Linear Regression-Placement

In [1]:

```
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns
from sklearn.model_selection import train_test_split
from sklearn.linear_model import LinearRegression
```

In [2]:

```
df = pd.read_csv("C:\\Users\\santh\\Downloads\\13_placement - 13_placement.csv
df
```

Out[2]:

	cgpa	placement_exam_marks	placed
0	7.19	26	1
1	7.46	38	1
2	7.54	40	1
3	6.42	8	1
4	7.23	17	0
...	...	...	...
995	8.87	44	1
996	9.12	65	1
997	4.89	34	0
998	8.62	46	1
999	4.90	10	1

1000 rows × 3 columns

In [3]:

```
df.head()
```

Out[3]:

	cgpa	placement_exam_marks	placed
0	7.19	26	1
1	7.46	38	1
2	7.54	40	1
3	6.42	8	1
4	7.23	17	0

Data cleaning and pre processing

In [4]:
```
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 1000 entries, 0 to 999
Data columns (total 3 columns):
 #   Column                Non-Null Count  Dtype  
---  ------                --------------  -----  
 0   cgpa                  1000 non-null   float64
 1   placement_exam_marks  1000 non-null   int64  
 2   placed                1000 non-null   int64  
dtypes: float64(1), int64(2)
memory usage: 23.6 KB
```

In [5]:
```
df.describe()
```

Out[5]:

	cgpa	placement_exam_marks	placed
count	1000.000000	1000.000000	1000.000000
mean	6.961240	32.225000	0.489000
std	0.615898	19.130822	0.500129
min	4.890000	0.000000	0.000000
25%	6.550000	17.000000	0.000000
50%	6.960000	28.000000	0.000000
75%	7.370000	44.000000	1.000000
max	9.120000	100.000000	1.000000

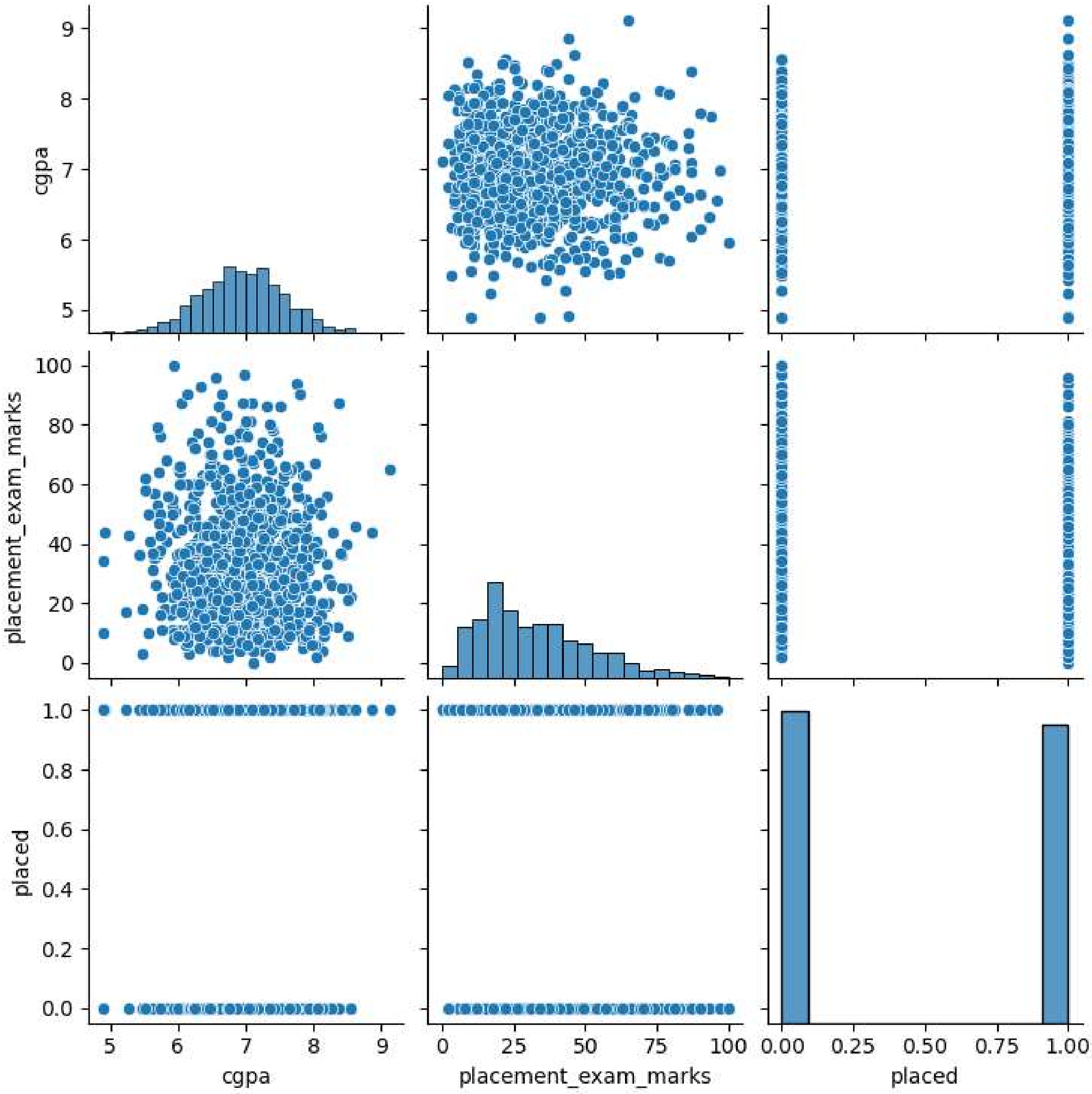
In [6]:
```
df.columns
```

Out[6]:
```
Index(['cgpa', 'placement_exam_marks', 'placed'], dtype='object')
```

EDA and VISUALIZATION

```
In [7]: sns.pairplot(df)
```

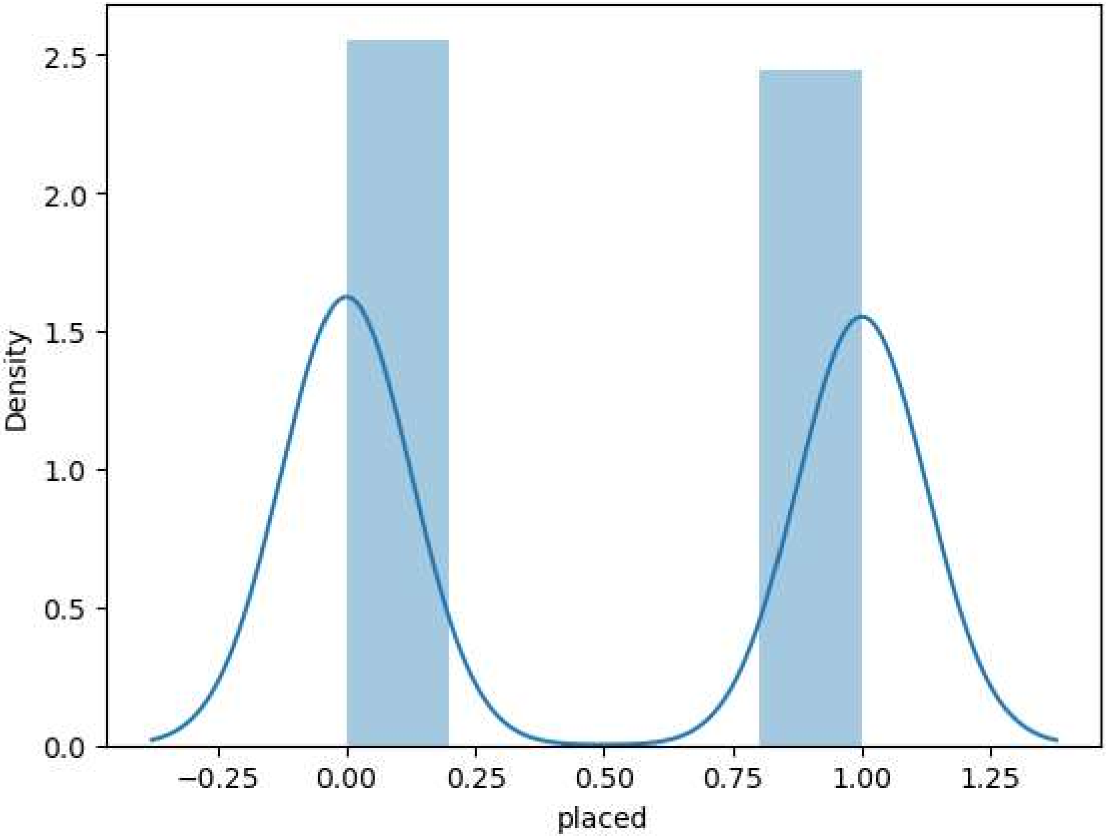
```
Out[7]: <seaborn.axisgrid.PairGrid at 0x296cc75ba60>
```



```
In [8]: sns.distplot(df["placed"])
```

```
C:\Users\santh\AppData\Local\Temp\ipykernel_23688\3756638352.py:1: UserWarnin
g:

`distplot` is a deprecated function and will be removed in seaborn v0.14.0.

Please adapt your code to use either `displot` (a figure-level function with
similar flexibility) or `histplot` (an axes-level function for histograms).

For a guide to updating your code to use the new functions, please see
https://gist.github.com/mwaskom/de44147ed2974457ad6372750bbe5751 (https://gis
t.github.com/mwaskom/de44147ed2974457ad6372750bbe5751)

  sns.distplot(df["placed"])
```

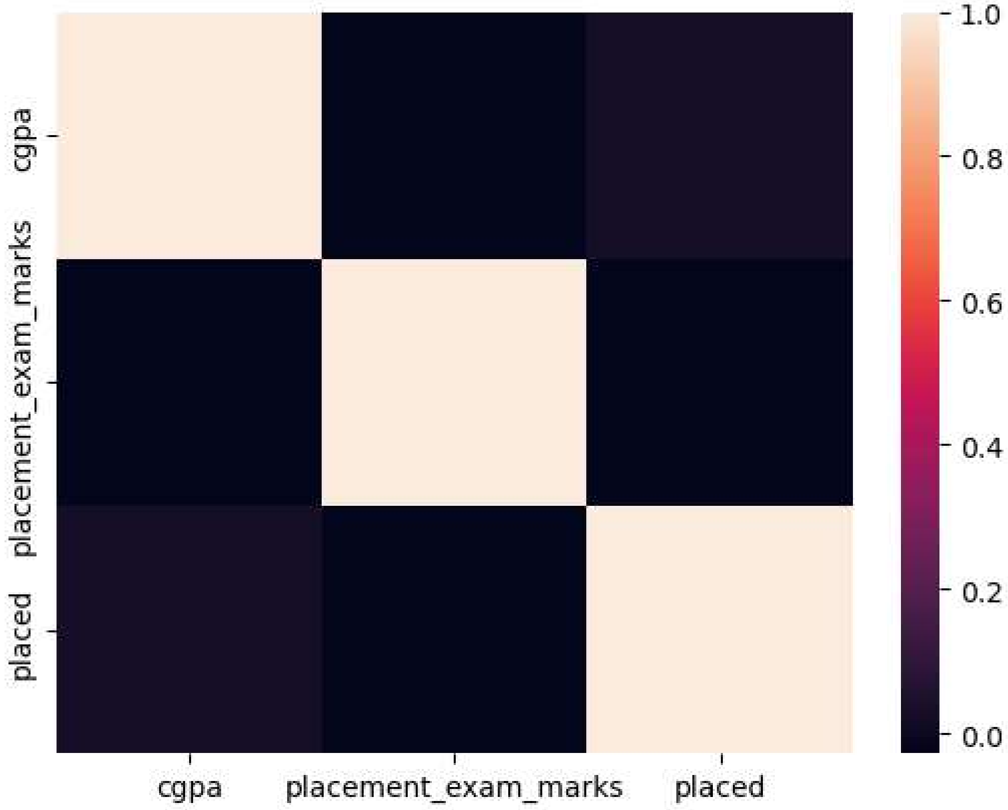
```
Out[8]: <Axes: xlabel='placed', ylabel='Density'>
```



```
In [9]: df1 = df[['cgpa', 'placement_exam_marks', 'placed']]
```

In [10]:
```
sns.heatmap(df1.corr())
```

Out[10]:
```
<Axes: >
```



In [11]:
```
x = df1[['cgpa', 'placement_exam_marks']]
y = df1['placed']
```

split the data into training and test data

In [12]:
```
x_train, x_test, y_train, y_test = train_test_split(x,y,test_size=0.3)
```

In [13]:
```
lr = LinearRegression()
lr.fit(x_train, y_train)
```

Out[13]:
```
▾ LinearRegression
LinearRegression()
```

In [14]:
```
lr.intercept_
```

Out[14]:
```
0.4634445731753786
```

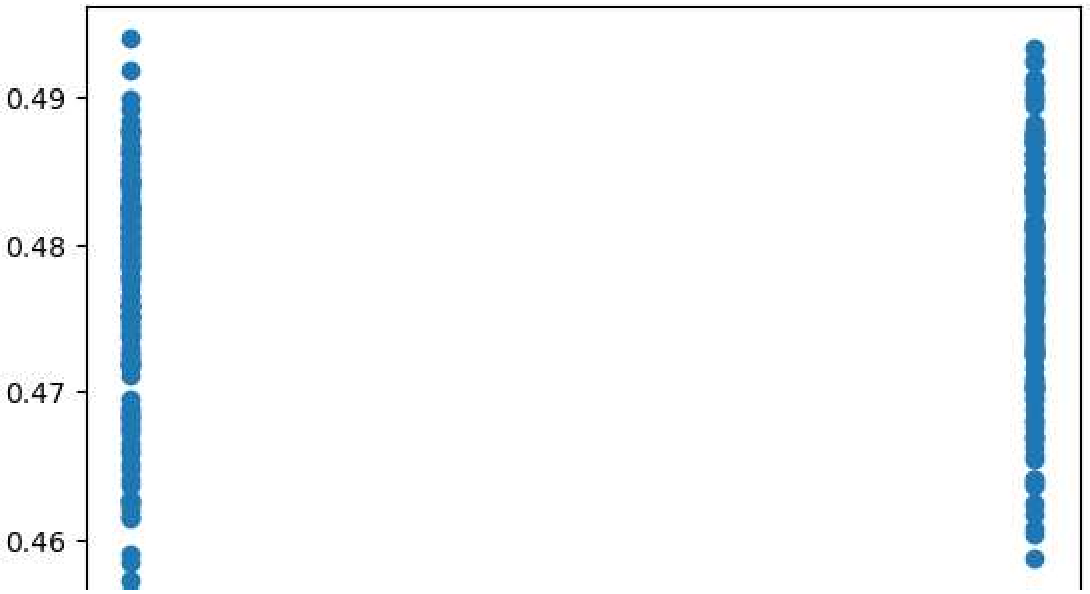
In [15]:
```
coeff = pd.DataFrame(lr.coef_, x.columns, columns =['Co-efficient'])
coeff
```

Out[15]:

	Co-efficient
cgpa	0.003954
placement_exam_marks	-0.000428

In [16]:
```
prediction = lr.predict(x_test)
plt.scatter(y_test, prediction)
```

Out[16]:
```
<matplotlib.collections.PathCollection at 0x296cef4b400>
```



In [17]:
```
lr.score(x_test,y_test)
```

Out[17]:
```
-0.0042604425985384164
```

In [ ]:

In [ ]: