PRODUCT ANALYSIS :

In [1]:
```
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
```

In [2]:
```
df = pd.read_csv("Product.csv")
```

In [3]:
```
df
```

Out[3]:

	Name	Price	Orders	Quanitity	Max_quantity_per_user	Amount
0	Wired Headphones	11.99	18882	20557	4	246478
1	Bose SoundSport Headphones	99.99	13325	13457	3	1345565
2	iPhone	700.00	6842	6849	2	4794300
3	AA Batteries (4-pack)	3.84	20577	27635	7	106118
4	34in Ultrawide Monitor	379.99	6181	6199	2	2355558
5	20in Monitor	109.99	4101	4129	2	454148
6	Macbook Pro Laptop	1700.00	4724	4728	2	8037600
7	LG Washing Machine	600.00	666	666	1	399600
8	27in FHD Monitor	149.99	7507	7550	2	1132424
9	Lightning Charging Cable	14.95	21658	23217	4	347094
10	Apple Airpods Headphones	150.00	15549	15661	3	2349150
11	AAA Batteries (4-pack)	2.99	20641	31017	9	92740
12	USB-C Charging Cable	11.95	21903	23975	6	286501
13	27in 4K Gaming Monitor	389.99	6230	6244	2	2435097
14	ThinkPad Laptop	999.99	4128	4130	2	4129958
15	Flatscreen TV	300.00	4800	4819	2	1445700
16	Google Phone	600.00	5525	5532	2	3319200
17	Vareebadd Phone	400.00	2065	2068	2	827200
18	LG Dryer	600.00	646	646	1	387600

1. Name and Order Analysis :

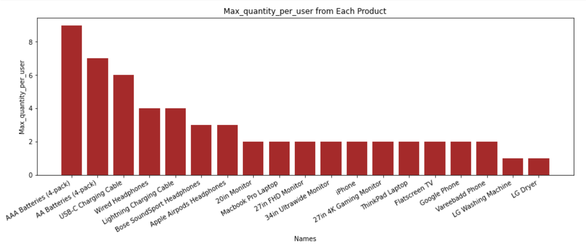
In [4]:
```
def data_frame(df, x1, x2):

    x = list(df[x1])
    y = list(df[x2])

    data = []

    for i in range(len(x)):
        data.append([x[i],y[i]])

    df_ = pd.DataFrame(data, columns = [x1,x2])

    return df_
```

In [5]:
```
df_ = data_frame(df, 'Name','Orders')

x = list(df_.sort_values(by = 'Orders', ascending = False)['Name'])
y = list(df_.sort_values(by = 'Orders', ascending = False)['Orders'])

fig, axs = plt.subplots(figsize = (16,4))

plt.bar(x,y,color = "purple")
fig.autofmt_xdate()

plt.title('Number of Orders from Each Product')
plt.xlabel('Names')
plt.ylabel('Orders')

plt.show()
```

Conclution - USB-C Charging Cable is having most number of Orders and LG Dryer is having least number of ordersm

2. Name and Max Quantity Per User(Column) Analysis :

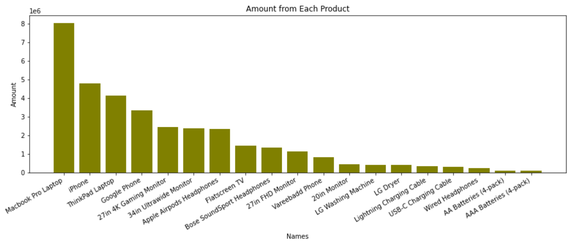
In [6]:
```
df_ = data_frame(df, 'Name','Max_quantity_per_user')

x = list(df_.sort_values(by = 'Max_quantity_per_user', ascending = False)['Name'])
y = list(df_.sort_values(by = 'Max_quantity_per_user', ascending = False)['Max_quantity_per_user'])

fig, axs = plt.subplots(figsize = (15,5))


plt.bar(x,y,color = "brown")
fig.autofmt_xdate()

plt.title('Max_quantity_per_user from Each Product')
plt.xlabel('Names')
plt.ylabel('Max_quantity_per_user')

plt.show()
```



Conclusion - AAA Batteries is the product which have highest order per user and LG Dryer is the product which have lowest order per user

3. Name and Amount Analysis :

In [7]:
```
df_ = data_frame(df, 'Name','Amount')

x = list(df_.sort_values(by = 'Amount', ascending = False)['Name'])
y = list(df_.sort_values(by = 'Amount', ascending = False)['Amount'])

fig, axs = plt.subplots(figsize = (15,5))


plt.bar(x,y,color = "olive")
fig.autofmt_xdate()

plt.title('Amount from Each Product')
plt.xlabel('Names')
plt.ylabel('Amount')

plt.show()
```



Conclution - macbook pro laptops are sold for the highest amount and AAA Batteries are sold for the lowest amount

4. Create V2 of Product.csv with Additional Information :

4.1) Average price per product :

In [8]:
```
avg_price_per_product = []

for i in df['Amount'] / df['Quanitity']:
    avg_price_per_product.append(round(i,2))
df['AvgPricePerProduct'] = avg_price_per_product

df.head()
```

Out[8]:

	Name	Price	Orders	Quanitity	Max_quantity_per_user	Amount	AvgPricePerProduct
0	Wired Headphones	11.99	18882	20557	4	246478	11.99
1	Bose SoundSport Headphones	99.99	13325	13457	3	1345565	99.99
2	iPhone	700.00	6842	6849	2	4794300	700.00
3	AA Batteries (4-pack)	3.84	20577	27635	7	106118	3.84
4	34in Ultrawide Monitor	379.99	6181	6199	2	2355558	379.99

4.2) Average Price per Order in each City

In [10]:
```
avg_price_per_order = []

for i in df['Amount'] / df['Orders']:
    avg_price_per_order.append(round(i,2))
df['AvgPricePerOrder'] = avg_price_per_order

df.head()
```

Out[10]:

	Name	Price	Orders	Quanitity	Max_quantity_per_user	Amount	AvgPricePerProduct	AvgPricePerOrder
0	Wired Headphones	11.99	18882	20557	4	246478	11.99	13.05
1	Bose SoundSport Headphones	99.99	13325	13457	3	1345565	99.99	100.98
2	iPhone	700.00	6842	6849	2	4794300	700.00	700.72
3	AA Batteries (4-pack)	3.84	20577	27635	7	106118	3.84	5.16
4	34in Ultrawide Monitor	379.99	6181	6199	2	2355558	379.99	381.10