```
import pandas as pd
```

In [4]:

```
import matplotlib.pyplot as plt
```

In [5]:

```
from google. colab import files
```

In [11]:

```
uploaded=files.upload()
```

Upload widget is only available when the cell has been executed in the current browser session. Please rerun this cell to enable.

```
Saving datafile (1).csv to datafile (1) (1).csv
```

In [18]:

```
df=pd.read_csv("datafile (1).csv")
```

In [19]:

```
print(df)
```

```
                  Crop  ... Yield (Quintal/ Hectare)
0                ARHAR  ...                      9.83
1                ARHAR  ...                      7.47
2                ARHAR  ...                      9.59
3                ARHAR  ...                      6.42
4                ARHAR  ...                      8.72
5               COTTON  ...                     12.69
6               COTTON  ...                     24.39
7               COTTON  ...                     17.83
8               COTTON  ...                     19.05
9               COTTON  ...                     19.90
10                GRAM  ...                      6.83
11                GRAM  ...                     10.29
12                GRAM  ...                     10.93
13                GRAM  ...                      8.05
14                GRAM  ...                     16.69
15          GROUNDNUT  ...                      4.71
16          GROUNDNUT  ...                     11.97
17          GROUNDNUT  ...                     11.98
18          GROUNDNUT  ...                     13.45
```

```
19             GROUNDNUT  ...                    9.33
20                 MAIZE  ...                   42.95
21                 MAIZE  ...                   31.10
22                 MAIZE  ...                   23.56
23                 MAIZE  ...                   13.70
24                 MAIZE  ...                   42.68
25                 MOONG  ...                    3.01
26                 MOONG  ...                    4.05
27                 MOONG  ...                    1.32
28                 MOONG  ...                    5.90
29                 MOONG  ...                    6.70
30                 PADDY  ...                   36.61
31                 PADDY  ...                   32.42
32                 PADDY  ...                   39.04
33                 PADDY  ...                   67.41
34                 PADDY  ...                   56.00
35  RAPESEED AND MUSTARD  ...                   12.94
36  RAPESEED AND MUSTARD  ...                   13.54
37  RAPESEED AND MUSTARD  ...                   13.57
38  RAPESEED AND MUSTARD  ...                   11.61
39  RAPESEED AND MUSTARD  ...                   19.94
40             SUGARCANE  ...                  448.89
41             SUGARCANE  ...                  986.21
42             SUGARCANE  ...                  757.92
43             SUGARCANE  ...                  744.01
44             SUGARCANE  ...                 1015.45
45                 WHEAT  ...                   23.59
46                 WHEAT  ...                   39.83
47                 WHEAT  ...                   34.99
48                 WHEAT  ...                   37.19

[49 rows x 6 columns]
```

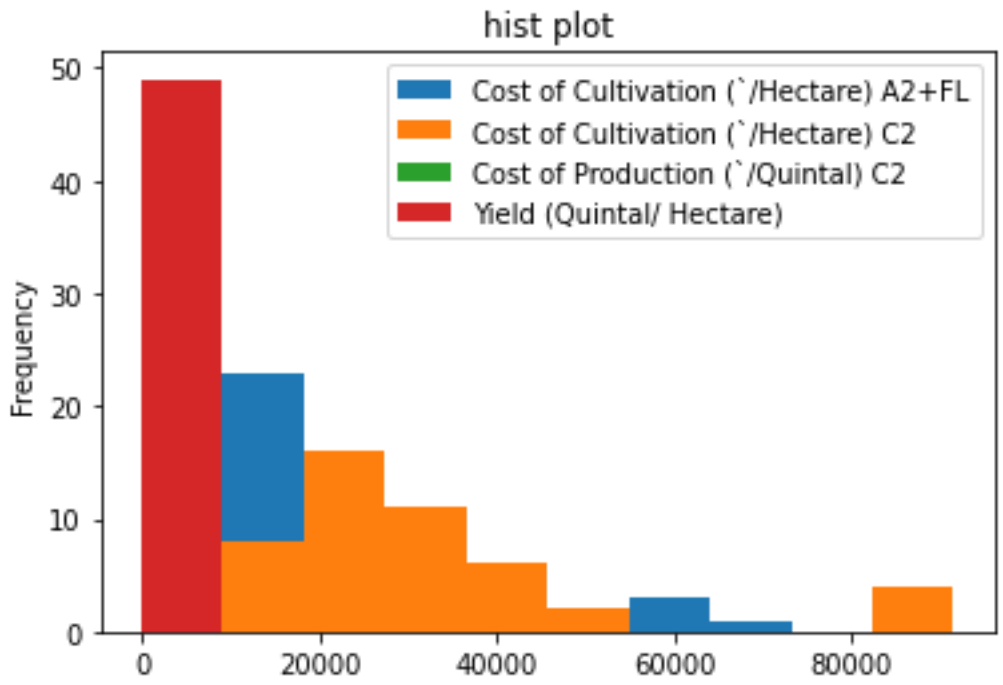
New Section

In [20]:

```
df. plot. hist()
plt. title("hist plot")
```

Out[20]:

```
Text(0.5, 1.0, 'hist plot')
```

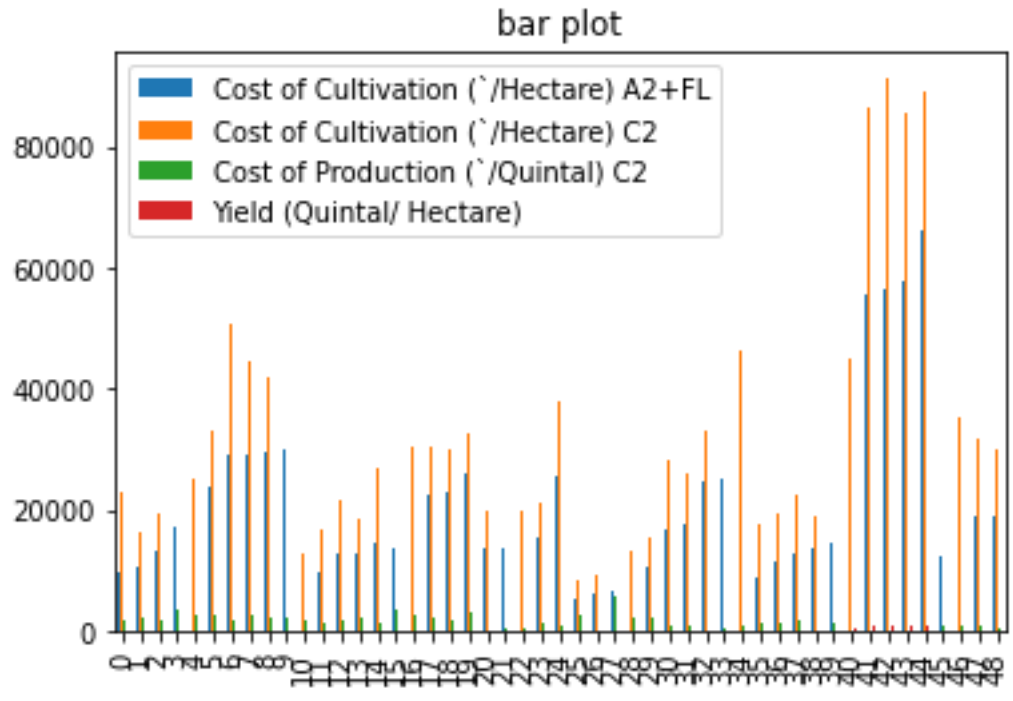


In [21]:

```
df. plot. bar()
plt. title("bar plot")
```

Out[21]:

```
Text(0.5, 1.0, 'bar plot')
```

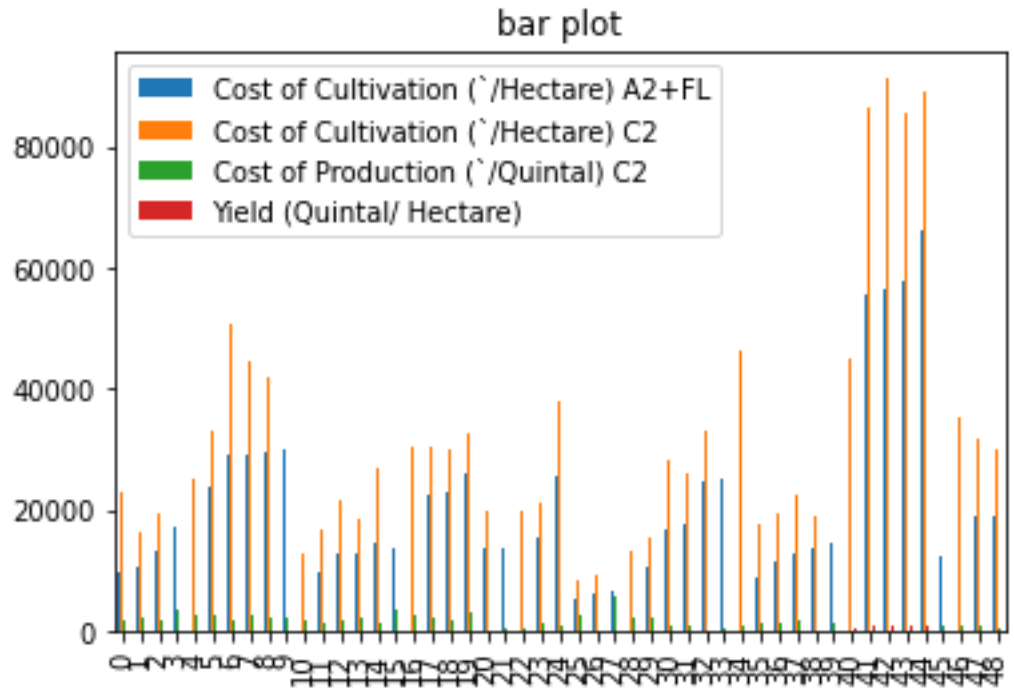


In [22]:

```
df. plot. bar()
plt. title("bar plot")
```

Out[22]:

```
Text(0.5, 1.0, 'bar plot')
```

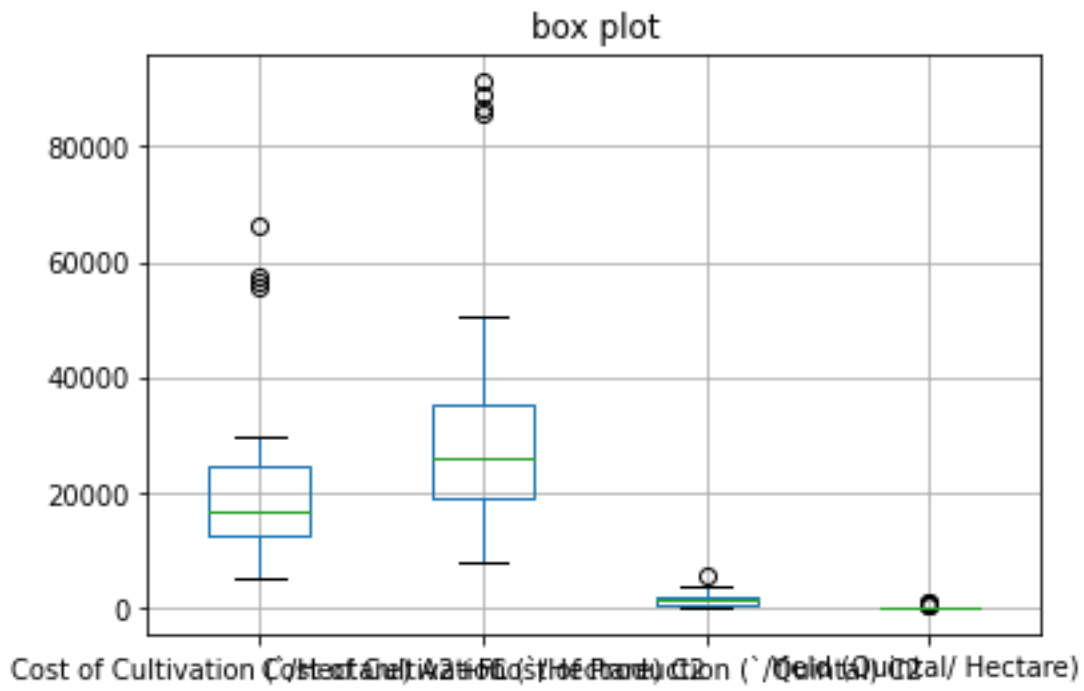


In [23]:

```
df. boxplot()
plt. title("box plot")
```

Out[23]:

```
Text(0.5, 1.0, 'box plot')
```

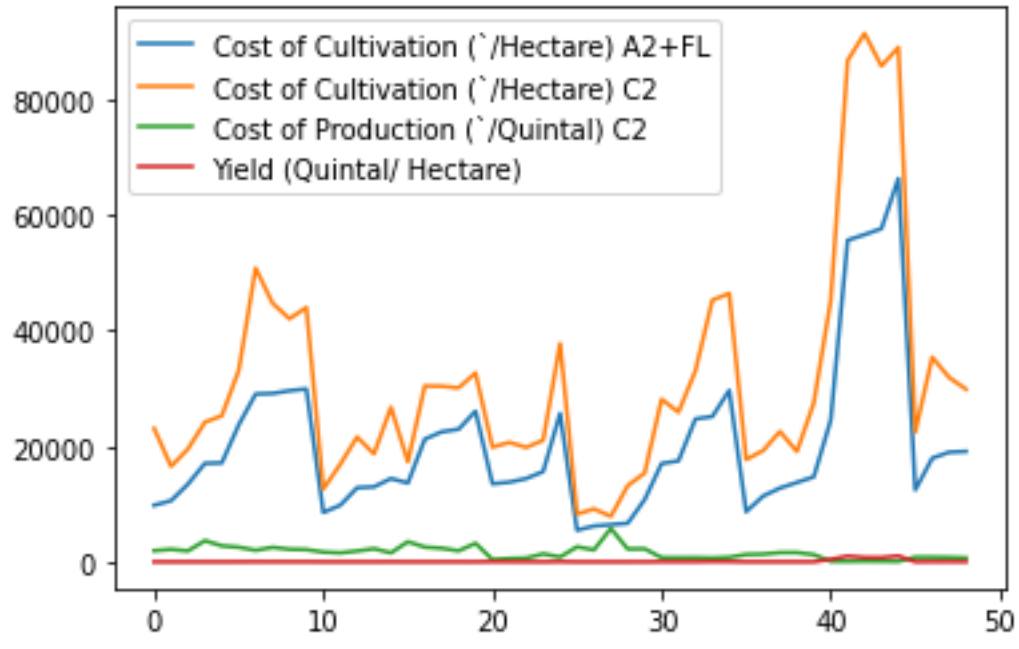


In [24]:

```
df. plot()
```

Out[24]:

```
<matplotlib.axes._subplots.AxesSubplot at 0x7f5f4c456e10>
```



In [28]:

```
df. mode()
```

Out[28]:

	Crop	State	Cost of Cultivation (`/Hectare) A2+FL	Cost of Cultivation (`/Hectare) C2	Cost of Production (`/Quintal) C2	Yield (Quintal/ Hectare)
0	ARHAR	Andhra Pradesh	5483.54	7868.64	85.79	1.32
1	COTTON	NaN	6204.23	8266.98	86.53	3.01
2	GRAM	NaN	6440.64	9165.59	93.64	4.05
3	GROUNDNUT	NaN	6684.18	12610.85	107.56	4.71
4	MAIZE	NaN	8552.69	13209.32	119.72	5.90
5	MOONG	NaN	8686.43	15371.45	404.43	6.42
6	PADDY	NaN	9794.05	16528.68	581.69	6.70
7	RAPESEED AND MUSTARD	NaN	9803.89	16873.17	658.77	6.83
8	SUGARCANE	NaN	10593.15	17314.20	669.86	7.47
9	NaN	NaN	10780.76	17705.93	683.58	8.05
10	NaN	NaN	11385.70	18679.33	715.04	8.72

	Crop	State	Cost of Cultivation (`/Hectare) A2+FL	Cost of Cultivation (`/Hectare) C2	Cost of Production (`/Quintal) C2	Yield (Quintal/ Hectare)
11	NaN	NaN	12464.40	19083.55	731.25	9.33
12	NaN	NaN	12774.41	19259.84	732.62	9.59
13	NaN	NaN	12833.04	19551.90	769.84	9.83
14	NaN	NaN	12985.95	19810.29	789.90	10.29
15	NaN	NaN	13468.82	19857.70	804.80	10.93
16	NaN	NaN	13513.92	20671.54	810.25	11.61
17	NaN	NaN	13647.10	21045.11	840.58	11.97
18	NaN	NaN	13740.64	21618.43	1251.12	11.98
19	NaN	NaN	13792.85	22489.75	1279.60	12.69
20	NaN	NaN	14421.46	22560.30	1341.29	12.94
21	NaN	NaN	14421.98	23076.74	1387.36	13.45
22	NaN	NaN	14715.27	24171.65	1551.94	13.54
23	NaN	NaN	15635.43	25270.26	1559.04	13.57

	Crop	State	Cost of Cultivation (`/Hectare) A2+FL	Cost of Cultivation (`/Hectare) C2	Cost of Production (`/Quintal) C2	Yield (Quintal/ Hectare)
24	NaN	NaN	17022.00	25909.05	1595.56	13.70
25	NaN	NaN	17051.66	26762.09	1610.40	16.69
26	NaN	NaN	17130.55	27507.54	1691.66	17.83
27	NaN	NaN	17478.05	28144.50	1882.68	19.05
28	NaN	NaN	17945.58	29876.36	1898.30	19.90
29	NaN	NaN	18979.38	30114.45	1918.92	19.94
30	NaN	NaN	19119.08	30393.66	1941.55	23.56
31	NaN	NaN	21229.01	30434.61	2003.76	23.59
32	NaN	NaN	22507.86	31902.74	2068.67	24.39
33	NaN	NaN	22951.28	32683.46	2127.35	31.10
34	NaN	NaN	23711.44	33046.12	2172.46	32.42
35	NaN	NaN	24538.32	33116.82	2179.26	34.99
36	NaN	NaN	24731.06	35423.48	2228.97	36.61

	Crop	State	Cost of Cultivation (`/Hectare) A2+FL	Cost of Cultivation (`/Hectare) C2	Cost of Production (`/Quintal) C2	Yield (Quintal/ Hectare)
37	NaN	NaN	25154.75	37801.85	2261.24	37.19
38	NaN	NaN	25687.09	42070.44	2277.68	39.04
39	NaN	NaN	26078.66	44018.18	2358.00	39.83
40	NaN	NaN	29047.10	44756.72	2509.99	42.68
41	NaN	NaN	29140.77	45239.51	2539.47	42.95
42	NaN	NaN	29616.09	45291.24	2554.91	56.00
43	NaN	NaN	29664.84	46450.20	2614.14	67.41
44	NaN	NaN	29918.97	50828.83	2775.80	448.89
45	NaN	NaN	55655.44	85801.95	3207.35	744.01
46	NaN	NaN	56621.16	86765.77	3484.01	757.92
47	NaN	NaN	57673.60	89025.27	3670.54	986.21
48	NaN	NaN	66335.06	91442.63	5777.48	1015.45

In [29]:

```
df. mean()
```

Out[29]:

```
Cost of Cultivation (`/Hectare) A2+FL    20363.537347
Cost of Cultivation (`/Hectare) C2       31364.666735
Cost of Production (`/Quintal) C2         1620.537755
Yield (Quintal/ Hectare)                    98.086735
dtype: float64
```

In [30]:

```
df. median()
```

Out[30]:

```
Cost of Cultivation (`/Hectare) A2+FL    17022.00
Cost of Cultivation (`/Hectare) C2       25909.05
Cost of Production (`/Quintal) C2         1595.56
Yield (Quintal/ Hectare)                    13.70
dtype: float64
```

In [31]:

```
df. min()
```

Out[31]:

```
Crop                                          ARHAR
State                                 Andhra Pradesh
Cost of Cultivation (`/Hectare) A2+FL           5483.54
Cost of Cultivation (`/Hectare) C2              7868.64
Cost of Production (`/Quintal) C2                 85.79
Yield (Quintal/ Hectare)                           1.32
dtype: object
```

In [32]:

```
df. max()
```

Out[32]:

```
Crop                                          WHEAT
State                                 West Bengal
Cost of Cultivation (`/Hectare) A2+FL        66335.1
Cost of Cultivation (`/Hectare) C2           91442.6
Cost of Production (`/Quintal) C2             5777.48
Yield (Quintal/ Hectare)                      1015.45
dtype: object
```

In [34]:

```
df. corr()
```

Out[34]:

	Cost of Cultivation (`/Hectare) A2+FL	Cost of Cultivation (`/Hectare) C2	Cost of Production (`/Quintal) C2	Yield (Quintal/ Hectare)
Cost of Cultivation (`/Hectare) A2+FL	1.000000	0.981225	-0.434422	0.863400
Cost of Cultivation (`/Hectare) C2	0.981225	1.000000	-0.497092	0.866424
Cost of Production (`/Quintal) C2	-0.434422	-0.497092	1.000000	-0.487272
Yield (Quintal/ Hectare)	0.863400	0.866424	-0.487272	1.000000

In [35]:

```
df. std()
```

Out[35]:

```
Cost of Cultivation (`/Hectare) A2+FL    13561.435306
Cost of Cultivation (`/Hectare) C2       20095.783569
Cost of Production (`/Quintal) C2         1104.990472
Yield (Quintal/ Hectare)                   245.293123
dtype: float64
```

In [36]:

```
df. all()
```

Out[36]:

```
Crop                                     True
State                                    True
Cost of Cultivation (`/Hectare) A2+FL    True
Cost of Cultivation (`/Hectare) C2       True
Cost of Production (`/Quintal) C2        True
Yield (Quintal/ Hectare)                 True
dtype: bool
```

In [37]:

```
df. any()
```

Out[37]:

```
Crop                                    True
State                                   True
Cost of Cultivation (`/Hectare) A2+FL    True
Cost of Cultivation (`/Hectare) C2       True
Cost of Production (`/Quintal) C2        True
Yield (Quintal/ Hectare)                 True
dtype: bool
```

In [38]:

```
df. describe()
```

Out[38]:

	Cost of Cultivation (`/Hectare) A2+FL	Cost of Cultivation (`/Hectare) C2	Cost of Production (`/Quintal) C2	Yield (Quintal/ Hectare)
count	49.000000	49.000000	49.000000	49.000000
mean	20363.537347	31364.666735	1620.537755	98.086735
std	13561.435306	20095.783569	1104.990472	245.293123
min	5483.540000	7868.640000	85.790000	1.320000
25%	12774.410000	19259.840000	732.620000	9.590000
50%	17022.000000	25909.050000	1595.560000	13.700000
75%	24731.060000	35423.480000	2228.970000	36.610000
max	66335.060000	91442.630000	5777.480000	1015.450000