In [24]:
```
import pandas as pd
import numpy as np
```

In [25]:
```
import seaborn as sns
import matplotlib.pyplot as plt
```

In [26]:
```
from sklearn import preprocessing
from sklearn import model_selection
from sklearn import metrics
from sklearn import linear_model
from sklearn import ensemble
from sklearn import tree
from sklearn import svm
import xgboost
```

In [27]:
```
data = pd.read_csv("E:\IBM_Project\weatherAUS.csv")
```

In [28]:
```
data.head()
```

Out[28]:

	Date	Location	MinTemp	MaxTemp	Rainfall	Evaporation	Sunshine	WindGustDir	WindGustSpeed	WindDir9
0	2008-12-01	Albury	13.4	22.9	0.6	NaN	NaN	W	44.0	
1	2008-12-02	Albury	7.4	25.1	0.0	NaN	NaN	WNW	44.0	NN
2	2008-12-03	Albury	12.9	25.7	0.0	NaN	NaN	WSW	46.0	
3	2008-12-04	Albury	9.2	28.0	0.0	NaN	NaN	NE	24.0	
4	2008-12-05	Albury	17.5	32.3	1.0	NaN	NaN	W	41.0	E

5 rows × 24 columns

In [29]:
```
data.describe()
```

Out[29]:

	MinTemp	MaxTemp	Rainfall	Evaporation	Sunshine	WindGustSpeed	WindSpeed9am
count	141556.000000	141871.000000	140787.000000	81350.000000	74377.000000	132923.000000	140845.000000
mean	12.186400	23.226784	2.349974	5.469824	7.624853	39.984292	14.001988
std	6.403283	7.117618	8.465173	4.188537	3.781525	13.588801	8.893337
min	-8.500000	-4.800000	0.000000	0.000000	0.000000	6.000000	0.000000
25%	7.600000	17.900000	0.000000	2.600000	4.900000	31.000000	7.000000
50%	12.000000	22.600000	0.000000	4.800000	8.500000	39.000000	13.000000
75%	16.800000	28.200000	0.800000	7.400000	10.600000	48.000000	19.000000
max	33.900000	48.100000	371.000000	145.000000	14.500000	135.000000	130.000000

In [30]:

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 142193 entries, 0 to 142192
Data columns (total 24 columns):
 #   Column         Non-Null Count   Dtype  
---  ------         --------------   -----  
 0   Date           142193 non-null  object 
 1   Location       142193 non-null  object 
 2   MinTemp        141556 non-null  float64
 3   MaxTemp        141871 non-null  float64
 4   Rainfall       140787 non-null  float64
 5   Evaporation    81350 non-null   float64
 6   Sunshine       74377 non-null   float64
 7   WindGustDir    132863 non-null  object 
 8   WindGustSpeed  132923 non-null  float64
 9   WindDir9am     132180 non-null  object 
 10  WindDir3pm     138415 non-null  object 
 11  WindSpeed9am   140845 non-null  float64
 12  WindSpeed3pm   139563 non-null  float64
 13  Humidity9am    140419 non-null  float64
 14  Humidity3pm    138583 non-null  float64
 15  Pressure9am    128179 non-null  float64
 16  Pressure3pm    128212 non-null  float64
 17  Cloud9am       88536 non-null   float64
 18  Cloud3pm       85099 non-null   float64
 19  Temp9am        141289 non-null  float64
 20  Temp3pm        139467 non-null  float64
 21  RainToday      140787 non-null  object 
 22  RISK_MM        142193 non-null  float64
 23  RainTomorrow   142193 non-null  object 
dtypes: float64(17), object(7)
memory usage: 26.0+ MB
```

In [31]:
```
data.shape #gives the dimension of the data
```

Out[31]:
```
(142193, 24)
```

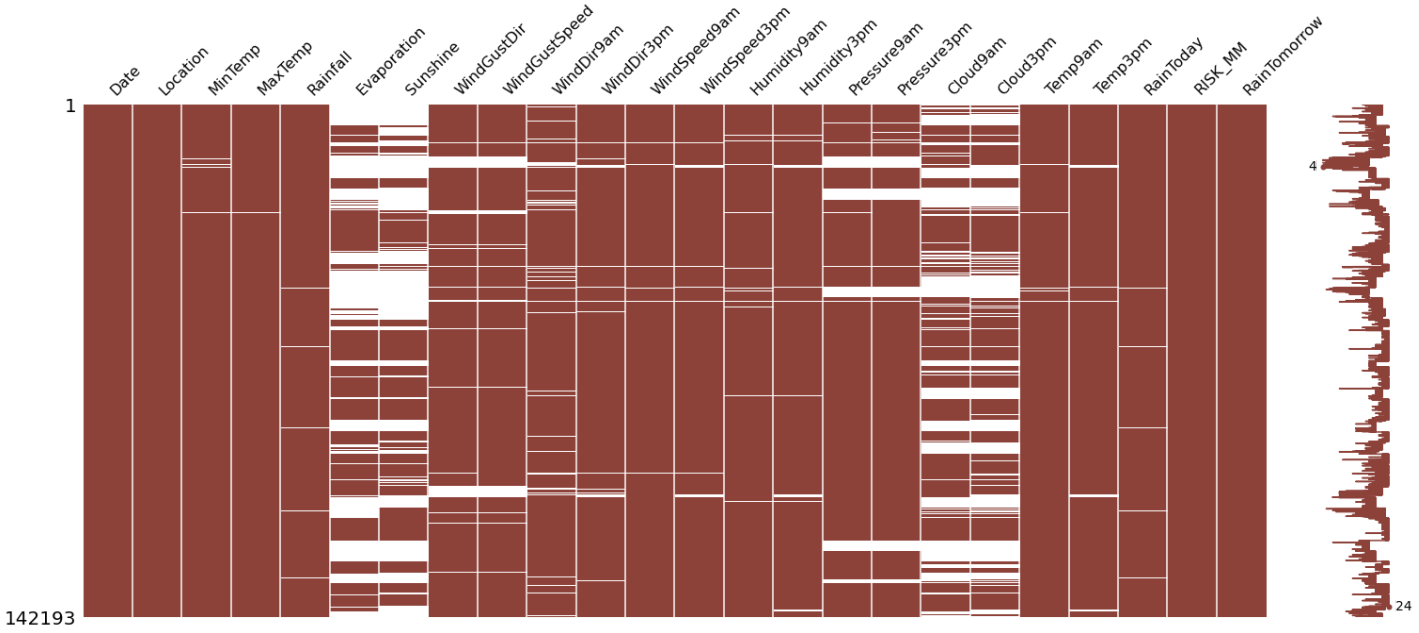
In [32]:
```
data.isnull().sum()
```

Out[32]:
```
Date                0
Location            0
MinTemp           637
MaxTemp           322
Rainfall         1406
Evaporation     60843
Sunshine        67816
WindGustDir      9330
WindGustSpeed    9270
WindDir9am      10013
WindDir3pm       3778
WindSpeed9am     1348
WindSpeed3pm     2630
Humidity9am      1774
Humidity3pm      3610
Pressure9am     14014
Pressure3pm     13981
Cloud9am        53657
Cloud3pm        57094
Temp9am           904
Temp3pm          2726
RainToday        1406
RISK_MM             0
RainTomorrow        0
dtype: int64
```

In [33]:
```
import missingno as msno
```

```
msno.matrix(data,color=(0.55,0.255,0.225),fontsize=16)
```

Out[33]: <AxesSubplot:>



In [34]:
```
import pandas as pd
import numpy as np
```

In [35]:
```
import seaborn as sns
import matplotlib.pyplot as plt
```

In [36]:
```
from sklearn import preprocessing
from sklearn import model_selection
from sklearn import metrics
from sklearn import linear_model
from sklearn import ensemble
from sklearn import tree
from sklearn import svm
import xgboost
```

In [37]:
```
data = pd.read_csv("E:\IBM_Project\weatherAUS.csv")
```

In [39]:
```
data_cat = data [['RainToday','WindGustDir','WindDir9am','WindDir3pm']]
data.drop(columns=['Evaporation','Sunshine','Cloud9am','Cloud3pm'],axis=1,inplace=True)
data.drop(columns=['RainToday','WindGustDir','WindDir9am','WindDir3pm'],axis=1,inplace=Tru
```

In [40]:
```
# filling the missing data of numeric variables with mean
data['MinTemp'].fillna(data['MinTemp'].mean(),inplace=True)
data['MaxTemp'].fillna(data['MaxTemp'].mean(),inplace=True)
data['Rainfall'].fillna(data['Rainfall'].mean(),inplace=True)
data['WindGustSpeed'].fillna(data['WindGustSpeed'].mean(),inplace=True)
data['WindSpeed9am'].fillna(data['WindSpeed9am'].mean(),inplace=True)
data['WindSpeed3pm'].fillna(data['WindSpeed3pm'].mean(),inplace=True)
data['Humidity9am'].fillna(data['Humidity9am'].mean(),inplace=True)
data['Humidity3pm'].fillna(data['Humidity3pm'].mean(),inplace=True)
data['Pressure9am'].fillna(data['Pressure9am'].mean(),inplace=True)
data['Pressure3pm'].fillna(data['Pressure3pm'].mean(),inplace=True)
```

```
data['Temp9am'].fillna(data['Temp9am'].mean(),inplace=True)
data['Temp3pm'].fillna(data['Temp3pm'].mean(),inplace=True)
```

In [41]:
```
#filling the missing data of numeric variables with mean
cat_names=data_cat.columns
```

In [42]:
```
import numpy as np
from sklearn.impute import SimpleImputer
imp_mode=SimpleImputer(missing_values=np.nan, strategy='most_frequent')
```

In [43]:
```
data_cat=imp_mode.fit_transform(data_cat)
```

In [44]:
```
data_cat=pd.DataFrame(data_cat,columns=cat_names)
```

In [45]:
```
data=pd.concat([data,data_cat],axis=1)
```

In [ ]:

In [ ]:

In [ ]: