In [36]:

```
import warnings
warnings.filterwarnings('ignore')

import os
from datetime import date
import dateutil.relativedelta

import pandas as pd                                     # panda's nickname is

import numpy as np                                      # numpy as np

from pandas import DataFrame, Series                    # for convenience

import matplotlib.pyplot as plt

%matplotlib inline

import pandas as pd
import fbprophet
from fbprophet import Prophet

import statsmodels
import statsmodels.api as sm
import statsmodels.formula.api as smf
from statsmodels.tsa.seasonal import seasonal_decompose
from datetime import datetime

import tensorflow as tf
from tensorflow.contrib.timeseries.python.timeseries import  NumpyReader
import tensorflow.python.util.deprecation as deprecation
deprecation._PRINT_DEPRECATION_WARNINGS = False
import time
```

In [37]:

```
A=pd.read_csv("issues.csv")
```

In [ ]:

In [38]:

```
df_data = pd.read_csv('issues.csv', parse_dates=['created_at'])
```

In [39]:

```
days = ['Monday','Tuesday','Wednesday','Thursday','Friday','Saturday','Sunday
```

In [40]:
```
week_df = df_data.groupby(df_data['created_at'].dt.day_name()).count().reinde
week_df
```

Out[40]:

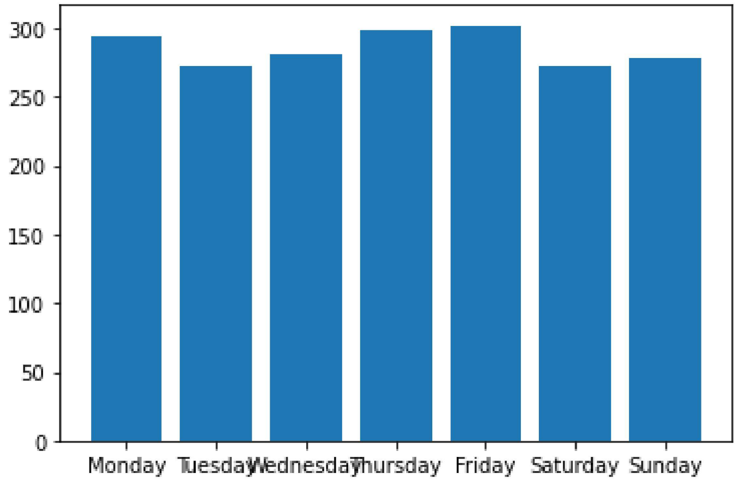
	issue_number	OriginationPhase	DetectionPhase	Category	Priority	Status	creat
created_at							
Monday	295	295	295	295	295	295	
Tuesday	273	273	273	273	273	273	
Wednesday	281	281	281	281	281	281	
Thursday	298	298	298	298	298	298	
Friday	302	302	302	302	302	302	
Saturday	273	273	273	273	273	273	
Sunday	278	278	278	278	278	278	

In [41]:
```
week_df['created_at'].max()
```

Out[41]:
```
302
```

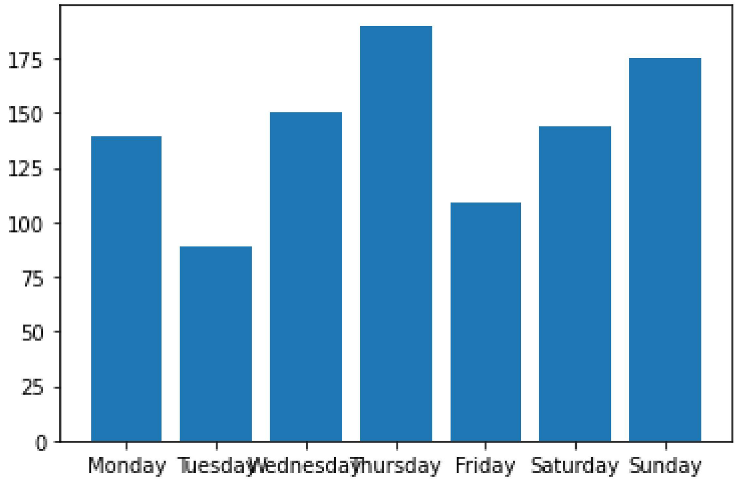
In [42]:
```
week_df['weekday'] = week_df.index
```

In [43]:
```
x = week_df['weekday']
y = week_df['issue_number']
plt.bar(x,y)
plt.show()
```



In [44]:

```
plt.bar(week_df['weekday'],week_df['closed_at'])
plt.show()
```



In [45]:

```
A=pd.read_csv("issues.csv")
```

In [46]:

```
df_data1 = pd.read_csv('issues.csv', parse_dates=['closed_at'])
```

In [47]:

```
months = ['January','February','March','April','May','June','July','August','
```

In [48]:

```
month_df = df_data1.groupby(df_data1['closed_at'].dt.month_name()).count().re
month_df
```

Out[48]:

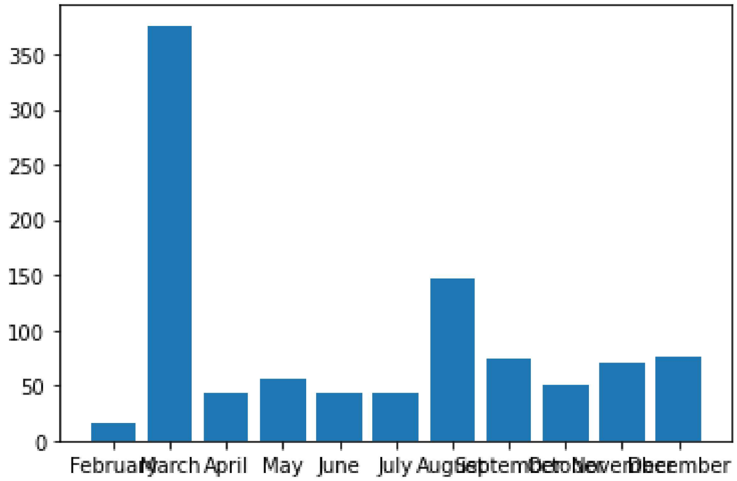
	issue_number	OriginationPhase	DetectionPhase	Category	Priority	Status	create
closed_at							
January	NaN	NaN	NaN	NaN	NaN	NaN	
February	16.0	16.0	16.0	16.0	16.0	16.0	
March	376.0	376.0	376.0	376.0	376.0	376.0	
April	44.0	44.0	44.0	44.0	44.0	44.0	
May	56.0	56.0	56.0	56.0	56.0	56.0	
June	44.0	44.0	44.0	44.0	44.0	44.0	
July	43.0	43.0	43.0	43.0	43.0	43.0	
August	147.0	147.0	147.0	147.0	147.0	147.0	
September	74.0	74.0	74.0	74.0	74.0	74.0	
October	51.0	51.0	51.0	51.0	51.0	51.0	
November	70.0	70.0	70.0	70.0	70.0	70.0	
December	75.0	75.0	75.0	75.0	75.0	75.0	

In [49]:

```
month_df['month'] = month_df.index
```

In [50]:

```
plt.bar(month_df['month'],month_df['closed_at'])
plt.show()
```



In [51]:

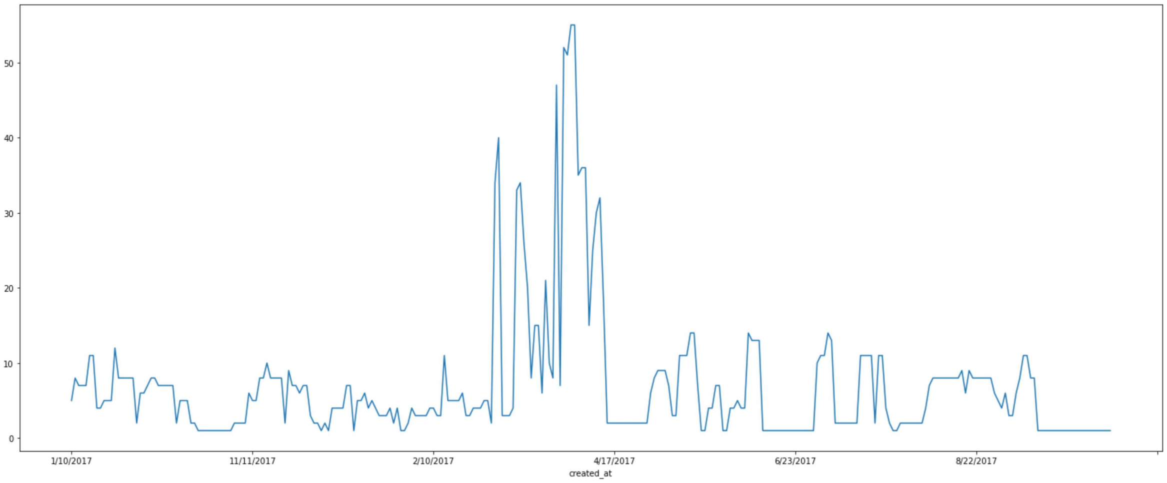
```
df = pd.read_csv('issues.csv')
```

In [52]:

```
DailyIssue = df.groupby(['created_at']).created_at.count()
DailyIssue.plot(figsize= (25, 10))
```

Out[52]:

```
<AxesSubplot:xlabel='created_at'>
```



In [53]:

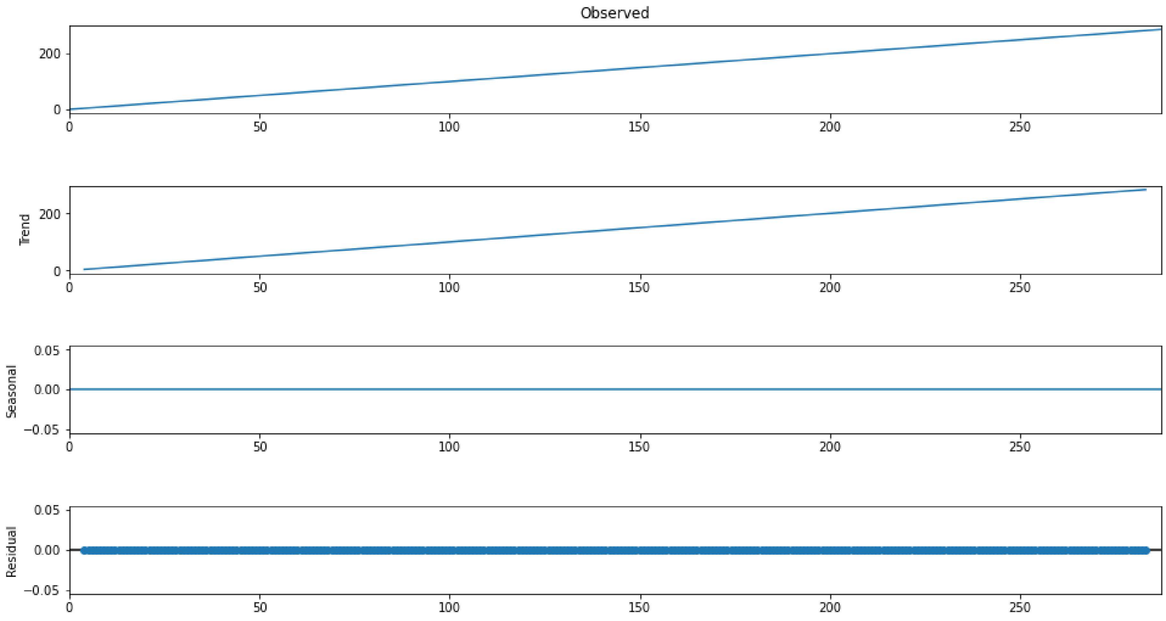
```
df1 = df.groupby(['created_at'], as_index = False).count()
dataFrame = df1[['created_at','issue_number']]
dataFrame.columns = ['ds', 'y']
dataFrame
dataFrame.to_csv (r'github_data.csv', index = None, header=True)
```

In [54]:

```
df = pd.read_csv('github_data.csv')
```

In [55]:

```
df.set_index('ds')
predict = sm.tsa.seasonal_decompose(df.index, freq=8)
figure = predict.plot()
figure.set_size_inches(15, 8)
```

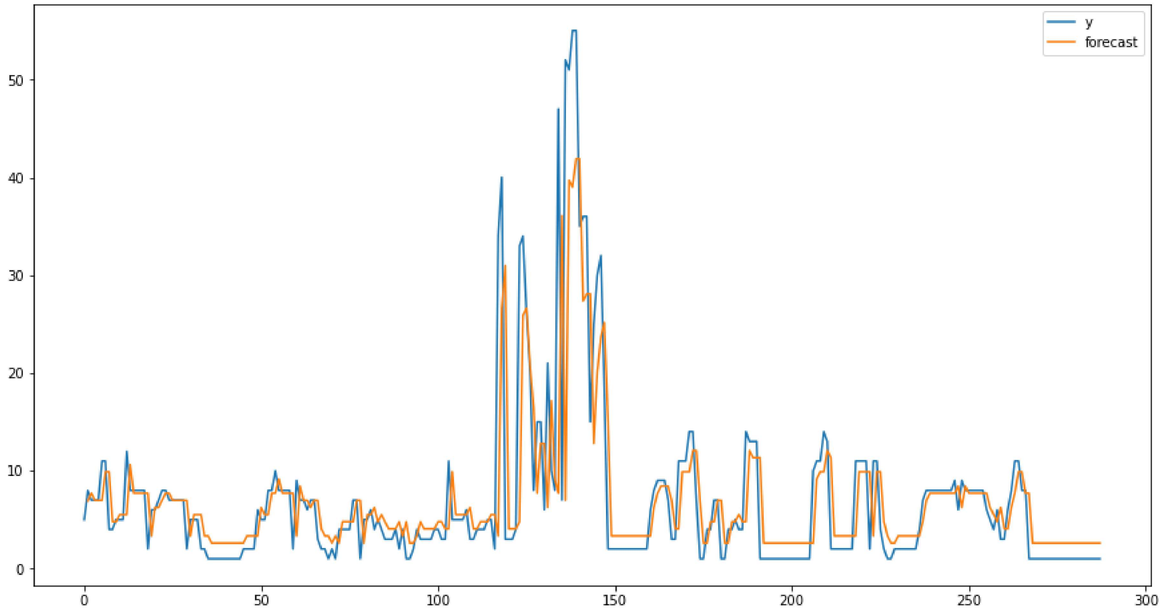


In [56]:

```
df2 = df
model = sm.tsa.ARIMA(df2['y'].iloc[1:], order = (1, 0, 0))
results = model.fit()
df2['forecast'] = results.fittedvalues
df2[['y', 'forecast']].plot(figsize=(15,8))
```

Out[56]:

```
<AxesSubplot:>
```



In [57]:

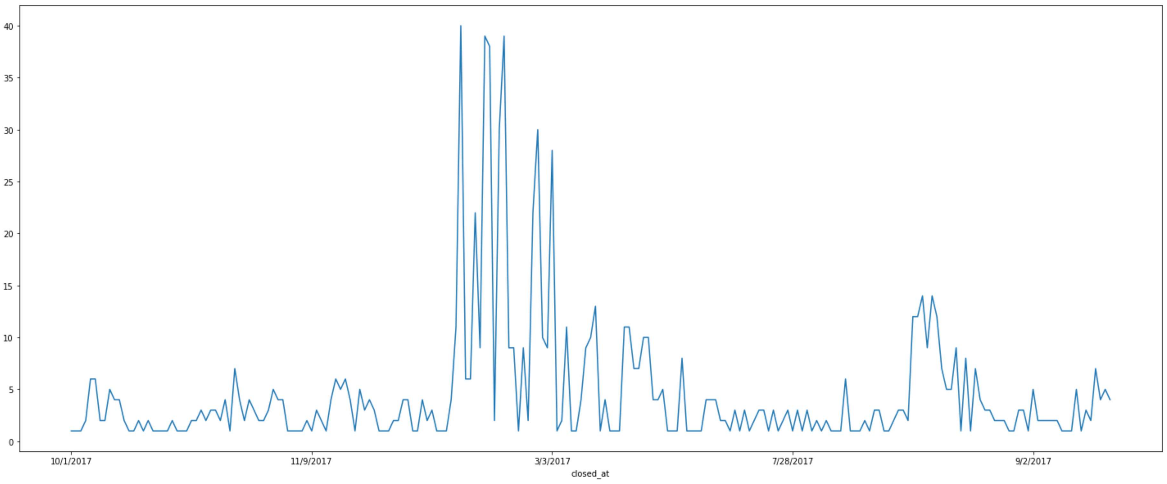
```
df = pd.read_csv('issues.csv')
```

In [58]:

```
DailyIssue = df.groupby(['closed_at']).created_at.count()
DailyIssue.plot(figsize= (25, 10))
```

Out[58]:

```
<AxesSubplot:xlabel='closed_at'>
```



In [59]:

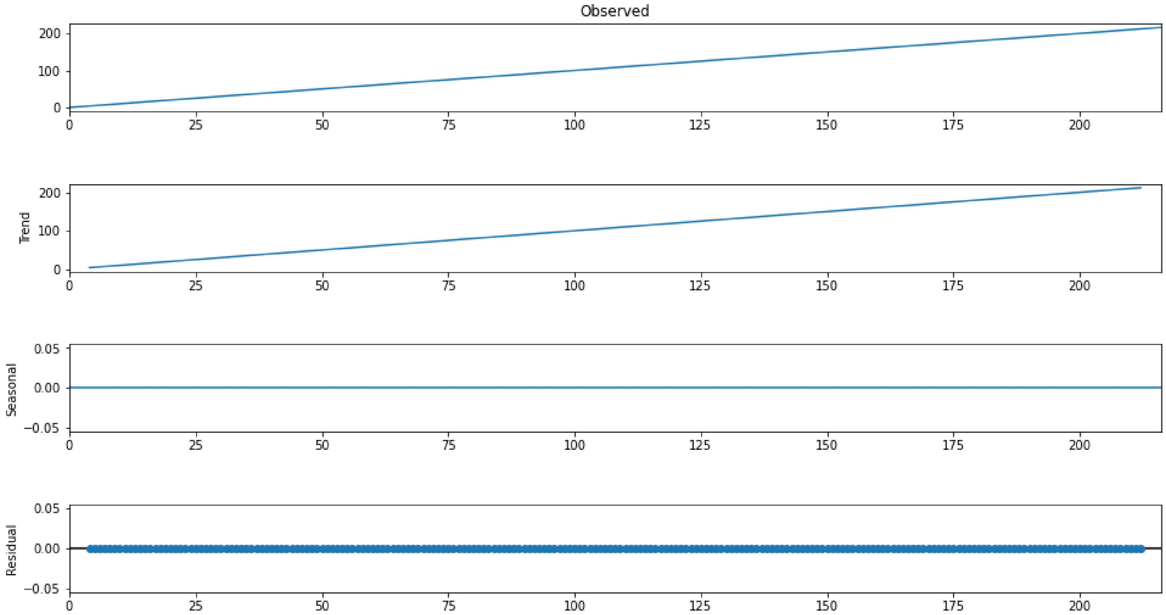
```
df1 = df.groupby(['closed_at'], as_index = False).count()
dataFrame = df1[['closed_at','issue_number']]
dataFrame.columns = ['ds', 'y']
dataFrame
dataFrame.to_csv (r'github_data.csv', index = None, header=True)
```

In [60]:

```
df = pd.read_csv('github_data.csv')
```

In [61]:

```
df.set_index('ds')
predict = sm.tsa.seasonal_decompose(df.index, freq=8)
figure = predict.plot()
figure.set_size_inches(15, 8)
```

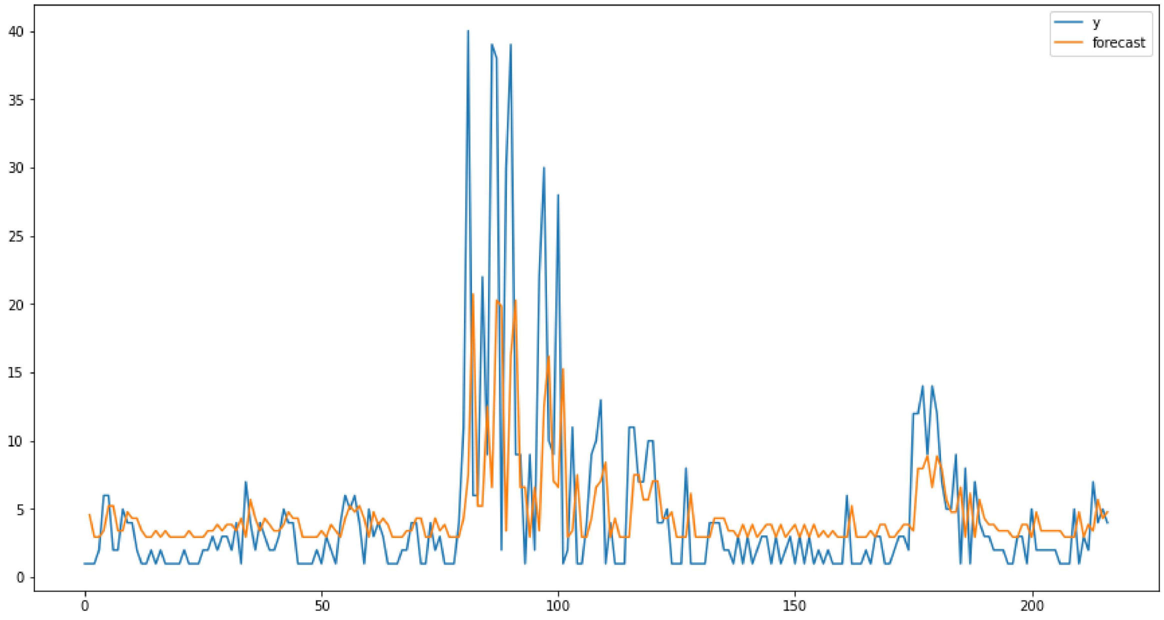


In [62]:

```
df2 = df
model = sm.tsa.ARIMA(df2['y'].iloc[1:], order = (1, 0, 0))
results = model.fit()
df2['forecast'] = results.fittedvalues
df2[['y', 'forecast']].plot(figsize=(15,8))
```

Out[62]:

```
<AxesSubplot:>
```



In [ ]: