In [1]:

```
import pandas as pd
import numpy as np
```

In [3]:

```
data=pd.read_csv(r"C:\Users\Aspire\Desktop\data\Student_Marks.csv")
data
```

Out[3]:

	number_courses	time_study	Marks
0	3	4.508	19.202
1	4	0.096	7.734
2	4	3.133	13.811
3	6	7.909	53.018
4	8	7.811	55.299
...	...	...	...
95	6	3.561	19.128
96	3	0.301	5.609
97	4	7.163	41.444
98	7	0.309	12.027
99	3	6.335	32.357

100 rows × 3 columns

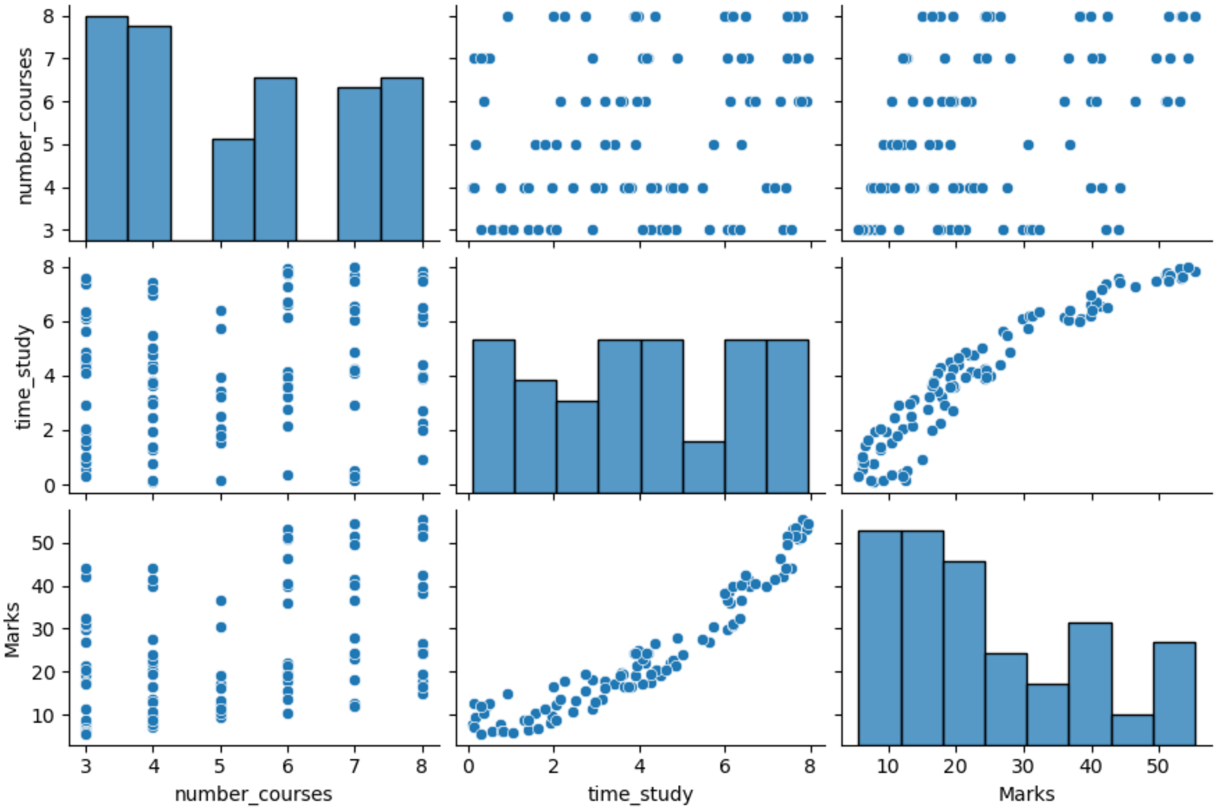
In [4]:

```
import seaborn as sns
sns.pairplot(data,height=2,aspect=1.5)
```

```
C:\Users\Aspire\anaconda3\Lib\site-packages\seaborn\axisgrid.py:118: UserWarning: The figure
layout has changed to tight
  self._figure.tight_layout(*args, **kwargs)
```

Out[4]:

```
<seaborn.axisgrid.PairGrid at 0x1e6e8b75fd0>
```

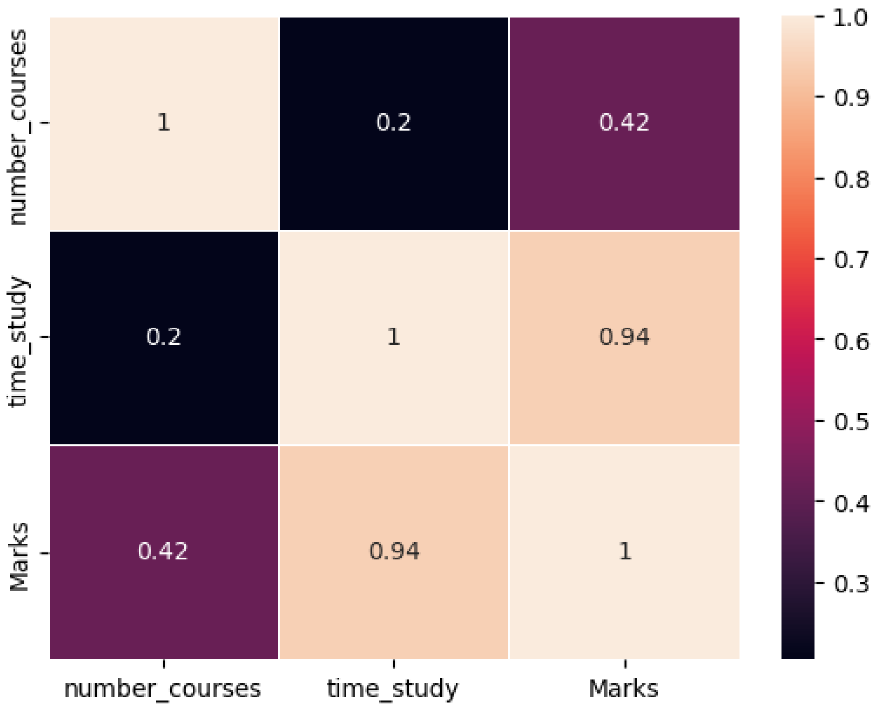


In [5]:

```
sns.heatmap(data.corr(),annot=True,linewidth=0.6)
```

Out[5]:

```
<Axes: >
```



In [8]:

```
X=data.drop('Marks',axis='columns')
print(X)
Y=data.drop(['number_courses','time_study'],axis='columns')
print(Y)
```

```
    number_courses  time_study
0                3       4.508
1                4       0.096
2                4       3.133
3                6       7.909
4                8       7.811
..             ...         ...
95               6       3.561
96               3       0.301
97               4       7.163
98               7       0.309
99               3       6.335

[100 rows x 2 columns]
     Marks
0   19.202
1    7.734
2   13.811
3   53.018
4   55.299
..     ...
95  19.128
96   5.609
97  41.444
98  12.027
99  32.357

[100 rows x 1 columns]
```

In [9]:
```
from sklearn.model_selection import train_test_split
X_train,X_test,Y_train,Y_test=train_test_split(X,Y,test_size=0.4,random_state=2)
print(X_train)
print(X_test)
print(Y_train)
print(Y_test)
```

```
48                3       5.635
36                4       2.966
78                7       7.451
6                 3       6.063
89                7       6.376
91                8       2.730
10                3       7.353
     Marks
12  24.318
53  36.653
87   6.053
54  53.158
95  19.128
32  15.038
19  25.133
26  12.647
60  10.522
55  18.238
9   30.862
```

In [10]:
```
from sklearn.linear_model import LinearRegression
eqn=LinearRegression()
```

In [11]:
```
eqn.fit(X_train,Y_train)
```

Out[11]:
```
▾ LinearRegression
LinearRegression()
```

In [12]:
```
eqn.intercept_
```

Out[12]:
```
array([-7.66355012])
```

In [13]:
```
eqn.coef_
```

Out[13]:
```
array([[2.00809425, 5.26612959]])
```

In [16]:
```
Y_test_predicted=eqn.predict(X_test)
Y_test_predicted
```

Out[16]:
```
array([[19.21273742],
       [28.7495286 ],
       [48.63970008],
       [19.51120794],
       [32.49391626],
       [32.06549138],
       [16.86761088],
       [31.45631922],
       [ 3.19843733],
       [20.8681705 ],
       [31.72166359],
       [26.84166033],
       [35.96956179],
       [13.67463748],
       [22.10044482],
       [36.64532525],
       [46.03483431],
       [ 7.20952921],
       [13.20765082],
       [ 2.59996694],
       [38.08314814],
       [ 8.62068243],
       [18.83867271],
       [10.65884409],
       [ 6.93925773],
       [21.29455749],
       [ 5.77017696],
       [39.91898947],
       [36.98949206],
       [23.37467867],
       [15.66506495],
       [ 0.87437531],
       [44.99214065],
       [28.03537288],
       [15.98816724],
       [45.63104121],
       [30.28927634],
       [39.96995189],
       [22.77773765],
       [37.08258352]])
```

In [17]:
```
from sklearn import metrics

MAE=metrics.mean_absolute_error(Y_test, Y_test_predicted)
print("MAE is",MAE)

MSE=metrics.mean_squared_error(Y_test,Y_test_predicted)
print("MSE is", MSE)

RMSE=np.sqrt(metrics.mean_squared_error(Y_test, Y_test_predicted))
print("RMSE is", RMSE)

r_squared=metrics.r2_score(Y_test, Y_test_predicted)
print("R2 is", r_squared)
```

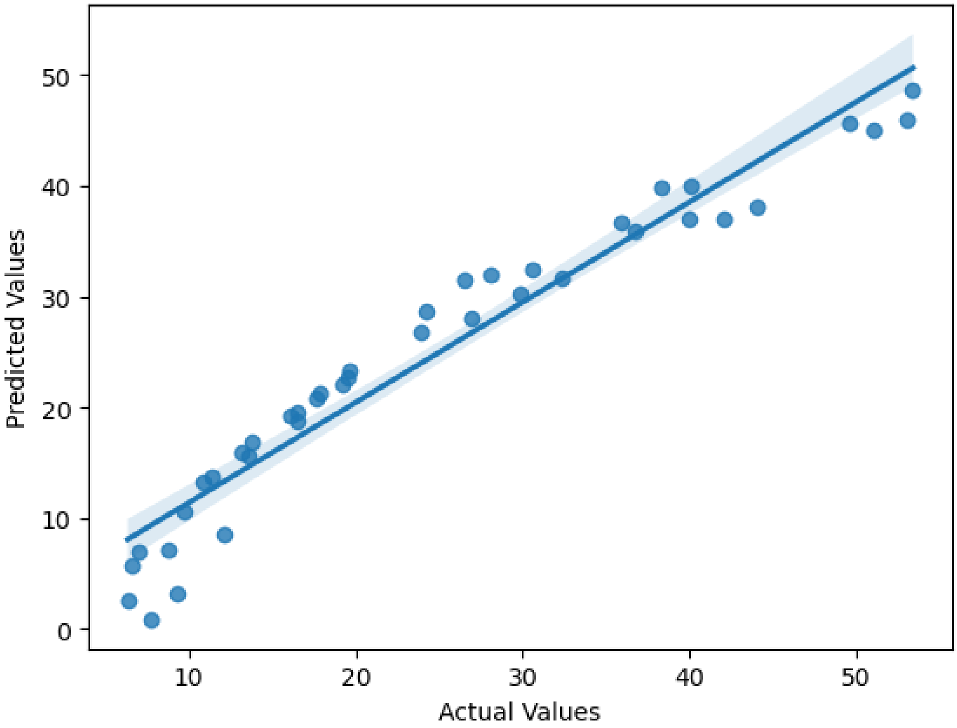
```
MAE is 3.015587980997714
MSE is 12.435520333535068
RMSE is 3.526403314077258
R2 is 0.9372933020994655
```

In [18]:

```
import matplotlib.pyplot as plt
sns.regplot(x=Y_test,y=Y_test_predicted)
plt.xlabel('Actual Values')
plt.ylabel('Predicted Values')
```

Out[18]:

```
Text(0, 0.5, 'Predicted Values')
```



In [ ]: