```python
[1]: import pandas as pd
     import matplotlib.pyplot as plt
```

```python
[2]: data = {
         'State': ['mumbai', 'Kerala', 'Delhi', 'karwar', 'Gujarat', 'Rajasthan', 'Punjab', 'jaunpur'],
         'Positive_Cases': [150, 90, 120, 80, 70, 110, 60, 50],
         'Active_Cases': [3000, 2500, 2800, 1500, 1300, 1800, 900, 1200]
     }
```

```python
[5]: #convert to data frame
     COVID_TESTS = pd.DataFrame(data)
```

```python
[8]: COVID_TESTS.head(5)
     COVID_TESTS.tail(5)
```

[8]:

	State	Positive_Cases	Active_Cases
3	karwar	80	1500

	State	Positive_Cases	Active_Cases
3	karwar	80	1500
4	Gujarat	70	1300
5	Rajasthan	110	1800
6	Punjab	60	900
7	jaunpur	50	1200

```python
#Sort the DataFrame by Positive_Cases in descending order
sorted_df = COVID_TESTS.sort_values(by='Positive_Cases', ascending=False)
```

```python
sorted_df
```

	State	Positive_Cases	Active_Cases
0	mumbai	150	3000
2	Delhi	120	2800
5	Rajasthan	110	1800

5	Rajasthan	110	1800
1	Kerala	90	2500
3	karwar	80	1500
4	Gujarat	70	1300
6	Punjab	60	900
7	jaunpur	50	1200

```python
#Print states where Positive_Cases ≥ 100
high_positive = COVID_TESTS[COVID_TESTS['Positive_Cases'] >= 100]['State']
```

```python
high_positive
```

```
0        mumbai
2         Delhi
5     Rajasthan
Name: State, dtype: object
```

```
[13]: #Records where Positive_Cases < 100 AND Active_Cases > 1000
      filterdata = COVID_TESTS[(COVID_TESTS['Positive_Cases'] < 100) & (COVID_TESTS['Active_Cases'] > 1000)]
```

```
[14]: filterdata
```

[14]:

	State	Positive_Cases	Active_Cases
1	Kerala	90	2500
3	karwar	80	1500
4	Gujarat	70	1300
7	jaunpur	50	1200

```
[18]: # Bar chart for Active and Positive cases by State
      plt.figure(figsize=(4,3))
      plt.bar(COVID_TESTS['State'], COVID_TESTS['Active_Cases'], label='Active Cases', alpha=0.7)
      plt.bar(COVID_TESTS['State'], COVID_TESTS['Positive_Cases'], label='Positive Cases', alpha=0.7)
      plt.xlabel('State')
      plt.ylabel('Number of Cases')
```

```python
plt.ylabel('Number of Cases')
plt.legend()
plt.xticks(rotation=45)
plt.tight_layout()
plt.show()
```