	Date	Location	MinTemp	MaxTemp	Rainfall	Evaporation	Sunshine	WindGustDir	WindGustSpeed	WindDir9am	...	Humidity9am	Humidity3pm	Pressure9am	Pressure3pm	Cloud9am	Cloud3pm	Temp9am	Temp3pm	Ra
0	39783	Delhi	13.4	22.9	0.6	NaN	NaN	W	44.0	W	...	71.0	22.0	1007.7	1007.1	8.0	NaN	16.9	21.8	
1	39784	Delhi	7.4	25.1	0.0	NaN	NaN	WNW	44.0	NNW	...	44.0	25.0	1010.6	1007.8	NaN	NaN	17.2	24.3	
2	39785	Delhi	12.9	25.7	0.0	NaN	NaN	WSW	46.0	W	...	38.0	30.0	1007.6	1008.7	NaN	2.0	21.0	23.2	
3	39786	Delhi	9.2	28.0	0.0	NaN	NaN	NE	24.0	SE	...	45.0	16.0	1017.6	1012.8	NaN	NaN	18.1	26.5	
4	39787	Delhi	17.5	32.3	1.0	NaN	NaN	W	41.0	ENE	...	82.0	33.0	1010.8	1006.0	7.0	8.0	17.8	29.7	

5 rows × 23 columns

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 145460 entries, 0 to 145459
Data columns (total 23 columns):
 #   Column         Non-Null Count   Dtype
---  ------         --------------   -----
 0   Date           145460 non-null  int64
 1   Location       145460 non-null  object
 2   MinTemp        143975 non-null  float64
 3   MaxTemp        144199 non-null  float64
 4   Rainfall       142199 non-null  float64
 5   Evaporation    82670 non-null   float64
 6   Sunshine       75625 non-null   float64
 7   WindGustDir    135134 non-null  object
 8   WindGustSpeed  135197 non-null  float64
 9   WindDir9am     134894 non-null  object
 10  WindDir3pm     141232 non-null  object
 11  WindSpeed9am   143693 non-null  float64
 12  WindSpeed3pm   142398 non-null  float64
 13  Humidity9am    142806 non-null  float64
 14  Humidity3pm    140953 non-null  float64
 15  Pressure9am    130395 non-null  float64
 16  Pressure3pm    130432 non-null  float64
 17  Cloud9am       89572 non-null   float64
 18  Cloud3pm       86102 non-null   float64
 19  Temp9am        143693 non-null  float64
 20  Temp3pm        141851 non-null  float64
 21  RainToday      142199 non-null  object
 22  RainTomorrow   142193 non-null  object
dtypes: float64(16), int64(1), object(6)
memory usage: 25.5+ MB
```
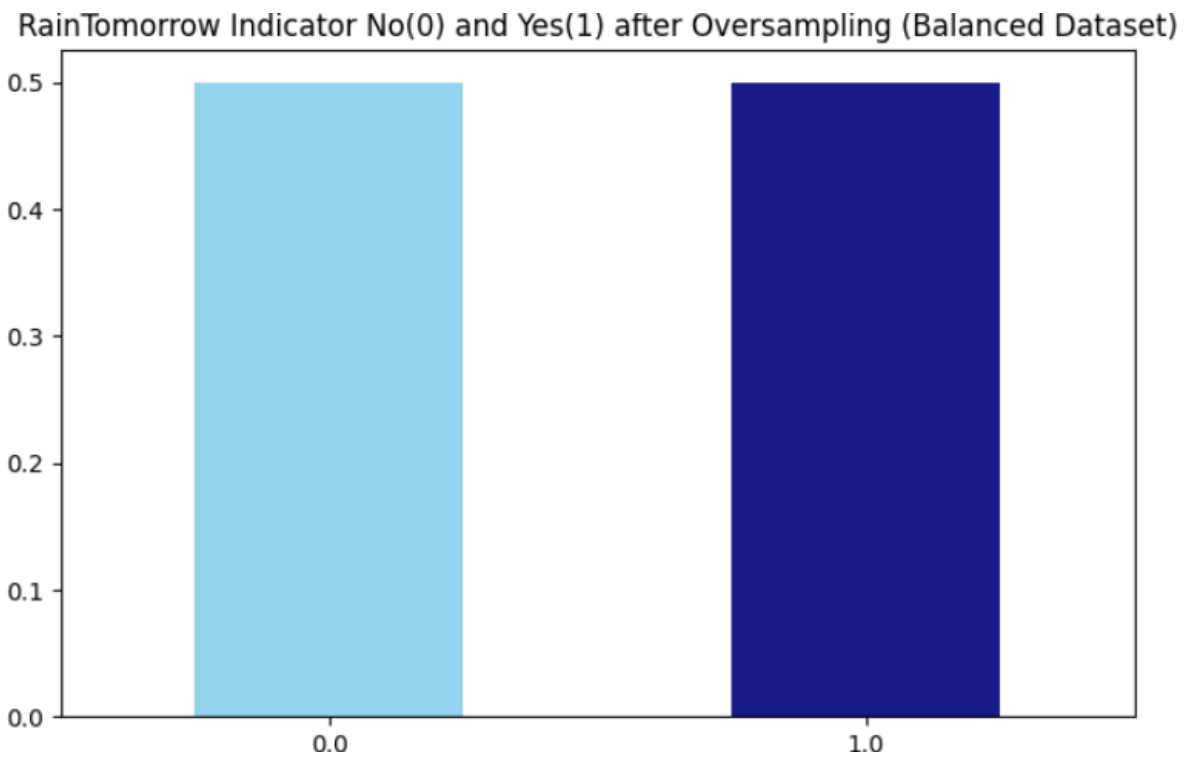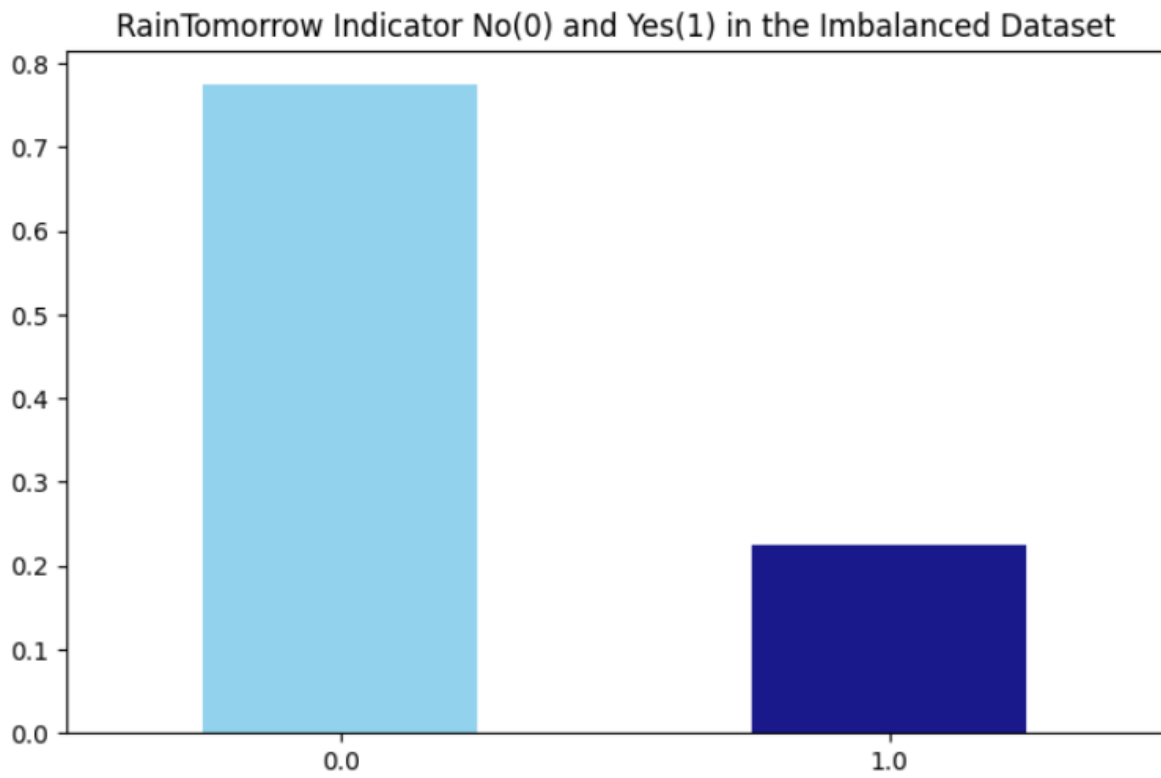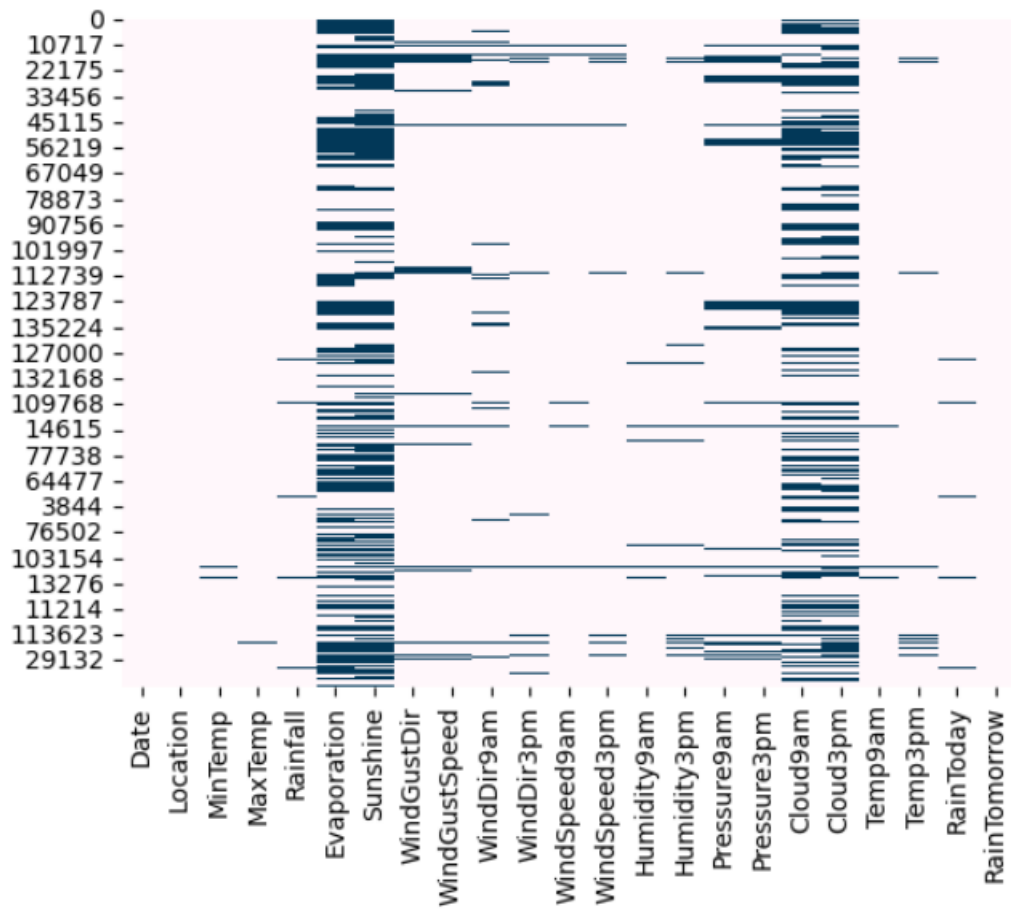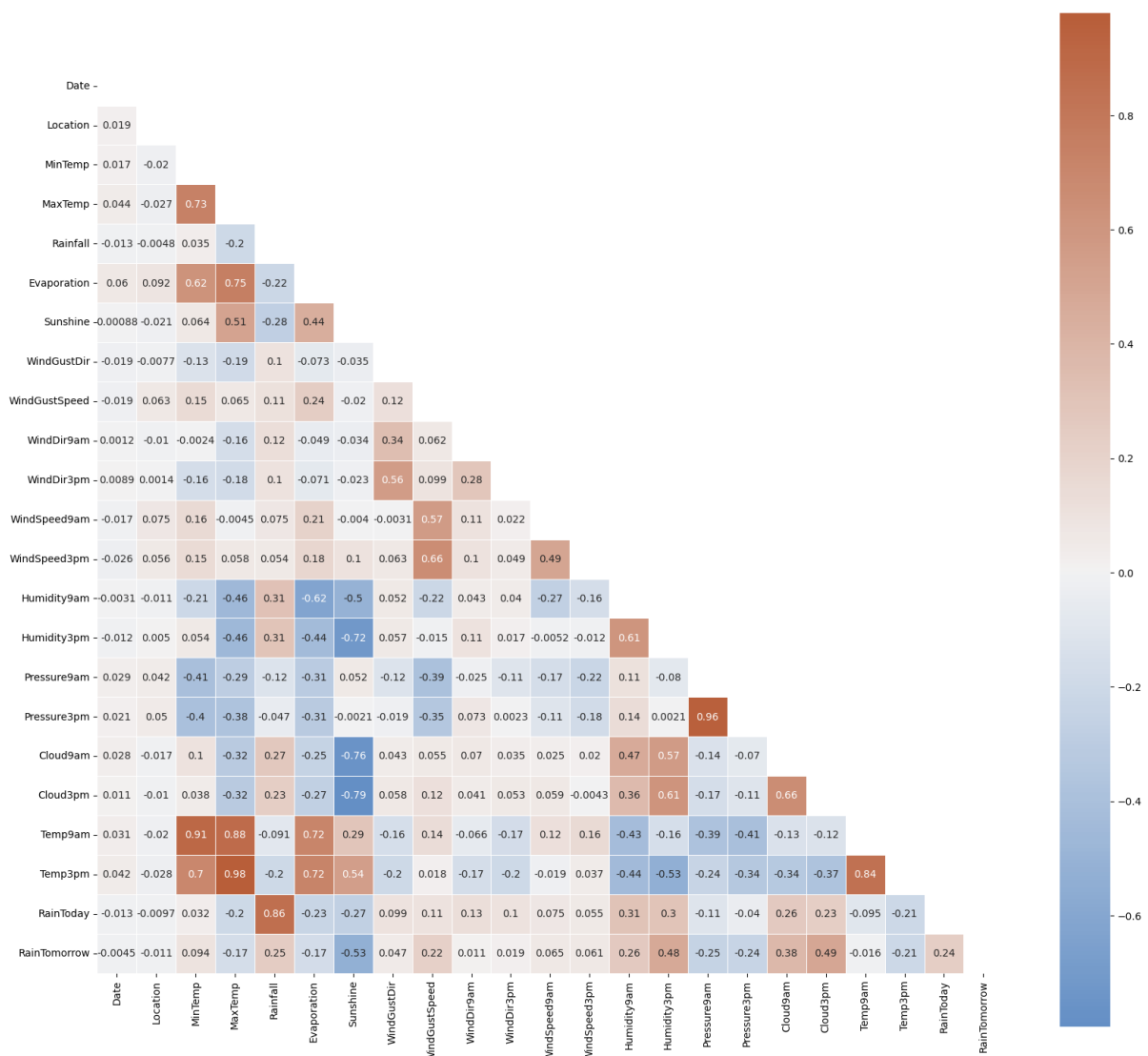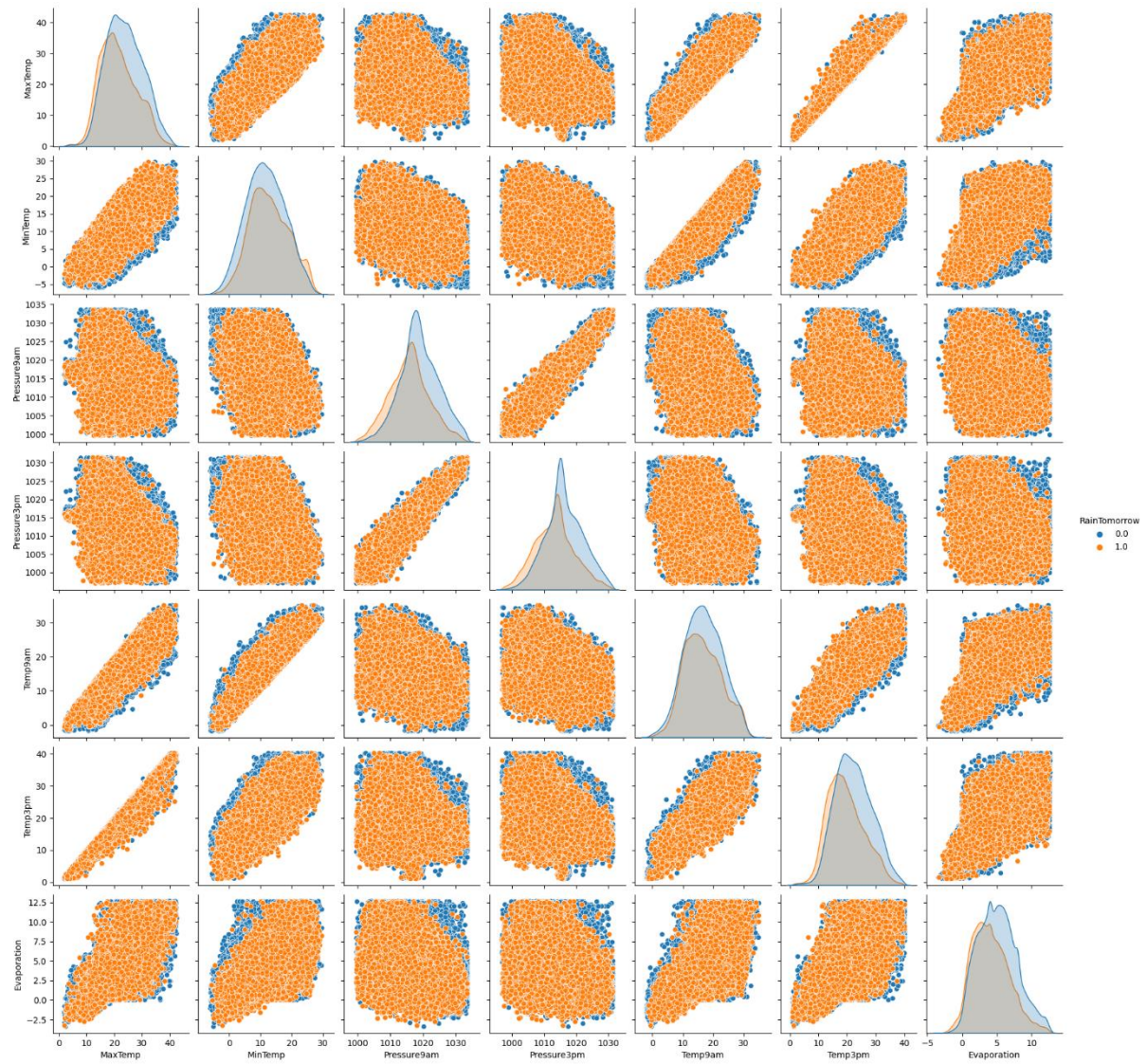
fbfbfbffjnjn

RainTomorrow Indicator No(0) and Yes(1) in the Imbalanced Dataset

RainTomorrow Indicator No(0) and Yes(1) after Oversampling (Balanced Dataset)

<Axes: >

Date	1624.000000
Location	26.000000
MinTemp	9.300000
MaxTemp	10.200000
Rainfall	2.400000
Evaporation	4.114554
Sunshine	5.842051
WindGustDir	9.000000
WindGustSpeed	19.000000
WindDir9am	8.000000
WindDir3pm	8.000000
WindSpeed9am	13.000000
WindSpeed3pm	11.000000
Humidity9am	26.000000
Humidity3pm	30.000000
Pressure9am	8.500000
Pressure3pm	8.600000
Cloud9am	4.000000
Cloud3pm	3.583194
Temp9am	9.300000
Temp3pm	9.800000
RainToday	1.000000
RainTomorrow	1.000000

dtype: float64

Weight	Feature
0.1562 ± 0.0012	Sunshine
0.1356 ± 0.0005	Humidity3pm
0.1230 ± 0.0012	Cloud3pm
0.0730 ± 0.0007	Pressure3pm
0.0347 ± 0.0008	WindGustSpeed
0.0266 ± 0.0004	Cloud9am
0.0108 ± 0.0003	Pressure9am
0.0036 ± 0.0002	Rainfall
0.0032 ± 0.0002	Humidity9am
0.0032 ± 0.0003	Evaporation
0.0020 ± 0.0002	MinTemp
0.0014 ± 0.0001	WindDir9am
0.0013 ± 0.0001	Location
0.0011 ± 0.0001	Temp3pm
0.0010 ± 0.0001	Temp9am
0.0009 ± 0.0001	Date
0.0009 ± 0.0001	RainToday
0.0008 ± 0.0001	WindSpeed3pm
0.0007 ± 0.0001	WindDir3pm
0.0006 ± 0.0001	MaxTemp

… 2 more …

ROC Curve

Confusion Matrix

ROC Curve

Confusion Matrix

ROC Curve

Confusion Matrix

Confusion Matrix

Confusion Matrix

Confusion Matrix

Confusion Matrix

Logistic Regression   Decision Tree   Neural Network

Random Forest   LightGBM   CatBoost

XGBoost   Ensemble

Model Comparison: Accuracy and Time taken for execution

Model Comparison: Area under ROC and Cohens Kappa