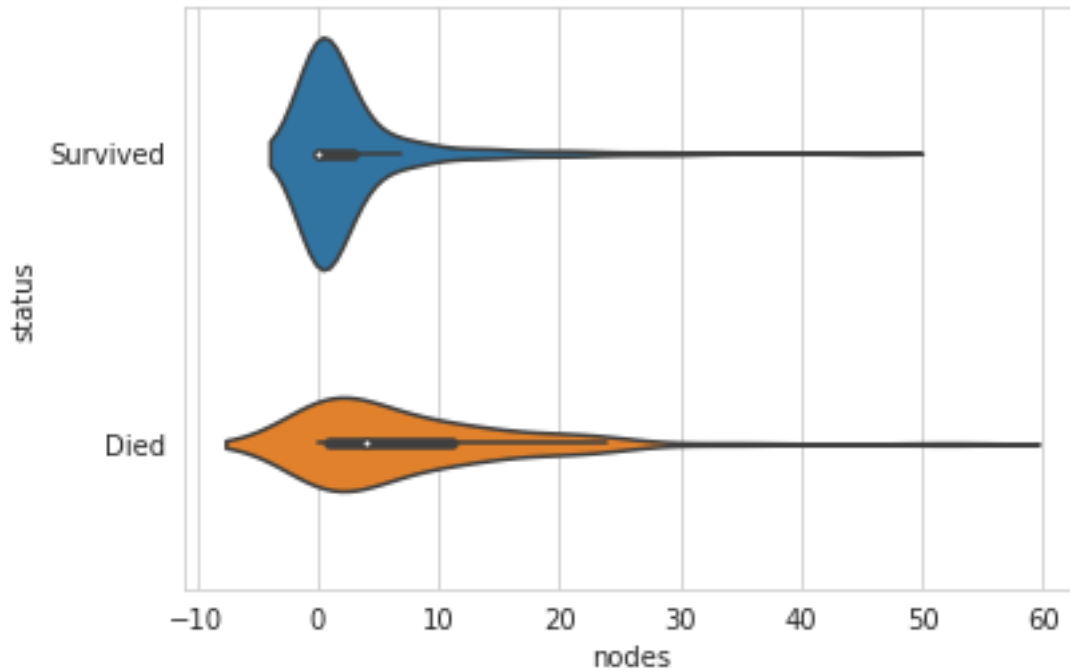
```
[87]: <module 'matplotlib' from '/usr/local/lib/python3.6/dist-packages/matplotlib/__init__.py'>
```



The plot clearly states that the number of lymph nodes greatly effect the survival status. All of the people with 0 lymph nodes has survived.

```
[90]: sns.violinplot(dataset['nodes'],dataset['status'])  
plt
```

```
[90]: <module 'matplotlib' from '/usr/local/lib/python3.6/dist-  
packages/matplotlib/__init__.py'>
```



The violin plot states that people with more number of lymph nodes has less chance of survival.

```
[0]: dataset_died=dataset[dataset["status"]=="Died"]
dataset_survived=dataset[dataset["status"]=="Survived"]
```

Splitting the data into 2 parts based on the survival status. This will be helpful while computing cdf and pdf.

```
[153]: dataset_survived.describe()
```

```
[153]:
```

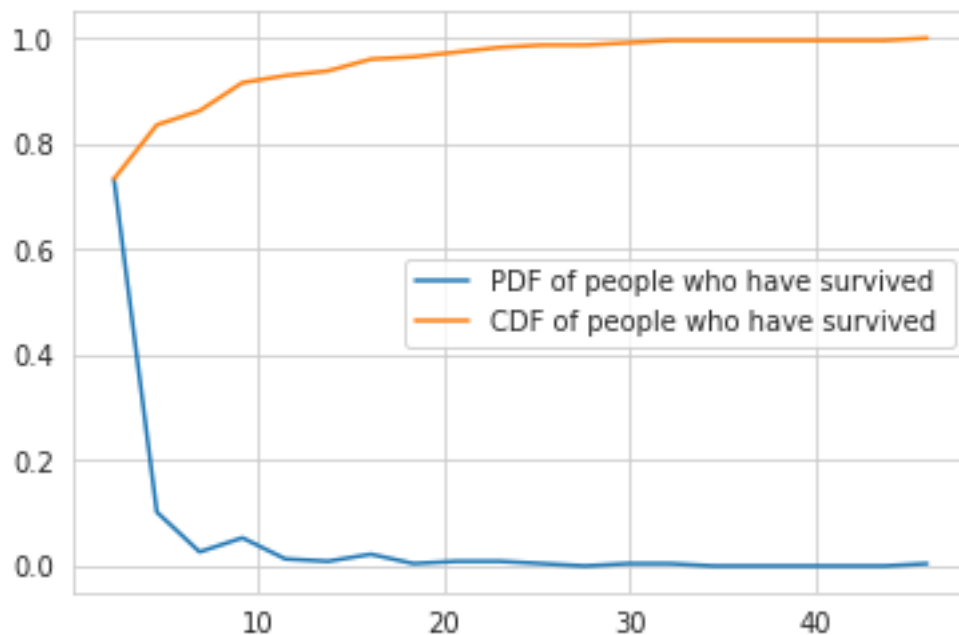
	age	year	nodes
count	225.000000	225.000000	225.000000
mean	52.017778	62.862222	2.791111
std	11.012154	3.222915	5.870318
min	30.000000	58.000000	0.000000
25%	43.000000	60.000000	0.000000
50%	52.000000	63.000000	0.000000
75%	60.000000	66.000000	3.000000
max	77.000000	69.000000	46.000000

```
[158]: counts, bin_edges = np.histogram(dataset_survived['nodes'], bins=20, density =
→ True)
pdf = counts/(sum(counts))
print(pdf);
print(bin_edges)
cdf = np.cumsum(pdf)
sns.lineplot(bin_edges[1:],pdf,label = "PDF of people who have survived ")
```

```
sns.lineplot(bin_edges[1:], cdf, label = "CDF of people who have survived ")
```

```
[0.73333333 0.10222222 0.02666667 0.05333333 0.01333333 0.00888889
 0.02222222 0.00444444 0.00888889 0.00888889 0.00444444 0.
 0.00444444 0.00444444 0.          0.          0.          0.
 0.          0.00444444]
[ 0.   2.3  4.6  6.9  9.2 11.5 13.8 16.1 18.4 20.7 23.  25.3 27.6 29.9
 32.2 34.5 36.8 39.1 41.4 43.7 46. ]
```

[158]: <matplotlib.axes._subplots.AxesSubplot at 0x7fd096a9dcf8>



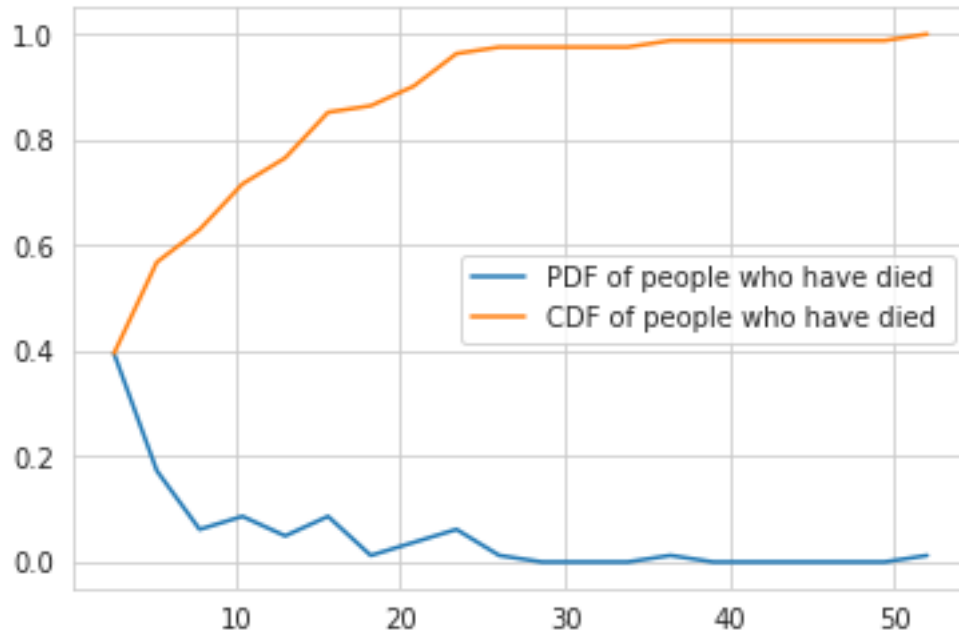
The PDF clearly shows that people having more than 20 lymph nodes has low chance of survival.

```
[159]: counts, bin_edges = np.histogram(dataset_died['nodes'], bins=20, density = True)
pdf = counts/(sum(counts))
print(pdf);
print(bin_edges)
cdf = np.cumsum(pdf)
sns.lineplot(bin_edges[1:],pdf,label = "PDF of people who have died ")
sns.lineplot(bin_edges[1:], cdf, label = "CDF of people who have died ")
```

```
[0.39506173 0.17283951 0.0617284  0.08641975 0.04938272 0.08641975
 0.01234568 0.03703704 0.0617284  0.01234568 0.          0.
 0.          0.01234568 0.          0.          0.          0.
 0.          0.01234568]
```

```
[ 0.   2.6  5.2  7.8 10.4 13.   15.6 18.2 20.8 23.4 26.   28.6 31.2 33.8
 36.4 39.   41.6 44.2 46.8 49.4 52. ]
```

[159]: <matplotlib.axes._subplots.AxesSubplot at 0x7fd094eb3668>



The PDF shows that people with more number of auxillary nodes has low chance of death. This is contradicting the previous assumption. The reason behind this is less number of data points with 10 or more auxillary nodes. Hence it doesnt mean that people with more number of nodes are likely to survive.

5 CONCLUSIONS

By doing the Exploratory data analysis I conclude that except the variable 'nodes' , the rest of the variables are not really useful for the purpose of classification.

But they are useful for extracting some useful information which I have mentioned after each plot.

Even the combination of features are not helpful for classification of dead and survived.

So , to build a model that predicts whether a person dies or survives it requires only the "number of nodes" . Nothing else matters.

```
[162]: !apt-get install texlive texlive-xetex texlive-latex-extra pandoc
!pip install py pandoc
```

```
Reading package lists... Done
Building dependency tree
Reading state information... Done
```

pandoc is already the newest version (1.19.2.4~dfsg-1build4).

pandoc set to manually installed.

The following package was automatically installed and is no longer required:

libnvidia-common-410

Use 'apt autoremove' to remove it.

The following additional packages will be installed:

fonts-droid-fallback fonts-lato fonts-lmodern fonts-noto-mono fonts-texgyre
javascript-common libcupsfilters1 libcupsimage2 libgs9 libgs9-common
libijs-0.35 libjbig2dec0 libjs-jquery libkpathsea6 libpotrace0 libptexenc1
libruby2.5 libsynchronet1 libtexlua52 libtexluajit2 libzip-0-13 lmodern
poppler-data preview-latex-style rake ruby ruby-did-you-mean ruby-minitest
ruby-net-telnet ruby-power-assert ruby-test-unit ruby2.5
rubygems-integration tclutils tex-common tex-gyre texlive-base
texlive-binaries texlive-fonts-recommended texlive-latex-base
texlive-latex-recommended texlive-pictures texlive-plain-generic tipa

Suggested packages:

fonts-noto apache2 | lighttpd | httpd poppler-utils ghostscript
fonts-japanese-mincho | fonts-ipafont-mincho fonts-japanese-gothic
| fonts-ipafont-gothic fonts-arphic-ukai fonts-arphic-uming fonts-nanum ri
ruby-dev bundler debhelper gv | postscript-viewer perl-tk xpdf-reader
| pdf-viewer texlive-fonts-recommended-doc texlive-latex-base-doc
python-pygments icc-profiles libfile-which-perl
libspreadsheet-parseexcel-perl texlive-latex-extra-doc
texlive-latex-recommended-doc texlive-pstricks dot2tex prerex ruby-tcltk
| libtcltk-ruby texlive-pictures-doc vprerex

The following NEW packages will be installed:

fonts-droid-fallback fonts-lato fonts-lmodern fonts-noto-mono fonts-texgyre
javascript-common libcupsfilters1 libcupsimage2 libgs9 libgs9-common
libijs-0.35 libjbig2dec0 libjs-jquery libkpathsea6 libpotrace0 libptexenc1
libruby2.5 libsynchronet1 libtexlua52 libtexluajit2 libzip-0-13 lmodern
poppler-data preview-latex-style rake ruby ruby-did-you-mean ruby-minitest
ruby-net-telnet ruby-power-assert ruby-test-unit ruby2.5
rubygems-integration tclutils tex-common tex-gyre texlive texlive-base
texlive-binaries texlive-fonts-recommended texlive-latex-base
texlive-latex-extra texlive-latex-recommended texlive-pictures
texlive-plain-generic texlive-xetex tipa

0 upgraded, 47 newly installed, 0 to remove and 6 not upgraded.

Need to get 146 MB of archives.

After this operation, 460 MB of additional disk space will be used.

Get:1 <http://archive.ubuntu.com/ubuntu> bionic/main amd64 fonts-droid-fallback
all 1:6.0.1r16-1.1 [1,805 kB]

Get:2 <http://archive.ubuntu.com/ubuntu> bionic/main amd64 fonts-lato all 2.0-2
[2,698 kB]

Get:3 <http://archive.ubuntu.com/ubuntu> bionic/main amd64 poppler-data all
0.4.8-2 [1,479 kB]

Get:4 <http://archive.ubuntu.com/ubuntu> bionic/main amd64 tex-common all 6.09
[33.0 kB]

Get:5 <http://archive.ubuntu.com/ubuntu> bionic/main amd64 fonts-lmodern all

2.004.5-3 [4,551 kB]
Get:6 <http://archive.ubuntu.com/ubuntu> bionic/main amd64 fonts-noto-mono all
20171026-2 [75.5 kB]
Get:7 <http://archive.ubuntu.com/ubuntu> bionic/universe amd64 fonts-texgyre all
20160520-1 [8,761 kB]
Get:8 <http://archive.ubuntu.com/ubuntu> bionic/main amd64 javascript-common all
11 [6,066 B]
Get:9 <http://archive.ubuntu.com/ubuntu> bionic-updates/main amd64 libcupsfilters1
amd64 1.20.2-0ubuntu3.1 [108 kB]
Get:10 <http://archive.ubuntu.com/ubuntu> bionic-updates/main amd64 libcupsimage2
amd64 2.2.7-1ubuntu2.5 [18.6 kB]
Get:11 <http://archive.ubuntu.com/ubuntu> bionic/main amd64 libijs-0.35 amd64
0.35-13 [15.5 kB]
Get:12 <http://archive.ubuntu.com/ubuntu> bionic/main amd64 libjbig2dec0 amd64
0.13-6 [55.9 kB]
Get:13 <http://archive.ubuntu.com/ubuntu> bionic-updates/main amd64 libgs9-common
all 9.26~dfsg+0-0ubuntu0.18.04.9 [5,092 kB]
Get:14 <http://archive.ubuntu.com/ubuntu> bionic-updates/main amd64 libgs9 amd64
9.26~dfsg+0-0ubuntu0.18.04.9 [2,264 kB]
Get:15 <http://archive.ubuntu.com/ubuntu> bionic/main amd64 libjs-jquery all
3.2.1-1 [152 kB]
Get:16 <http://archive.ubuntu.com/ubuntu> bionic-updates/main amd64 libkpathsea6
amd64 2017.20170613.44572-8ubuntu0.1 [54.9 kB]
Get:17 <http://archive.ubuntu.com/ubuntu> bionic/main amd64 libpotrace0 amd64
1.14-2 [17.4 kB]
Get:18 <http://archive.ubuntu.com/ubuntu> bionic-updates/main amd64 libptexenc1
amd64 2017.20170613.44572-8ubuntu0.1 [34.5 kB]
Get:19 <http://archive.ubuntu.com/ubuntu> bionic/main amd64 rubygems-integration
all 1.11 [4,994 B]
Get:20 <http://archive.ubuntu.com/ubuntu> bionic-updates/main amd64 ruby2.5 amd64
2.5.1-1ubuntu1.2 [48.6 kB]
Get:21 <http://archive.ubuntu.com/ubuntu> bionic/main amd64 ruby amd64 1:2.5.1
[5,712 B]
Get:22 <http://archive.ubuntu.com/ubuntu> bionic/main amd64 rake all 12.3.1-1
[45.1 kB]
Get:23 <http://archive.ubuntu.com/ubuntu> bionic/main amd64 ruby-did-you-mean all
1.2.0-2 [9,700 B]
Get:24 <http://archive.ubuntu.com/ubuntu> bionic/main amd64 ruby-minitest all
5.10.3-1 [38.6 kB]
Get:25 <http://archive.ubuntu.com/ubuntu> bionic/main amd64 ruby-net-telnet all
0.1.1-2 [12.6 kB]
Get:26 <http://archive.ubuntu.com/ubuntu> bionic/main amd64 ruby-power-assert all
0.3.0-1 [7,952 B]
Get:27 <http://archive.ubuntu.com/ubuntu> bionic/main amd64 ruby-test-unit all
3.2.5-1 [61.1 kB]
Get:28 <http://archive.ubuntu.com/ubuntu> bionic-updates/main amd64 libruby2.5
amd64 2.5.1-1ubuntu1.2 [3,066 kB]
Get:29 <http://archive.ubuntu.com/ubuntu> bionic-updates/main amd64 libsynchron

```

amd64 2017.20170613.44572-8ubuntu0.1 [41.4 kB]
Get:30 http://archive.ubuntu.com/ubuntu bionic-updates/main amd64 libtexlua52
amd64 2017.20170613.44572-8ubuntu0.1 [91.2 kB]
Get:31 http://archive.ubuntu.com/ubuntu bionic-updates/main amd64 libtexluajit2
amd64 2017.20170613.44572-8ubuntu0.1 [230 kB]
Get:32 http://archive.ubuntu.com/ubuntu bionic-updates/main amd64 libzzip-0-13
amd64 0.13.62-3.1ubuntu0.18.04.1 [26.0 kB]
Get:33 http://archive.ubuntu.com/ubuntu bionic/main amd64 lmodern all 2.004.5-3
[9,631 kB]
Get:34 http://archive.ubuntu.com/ubuntu bionic/main amd64 preview-latex-style
all 11.91-1ubuntu1 [185 kB]
Get:35 http://archive.ubuntu.com/ubuntu bionic/main amd64 t1utils amd64 1.41-2
[56.0 kB]
Get:36 http://archive.ubuntu.com/ubuntu bionic/universe amd64 tex-gyre all
20160520-1 [4,998 kB]
Get:37 http://archive.ubuntu.com/ubuntu bionic-updates/main amd64 texlive-
binaries amd64 2017.20170613.44572-8ubuntu0.1 [8,179 kB]
Get:38 http://archive.ubuntu.com/ubuntu bionic/main amd64 texlive-base all
2017.20180305-1 [18.7 MB]
Get:39 http://archive.ubuntu.com/ubuntu bionic/universe amd64 texlive-fonts-
recommended all 2017.20180305-1 [5,262 kB]
Get:40 http://archive.ubuntu.com/ubuntu bionic/main amd64 texlive-latex-base all
2017.20180305-1 [951 kB]
Get:41 http://archive.ubuntu.com/ubuntu bionic/main amd64 texlive-latex-
recommended all 2017.20180305-1 [14.9 MB]
Get:42 http://archive.ubuntu.com/ubuntu bionic/universe amd64 texlive all
2017.20180305-1 [14.4 kB]
Get:43 http://archive.ubuntu.com/ubuntu bionic/universe amd64 texlive-pictures
all 2017.20180305-1 [4,026 kB]
Get:44 http://archive.ubuntu.com/ubuntu bionic/universe amd64 texlive-latex-
extra all 2017.20180305-2 [10.6 MB]
Get:45 http://archive.ubuntu.com/ubuntu bionic/universe amd64 texlive-plain-
generic all 2017.20180305-2 [23.6 MB]
Get:46 http://archive.ubuntu.com/ubuntu bionic/universe amd64 tipa all 2:1.3-20
[2,978 kB]
Get:47 http://archive.ubuntu.com/ubuntu bionic/universe amd64 texlive-xetex all
2017.20180305-1 [10.7 MB]
Fetched 146 MB in 6s (24.8 MB/s)
Extracting templates from packages: 100%
Preconfiguring packages ...
Selecting previously unselected package fonts-droid-fallback.
(Reading database ... 130911 files and directories currently installed.)
Preparing to unpack .../00-fonts-droid-fallback_1%3a6.0.1r16-1.1_all.deb ...
Unpacking fonts-droid-fallback (1:6.0.1r16-1.1) ...
Selecting previously unselected package fonts-lato.
Preparing to unpack .../01-fonts-lato_2.0-2_all.deb ...
Unpacking fonts-lato (2.0-2) ...
Selecting previously unselected package poppler-data.

```

```

Preparing to unpack .../02-poppler-data_0.4.8-2_all.deb ...
Unpacking poppler-data (0.4.8-2) ...
Selecting previously unselected package tex-common.
Preparing to unpack .../03-tex-common_6.09_all.deb ...
Unpacking tex-common (6.09) ...
Selecting previously unselected package fonts-lmodern.
Preparing to unpack .../04-fonts-lmodern_2.004.5-3_all.deb ...
Unpacking fonts-lmodern (2.004.5-3) ...
Selecting previously unselected package fonts-noto-mono.
Preparing to unpack .../05-fonts-noto-mono_20171026-2_all.deb ...
Unpacking fonts-noto-mono (20171026-2) ...
Selecting previously unselected package fonts-texgyre.
Preparing to unpack .../06-fonts-texgyre_20160520-1_all.deb ...
Unpacking fonts-texgyre (20160520-1) ...
Selecting previously unselected package javascript-common.
Preparing to unpack .../07-javascript-common_11_all.deb ...
Unpacking javascript-common (11) ...
Selecting previously unselected package libcupsfilters1:amd64.
Preparing to unpack .../08-libcupsfilters1_1.20.2-0ubuntu3.1_amd64.deb ...
Unpacking libcupsfilters1:amd64 (1.20.2-0ubuntu3.1) ...
Selecting previously unselected package libcupsimage2:amd64.
Preparing to unpack .../09-libcupsimage2_2.2.7-1ubuntu2.5_amd64.deb ...
Unpacking libcupsimage2:amd64 (2.2.7-1ubuntu2.5) ...
Selecting previously unselected package libijs-0.35:amd64.
Preparing to unpack .../10-libijs-0.35_0.35-13_amd64.deb ...
Unpacking libijs-0.35:amd64 (0.35-13) ...
Selecting previously unselected package libjbig2dec0:amd64.
Preparing to unpack .../11-libjbig2dec0_0.13-6_amd64.deb ...
Unpacking libjbig2dec0:amd64 (0.13-6) ...
Selecting previously unselected package libgs9-common.
Preparing to unpack .../12-libgs9-common_9.26~dfsg+0-0ubuntu0.18.04.9_all.deb
...
Unpacking libgs9-common (9.26~dfsg+0-0ubuntu0.18.04.9) ...
Selecting previously unselected package libgs9:amd64.
Preparing to unpack .../13-libgs9_9.26~dfsg+0-0ubuntu0.18.04.9_amd64.deb ...
Unpacking libgs9:amd64 (9.26~dfsg+0-0ubuntu0.18.04.9) ...
Selecting previously unselected package libjs-jquery.
Preparing to unpack .../14-libjs-jquery_3.2.1-1_all.deb ...
Unpacking libjs-jquery (3.2.1-1) ...
Selecting previously unselected package libkpathsea6:amd64.
Preparing to unpack .../15-libkpathsea6_2017.20170613.44572-8ubuntu0.1_amd64.deb
...
Unpacking libkpathsea6:amd64 (2017.20170613.44572-8ubuntu0.1) ...
Selecting previously unselected package libpotrace0.
Preparing to unpack .../16-libpotrace0_1.14-2_amd64.deb ...
Unpacking libpotrace0 (1.14-2) ...
Selecting previously unselected package libptexenc1:amd64.
Preparing to unpack .../17-libptexenc1_2017.20170613.44572-8ubuntu0.1_amd64.deb

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...
Unpacking libptexenc1:amd64 (2017.20170613.44572-8ubuntu0.1) ...
Selecting previously unselected package rubygems-integration.
Preparing to unpack .../18-rubygems-integration_1.11_all.deb ...
Unpacking rubygems-integration (1.11) ...
Selecting previously unselected package ruby2.5.
Preparing to unpack .../19-ruby2.5_2.5.1-1ubuntu1.2_amd64.deb ...
Unpacking ruby2.5 (2.5.1-1ubuntu1.2) ...
Selecting previously unselected package ruby.
Preparing to unpack .../20-ruby_1%3a2.5.1_amd64.deb ...
Unpacking ruby (1:2.5.1) ...
Selecting previously unselected package rake.
Preparing to unpack .../21-rake_12.3.1-1_all.deb ...
Unpacking rake (12.3.1-1) ...
Selecting previously unselected package ruby-did-you-mean.
Preparing to unpack .../22-ruby-did-you-mean_1.2.0-2_all.deb ...
Unpacking ruby-did-you-mean (1.2.0-2) ...
Selecting previously unselected package ruby-minitest.
Preparing to unpack .../23-ruby-minitest_5.10.3-1_all.deb ...
Unpacking ruby-minitest (5.10.3-1) ...
Selecting previously unselected package ruby-net-telnet.
Preparing to unpack .../24-ruby-net-telnet_0.1.1-2_all.deb ...
Unpacking ruby-net-telnet (0.1.1-2) ...
Selecting previously unselected package ruby-power-assert.
Preparing to unpack .../25-ruby-power-assert_0.3.0-1_all.deb ...
Unpacking ruby-power-assert (0.3.0-1) ...
Selecting previously unselected package ruby-test-unit.
Preparing to unpack .../26-ruby-test-unit_3.2.5-1_all.deb ...
Unpacking ruby-test-unit (3.2.5-1) ...
Selecting previously unselected package libruby2.5:amd64.
Preparing to unpack .../27-libruby2.5_2.5.1-1ubuntu1.2_amd64.deb ...
Unpacking libruby2.5:amd64 (2.5.1-1ubuntu1.2) ...
Selecting previously unselected package libsyntax1:amd64.
Preparing to unpack .../28-libsyntax1_2017.20170613.44572-8ubuntu0.1_amd64.deb
...
Unpacking libsyntax1:amd64 (2017.20170613.44572-8ubuntu0.1) ...
Selecting previously unselected package libtexlua52:amd64.
Preparing to unpack .../29-libtexlua52_2017.20170613.44572-8ubuntu0.1_amd64.deb
...
Unpacking libtexlua52:amd64 (2017.20170613.44572-8ubuntu0.1) ...
Selecting previously unselected package libtexluajit2:amd64.
Preparing to unpack
.../30-libtexluajit2_2017.20170613.44572-8ubuntu0.1_amd64.deb ...
Unpacking libtexluajit2:amd64 (2017.20170613.44572-8ubuntu0.1) ...
Selecting previously unselected package libzip-0-13:amd64.
Preparing to unpack .../31-libzip-0-13_0.13.62-3.1ubuntu0.18.04.1_amd64.deb ...
Unpacking libzip-0-13:amd64 (0.13.62-3.1ubuntu0.18.04.1) ...
Selecting previously unselected package lmodern.

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Preparing to unpack .../32-lmodern_2.004.5-3_all.deb ...
Unpacking lmodern (2.004.5-3) ...
Selecting previously unselected package preview-latex-style.
Preparing to unpack .../33-preview-latex-style_11.91-1ubuntu1_all.deb ...
Unpacking preview-latex-style (11.91-1ubuntu1) ...
Selecting previously unselected package t1utils.
Preparing to unpack .../34-t1utils_1.41-2_amd64.deb ...
Unpacking t1utils (1.41-2) ...
Selecting previously unselected package tex-gyre.
Preparing to unpack .../35-tex-gyre_20160520-1_all.deb ...
Unpacking tex-gyre (20160520-1) ...
Selecting previously unselected package texlive-binaries.
Preparing to unpack .../36-texlive-
binaries_2017.20170613.44572-8ubuntu0.1_amd64.deb ...
Unpacking texlive-binaries (2017.20170613.44572-8ubuntu0.1) ...
Selecting previously unselected package texlive-base.
Preparing to unpack .../37-texlive-base_2017.20180305-1_all.deb ...
Unpacking texlive-base (2017.20180305-1) ...
Selecting previously unselected package texlive-fonts-recommended.
Preparing to unpack .../38-texlive-fonts-recommended_2017.20180305-1_all.deb ...
Unpacking texlive-fonts-recommended (2017.20180305-1) ...
Selecting previously unselected package texlive-latex-base.
Preparing to unpack .../39-texlive-latex-base_2017.20180305-1_all.deb ...
Unpacking texlive-latex-base (2017.20180305-1) ...
Selecting previously unselected package texlive-latex-recommended.
Preparing to unpack .../40-texlive-latex-recommended_2017.20180305-1_all.deb ...
Unpacking texlive-latex-recommended (2017.20180305-1) ...
Selecting previously unselected package texlive.
Preparing to unpack .../41-texlive_2017.20180305-1_all.deb ...
Unpacking texlive (2017.20180305-1) ...
Selecting previously unselected package texlive-pictures.
Preparing to unpack .../42-texlive-pictures_2017.20180305-1_all.deb ...
Unpacking texlive-pictures (2017.20180305-1) ...
Selecting previously unselected package texlive-latex-extra.
Preparing to unpack .../43-texlive-latex-extra_2017.20180305-2_all.deb ...
Unpacking texlive-latex-extra (2017.20180305-2) ...
Selecting previously unselected package texlive-plain-generic.
Preparing to unpack .../44-texlive-plain-generic_2017.20180305-2_all.deb ...
Unpacking texlive-plain-generic (2017.20180305-2) ...
Selecting previously unselected package tipa.
Preparing to unpack .../45-tipa_2%3a1.3-20_all.deb ...
Unpacking tipa (2:1.3-20) ...
Selecting previously unselected package texlive-xetex.
Preparing to unpack .../46-texlive-xetex_2017.20180305-1_all.deb ...
Unpacking texlive-xetex (2017.20180305-1) ...
Setting up libgs9-common (9.26~dfsg+0-0ubuntu0.18.04.9) ...
Setting up libkpathsea6:amd64 (2017.20170613.44572-8ubuntu0.1) ...
Setting up libjs-jquery (3.2.1-1) ...

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Setting up libtexlua52:amd64 (2017.20170613.44572-8ubuntu0.1) ...
Setting up fonts-droid-fallback (1:6.0.1r16-1.1) ...
Setting up libsynchronet1:amd64 (2017.20170613.44572-8ubuntu0.1) ...
Setting up libptexenc1:amd64 (2017.20170613.44572-8ubuntu0.1) ...
Setting up tex-common (6.09) ...
update-language: texlive-base not installed and configured, doing nothing!
Processing triggers for mime-support (3.60ubuntu1) ...
Setting up poppler-data (0.4.8-2) ...
Setting up tex-gyre (20160520-1) ...
Setting up preview-latex-style (11.91-1ubuntu1) ...
Setting up fonts-texgyre (20160520-1) ...
Setting up fonts-noto-mono (20171026-2) ...
Setting up fonts-lato (2.0-2) ...
Setting up libcupsfilters1:amd64 (1.20.2-0ubuntu3.1) ...
Setting up libcupsimage2:amd64 (2.2.7-1ubuntu2.5) ...
Setting up libjbig2dec0:amd64 (0.13-6) ...
Setting up ruby-did-you-mean (1.2.0-2) ...
Processing triggers for libc-bin (2.27-3ubuntu1) ...
Setting up t1utils (1.41-2) ...
Setting up ruby-net-telnet (0.1.1-2) ...
Setting up libijs-0.35:amd64 (0.35-13) ...
Setting up rubygems-integration (1.11) ...
Setting up libpotrace0 (1.14-2) ...
Processing triggers for man-db (2.8.3-2ubuntu0.1) ...
Setting up javascript-common (11) ...
Setting up ruby-minitest (5.10.3-1) ...
Setting up libzip-0-13:amd64 (0.13.62-3.1ubuntu0.18.04.1) ...
Setting up libgs9:amd64 (9.26~dfsg+0-0ubuntu0.18.04.9) ...
Setting up libtexluaajit2:amd64 (2017.20170613.44572-8ubuntu0.1) ...
Processing triggers for fontconfig (2.12.6-0ubuntu2) ...
Setting up fonts-lmodern (2.004.5-3) ...
Setting up ruby-power-assert (0.3.0-1) ...
Setting up texlive-binaries (2017.20170613.44572-8ubuntu0.1) ...
update-alternatives: using /usr/bin/xdvi-xaw to provide /usr/bin/xdvi.bin
(xdvi.bin) in auto mode
update-alternatives: using /usr/bin/bibtex.original to provide /usr/bin/bibtex
(bibtex) in auto mode
Setting up texlive-base (2017.20180305-1) ...
mktexlsr: Updating /var/lib/texmf/ls-R-TEXLIVEDIST...
mktexlsr: Updating /var/lib/texmf/ls-R-TEXMFMAIN...
mktexlsr: Updating /var/lib/texmf/ls-R...
mktexlsr: Done.
tl-paper: setting paper size for dvips to a4: /var/lib/texmf/dvips/config
/config-paper.ps
tl-paper: setting paper size for dvipdfmx to a4: /var/lib/texmf/dvipdfmx
/dvipdfmx-paper.cfg
tl-paper: setting paper size for xdvi to a4: /var/lib/texmf/xdvi/XDvi-paper
tl-paper: setting paper size for pdftex to a4:

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/var/lib/texmf/tex/generic/config/pdftexconfig.tex
Setting up texlive-fonts-recommended (2017.20180305-1) ...
Setting up texlive-plain-generic (2017.20180305-2) ...
Setting up texlive-latex-base (2017.20180305-1) ...
Setting up lmodern (2.004.5-3) ...
Setting up texlive-latex-recommended (2017.20180305-1) ...
Setting up texlive-pictures (2017.20180305-1) ...
Setting up tipa (2:1.3-20) ...
Regenerating '/var/lib/texmf/fmtutil.cnf-DEBIAN'... done.
Regenerating '/var/lib/texmf/fmtutil.cnf-TEXLIVEDIST'... done.
update-fmtutil has updated the following file(s):
    /var/lib/texmf/fmtutil.cnf-DEBIAN
    /var/lib/texmf/fmtutil.cnf-TEXLIVEDIST
If you want to activate the changes in the above file(s),
you should run fmtutil-sys or fmtutil.
Setting up texlive (2017.20180305-1) ...
Setting up texlive-latex-extra (2017.20180305-2) ...
Setting up texlive-xetex (2017.20180305-1) ...
Setting up ruby2.5 (2.5.1-1ubuntu1.2) ...
Setting up ruby (1:2.5.1) ...
Setting up ruby-test-unit (3.2.5-1) ...
Setting up rake (12.3.1-1) ...
Setting up libruby2.5:amd64 (2.5.1-1ubuntu1.2) ...
Processing triggers for tex-common (6.09) ...
Running updmap-sys. This may take some time... done.
Running mktexlsr /var/lib/texmf ... done.
Building format(s) --all.
    This may take some time... done.
Processing triggers for libc-bin (2.27-3ubuntu1) ...
Collecting py pandoc
  Downloading https://files.pythonhosted.org/packages/71/81/00184643e5a10a456b41
18fc12c96780823adb8ed974eb2289f29703b29b/py pandoc-1.4.tar.gz
Requirement already satisfied: setuptools in /usr/local/lib/python3.6/dist-
packages (from py pandoc) (41.0.1)
Requirement already satisfied: pip>=8.1.0 in /usr/local/lib/python3.6/dist-
packages (from py pandoc) (19.1.1)
Requirement already satisfied: wheel>=0.25.0 in /usr/local/lib/python3.6/dist-
packages (from py pandoc) (0.33.4)
Building wheels for collected packages: py pandoc
  Building wheel for py pandoc (setup.py) ... done
  Stored in directory: /root/.cache/pip/wheels/3e/55/4f/59e0fa0914f3db52e87c0642
c5fb986871dfbbf253026e639f
Successfully built py pandoc
Installing collected packages: py pandoc
Successfully installed py pandoc-1.4

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[0]: !jupyter nbconvert --to PDF "sritejabanisetti21@gmail.co.ipynb"