911 Calls Dataset

analyzing some 911 call data from Kaggle. The data contains the following fields:

- lat : String variable, Latitude
- lng: String variable, Longitude
- desc: String variable, Description of the Emergency Call
- zip: String variable, Zipcode
- title: String variable, Title
- timeStamp: String variable, YYYY-MM-DD HH:MM:SS
- twp: String variable, Township
- addr: String variable, Address
- e: String variable, Dummy variable (always 1)

Data and Setup

** Import numpy and pandas **

In [1]:
```
import numpy as np
import pandas as pd
```

** Import visualization libraries and set %matplotlib inline. **

In [2]:
```
import matplotlib.pyplot as plt
import seaborn as sns
%matplotlib inline
```

** Read in the csv file as a dataframe called df **

In [4]:
```
df = pd.read_csv("911.csv")
```

** Check the info() of the df **

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

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 663522 entries, 0 to 663521
Data columns (total 9 columns):
 #   Column     Non-Null Count   Dtype  
---  ------     --------------   -----  
 0   lat        663522 non-null  float64
 1   lng        663522 non-null  float64
 2   desc       663522 non-null  object 
 3   zip        583323 non-null  float64
 4   title      663522 non-null  object 
 5   timeStamp  663522 non-null  object 
 6   twp        663229 non-null  object 
 7   addr       663522 non-null  object 
 8   e          663522 non-null  int64  
dtypes: float64(3), int64(1), object(5)
memory usage: 45.6+ MB
```

Questions

1. What are the top 5 zipcodes for 911 calls?
2. What are the top 5 townships (twp) for 911 calls?
3. how many unique title codes are there?
4. What are the reasons people called for?
5. compare reasons people called based on day, month?

Basic Questions

** What are the top 5 zipcodes for 911 calls? **

In [11]:
```
top_5_zip = df['zip'].value_counts().head(5)
```

In [12]:
```
top_5_zip
```

Out[12]:
```
zip
19401.0    45606
19464.0    43910
19403.0    34888
19446.0    32270
19406.0    22464
Name: count, dtype: int64
```

** What are the top 5 townships (twp) for 911 calls? **

In [13]:
```
top_5_twp =df['twp'].value_counts().head(5)
top_5_twp
```

Out[13]:
```
twp
LOWER MERION    55490
ABINGTON        39947
NORRISTOWN      37633
UPPER MERION    36010
CHELTENHAM      30574
Name: count, dtype: int64
```

** Take a look at the 'title' column, how many unique title codes are there? **

In [14]:
```
unique_title_codes = df['title'].nunique()
unique_title_codes
```

Out[14]:
```
148
```

In [21]:
```
# What are the reasons people called for?
top_5_reasons = df['title'].value_counts().head(5)
print("Top Reasons People Called:\n")
print(top_5_reasons)
```

```
Top Reasons People Called:

title
Traffic: VEHICLE ACCIDENT -    148372
Traffic: DISABLED VEHICLE -     47909
Fire: FIRE ALARM                38336
EMS: FALL VICTIM                34676
EMS: RESPIRATORY EMERGENCY      34248
Name: count, dtype: int64
```

In [34]:
```
# compare reasons people called based on day, month

df['timeStamp'] = pd.to_datetime(df['timeStamp'])
df['Day'] = df['timeStamp'].dt.day
df['Month'] = df['timeStamp'].dt.month
top_reasons_day = df.groupby('Day')['title'].value_counts().unstack().fillna(0)
#print(top_reasons_day.head())
top_reasons_month = df.groupby('Month')['title'].value_counts().unstack().fillna(0)
top_reason_per_day = top_reasons_day.idxmax(axis=1)
top_reason_per_month = top_reasons_month.idxmax(axis=1)
```

```
print("Top Reason Per Day:")
for day, reason in top_reason_per_day.items():
    print(f"{day}: {reason}")

print("\nTop Reason Per Month:")
for month, reason in top_reason_per_month.items():
    print(f"{month}: {reason}")
```

Top Reason Per Day:
1: Traffic: VEHICLE ACCIDENT -
2: Traffic: VEHICLE ACCIDENT -
3: Traffic: VEHICLE ACCIDENT -
4: Traffic: VEHICLE ACCIDENT -
5: Traffic: VEHICLE ACCIDENT -
6: Traffic: VEHICLE ACCIDENT -
7: Traffic: VEHICLE ACCIDENT -
8: Traffic: VEHICLE ACCIDENT -
9: Traffic: VEHICLE ACCIDENT -
10: Traffic: VEHICLE ACCIDENT -
11: Traffic: VEHICLE ACCIDENT -
12: Traffic: VEHICLE ACCIDENT -
13: Traffic: VEHICLE ACCIDENT -
14: Traffic: VEHICLE ACCIDENT -
15: Traffic: VEHICLE ACCIDENT -
16: Traffic: VEHICLE ACCIDENT -
17: Traffic: VEHICLE ACCIDENT -
18: Traffic: VEHICLE ACCIDENT -
19: Traffic: VEHICLE ACCIDENT -
20: Traffic: VEHICLE ACCIDENT -
21: Traffic: VEHICLE ACCIDENT -
22: Traffic: VEHICLE ACCIDENT -
23: Traffic: VEHICLE ACCIDENT -
24: Traffic: VEHICLE ACCIDENT -
25: Traffic: VEHICLE ACCIDENT -
26: Traffic: VEHICLE ACCIDENT -
27: Traffic: VEHICLE ACCIDENT -
28: Traffic: VEHICLE ACCIDENT -
29: Traffic: VEHICLE ACCIDENT -
30: Traffic: VEHICLE ACCIDENT -
31: Traffic: VEHICLE ACCIDENT -

Top Reason Per Month:
1: Traffic: VEHICLE ACCIDENT -
2: Traffic: VEHICLE ACCIDENT -
3: Traffic: VEHICLE ACCIDENT -
4: Traffic: VEHICLE ACCIDENT -
5: Traffic: VEHICLE ACCIDENT -
6: Traffic: VEHICLE ACCIDENT -
7: Traffic: VEHICLE ACCIDENT -
8: Traffic: VEHICLE ACCIDENT -
9: Traffic: VEHICLE ACCIDENT -
10: Traffic: VEHICLE ACCIDENT -
11: Traffic: VEHICLE ACCIDENT -
12: Traffic: VEHICLE ACCIDENT -

Creating new features

** In the titles column there are "Reasons/Departments" specified before the title code. These are EMS, Fire, and Traffic. Use .apply() with a custom lambda expression to create a new column called "Reason" that contains this string value.**

**For example, if the title column value is EMS: BACK PAINS/INJURY , the Reason column value would be EMS. **

In [35]:
```
df["Reason"] = df["title"].apply(lambda x: x.split(":")[0])
df.head()
```

Out[35]:

	lat	lng	desc	zip	title	timeStamp	twp	addr	e	Day	Month	Reason
0	40.297876	-75.581294	REINDEER CT & DEAD END; NEW HANOVER; Station ...	19525.0	EMS: BACK PAINS/INJURY	2015-12-10 17:10:52	NEW HANOVER	REINDEER CT & DEAD END	1	10	12	EMS
1	40.258061	-75.264680	BRIAR PATH & WHITEMARSH LN; HATFIELD TOWNSHIP...	19446.0	EMS: DIABETIC EMERGENCY	2015-12-10 17:29:21	HATFIELD TOWNSHIP	BRIAR PATH & WHITEMARSH LN	1	10	12	EMS
2	40.121182	-75.351975	HAWS AVE; NORRISTOWN; 2015-12-10 @ 14:39:21-St...	19401.0	Fire: GAS-ODOR/LEAK	2015-12-10 14:39:21	NORRISTOWN	HAWS AVE	1	10	12	Fire
3	40.116153	-75.343513	AIRY ST & SWEDE ST; NORRISTOWN; Station 308A;...	19401.0	EMS: CARDIAC EMERGENCY	2015-12-10 16:47:36	NORRISTOWN	AIRY ST & SWEDE ST	1	10	12	EMS
4	40.251492	-75.603350	CHERRYWOOD CT & DEAD END; LOWER POTTSGROVE; S...	NaN	EMS: DIZZINESS	2015-12-10 16:56:52	LOWER POTTSGROVE	CHERRYWOOD CT & DEAD END	1	10	12	EMS

** What is the most common Reason for a 911 call based on this new column? **

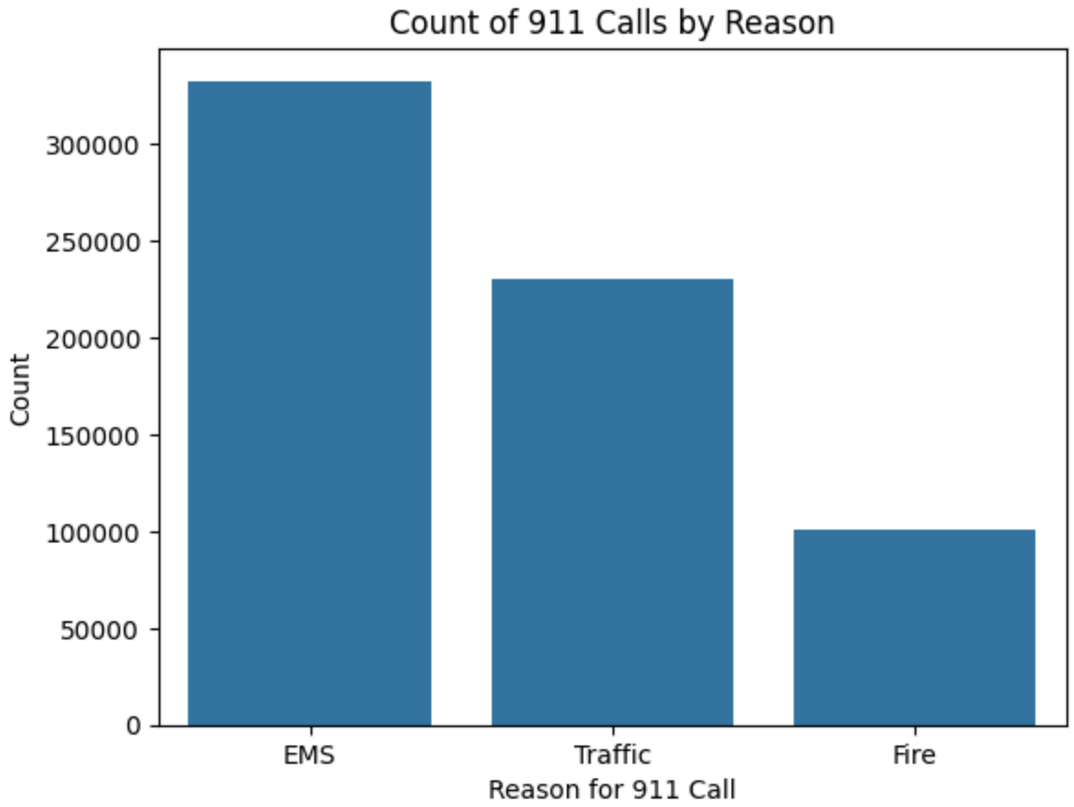
In [44]:
```
most_common_r = df["Reason"].value_counts().idxmax()
print(f"Most common reason: {most_common_r}")
count_of_r = df["Reason"].value_counts()
print("-"*25)
print("Count of Reasons:")
print(df["Reason"].value_counts().to_string())
```

```
Most common reason: EMS
-------------------------
Count of Reasons:
Reason
EMS        332692
Traffic    230208
Fire       100622
```

** Now use seaborn to create a countplot of 911 calls by Reason. **

In [45]:
```
sns.countplot(x=df["Reason"], order=df["Reason"].value_counts().index)

plt.title("Count of 911 Calls by Reason")
plt.xlabel("Reason for 911 Call")
plt.ylabel("Count")
plt.show()
```



lambda function

The lambda function lambda time: time.hour takes a time object as input (assuming you're working with Python's datetime module) and returns the hour component of the input time. This is useful when you want to extract just the hour information from a datetime object.

Here's an example of how you can use this lambda function:

In [47]:
```
#python
#Copy code
from datetime import datetime
```

```
# Create a datetime object
timestamp = datetime(2023, 11, 11, 15, 30, 0)  # November 11, 2023, 3:30 PM

# Apply the lambda function to extract the hour
hour = (lambda time: time.hour)(timestamp)

print(hour)

#Result: 15 in this case, representing 3:00 PM
```

```
15
```

apply() Function

The apply() function in Python is a method that allows you to apply a function along the axes (either rows or columns) of a DataFrame or Series in libraries like Pandas. It is a fundamental tool for data manipulation and transformation. The general syntax for apply() is as follows:

DataFrame.apply(func, axis=0) func: The function you want to apply to each row (if axis=1) or each column (if axis=0) of the DataFrame. This function can be a built-in Python function, a user-defined function, or a lambda function.

axis: Specifies the axis along which the function should be applied. Use axis=0 for columns (default) and axis=1 for rows. Here are some common use cases for the apply() function:

Applying a Function to Each Column or Row:

** Now let us begin to focus on time information. What is the data type of the objects in the timeStamp column? **

In [48]:
```
df['timeStamp'] = pd.to_datetime(df['timeStamp'])
df.head(5)
```

Out[48]:

	lat	lng	desc	zip	title	timeStamp	twp	addr	e	Day	Month	Reason
0	40.297876	-75.581294	REINDEER CT & DEAD END; NEW HANOVER; Station ...	19525.0	EMS: BACK PAINS/INJURY	2015-12-10 17:10:52	NEW HANOVER	REINDEER CT & DEAD END	1	10	12	EMS
1	40.258061	-75.264680	BRIAR PATH & WHITEMARSH LN; HATFIELD TOWNSHIP...	19446.0	EMS: DIABETIC EMERGENCY	2015-12-10 17:29:21	HATFIELD TOWNSHIP	BRIAR PATH & WHITEMARSH LN	1	10	12	EMS
2	40.121182	-75.351975	HAWS AVE; NORRISTOWN; 2015-12-10 @ 14:39:21-St...	19401.0	Fire: GAS-ODOR/LEAK	2015-12-10 14:39:21	NORRISTOWN	HAWS AVE	1	10	12	Fire
3	40.116153	-75.343513	AIRY ST & SWEDE ST; NORRISTOWN; Station 308A;...	19401.0	EMS: CARDIAC EMERGENCY	2015-12-10 16:47:36	NORRISTOWN	AIRY ST & SWEDE ST	1	10	12	EMS
4	40.251492	-75.603350	CHERRYWOOD CT & DEAD END; LOWER POTTSGROVE; S...	NaN	EMS: DIZZINESS	2015-12-10 16:56:52	LOWER POTTSGROVE	CHERRYWOOD CT & DEAD END	1	10	12	EMS

In [49]:

```
df['Hour'] = df['timeStamp'].apply(lambda time: time.hour)
df['Month'] = df['timeStamp'].apply(lambda time: time.month)
df['Day'] = df['timeStamp'].apply(lambda time: time.day)
df['Day of Week'] = df['timeStamp'].apply(lambda time: time.dayofweek)
df.head(30)
```

Out[49]:

	lat	lng	desc	zip	title	timeStamp	twp	addr	e	Day	Month	Reason	Hour	Day of Week
0	40.297876	-75.581294	REINDEER CT & DEAD END; NEW HANOVER; Station ...	19525.0	EMS: BACK PAINS/INJURY	2015-12-10 17:10:52	NEW HANOVER	REINDEER CT & DEAD END	1	10	12	EMS	17	3
1	40.258061	-75.264680	BRIAR PATH & WHITEMARSH LN; HATFIELD TOWNSHIP...	19446.0	EMS: DIABETIC EMERGENCY	2015-12-10 17:29:21	HATFIELD TOWNSHIP	BRIAR PATH & WHITEMARSH LN	1	10	12	EMS	17	3
2	40.121182	-75.351975	HAWS AVE; NORRISTOWN; 2015-12-10 @ 14:39:21-St...	19401.0	Fire: GAS-ODOR/LEAK	2015-12-10 14:39:21	NORRISTOWN	HAWS AVE	1	10	12	Fire	14	3
3	40.116153	-75.343513	AIRY ST & SWEDE ST; NORRISTOWN; Station 308A;...	19401.0	EMS: CARDIAC EMERGENCY	2015-12-10 16:47:36	NORRISTOWN	AIRY ST & SWEDE ST	1	10	12	EMS	16	3
4	40.251492	-75.603350	CHERRYWOOD CT & DEAD END; LOWER POTTSGROVE; S...	NaN	EMS: DIZZINESS	2015-12-10 16:56:52	LOWER POTTSGROVE	CHERRYWOOD CT & DEAD END	1	10	12	EMS	16	3
5	40.253473	-75.283245	CANNON AVE & W 9TH ST; LANSDALE; Station 345;...	19446.0	EMS: HEAD INJURY	2015-12-10 15:39:04	LANSDALE	CANNON AVE & W 9TH ST	1	10	12	EMS	15	3
6	40.182111	-75.127795	LAUREL AVE & OAKDALE AVE; HORSHAM; Station 35...	19044.0	EMS: NAUSEA/VOMITING	2015-12-10 16:46:48	HORSHAM	LAUREL AVE & OAKDALE AVE	1	10	12	EMS	16	3
7	40.217286	-75.405182	COLLEGEVILLE RD & LYWISKI RD; SKIPPACK; Stati...	19426.0	EMS: RESPIRATORY EMERGENCY	2015-12-10 16:17:05	SKIPPACK	COLLEGEVILLE RD & LYWISKI RD	1	10	12	EMS	16	3
8	40.289027	-75.399590	MAIN ST & OLD SUMNEYTOWN PIKE; LOWER SALFORD;...	19438.0	EMS: SYNCOPAL EPISODE	2015-12-10 16:51:42	LOWER SALFORD	MAIN ST & OLD SUMNEYTOWN PIKE	1	10	12	EMS	16	3
9	40.102398	-75.291458	BLUEROUTE & RAMP I476 NB TO CHEMICAL RD; PLYM...	19462.0	Traffic: VEHICLE ACCIDENT -	2015-12-10 17:35:41	PLYMOUTH	BLUEROUTE & RAMP I476 NB TO CHEMICAL RD	1	10	12	Traffic	17	3
10	40.231990	-75.251891	RT202 PKWY & KNAPP RD; MONTGOMERY; 2015-12-10 ...	NaN	Traffic: VEHICLE ACCIDENT -	2015-12-10 17:33:50	MONTGOMERY	RT202 PKWY & KNAPP RD	1	10	12	Traffic	17	3
11	40.084161	-75.308386	BROOK RD & COLWELL LN; PLYMOUTH; 2015-12-10 @ ...	19428.0	Traffic: VEHICLE ACCIDENT -	2015-12-10 16:32:10	PLYMOUTH	BROOK RD & COLWELL LN	1	10	12	Traffic	16	3

	lat	lng	desc	zip	title	timeStamp	twp	addr	e	Day	Month	Reason	Hour	Day of Week
12	40.174131	-75.098491	BYBERRY AVE & S WARMINSTER RD; UPPER MORELAND;...	19040.0	Traffic: VEHICLE ACCIDENT -	2015-12-10 17:15:49	UPPER MORELAND	BYBERRY AVE & S WARMINSTER RD	1	10	12	Traffic	17	3
13	40.062974	-75.135914	OLD YORK RD & VALLEY RD; CHELTENHAM; 2015-12-1...	19027.0	Traffic: VEHICLE ACCIDENT -	2015-12-10 17:12:47	CHELTENHAM	OLD YORK RD & VALLEY RD	1	10	12	Traffic	17	3
14	40.097222	-75.376195	SCHUYLKILL EXPY & CROTON RD UNDERPASS; UPPER M...	NaN	Traffic: VEHICLE ACCIDENT -	2015-12-10 17:09:49	UPPER MERION	SCHUYLKILL EXPY & CROTON RD UNDERPASS	1	10	12	Traffic	17	3
15	40.223778	-75.235399	STUMP RD & WITCHWOOD DR; MONTGOMERY; 2015-12-1...	18936.0	Traffic: VEHICLE ACCIDENT -	2015-12-10 17:31:00	MONTGOMERY	STUMP RD & WITCHWOOD DR	1	10	12	Traffic	17	3
16	40.243258	-75.286552	SUSQUEHANNA AVE & W MAIN ST; LANSDALE; Statio...	19446.0	EMS: RESPIRATORY EMERGENCY	2015-12-10 17:42:44	LANSDALE	SUSQUEHANNA AVE & W MAIN ST	1	10	12	EMS	17	3
17	40.312181	-75.574260	CHARLOTTE ST & MILES RD; NEW HANOVER; Station...	19525.0	EMS: DIZZINESS	2015-12-10 17:41:54	NEW HANOVER	CHARLOTTE ST & MILES RD	1	10	12	EMS	17	3
18	40.114239	-75.338508	PENN ST & ARCH ST; NORRISTOWN; Station 308A; ...	19401.0	EMS: VEHICLE ACCIDENT	2015-12-10 17:43:29	NORRISTOWN	PENN ST & ARCH ST	1	10	12	EMS	17	3
19	40.209337	-75.135266	COUNTY LINE RD & WILLOW DR; HORSHAM; 2015-12-1...	18974.0	Traffic: DISABLED VEHICLE -	2015-12-10 17:45:23	HORSHAM	COUNTY LINE RD & WILLOW DR	1	10	12	Traffic	17	3
20	40.114239	-75.338508	PENN ST & ARCH ST; NORRISTOWN; 2015-12-10 @ 17...	19401.0	Traffic: VEHICLE ACCIDENT -	2015-12-10 17:43:45	NORRISTOWN	PENN ST & ARCH ST	1	10	12	Traffic	17	3
21	40.117948	-75.209848	CHURCH RD & REDCOAT DR; WHITEMARSH; 2015-12-10...	19031.0	Traffic: DISABLED VEHICLE -	2015-12-10 17:53:22	WHITEMARSH	CHURCH RD & REDCOAT DR	1	10	12	Traffic	17	3
22	40.199006	-75.300058	LILAC CT & PRIMROSE DR; UPPER GWYNEDD; 2015-12...	19446.0	Fire: APPLIANCE FIRE	2015-12-10 17:59:24	UPPER GWYNEDD	LILAC CT & PRIMROSE DR	1	10	12	Fire	17	3

	lat	lng	desc	zip	title	timeStamp	twp	addr	e	Day	Month	Reason	Hour	Day of Week
23	40.143326	-75.422819	RT422 & PAWLINGS RD OVERPASS; LOWER PROVIDENC...	NaN	Traffic: DISABLED VEHICLE -	2015-12-10 18:00:38	LOWER PROVIDENCE	RT422 & PAWLINGS RD OVERPASS	1	10	12	Traffic	18	3
24	40.153268	-75.189558	SUMMIT AVE & RT309 UNDERPASS; UPPER DUBLIN; 20...	NaN	Traffic: VEHICLE ACCIDENT -	2015-12-10 17:58:22	UPPER DUBLIN	SUMMIT AVE & RT309 UNDERPASS	1	10	12	Traffic	17	3
25	40.133037	-75.408463	SHANNONDELL DR & SHANNONDELL BLVD; LOWER PROV...	19403.0	EMS: GENERAL WEAKNESS	2015-12-10 18:02:02	LOWER PROVIDENCE	SHANNONDELL DR & SHANNONDELL BLVD	1	10	12	EMS	18	3
26	40.155283	-75.264230	PENLLYN BLUE BELL PIKE & VILLAGE CIR; WHITPAI...	19422.0	EMS: HEAD INJURY	2015-12-10 18:02:38	WHITPAIN	PENLLYN BLUE BELL PIKE & VILLAGE CIR	1	10	12	EMS	18	3
27	40.028903	-75.351822	EDENTON PL & DURHAM DR; DELAWARE COUNTY; 2015-...	19085.0	Fire: CARBON MONOXIDE DETECTOR	2015-12-10 18:05:19	DELAWARE COUNTY	EDENTON PL & DURHAM DR	1	10	12	Fire	18	3
28	40.097222	-75.376195	SCHUYLKILL EXPY & WEADLEY RD OVERPASS; UPPER M...	NaN	Traffic: VEHICLE ACCIDENT -	2015-12-10 18:05:39	UPPER MERION	SCHUYLKILL EXPY & WEADLEY RD OVERPASS	1	10	12	Traffic	18	3
29	40.209337	-75.135266	COUNTY LINE RD & WILLOW DR; HORSHAM; 2015-12-1...	18974.0	Traffic: DISABLED VEHICLE -	2015-12-10 18:10:40	HORSHAM	COUNTY LINE RD & WILLOW DR	1	10	12	Traffic	18	3

** Notice how the Day of Week is an integer 0-6. Use the .map() with this dictionary to map the actual string names to the day of the week: **

```
dmap = {0:'Mon',1:'Tue',2:'Wed',3:'Thu',4:'Fri',5:'Sat',6:'Sun'}
```

In [50]:
```
dmap = {0: 'Mon', 1: 'Tue', 2: 'Wed', 3: 'Thu', 4: 'Fri', 5: 'Sat', 6: 'Sun'}

df["Day of Week"] = df["Day of Week"].map(dmap)

df.head()
```

Out[50]:

	lat	lng	desc	zip	title	timeStamp	twp	addr	e	Day	Month	Reason	Hour	Day of Week
0	40.297876	-75.581294	REINDEER CT & DEAD END; NEW HANOVER; Station ...	19525.0	EMS: BACK PAINS/INJURY	2015-12-10 17:10:52	NEW HANOVER	REINDEER CT & DEAD END	1	10	12	EMS	17	Thu
1	40.258061	-75.264680	BRIAR PATH & WHITEMARSH LN; HATFIELD TOWNSHIP...	19446.0	EMS: DIABETIC EMERGENCY	2015-12-10 17:29:21	HATFIELD TOWNSHIP	BRIAR PATH & WHITEMARSH LN	1	10	12	EMS	17	Thu
2	40.121182	-75.351975	HAWS AVE; NORRISTOWN; 2015-12-10 @ 14:39:21-St...	19401.0	Fire: GAS-ODOR/LEAK	2015-12-10 14:39:21	NORRISTOWN	HAWS AVE	1	10	12	Fire	14	Thu
3	40.116153	-75.343513	AIRY ST & SWEDE ST; NORRISTOWN; Station 308A;...	19401.0	EMS: CARDIAC EMERGENCY	2015-12-10 16:47:36	NORRISTOWN	AIRY ST & SWEDE ST	1	10	12	EMS	16	Thu
4	40.251492	-75.603350	CHERRYWOOD CT & DEAD END; LOWER POTTSGROVE; S...	NaN	EMS: DIZZINESS	2015-12-10 16:56:52	LOWER POTTSGROVE	CHERRYWOOD CT & DEAD END	1	10	12	EMS	16	Thu

In [ ]:

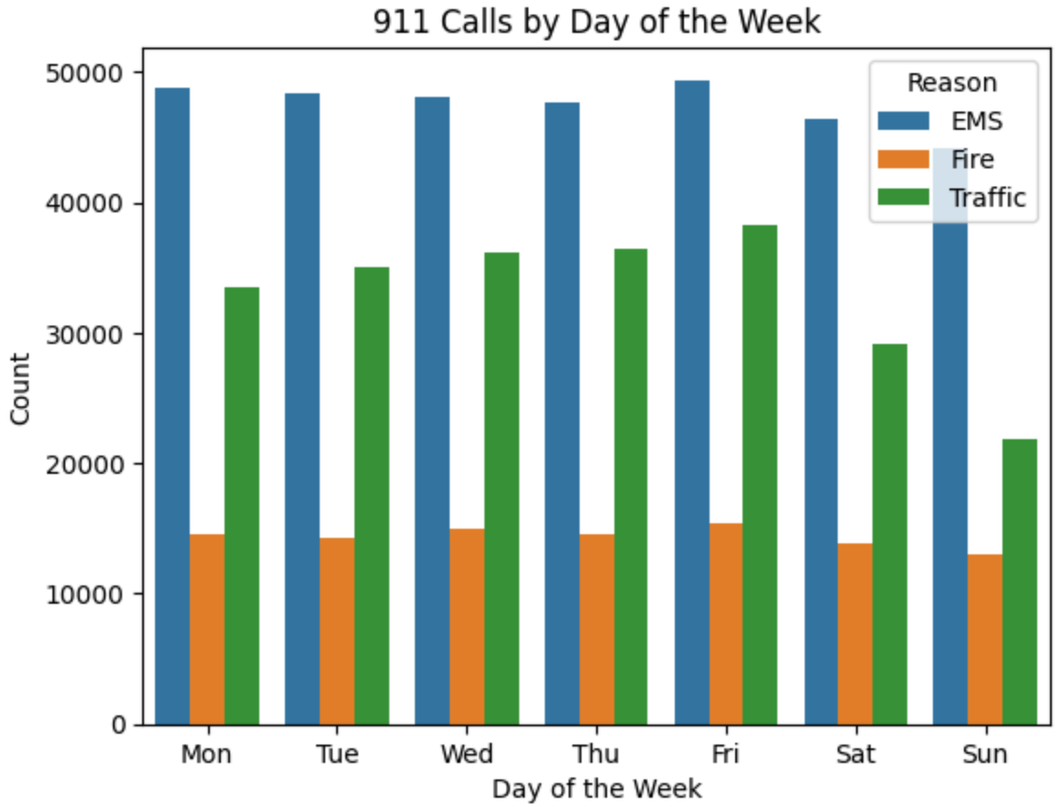
```
```

** Now use seaborn to create a countplot of the Day of Week column with the hue based off of the Reason column. **

In [51]:

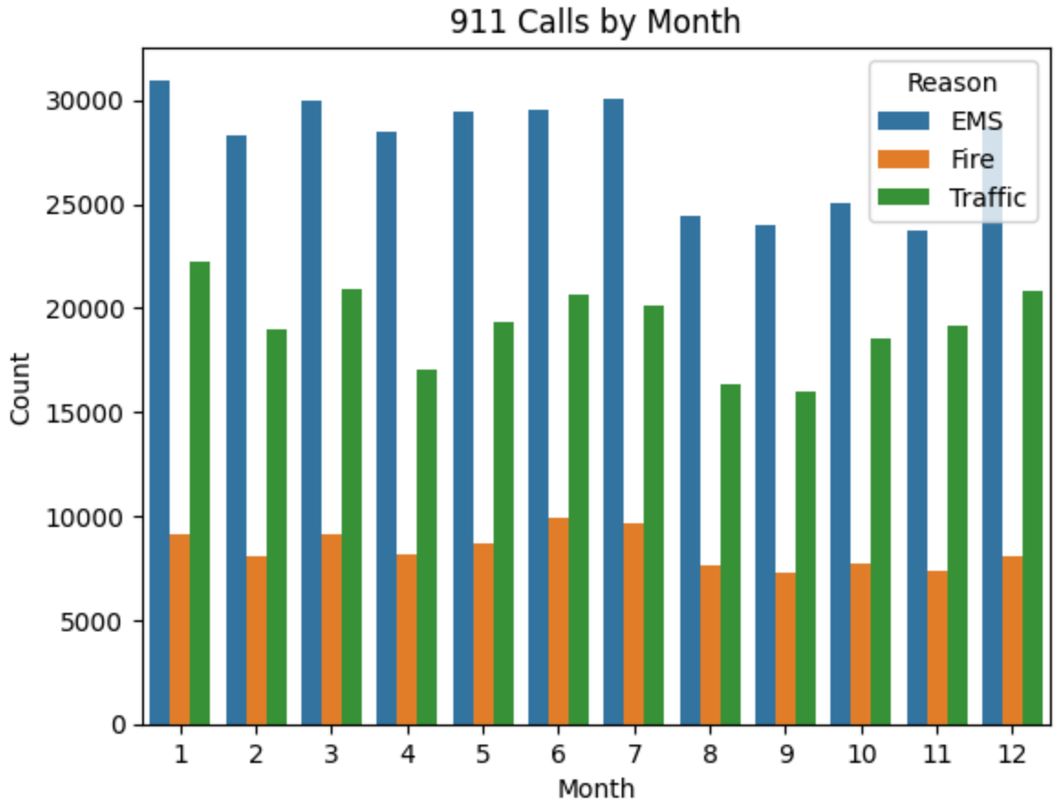
```
sns.countplot(x=df["Day of Week"], hue=df["Reason"], order=['Mon', 'Tue', 'Wed', 'Thu', 'Fri', 'Sat', 'Sun'])

plt.title("911 Calls by Day of the Week")
plt.xlabel("Day of the Week")
plt.ylabel("Count")
plt.legend(title="Reason")
plt.show()
```



** Now do the same for Month:**

In [52]:
```
sns.countplot(x=df["Month"], hue=df["Reason"])
plt.title("911 Calls by Month")
plt.xlabel("Month")
plt.ylabel("Count")
plt.legend(title="Reason")
plt.show()
```



**Create a new column called 'Date' that contains the date from the timeStamp column. You'll need to use apply along with the .date() method. **

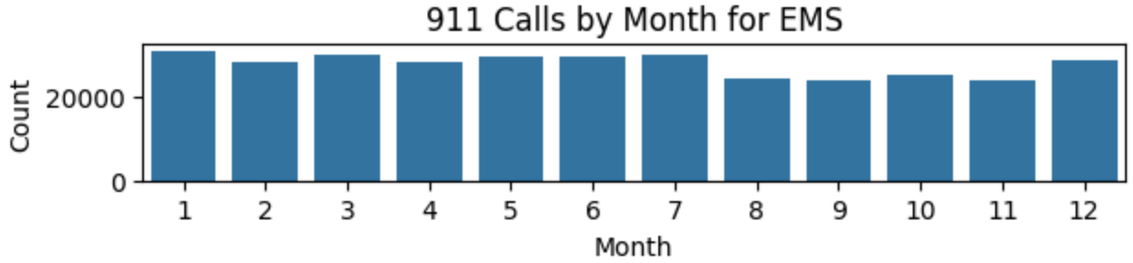
In [53]:
```
df["Date"] = df["timeStamp"].apply(lambda time: time.date())
```

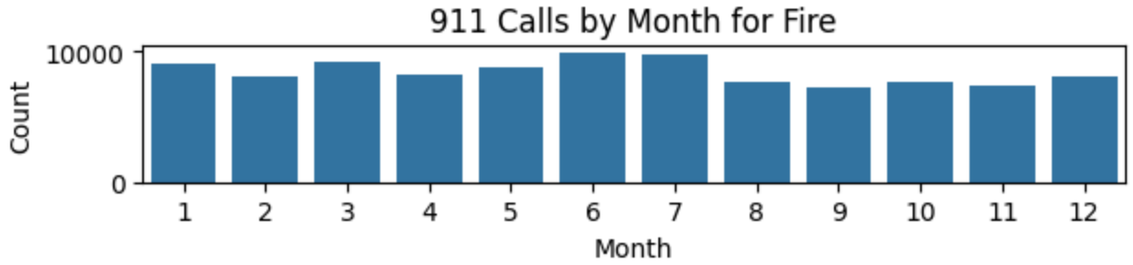
** Now recreate this plot but create 3 separate plots with each plot representing a Reason for the 911 call**

In [54]:
```
reasons = ["EMS", "Fire", "Traffic"]

for i, reason in enumerate(reasons, 1):
    plt.subplot(3, 1, i)
    sns.countplot(x=df[df["Reason"] == reason]["Month"], order=sorted(df["Month"].unique()))
    plt.title(f"911 Calls by Month for {reason}")
    plt.xlabel("Month")
    plt.ylabel("Count")

plt.tight_layout()
plt.show()
```


911 Calls by Month for EMS
Count
20000
0
1
2
3
4
5
6
7
8
9
10
11
12
Month


911 Calls by Month for Fire
Count
10000
0
1
2
3
4
5
6
7
8
9
10
11
12
Month


911 Calls by Month for Traffic
Count
20000
0
1
2
3
4
5
6
7
8
9
10
11
12
Month

In [ ]: