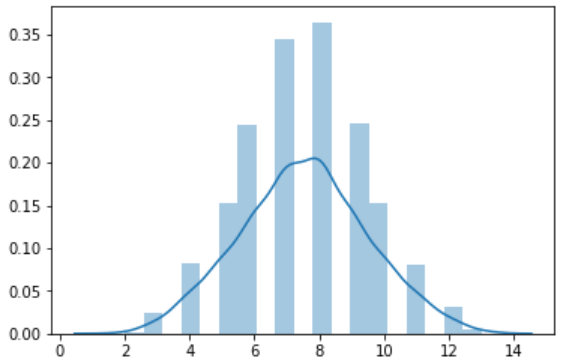
In [ ]:
```
mu=160
sd=5
fx=stats.norm(mu,sd)
1-fx.cdf(166)
```

In [ ]:
```
mu=160
sd=5
fx=stats.norm(mu,sd)
1-fx.cdf(166)
```

In [2]:
```
from scipy.stats import binom
import seaborn as sns
```

In [3]:
```
fx=binom.rvs(n=15,size=1000,p=0.5)
sns.distplot(fx,hist=True)
```

```
<matplotlib.axes._subplots.AxesSubplot at 0x1ec8bebd400>
```

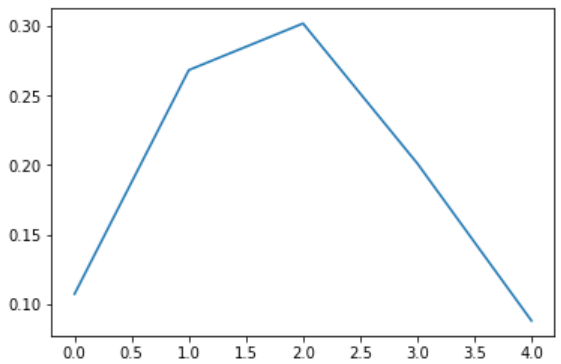


In [4]:
```
import scipy.stats as stats
import numpy as np
import matplotlib.pyplot as plt
```

In [5]:
```
a1=stats.binom(n=10,p=0.2)
k=np.arange(5)
```

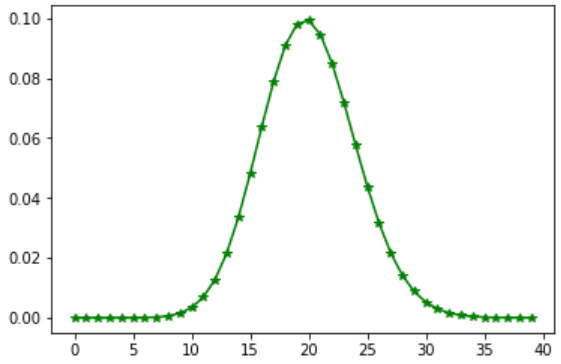
In [6]:
```
plt.plot(k,a1.pmf(k))
a1.pmf(3)
```

```
0.20132659200000022
```



In [7]:
```
a1=stats.binom(n=100,p=0.2)
k=np.arange(40)
x=a1.pmf(k)
plt.plot(k,x,"g-*")
```

```
[<matplotlib.lines.Line2D at 0x1ec8d2742e8>]
```

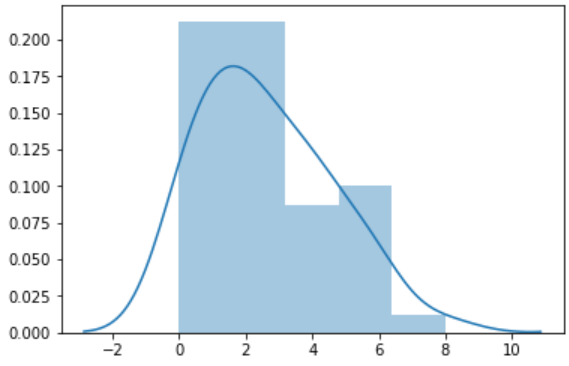


In [8]:
```
#Bir zar 20 kez atılıyor en az 3kez 6 gelme olasılıgı nedir
#1-p(x=0)+p(x=1)+p(x=2)
z_count_of_=20
z_prob=1/6
zar=stats.binom(z_count_of_,z_prob)
1-(zar.pmf(0)+zar.pmf(1)+zar.pmf(2))
```

```
0.671340928362181
```

In [9]:
```
#Poisson Distributions
a=stats.poisson.rvs(mu=3,size=50)
sns.distplot(a)
```

```
<matplotlib.axes._subplots.AxesSubplot at 0x1ec8c1546d8>
```



In [10]:
```
f=stats.poisson(mu=1.5)
f.pmf(0)
```

```
0.22313016014842982
```

In [11]:
```
#Kalbine sürgün
#Bana bir gün içinde gelen mesaj sayısı=180
#Bana yarın gün boyunca 0 mesaj gelme olasılığı nedir
message_per_day=180
wmsg=0
fx=stats.poisson(message_per_day)
fx.cdf(160)
```

```
0.07101407703608523
```

In [12]:
```
#Bir bankaya 1 saatte gelen müşteri sayısının ortalaması 3 olduğu biliniyor bu bankaya 1 saatte en
az 2 musteri gelme olasılıgı
#nedir
customer_per_hour=3
hour=1
f=[0,1]
fx=stats.poisson(mu=customer_per_hour*hour)
fx.cdf(f)
1-fx.cdf(f)[1]
#%80 olasıllıkla en az 2 müsteri gelecektir
```

```
0.8008517265285442
```

In [13]:
```
#Bir bankada bir günde ortalama 2 hesap açılmaktadır
#//// find the probability that on given a day the number of new accounts opne at will be
acc_count_per_day=2
day=1
a=6#Bir günde 6 hesap açılması ihtimali nedir?
fx=stats.poisson(mu=acc_count_per_day*day)
a_res=fx.pmf(6)
b=3#Prob of At most 3 account
b_res=fx.cdf(3)
c=6#At least 7
c_res=1-fx.cdf(6)
print("Bir günde 6 hesap açılması ihtimali {0} \n En çok 3 hesap açılması ihtimali {1} \n En az 7
 hesap açılması {2}".format(a_res,b_res,c_res))
```

```
Bir günde 6 hesap açılması ihtimali 0.012029802954365565
 En çok 3 hesap açılması ihtimali 0.857123460498547
 En az 7 hesap açılması 0.004533805526248824
```

In [14]:
```
#Bir ligte ortalama bir maçta 2.8 ortalama ile gol atılıyor sonraki maçta 1.devrede 2 gol olma iht
imali=?
goal_per_match=2.8
match=1/2
fx=stats.poisson(goal_per_match*match)
fx.pmf(2)
```

```
0.24166502466277437
```

In [15]:
```
#Her 10 dakikada bir benzin istayonuna bir araba gelmektedir
car_count_per_10_minute=1#yarım saatte hiç araba gelmememem olasılığı nedir
car_count_per_20_minute=2
car_count_per_30_minute=3

fx=stats.poisson(mu=car_count_per_30_minute)
fx.pmf(0)

##En az 3 araba yarım saatte
1-fx.cdf(3)
```

```
0.35276811121776874
```

In [16]:
```
#Bir havşakta günlük ortalama 10 kaza olmaktadır buna göre bir günde 10 dan fazla deprem olma
#olaslığı nedir
fx=stats.poisson(mu=10)
1-fx.cdf(10)
```

```
0.41696024980701485
```

In [17]:
```
import pandas as pd
```

In [18]:
```
eq=pd.read_csv("eq.csv")
eq.head()
```

	datetime	lat	long	country	city	area	direction	dist	depth	xm	md	richter	mw	ms	mb
0	1910-12-04 12:02:00	39.3	48.0	azerbaijan	NaN	NaN	NaN	NaN	37.0	5.5	5.3	5.3	5.5	5.4	5.3
1	1911-03-11 12:40:02	42.0	23.0	bulgaria	NaN	NaN	NaN	NaN	50.0	5.6	5.4	5.3	5.6	5.5	5.4
2	1911-04-04 12:43:05	36.5	25.5	mediterranean	NaN	NaN	NaN	NaN	140.0	7.1	6.6	6.6	6.7	7.1	6.5
3	1911-04-30 12:42:03	36.0	30.0	turkey	antalya	kale_aciklari_antalya	NaN	NaN	180.0	6.1	5.8	5.8	6.0	6.1	5.8
4	1911-06-23 12:30:02	40.0	48.0	azerbaijan	NaN	NaN	NaN	NaN	18.0	5.3	5.0	4.9	5.3	5.0	5.0

In [19]:
```
turkey = eq[eq["country"] == "turkey"]
turkey["datetime"]=pd.to_datetime(turkey["datetime"])
```

```
C:\Users\Mustafa\Anaconda3\lib\site-packages\ipykernel_launcher.py:2: SettingWithCopyWarning:
A value is trying to be set on a copy of a slice from a DataFrame.
Try using .loc[row_indexer,col_indexer] = value instead

See the caveats in the documentation: http://pandas.pydata.org/pandas-docs/stable/indexing.html#indexing-view-versus-copy
```

In [20]:
```
turkey["datetime"].max().year-turkey["datetime"].min().year
```

```
106
```

In [21]:
```
len(turkey[turkey["richter"] >= 5.0])
```

```
400
```

In [22]:
```
turkey.shape
```

```
(11850, 15)
```

In [23]:
```
n=400
p=400/11850
lam=400*p
lam
#106 yıl boyunca 5 büyüklüğüne biyük eşit depremlerin beklenen deprem şiddeti
```

```
13.502109704641349
```

In [24]:
```
#1 yılda olan ortalama deprem sayısı
eq_per_year=lam/106
eq_per_year
fx=stats.poisson(eq_per_year)
fx.pmf(3)
```

```
0.00030326082867281127
```

In [25]:
```
sui=pd.read_csv("who_suicide_statistics.csv")
sui.head()
```

	country	year	sex	age	suicides_no	population
0	Albania	1985	female	15-24 years	NaN	277900.0
1	Albania	1985	female	25-34 years	NaN	246800.0
2	Albania	1985	female	35-54 years	NaN	267500.0
3	Albania	1985	female	5-14 years	NaN	298300.0
4	Albania	1985	female	55-74 years	NaN	138700.0

In [26]:
```
turkey_sui=sui[sui["country"]=="Turkey"]
turkey_sui.isnull().sum()
```

```
country        0
year           0
sex            0
age            0
suicides_no    0
population     0
dtype: int64
```

In [27]:
```
total_year=turkey_sui.year.max()-turkey_sui.year.min()
#6
total_year
```

```
6
```

In [28]:
```
mean_sui=turkey_sui["suicides_no"].sum()/total_year
mean_sui
```

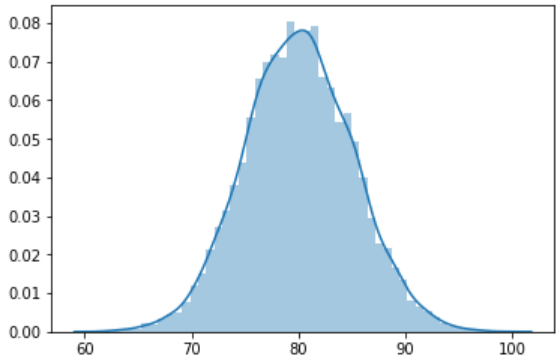
```
1688.5
```

In [29]:
```
fx=stats.poisson(mean_sui)
fx.cdf(2000)
```

```
0.9999999999999204
```

In [30]:
```
#Normal distribution
v_normal=stats.norm.rvs(size=10000,loc=80,scale=5)
sns.distplot(v_normal)
```

```
<matplotlib.axes._subplots.AxesSubplot at 0x1ec8d21f358>
```



In [31]:
```
#Günlük ortalama 80 tane tv satıyorum ve sd=5
#Bir günde 90 dan fazla  satma ihtimali?
fx=stats.norm(loc=80,scale=5)
1-fx.cdf(90)
```

```
0.02275013194817921
```

In [32]:
```
#Bir günde 90 tane satma ihtimali
fx.cdf(90)
```

```
0.9772498680518208
```

In [33]:
```
#Bir günde 70 den çok satma ihitmali
1-fx.cdf(70)
```

```
0.9772498680518208
```

In [34]:
```
fx.pdf(85)
```

```
0.04839414490382867
```

In [35]:
```
###P(85<x<90) 85 ila 90 arasında satış yapma ihtimali
a=1-fx.cdf(90)
b=fx.cdf(85)
1-(a+b)
```

```
0.13590512198327787
```

In [37]:
```
mu=10
sd=2
fx=stats.norm(mu,sd)
fx.cdf(15)
```

```
0.9937903346742238
```

In [38]:
```
fx.cdf(10)
```

```
0.5
```

In [40]:
```
#Bir sınıftaki öğrencilerin boy ortalmaları 160 dır ve sd 5 tir
#secilen öğrencinin 166 dan büyük olma olasılığı nedir
mu=160
sd=5
fx=stats.norm(mu,sd)
1-fx.cdf(166)
```

```
0.11506967022170822
```

In [51]:
```
mu=160
sd=5
fx=stats.norm(mu,sd)
fx.cdf(166)
```

```
0.8849303297782918
```