```
In [6]: import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
from sklearn.ensemble import IsolationForest
```

```
In [7]: df = pd.read_csv('cricket scoredataset.csv')
df
```

## Out[7]:

|    | Overs | Score |
|----|-------|-------|
| 0  | 1     | 15    |
| 1  | 2     | 10    |
| 2  | 3     | 17    |
| 3  | 4     | 10    |
| 4  | 5     | 12    |
| 5  | 6     | 20    |
| 6  | 7     | 100   |
| 7  | 8     | 8     |
| 8  | 9     | 8     |
| 9  | 10    | 11    |
| 10 | 11    | 100   |
| 11 | 12    | 14    |
| 12 | 13    | 3     |
| 13 | 14    | 100   |
| 14 | 15    | 11    |
| 15 | 16    | 13    |
| 16 | 17    | 100   |
| 17 | 18    | 16    |
| 18 | 19    | 26    |
| 19 | 20    | 30    |
|    |       |       |

```
In [11]: model = IsolationForest(n_estimators=100,contamination='auto')
model.fit(df[['Score']])
```

## Out[11]:

▼ IsolationForest IsolationForest()

```
In [12]: outliers_counter = (df[df['Score'] > 36])
outliers_counter
```

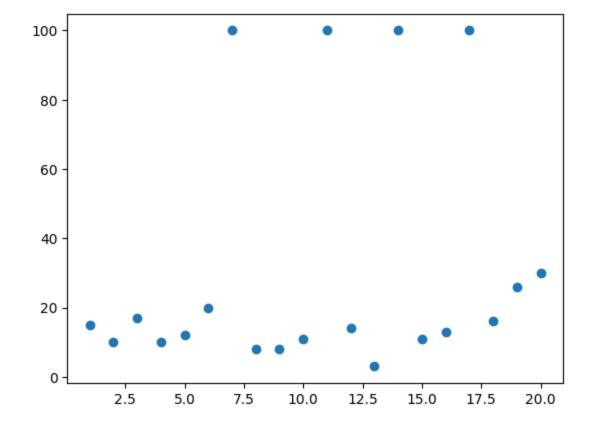
## Out[12]:

|    | Overs | Score |
|----|-------|-------|
| 6  | 7     | 100   |
| 10 | 11    | 100   |
| 13 | 14    | 100   |
| 16 | 17    | 100   |

```
In [13]: import matplotlib.pyplot as plt
```

```
In [14]: plt.scatter(df['Overs'],df['Score'])
```

Out[14]: <matplotlib.collections.PathCollection at 0x28d883929e0>



```
In [15]: df['anamoly_scores']=model.decision_function(df[['Score']])
    df['anamoly']=model.predict(df[['Score']])
    df.head(20)
```

## Out[15]:

| Overs | Score   | anamoly_scores  | anamoly   |
|-------|---|---|---|
| 1     | 15  | 0.065417  | 1   |
| 2     | 10  | 0.101849  | 1   |
| 3     | 17  | 0.045561  | 1   |
| 4     | 10  | 0.101849  | 1   |
| 5     | 12  | 0.109018  | 1   |
| 6     | 20  | -0.027957   | -1  |
| 7     | 100   | -0.148674   | -1  |
| 8     | 8   | 0.054852  | 1   |
| 9     | 8   | 0.054852  | 1   |
| 10    | 11  | 0.122050  | 1   |
| 11    | 100   | -0.148674   | -1  |
| 12    | 14  | 0.090302  | 1   |
| 13    | 3   | -0.147458   | -1  |
| 14    | 100   | -0.148674   | -1  |
| 15    | 11  | 0.122050  | 1   |
| 16    | 13  | 0.109103  | 1   |
| 17    | 100   | -0.148674   | -1  |
| 18    | 16  | 0.071438  | 1   |
| 19    | 26  | -0.081722   | -1  |
| 20    | 30  | -0.112289   | -1  |
|       | 1<br>2<br>3<br>4<br>5<br>6<br>7<br>8<br>9<br>10<br>11<br>12<br>13<br>14<br>15<br>16<br>17<br>18 | 1 15 2 10 3 17 4 10 5 12 6 20 7 100 8 8 9 8 10 11 11 100 12 14 13 3 14 100 15 11 16 13 17 100 18 16 19 26 | 1       15       0.065417         2       10       0.101849         3       17       0.045561         4       10       0.101849         5       12       0.109018         6       20       -0.027957         7       100       -0.148674         8       8       0.054852         9       8       0.054852         10       11       0.122050         11       100       -0.148674         12       14       0.090302         13       3       -0.147458         14       100       -0.148674         15       11       0.122050         16       13       0.109103         17       100       -0.148674         18       16       0.071438         19       26       -0.081722 |

In [ ]: