```python
In [4]: #
        %matplotlib inline
        import pandas as pd
        from matplotlib import pyplot as plt
        import numpy as np
        import sqlalchemy
        from config import db_pass
        from config import db_host
        from config import db_port
        from config import db_name
        cstring = 'postgresql://postgres:'+db_pass+'@'+db_host+':'+db_port+'/'+db_name
        #import psycopg2
        from sqlalchemy import create_engine
        engine = create_engine(cstring)
        connection = engine.connect()
```
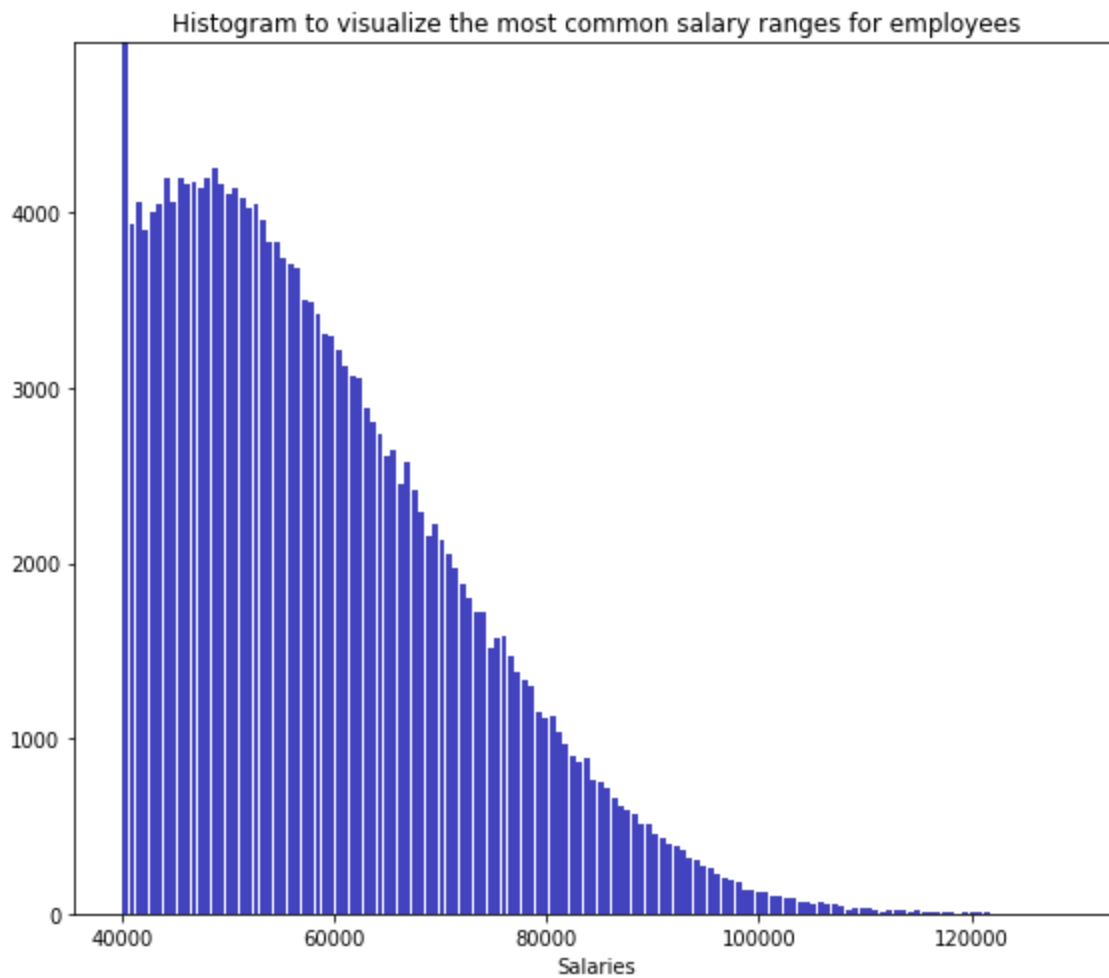
```
In [5]: salary_df = engine.execute("select distinct emp_no, salary from salaries")
        sal = []

        for r in salary_df:
            #print(r['emp_no'], r['salary'])
            sal.append(pd.to_numeric(r['salary']))
        #
        fig=plt.figure(figsize=(8, 7))
        n, bins, patches = plt.hist(sal,  bins='auto', color='#0504aa',
                                        alpha=0.75, rwidth=0.85
                                        )
        plt.xlabel('Salaries')
        plt.title('Histogram to visualize the most common salary ranges for employees')
        maxfreq = n.max()
        plt.ylim(ymax=np.ceil(maxfreq / 200) * 10 if maxfreq % 10 else maxfreq + 5000)
        plt.tight_layout()
        plt.show()
```


Histogram to visualize the most common salary ranges for employees
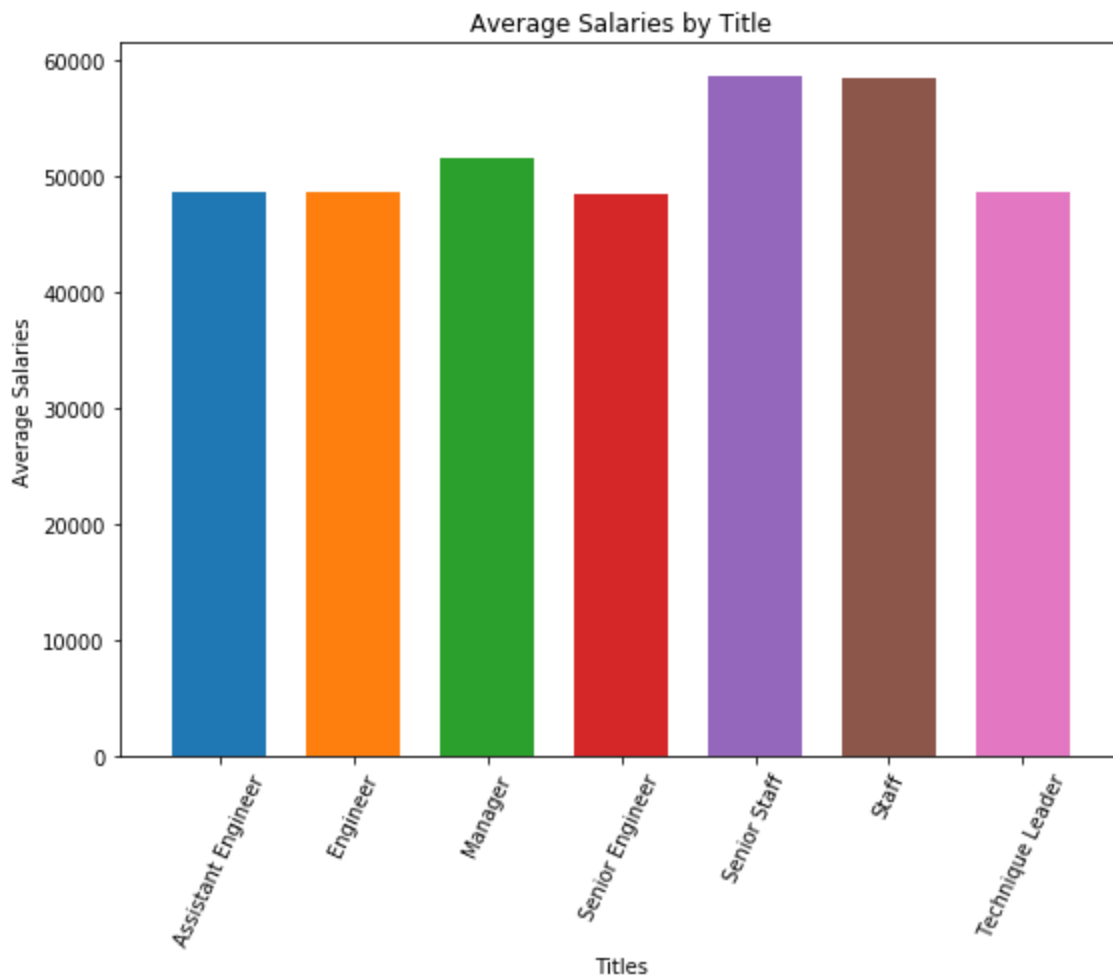
```
In [6]:  # average salary by title
         avg_sal = engine.execute("select title, avg(salary) salary from titles t,employees e
         #
         # Generate a bar plot showing average salary by title
         #
         plt.figure(figsize=(8, 7))
         bottom = 0
         title = []

         for row in avg_sal:
             plt.bar(row['title'], row['salary'], width=0.7)
             title.append(row['title'])

         plt.title("Average Salaries by Title")
         plt.xticks(rotation=65)
         plt.xlabel('Titles')
         plt.ylabel('Average Salaries')
         plt.xlim(-0.75, len(title)-.25)
         plt.tight_layout()
         plt.show()
```

In [ ]: