In [13]:
```
import pandas as pd
from sklearn.model_selection import train_test_split
from xgboost import XGBClassifier
from sklearn.metrics import classification_report, accuracy_score
data_filepath = ('D:/prodigy/task5 accient/US_Accidents_March23_sampled_500k.csv')
df = pd.read_csv(data_filepath)
severity_mapping = {1: 0, 2: 1, 3: 2, 4: 3}
y_train_mapped = y_train.map(severity_mapping)
y_test_mapped = y_test.map(severity_mapping)
xgb_classifier = XGBClassifier(random_state=42)
xgb_classifier.fit(X_train, y_train_mapped)
y_pred = xgb_classifier.predict(X_test)
print("Accuracy:", accuracy_score(y_test_mapped, y_pred))
print("\nClassification Report:\n", classification_report(y_test_mapped, y_pred))
```

```
Accuracy: 0.8046464008364829

Classification Report:
              precision    recall  f1-score   support

           0       0.00      0.00      0.00       816
           1       0.81      1.00      0.89     73904
           2       0.40      0.01      0.01     14818
           3       0.56      0.00      0.00      2275

    accuracy                           0.80     91813
   macro avg       0.44      0.25      0.23     91813
weighted avg       0.73      0.80      0.72     91813
```

In [3]:
```
import pandas as pd

from sklearn.model_selection import train_test_split
from sklearn.ensemble import RandomForestClassifier
from sklearn.metrics import classification_report, accuracy_score
data_filepath = ('D:/prodigy/task5 accient/US_Accidents_March23_sampled_500k.csv')
df = pd.read_csv(data_filepath)
features = ['Severity', 'Temperature(F)', 'Visibility(mi)', 'Wind_Speed(mph)', 'Hum
X = df[features].dropna()
y = X.pop('Severity')
X_train, X_test, y_train, y_test = train_test_split(X, y, test_size=0.2, random_sta
rf_classifier = RandomForestClassifier(random_state=42)
rf_classifier.fit(X_train, y_train)
y_pred = rf_classifier.predict(X_test)
print("Accuracy:", accuracy_score(y_test, y_pred))
print("\nClassification Report:\n", classification_report(y_test, y_pred))
```

```
Accuracy: 0.784355156677159

Classification Report:
              precision    recall  f1-score   support

           1       0.20      0.04      0.07       816
           2       0.81      0.95      0.88     73904
           3       0.30      0.10      0.15     14818
           4       0.31      0.05      0.09      2275

    accuracy                           0.78     91813
   macro avg       0.41      0.29      0.30     91813
weighted avg       0.71      0.78      0.73     91813
```

In [ ]: