In [ ]:
```
import pandas as pd
import seaborn as sns
import matplotlib.pyplot as plt
salaries = pd.read_csv("Salaries.csv")
salaries.head()
```

```
C:\Users\dell\AppData\Local\Temp\ipykernel_3684\2250023808.py:4: DtypeWarning: Co
lumns (3,4,5,6,12) have mixed types. Specify dtype option on import or set low_me
mory=False.
  salaries = pd.read_csv("Salaries.csv")
```

Out[ ]:

	Id	EmployeeName	JobTitle	BasePay	OvertimePay	OtherPay	Benefits	T
0	1	NATHANIEL FORD	GENERAL MANAGER-METROPOLITAN TRANSIT AUTHORITY	167411.18	0.0	400184.25	NaN	56
1	2	GARY JIMENEZ	CAPTAIN III (POLICE DEPARTMENT)	155966.02	245131.88	137811.38	NaN	53
2	3	ALBERT PARDINI	CAPTAIN III (POLICE DEPARTMENT)	212739.13	106088.18	16452.6	NaN	33
3	4	CHRISTOPHER CHONG	WIRE ROPE CABLE MAINTENANCE MECHANIC	77916.0	56120.71	198306.9	NaN	33
4	5	PATRICK GARDNER	DEPUTY CHIEF OF DEPARTMENT, (FIRE DEPARTMENT)	134401.6	9737.0	182234.59	NaN	32

Display the dimensions of the dataset

In [ ]:
```
salaries.shape
```

Out[ ]:
```
(148654, 13)
```

Statistical Summary of the Total pay

In [ ]:
```
salaries[["TotalPay","TotalPayBenefits"]].describe().transpose()
```

Out[ ]:

	count	mean	std	min	25%	50%	
TotalPay	148654.0	74768.321972	50517.005274	-618.13	36168.995	71426.61	10
TotalPayBenefits	148654.0	93692.554811	62793.533483	-618.13	44065.650	92404.09	13

Removing unnecessary columns

In [ ]:
```
salaries = salaries.drop(columns=['Notes', 'Agency', 'Id', 'EmployeeName', 'Year
salaries.head()
```

Out[ ]:

	JobTitle	BasePay	OvertimePay	OtherPay	TotalPay	TotalPayBenefits	Stat
0	GENERAL MANAGER-METROPOLITAN TRANSIT AUTHORITY	167411.18	0.0	400184.25	567595.43	567595.43	N
1	CAPTAIN III (POLICE DEPARTMENT)	155966.02	245131.88	137811.38	538909.28	538909.28	N
2	CAPTAIN III (POLICE DEPARTMENT)	212739.13	106088.18	16452.6	335279.91	335279.91	N
3	WIRE ROPE CABLE MAINTENANCE MECHANIC	77916.0	56120.71	198306.9	332343.61	332343.61	N
4	DEPUTY CHIEF OF DEPARTMENT, (FIRE DEPARTMENT)	134401.6	9737.0	182234.59	326373.19	326373.19	N

Data Cleaning:

In [ ]:
```
options = ['BasePay','OvertimePay','OtherPay','TotalPay','TotalPayBenefits']
salaries[options] = salaries[options].apply(pd.to_numeric, errors='coerce')
salaries[salaries[options].gt(0).all(axis=1)]
```

Out[ ]:

	JobTitle	BasePay	OvertimePay	OtherPay	TotalPay	TotalPayBenefits
1	CAPTAIN III (POLICE DEPARTMENT)	155966.02	245131.88	137811.38	538909.28	538909.28
2	CAPTAIN III (POLICE DEPARTMENT)	212739.13	106088.18	16452.60	335279.91	335279.91
3	WIRE ROPE CABLE MAINTENANCE MECHANIC	77916.00	56120.71	198306.90	332343.61	332343.61
4	DEPUTY CHIEF OF DEPARTMENT, (FIRE DEPARTMENT)	134401.60	9737.00	182234.59	326373.19	326373.19
5	ASSISTANT DEPUTY CHIEF II	118602.00	8601.00	189082.74	316285.74	316285.74
...	...	...	...	...	...	...
147467	Publ Svc Aide-Asst to Prof	1182.12	487.38	44.03	1713.53	1730.66
147535	Camp Assistant	1160.08	426.15	15.15	1601.38	1617.39
147658	Custodial Assistant Supervisor	1282.97	36.66	49.85	1369.48	1383.17
147659	Nurse Practitioner	426.44	273.24	431.56	1131.24	1380.03
147689	Special Nurse	365.68	705.24	12.19	1083.11	1328.75

64311 rows × 7 columns

Analyze Full-time vs Part-time Jobs

In [ ]:
```
salaries_ft = salaries[salaries['Status'] == 'FT']
salaries_ft['TotalPay'].describe()
```

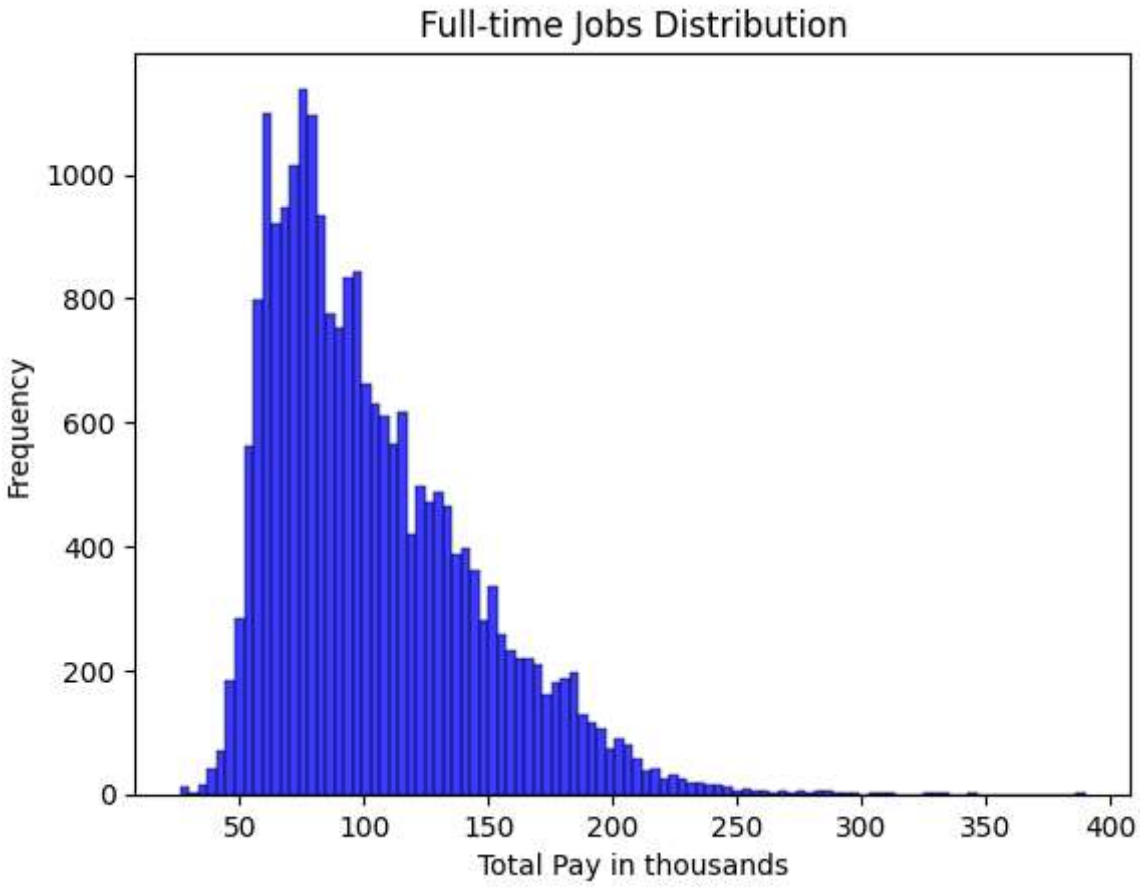
Out[ ]:
```
count     22334.000000
mean     103505.761053
std       40722.929492
min       26363.620000
25%       72355.500000
50%       94271.735000
75%      127856.000000
max      390111.980000
Name: TotalPay, dtype: float64
```

In [ ]:
```
salaries_pt = salaries[salaries['Status'] == 'PT']
salaries_pt['TotalPay'].describe()
```

Out[ ]:
```
count     15785.000000
mean      35806.986627
std       37706.327998
min        -618.130000
25%        7355.400000
50%       22407.370000
75%       52986.740000
max      471952.640000
Name: TotalPay, dtype: float64
```

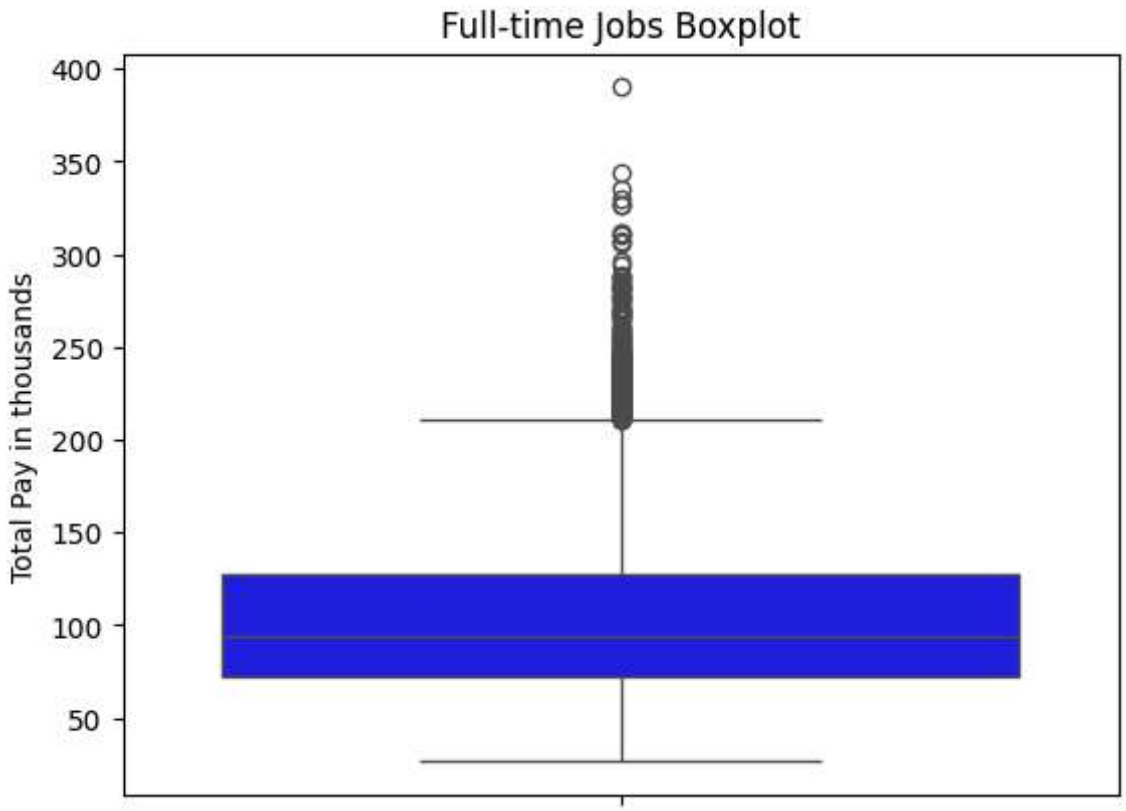
Full-time jobs distribution

In [ ]:
```
sns.histplot(salaries_ft['TotalPay'] / 1000, bins=100, color='blue', kde=False)
plt.title('Full-time Jobs Distribution')
plt.xlabel('Total Pay in thousands')
plt.ylabel('Frequency')
plt.show()
```



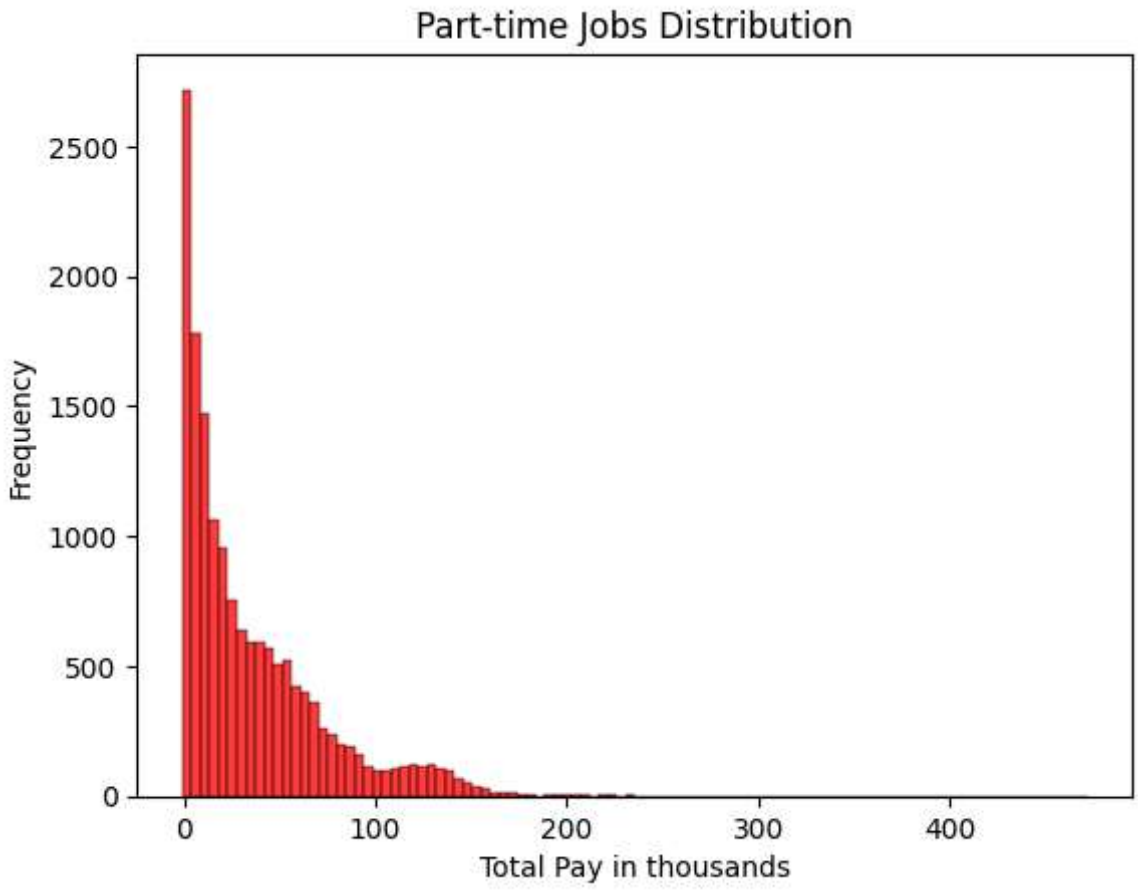
Full-time jobs Boxplot

In [ ]:
```
sns.boxplot(y=salaries_ft['TotalPay'] / 1000, color='blue')
plt.title('Full-time Jobs Boxplot')
plt.ylabel('Total Pay in thousands')
plt.show()
```

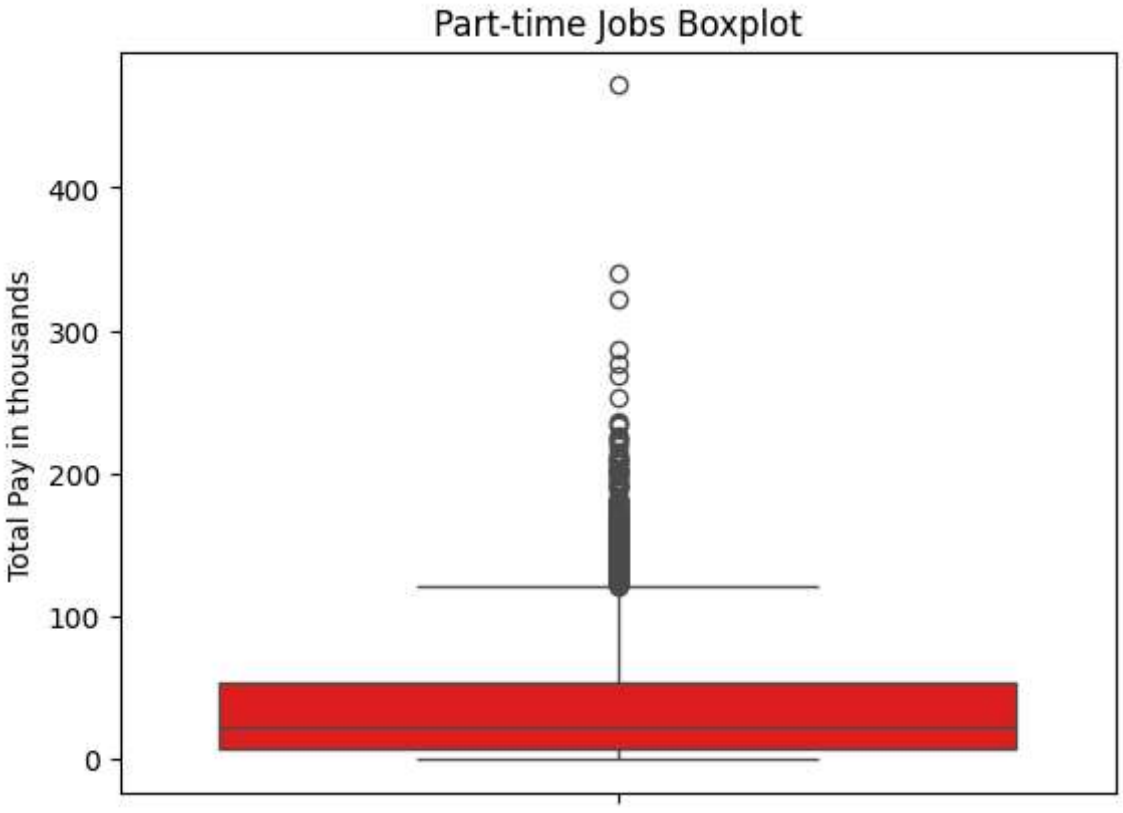


Visualizing Part-time Jobs

In [ ]:
```
sns.histplot(salaries_pt['TotalPay'] / 1000, bins=100, color='red', kde=False)
plt.title('Part-time Jobs Distribution')
plt.xlabel('Total Pay in thousands')
plt.ylabel('Frequency')
plt.show()
```



In [ ]:
```
sns.boxplot(y=salaries_pt['TotalPay'] / 1000, color='red')
plt.title('Part-time Jobs Boxplot')
plt.ylabel('Total Pay in thousands')
plt.show()
```

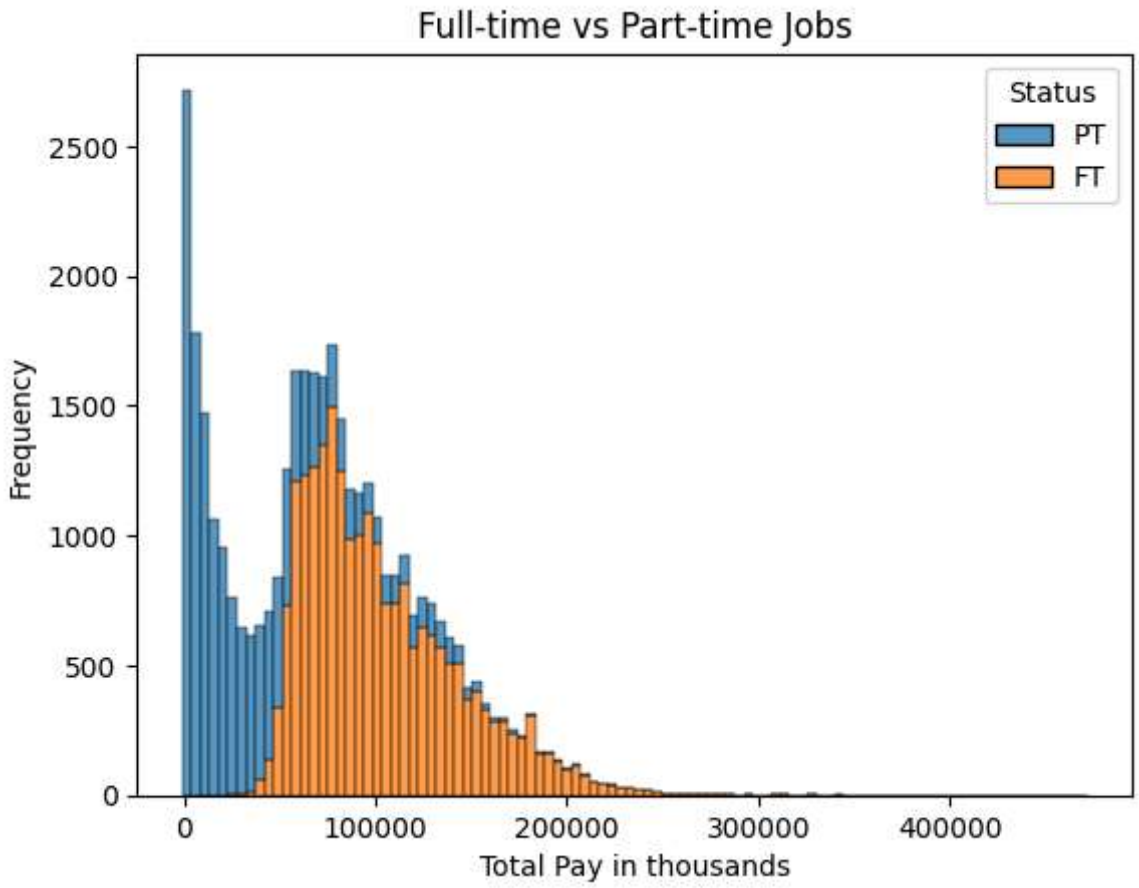


Handling Outliers

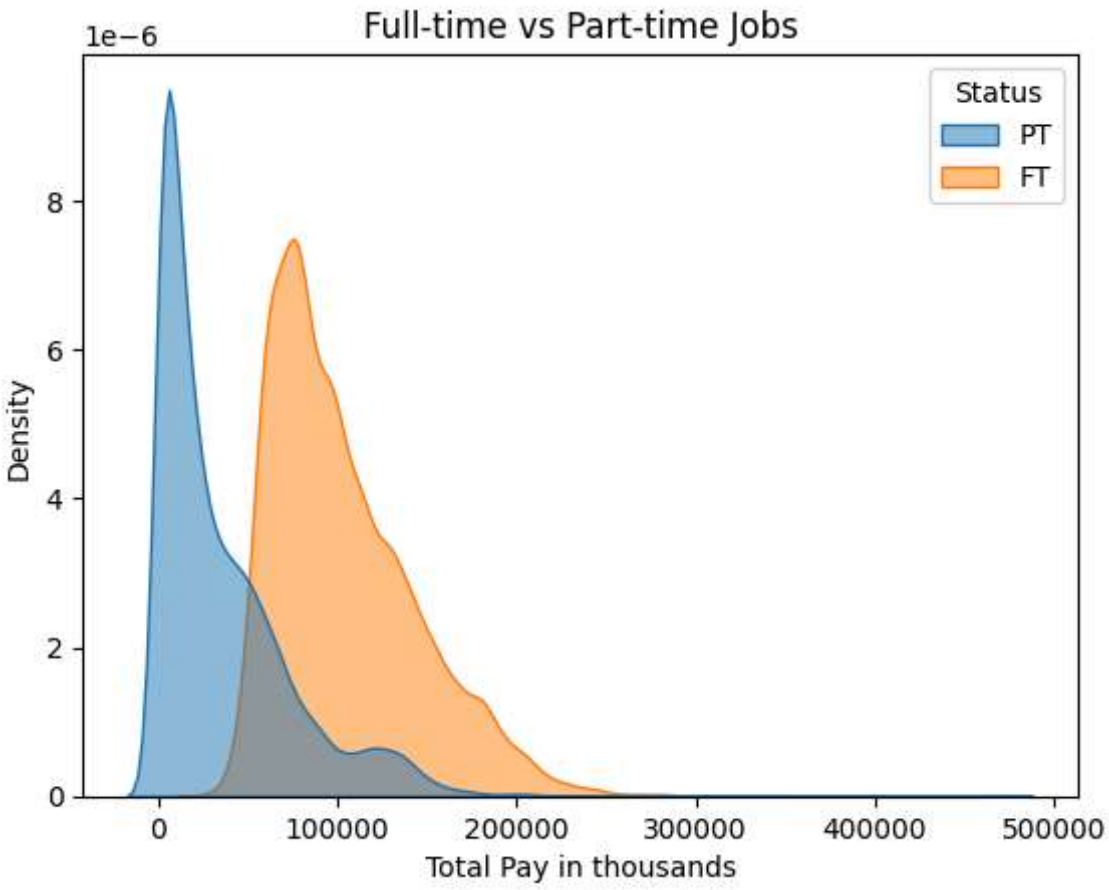
In [ ]:
```
# Handling outliers for full-time jobs
salaries_ft = salaries_ft[(salaries_ft['TotalPay'] < salaries_ft['TotalPay'].mea
                          (salaries_ft['TotalPay'] > salaries_ft['TotalPay'].mea

# Handling outliers for part-time jobs
salaries_pt = salaries_pt[(salaries_pt['TotalPay'] < salaries_pt['TotalPay'].mea
                          (salaries_pt['TotalPay'] > salaries_pt['TotalPay'].mea
```

Comparing Full-time and Part-time Jobs

In [ ]:
```
salaries = salaries.dropna(subset=['Status'])
sns.histplot(data=salaries, x='TotalPay', hue='Status', multiple="stack", bins=1
plt.title('Full-time vs Part-time Jobs')
plt.xlabel('Total Pay in thousands')
plt.ylabel('Frequency')
plt.show()
```



In [ ]:
```
sns.kdeplot(data=salaries, x='TotalPay', hue='Status', fill=True, alpha=0.5)
plt.title('Full-time vs Part-time Jobs')
plt.xlabel('Total Pay in thousands')
plt.ylabel('Density')
plt.show()
```



Conclusion

The average salary for full-time jobs is 107,000 and for part-time jobs is 31,000.This shows that full-time jobs have higher salaries compared to part-time jobs.