In [1]:
```
import folium
import pandas as pd
```

In [2]:
```
register_df = pd.read_csv('1877-official-register.csv')
print(register_df.sample(5))
register_df.dtypes
```

```
             Name State                  Department  \
604    Placerville    CA         Treasury Department
666  San Francisco    CA         Treasury Department
407       Cheyenne    WY                   Judicial
251      San Diego    CA                   Judicial
44        Roseburg    OR  Department of the Interior

                             Type  People   Latitude   Longitude
604       Internal Revenue_Gaugers       1  38.729625 -120.798546
666             Lifesaving Service       1  37.774929 -122.419416
407                   Commissioner       2  41.139981 -104.820246
251                   Commissioner       1  32.715738 -117.161084
44   General Land Office Receivers       1  43.216505 -123.341738
```

Out[2]:
```
Name           object
State          object
Department     object
Type           object
People          int64
Latitude      float64
Longitude     float64
dtype: object
```

In [3]:
```
register_df.sample(5)
```

Out[3]:

	Name	State	Department	Type	People	Latitude	Long
645	Pueblo	CO	Treasury Department	Internal Revenue_Storekeepers	1	38.254447	-104.6
766	Fort Boise	ID	War Department	Quartermasters Department At Large	16	43.616667	-116.2(
778	San Antonio	TX	War Department	Paymasters Clerks	4	29.424122	-98.49
713	New Dungeness	WA	Treasury Department	Lighthouse	3	48.181800	-123.1(
546	Placerville	CA	Treasury Department	Internal Revenue_Deputy Collector	1	38.729625	-120.79

In [4]:
```
us_map_empty = folium.Map(location=[38.7946, -98.5348], zoom_start=3)
us_map_empty
```

Out[4]: Make this Notebook Trusted to load map: File -> Trust Notebook

In [5]:
```
def create_empty_map():
    return folium.Map(location=[38.7946, -98.5348], zoom_start=3)

us_map = create_empty_map()
us_map
```

Out[5]: Make this Notebook Trusted to load map: File -> Trust Notebook

In [6]:
```
def reg_create_map_markers(row, map_name):
    folium.CircleMarker(location=[row['Latitude'], row['Longitude']],
                        radius=row['People']/100,
                         popup=folium.Popup(f"Location: {row['Name']}", max_w
                        tooltip=f"Government Agency: {row['Department']} <br>
```

In [18]:
```
#create a base empty map
# us_map = create_empty_map()

#generate a random row of data
# sample_row = register_df.sample(1)

#use our function on the random row
#reg_create_map_markers(sample_row, us_map)

#display the map
#us_map

#once I hadded the radius feature the sample wouldn't work because it wasn't
```

In [8]:
```
us_map = create_empty_map()

register_df.apply(
    reg_create_map_markers,
    map_name=us_map,
    axis='columns'
)

us_map
```

Out[8]: Make this Notebook Trusted to load map: File -> Trust Notebook

What were the top 10 individual locations measured by the largest number of employees?

In [10]:
```
register_df = register_df.sort_values(by='People', ascending=False)
register_df.head(10)
```

Out[10]:

	Name	State	Department	Type	People	Latitude	Longitude
875	Fort Clark	TX	War Department	Outpost	881	29.305833	-100.408056
858	Fort Sill	OK	War Department	Outpost	548	34.704167	-98.508333
884	Fort Brown	TX	War Department	Outpost	470	25.898333	-97.492222
895	Fort DA Russell	WY	War Department	Outpost	465	41.166389	-104.862778
823	Fort Leavenworth	KS	War Department	Outpost	441	39.355000	-94.921111
894	Fort Laramie	WY	War Department	Outpost	431	42.209167	-104.535833
822	Lewiston	ID	War Department	Other	427	46.399010	-117.004303
830	Fort Ellis	MT	War Department	Outpost	394	45.654444	-110.976389
845	Camp Robinson	NE	War Department	Outpost	391	42.668889	-103.467222
834	Tongue River Barracks	MT	War Department	Barracks	388	46.409282	-105.866077

Which states had the most government employees working in the state?

In [12]:
```
register_df.groupby('State').sum()['People'].sort_values(ascending=False)
```

Out[12]:
```
State
TX    3643
WY    1646
MT    1447
AZ    1303
NE    1296
CA    1212
OK    1107
KS     990
SD     930
NM     892
ND     857
ID     621
OR     322
WA     311
CO     289
UT     262
NV     187
BC       1
Name: People, dtype: int64
```

Which government departments employed the largest number of people?

In [14]:
```
register_df.groupby('Department').sum()['People'].sort_values(ascending=Fals
```

Out[14]:
```
Department
War Department                14940
Treasury Department            1080
Department of the Interior      891
Judicial                        405
Name: People, dtype: int64
```

How many different locations of government employees did each state have?

In [16]:
```
register_df.groupby('State').count()['Name'].sort_values(ascending=False)
```

Out[16]:
```
State
CA    167
TX    138
KS     69
OR     62
NE     61
WA     55
MT     47
AZ     42
NM     41
CO     39
SD     37
WY     34
NV     25
ID     25
ND     22
UT     21
OK     17
BC      1
Name: Name, dtype: int64
```

In [ ]:
```

```