Importing Libraries

In [1]:
```
import numpy as np
import pandas as pd
from matplotlib import pyplot as plt
%matplotlib inline
```

In [2]:
```
df = pd.read_csv('admission_predict.csv')
```

In [3]:
```
df.head()
```

Out[3]:

	Serial No.	GRE Score	TOEFL Score	University Rating	SOP	LOR	CGPA	Research	Chance of Admit
0	1	337	118	4	4.5	4.5	9.65	1	0.92
1	2	324	107	4	4.0	4.5	8.87	1	0.76
2	3	316	104	3	3.0	3.5	8.00	1	0.72
3	4	322	110	3	3.5	2.5	8.67	1	0.80
4	5	314	103	2	2.0	3.0	8.21	0	0.65

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

Out[4]:

	Serial No.	GRE Score	TOEFL Score	University Rating	SOP	LOR	CGPA	Research	Chance of Admit
495	496	332	108	5	4.5	4.0	9.02	1	0.87
496	497	337	117	5	5.0	5.0	9.87	1	0.96
497	498	330	120	5	4.5	5.0	9.56	1	0.93
498	499	312	103	4	4.0	5.0	8.43	0	0.73
499	500	327	113	4	4.5	4.5	9.04	0	0.84

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

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 500 entries, 0 to 499
Data columns (total 9 columns):
 #   Column             Non-Null Count  Dtype  
---  ------             --------------  -----  
 0   Serial No.         500 non-null    int64  
 1   GRE Score          500 non-null    int64  
 2   TOEFL Score        500 non-null    int64  
 3   University Rating  500 non-null    int64  
 4   SOP                500 non-null    float64
 5   LOR                500 non-null    float64
 6   CGPA               500 non-null    float64
 7   Research           500 non-null    int64  
 8   Chance of Admit    500 non-null    float64
dtypes: float64(4), int64(5)
memory usage: 35.3 KB
```

In [6]:
```
df.describe().T
```

Out[6]:

	count	mean	std	min	25%	50%	75%	max
Serial No.	500.0	250.50000	144.481833	1.00	125.7500	250.50	375.25	500.00
GRE Score	500.0	316.47200	11.295148	290.00	308.0000	317.00	325.00	340.00
TOEFL Score	500.0	107.19200	6.081868	92.00	103.0000	107.00	112.00	120.00
University Rating	500.0	3.11400	1.143512	1.00	2.0000	3.00	4.00	5.00
SOP	500.0	3.37400	0.991004	1.00	2.5000	3.50	4.00	5.00
LOR	500.0	3.48400	0.925450	1.00	3.0000	3.50	4.00	5.00
CGPA	500.0	8.57644	0.604813	6.80	8.1275	8.56	9.04	9.92
Research	500.0	0.56000	0.496884	0.00	0.0000	1.00	1.00	1.00
Chance of Admit	500.0	0.72174	0.141140	0.34	0.6300	0.72	0.82	0.97

In [7]:
```
df.isnull().any()
```

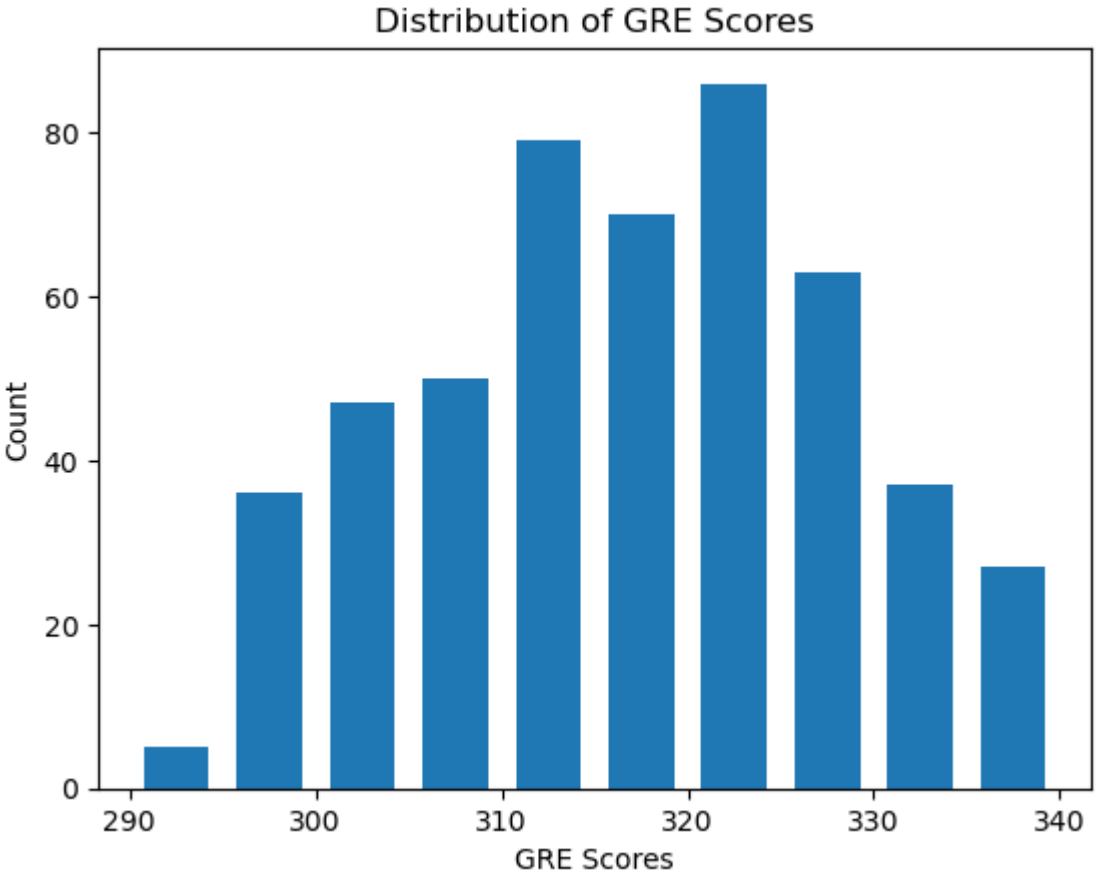
Out[7]:
```
Serial No.           False
GRE Score            False
TOEFL Score          False
University Rating    False
SOP                  False
LOR                  False
CGPA                 False
Research             False
Chance of Admit      False
dtype: bool
```

In [8]:
```
df = df.rename(columns={'GRE Score': 'GRE', 'TOEFL Score': 'TOEFL', 'LOR ':
df.head()
```

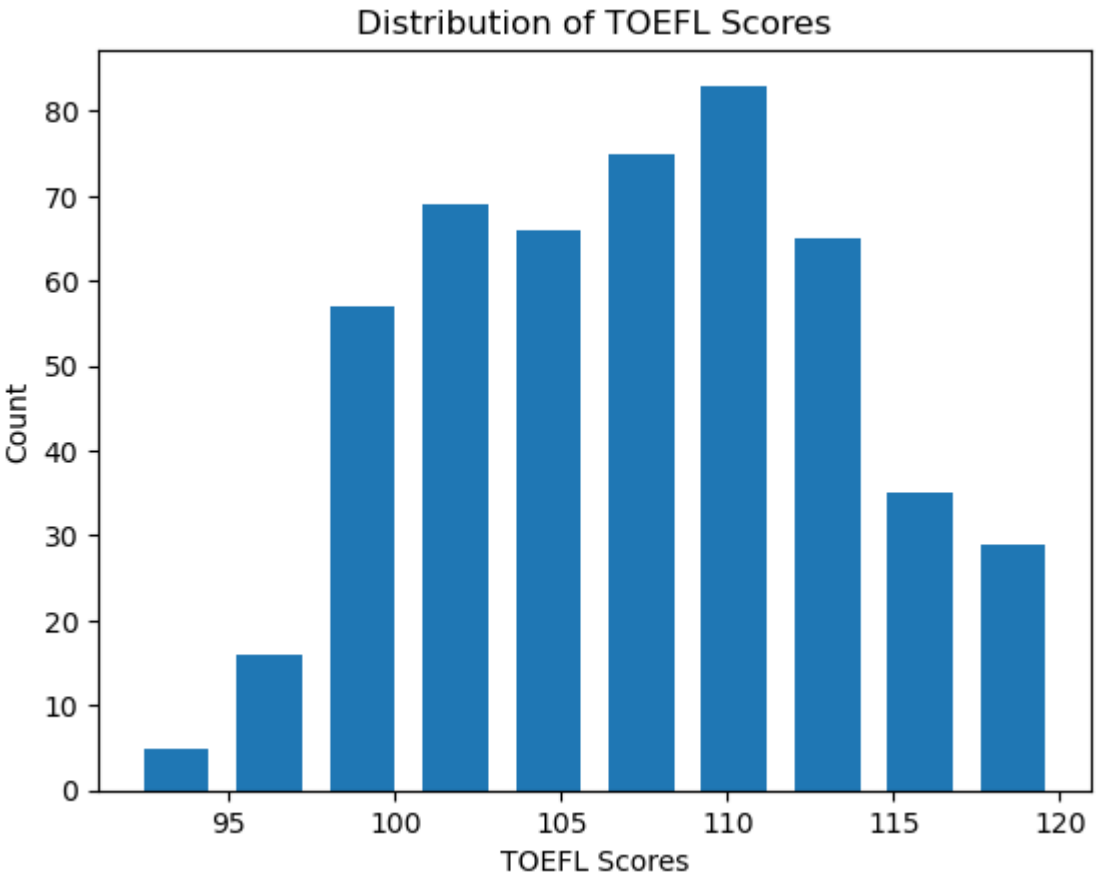
Out[8]:

	Serial No.	GRE	TOEFL	University Rating	SOP	LOR	CGPA	Research	Probability
0	1	337	118	4	4.5	4.5	9.65	1	0.92
1	2	324	107	4	4.0	4.5	8.87	1	0.76
2	3	316	104	3	3.0	3.5	8.00	1	0.72
3	4	322	110	3	3.5	2.5	8.67	1	0.80
4	5	314	103	2	2.0	3.0	8.21	0	0.65

In [9]:
```
fig = plt.hist(df['GRE'], rwidth=0.7)
plt.title("Distribution of GRE Scores")
plt.xlabel('GRE Scores')
plt.ylabel('Count')
plt.show()
```



In [10]:
```
fig = plt.hist(df['TOEFL'], rwidth=0.7)
plt.title('Distribution of TOEFL Scores')
plt.xlabel('TOEFL Scores')
plt.ylabel('Count')
plt.show()
```



Data Cleaning

In [11]:
```
df.drop('Serial No.', axis='columns', inplace=True)
df.head()
```

Out[11]:

	GRE	TOEFL	University Rating	SOP	LOR	CGPA	Research	Probability
0	337	118	4	4.5	4.5	9.65	1	0.92
1	324	107	4	4.0	4.5	8.87	1	0.76
2	316	104	3	3.0	3.5	8.00	1	0.72
3	322	110	3	3.5	2.5	8.67	1	0.80
4	314	103	2	2.0	3.0	8.21	0	0.65

In [12]:
```
df_copy = df.copy(deep=True)
df_copy[['GRE','TOEFL','University Rating','SOP','LOR','CGPA']] = df_copy[[
df_copy.isnull().sum()
```

Out[12]:
```
GRE                0
TOEFL              0
University Rating  0
SOP                0
LOR                0
CGPA               0
Research           0
Probability        0
dtype: int64
```

Modelling

In [13]:
```
X = df_copy.drop('Probability', axis='columns')
y = df_copy['Probability']
```

In [14]:
```
from sklearn.model_selection import GridSearchCV
from sklearn.linear_model import LinearRegression
from sklearn.linear_model import Lasso
from sklearn.svm import SVR
from sklearn.tree import DecisionTreeRegressor
from sklearn.ensemble import RandomForestRegressor
from sklearn.neighbors import KNeighborsRegressor
```

In [16]:
```
from sklearn.model_selection import cross_val_score
scores = cross_val_score(LinearRegression(), X, y, cv=5)
print('Highest Accuracy : {}%'.format(round(sum(scores)*100/len(scores)), 3
```

```
Highest Accuracy : 81%
```