RFR - Random Forest Regression Algorithm

In [2]:
```
#importing libraries

import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
```

In [3]:
```
#importing  the dataset

dataset = pd.read_csv(r"C:\Users\Jan Saida\Downloads\emp_sal.csv")
dataset
```

Out[3]:

	Position	Level	Salary
0	Jr Software Engineer	1	45000
1	Sr Software Engineer	2	50000
2	Team Lead	3	60000
3	Manager	4	80000
4	Sr manager	5	110000
5	Region Manager	6	150000
6	AVP	7	200000
7	VP	8	300000
8	CTO	9	500000
9	CEO	10	1000000

In [4]:
```
x=dataset.iloc[:, 1:2].values  #independent varianble
y=dataset.iloc[:,2].values     #dependent varianble
```

In [5]:
```
x
```

Out[5]:
```
array([[ 1],
       [ 2],
       [ 3],
       [ 4],
       [ 5],
       [ 6],
       [ 7],
       [ 8],
       [ 9],
       [10]], dtype=int64)
```

In [6]:
```
y
```

Out[6]:
```
array([  45000,   50000,   60000,   80000,  110000,  150000,  200000,
        300000,  500000, 1000000], dtype=int64)
```

In [7]:
```
# Random foreest Regression model

from sklearn.ensemble import RandomForestRegressor
```

In [8]:
```
forest_regressor=RandomForestRegressor(n_estimators=15)
forest_regressor
```

Out[8]:
```
RandomForestRegressor
RandomForestRegressor(n_estimators=15)
```

In [9]:
```
forest_regressor.fit(x,y)
```

Out[9]:
```
RandomForestRegressor
RandomForestRegressor(n_estimators=15)
```

In [10]:
```
# Random Forest regressor Predictions
```

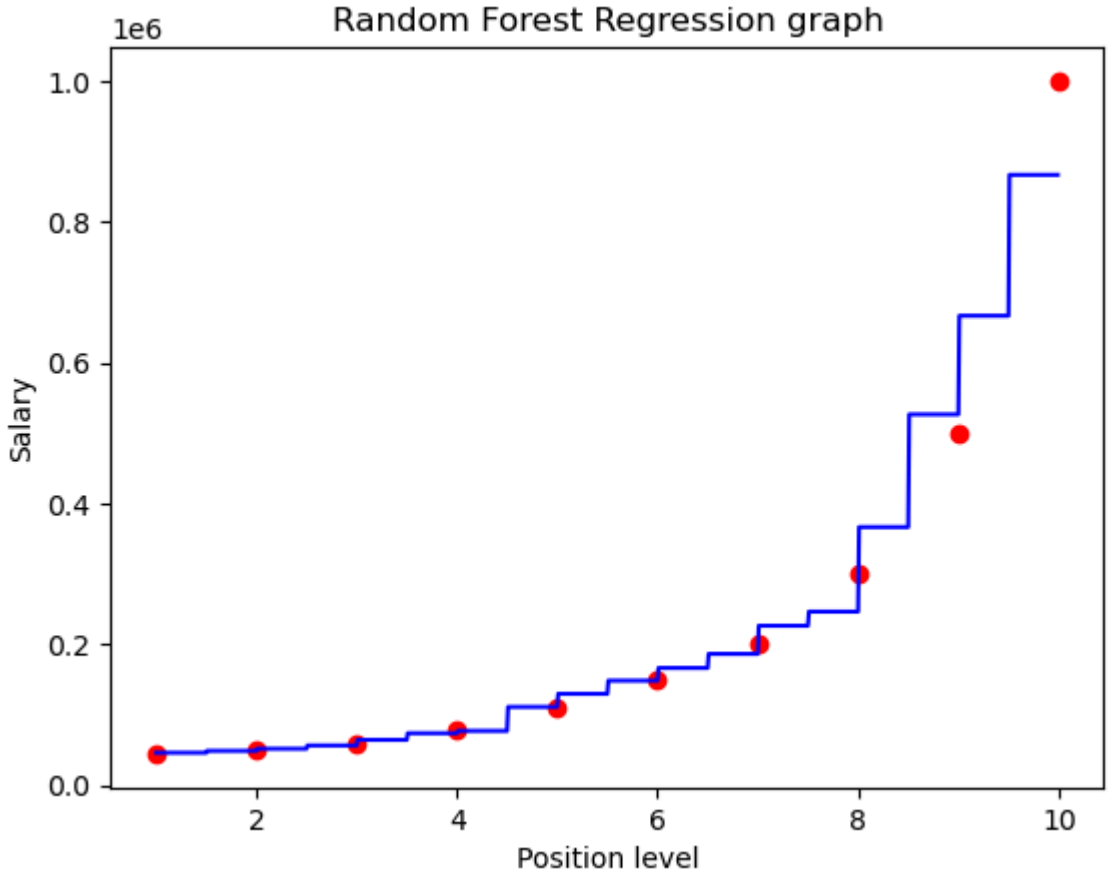
```
forest_pred=forest_regressor.predict([[6.5]])
forest_pred
```

Out[10]:
```
array([166666.66666667])
```

In [11]:
```
# Random Forest Regressor Visualizations

x_grid=np.arange(min(x),max(x),0.01)
x_grid=x_grid.reshape(len(x_grid),1)
plt.scatter(x,y,color='red')
plt.plot(x_grid,forest_regressor.predict(x_grid),color='blue')
plt.title('Random Forest Regression graph')
plt.xlabel('Position level')
plt.ylabel('Salary')
plt.show()
```

```
C:\Users\Jan Saida\AppData\Local\Temp\ipykernel_26508\2382915874.py:3: DeprecationWarning: Conversion of an array with ndim > 0 to a scalar is deprecated, and will error in future. Ensure you extract a single element from your array before performing this operation. (Deprecated NumPy 1.25.)
  x_grid=np.arange(min(x),max(x),0.01)
```


Random Forest Regression graph
1e6
1.0
0.8
0.6
0.4
0.2
0.0
Salary
2
4
6
8
10
Position level

In [ ]: