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

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

In [5]:
```
import pandas as pd

df = pd.read_csv('C://Users//Nikki Chauhan//Downloads//Diwali Sales Data.csv', encoding='latin1')
```

In [6]:
```
df
```

Out[6]:

	User_ID	Cust_name	Product_ID	Gender	Age Group	Age	Marital_Status	State	Zone	Occupation	Product_Categor
0	1002903	Sanskriti	P00125942	F	26-35	28	0	Maharashtra	Western	Healthcare	Aut
1	1000732	Kartik	P00110942	F	26-35	35	1	Andhra Pradesh	Southern	Govt	Aut
2	1001990	Bindu	P00118542	F	26-35	35	1	Uttar Pradesh	Central	Automobile	Aut
3	1001425	Sudevi	P00237842	M	0-17	16	0	Karnataka	Southern	Construction	Aut
4	1000588	Joni	P00057942	M	26-35	28	1	Gujarat	Western	Food Processing	Aut
...	...	...	...	...	...	...	...	...	...	...	.
11246	1000695	Manning	P00296942	M	18-25	19	1	Maharashtra	Western	Chemical	Offic
11247	1004089	Reichenbach	P00171342	M	26-35	33	0	Haryana	Northern	Healthcare	Veterinar
11248	1001209	Oshin	P00201342	F	36-45	40	0	Madhya Pradesh	Central	Textile	Offic
11249	1004023	Noonan	P00059442	M	36-45	37	0	Karnataka	Southern	Agriculture	Offic
11250	1002744	Brumley	P00281742	F	18-25	19	0	Maharashtra	Western	Healthcare	Offic

11251 rows × 15 columns

In [7]:
```
df.shape
```

Out[7]:
```
(11251, 15)
```

In [8]:
```
df.head(10)
```

Out[8]:

	User_ID	Cust_name	Product_ID	Gender	Age Group	Age	Marital_Status	State	Zone	Occupation	Product_Category	Or
0	1002903	Sanskriti	P00125942	F	26-35	28	0	Maharashtra	Western	Healthcare	Auto	
1	1000732	Kartik	P00110942	F	26-35	35	1	Andhra Pradesh	Southern	Govt	Auto	
2	1001990	Bindu	P00118542	F	26-35	35	1	Uttar Pradesh	Central	Automobile	Auto	
3	1001425	Sudevi	P00237842	M	0-17	16	0	Karnataka	Southern	Construction	Auto	
4	1000588	Joni	P00057942	M	26-35	28	1	Gujarat	Western	Food Processing	Auto	
5	1000588	Joni	P00057942	M	26-35	28	1	Himachal Pradesh	Northern	Food Processing	Auto	
6	1001132	Balk	P00018042	F	18-25	25	1	Uttar Pradesh	Central	Lawyer	Auto	
7	1002092	Shivangi	P00273442	F	55+	61	0	Maharashtra	Western	IT Sector	Auto	
8	1003224	Kushal	P00205642	M	26-35	35	0	Uttar Pradesh	Central	Govt	Auto	
9	1003650	Ginny	P00031142	F	26-35	26	1	Andhra Pradesh	Southern	Media	Auto	

In [9]:
```
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 11251 entries, 0 to 11250
Data columns (total 15 columns):
 #   Column            Non-Null Count  Dtype  
---  ------            --------------  -----  
 0   User_ID           11251 non-null  int64  
 1   Cust_name         11251 non-null  object 
 2   Product_ID        11251 non-null  object 
 3   Gender            11251 non-null  object 
 4   Age Group         11251 non-null  object 
 5   Age               11251 non-null  int64  
 6   Marital_Status    11251 non-null  int64  
 7   State             11251 non-null  object 
 8   Zone              11251 non-null  object 
 9   Occupation        11251 non-null  object 
 10  Product_Category  11251 non-null  object 
 11  Orders            11251 non-null  int64  
 12  Amount            11239 non-null  float64
 13  Status            0 non-null      float64
 14  unnamed1          0 non-null      float64
dtypes: float64(3), int64(4), object(8)
memory usage: 1.3+ MB
```

In [11]:
```
df.drop(['Status','unnamed1'],axis=1,inplace=True)
df
```

Out[11]:

	User_ID	Cust_name	Product_ID	Gender	Age Group	Age	Marital_Status	State	Zone	Occupation	Product_Categor
0	1002903	Sanskriti	P00125942	F	26-35	28	0	Maharashtra	Western	Healthcare	Aut
1	1000732	Kartik	P00110942	F	26-35	35	1	Andhra Pradesh	Southern	Govt	Aut
2	1001990	Bindu	P00118542	F	26-35	35	1	Uttar Pradesh	Central	Automobile	Aut
3	1001425	Sudevi	P00237842	M	0-17	16	0	Karnataka	Southern	Construction	Aut
4	1000588	Joni	P00057942	M	26-35	28	1	Gujarat	Western	Food Processing	Aut
...	...	...	...	...	...	...	...	...	...	...	.
11246	1000695	Manning	P00296942	M	18-25	19	1	Maharashtra	Western	Chemical	Offic
11247	1004089	Reichenbach	P00171342	M	26-35	33	0	Haryana	Northern	Healthcare	Veterinar
11248	1001209	Oshin	P00201342	F	36-45	40	0	Madhya Pradesh	Central	Textile	Offic
11249	1004023	Noonan	P00059442	M	36-45	37	0	Karnataka	Southern	Agriculture	Offic
11250	1002744	Brumley	P00281742	F	18-25	19	0	Maharashtra	Western	Healthcare	Offic

11251 rows × 13 columns

In [12]:
```
pd.isnull(df).sum()
```

Out[12]:
```
User_ID             0
Cust_name           0
Product_ID          0
Gender              0
Age Group           0
Age                 0
Marital_Status      0
State               0
Zone                0
Occupation          0
Product_Category    0
Orders              0
Amount             12
dtype: int64
```

In [13]:
```
df.dropna(inplace=True)
```

In [14]:
```
pd.isnull(df).sum()
```

Out[14]:
```
User_ID            0
Cust_name          0
Product_ID         0
Gender             0
Age Group          0
Age                0
Marital_Status     0
State              0
Zone               0
Occupation         0
Product_Category   0
Orders             0
Amount             0
dtype: int64
```

In [15]:
```
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
Int64Index: 11239 entries, 0 to 11250
Data columns (total 13 columns):
 #   Column            Non-Null Count  Dtype  
---  ------            --------------  -----  
 0   User_ID           11239 non-null  int64  
 1   Cust_name         11239 non-null  object 
 2   Product_ID        11239 non-null  object 
 3   Gender            11239 non-null  object 
 4   Age Group         11239 non-null  object 
 5   Age               11239 non-null  int64  
 6   Marital_Status    11239 non-null  int64  
 7   State             11239 non-null  object 
 8   Zone              11239 non-null  object 
 9   Occupation        11239 non-null  object 
 10  Product_Category  11239 non-null  object 
 11  Orders            11239 non-null  int64  
 12  Amount            11239 non-null  float64
dtypes: float64(1), int64(4), object(8)
memory usage: 1.2+ MB
```

In [17]:
```
df['Amount']=df['Amount'].astype('int')
```

In [18]:
```
df['Amount'].dtypes
```

Out[18]:
```
dtype('int32')
```

In [19]:
```
df.columns
```

Out[19]:
```
Index(['User_ID', 'Cust_name', 'Product_ID', 'Gender', 'Age Group', 'Age',
       'Marital_Status', 'State', 'Zone', 'Occupation', 'Product_Category',
       'Orders', 'Amount'],
      dtype='object')
```

In [20]:
```
df.describe()
```

Out[20]:

	User_ID	Age	Marital_Status	Orders	Amount
count	1.123900e+04	11239.000000	11239.000000	11239.000000	11239.000000
mean	1.003004e+06	35.410357	0.420055	2.489634	9453.610553
std	1.716039e+03	12.753866	0.493589	1.114967	5222.355168
min	1.000001e+06	12.000000	0.000000	1.000000	188.000000
25%	1.001492e+06	27.000000	0.000000	2.000000	5443.000000
50%	1.003064e+06	33.000000	0.000000	2.000000	8109.000000
75%	1.004426e+06	43.000000	1.000000	3.000000	12675.000000
max	1.006040e+06	92.000000	1.000000	4.000000	23952.000000

In [22]:
```
df[['Age','Orders','Amount']].describe()
```

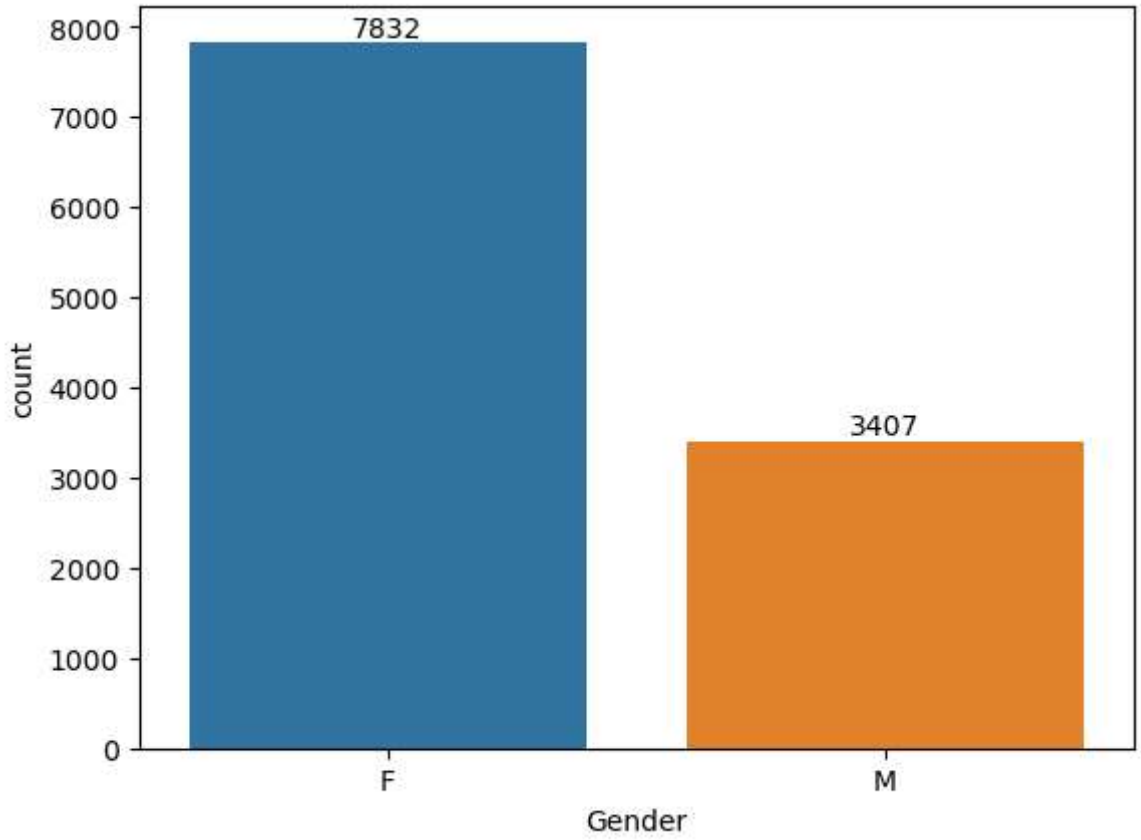
Out[22]:

	Age	Orders	Amount
count	11239.000000	11239.000000	11239.000000
mean	35.410357	2.489634	9453.610553
std	12.753866	1.114967	5222.355168
min	12.000000	1.000000	188.000000
25%	27.000000	2.000000	5443.000000
50%	33.000000	2.000000	8109.000000
75%	43.000000	3.000000	12675.000000
max	92.000000	4.000000	23952.000000

In [23]:
```
df.columns
```

Out[23]:
```
Index(['User_ID', 'Cust_name', 'Product_ID', 'Gender', 'Age Group', 'Age',
       'Marital_Status', 'State', 'Zone', 'Occupation', 'Product_Category',
       'Orders', 'Amount'],
      dtype='object')
```

In [24]:
```
ax=sns.countplot(x='Gender' ,data=df)
for bars in ax.containers:
    ax.bar_label(bars)
```



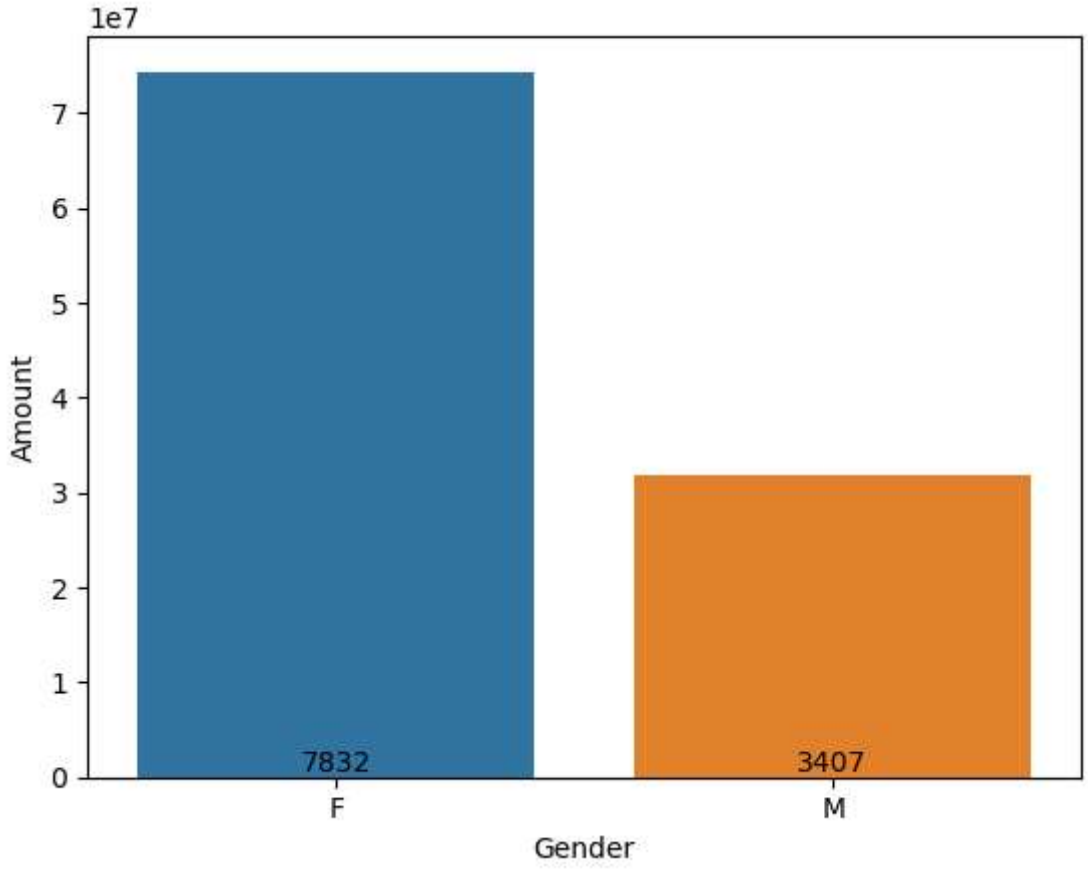
In [26]:
```
df.groupby(['Gender'],as_index=False)['Amount'].sum().sort_values(by='Amount',ascending=True)
```

Out[26]:

	Gender	Amount
1	M	31913276
0	F	74335853

In [27]:
```
sales_gen=df.groupby(['Gender'],as_index=False)['Amount'].sum().sort_values(by='Amount',ascending=False)
ax1=sns.barplot(x='Gender',y='Amount',data=sales_gen)
ax1.bar_label(bars)
```

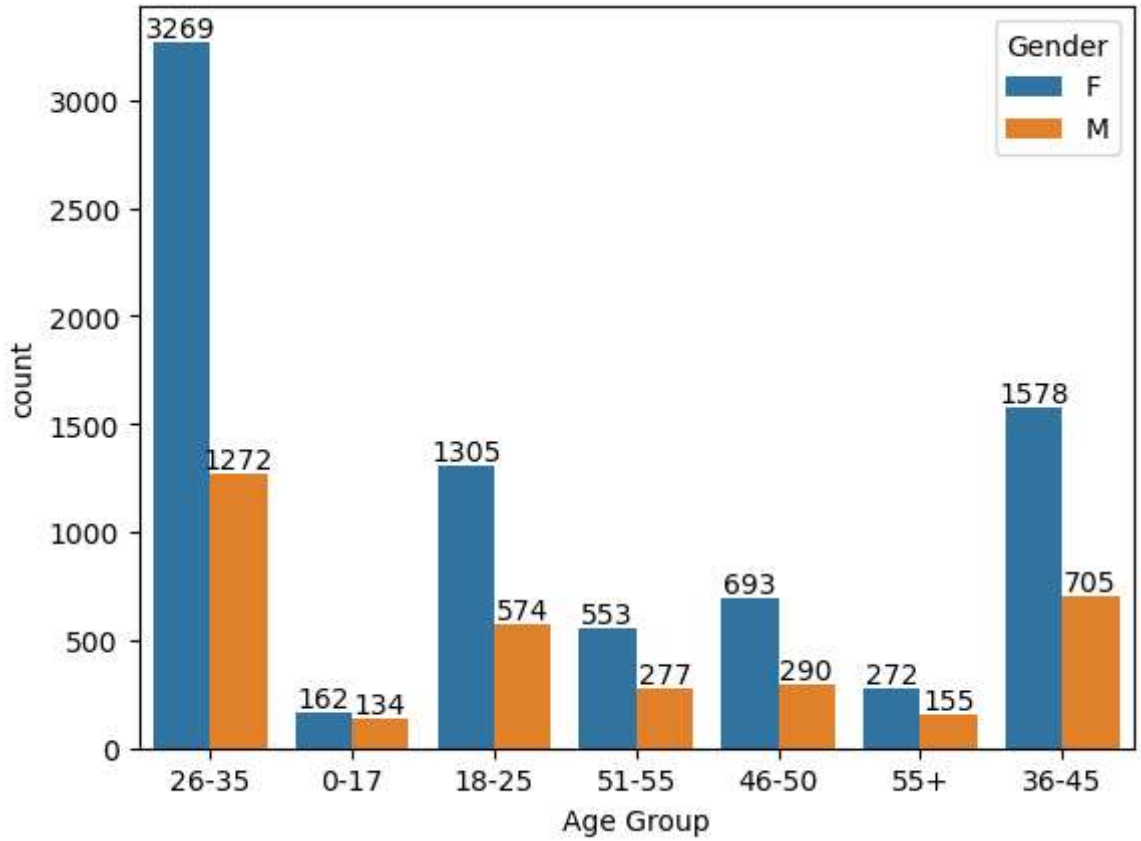
Out[27]:
```
[Text(0, 0, '7832'), Text(0, 0, '3407')]
```



In [28]:
```
df.columns
```

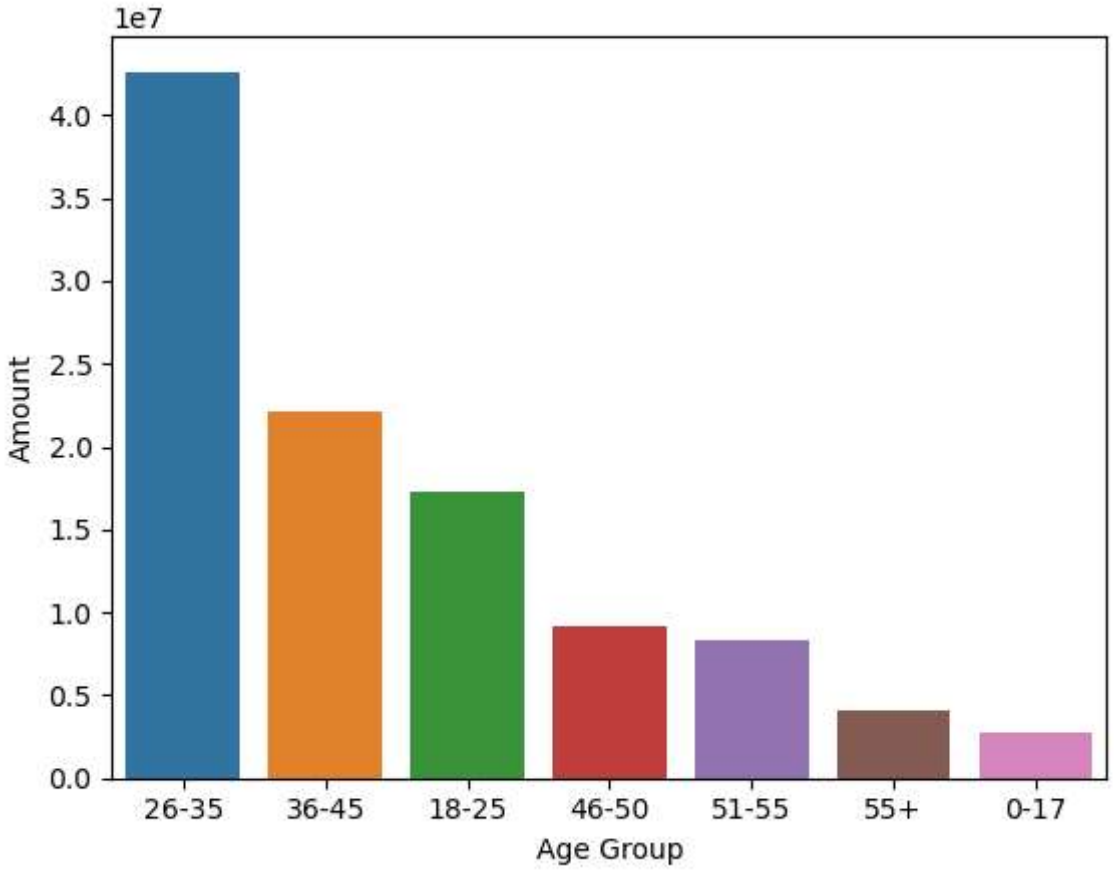
Out[28]:
```
Index(['User_ID', 'Cust_name', 'Product_ID', 'Gender', 'Age Group', 'Age',
       'Marital_Status', 'State', 'Zone', 'Occupation', 'Product_Category',
       'Orders', 'Amount'],
      dtype='object')
```

In [29]:
```
ax=sns.countplot(data=df,x='Age Group',hue='Gender')
for bars in ax.containers:
    ax.bar_label(bars)
```



In [30]:
```
sales_age=df.groupby(['Age Group'],as_index=False)['Amount'].sum().sort_values(by='Amount',ascending=False)
sns.barplot(x='Age Group',y='Amount',data=sales_age)
```

Out[30]:
```
<AxesSubplot:xlabel='Age Group', ylabel='Amount'>
```

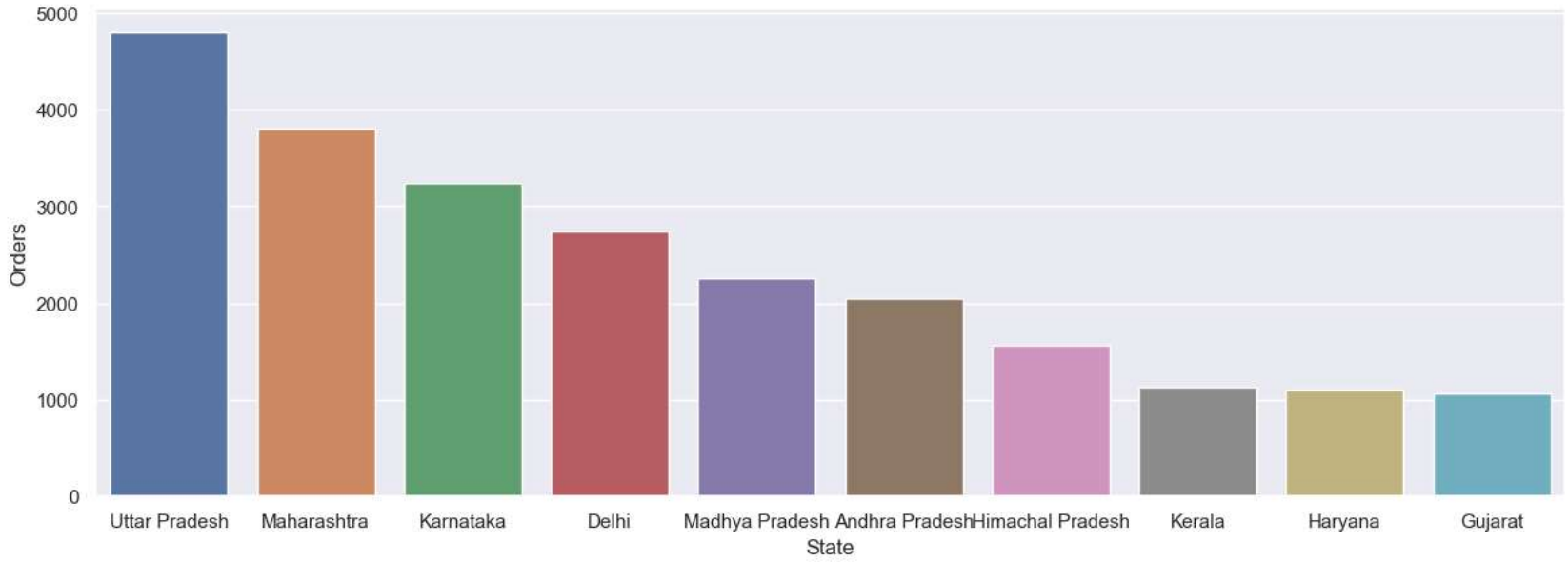


In [31]:
```
df.columns
```

Out[31]:
```
Index(['User_ID', 'Cust_name', 'Product_ID', 'Gender', 'Age Group', 'Age',
       'Marital_Status', 'State', 'Zone', 'Occupation', 'Product_Category',
       'Orders', 'Amount'],
      dtype='object')
```

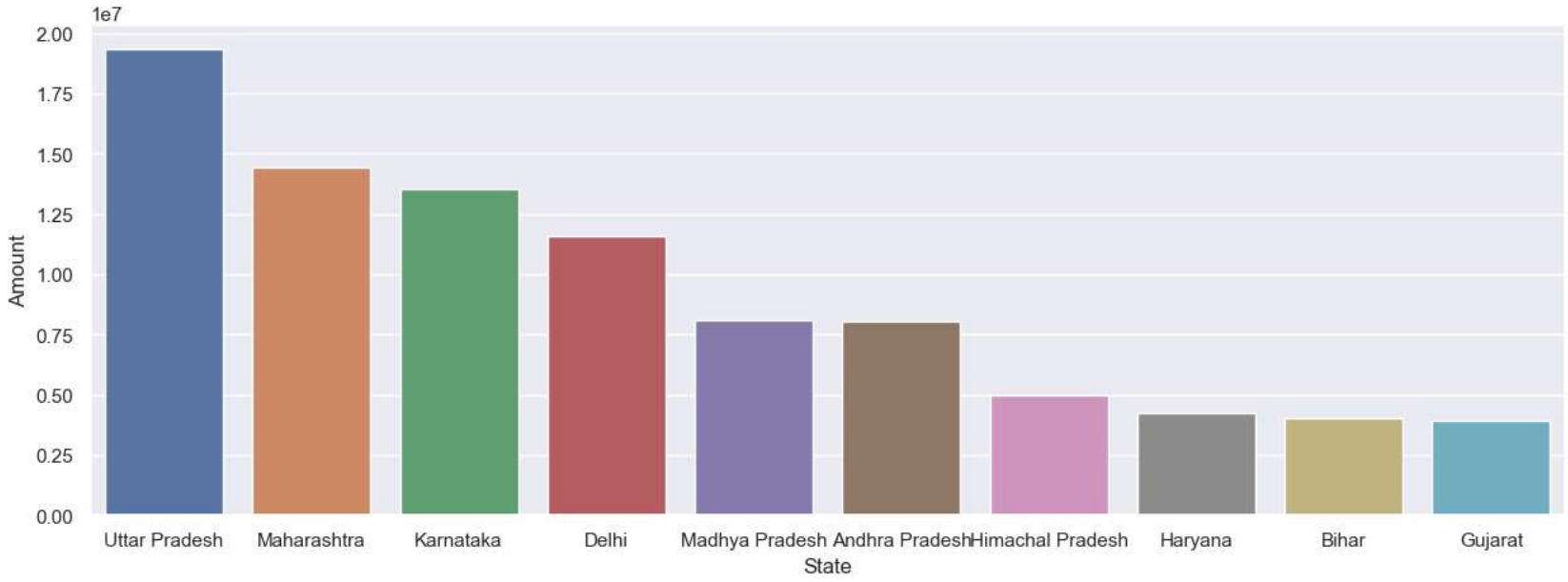
In [32]:
```
sales_state=df.groupby(['State'],as_index=False)['Orders'].sum().sort_values(by='Orders',ascending=False).hea

sns.set(rc={'figure.figsize':(15,5)})
sns.barplot(data=sales_state,x='State',y='Orders')
```

Out[32]: <AxesSubplot:xlabel='State', ylabel='Orders'>

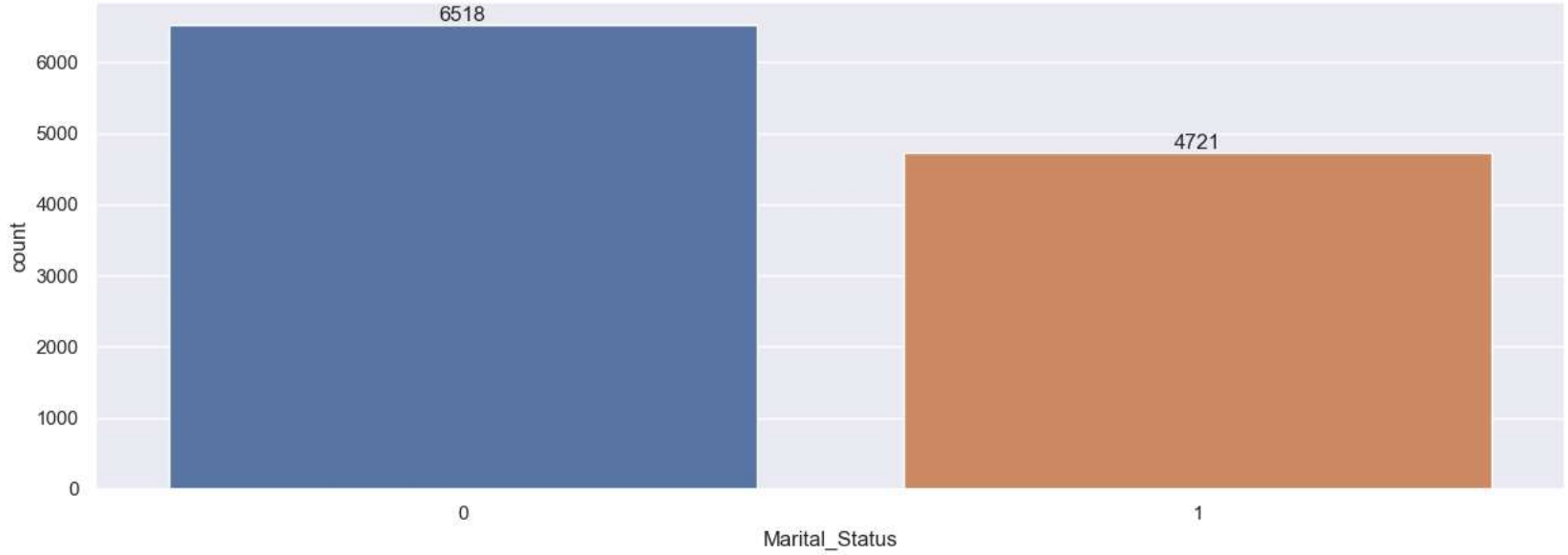


In [33]:
```
sales_state=df.groupby(['State'],as_index=False)['Amount'].sum().sort_values(by='Amount',ascending=False).hea
sns.set(rc={'figure.figsize':(15,5)})
sns.barplot(data=sales_state,x='State',y='Amount')
```

Out[33]: <AxesSubplot:xlabel='State', ylabel='Amount'>

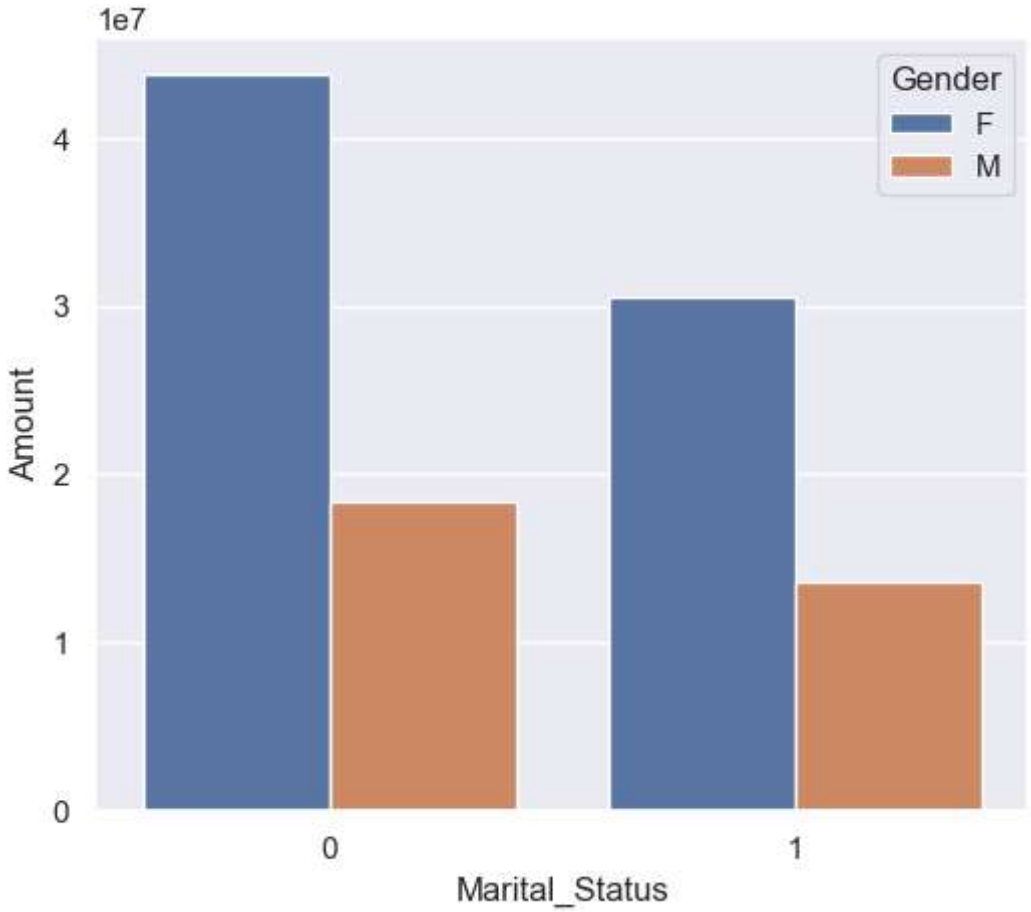


In [37]:
```
ax = sns.countplot(data=df, x='Marital_Status')
sns.set(rc={'figure.figsize':(6,5)})

for bars in ax.containers:
    ax.bar_label(bars)
```



In [41]:
```
sales_state =df.groupby(['Marital_Status','Gender'],as_index=False)['Amount'].sum().sort_values(by='Amount',a
sns.set(rc={'figure.figsize':(6,5)})
sns.barplot(data=sales_state,x='Marital_Status',y='Amount',hue='Gender')
```

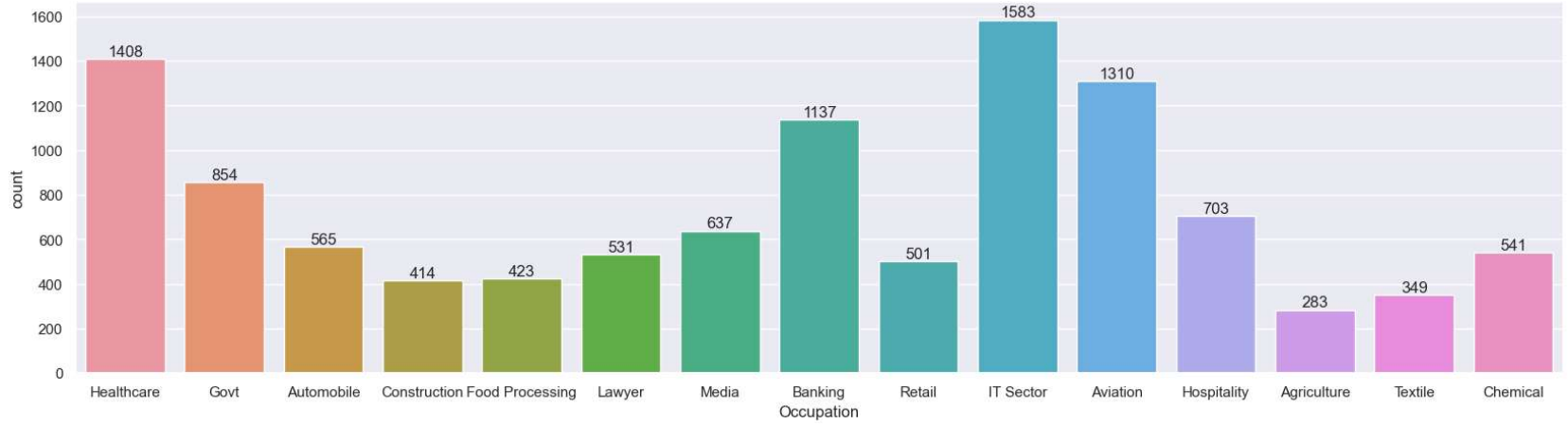
Out[41]: <AxesSubplot:xlabel='Marital_Status', ylabel='Amount'>



In [42]:
```
df.columns
```

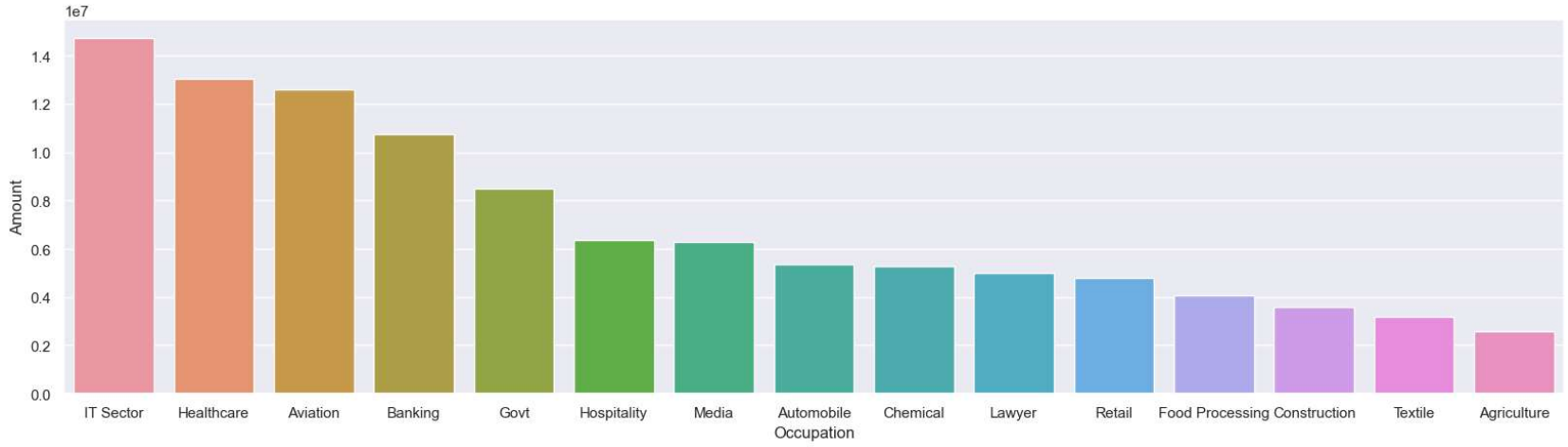
Out[42]:
```
Index(['User_ID', 'Cust_name', 'Product_ID', 'Gender', 'Age Group', 'Age',
       'Marital_Status', 'State', 'Zone', 'Occupation', 'Product_Category',
       'Orders', 'Amount'],
      dtype='object')
```

In [44]:
```
sns.set(rc={'figure.figsize':(20,5)})
ax=sns.countplot(data=df,x='Occupation')
for bars in ax.containers:
    ax.bar_label(bars)
```

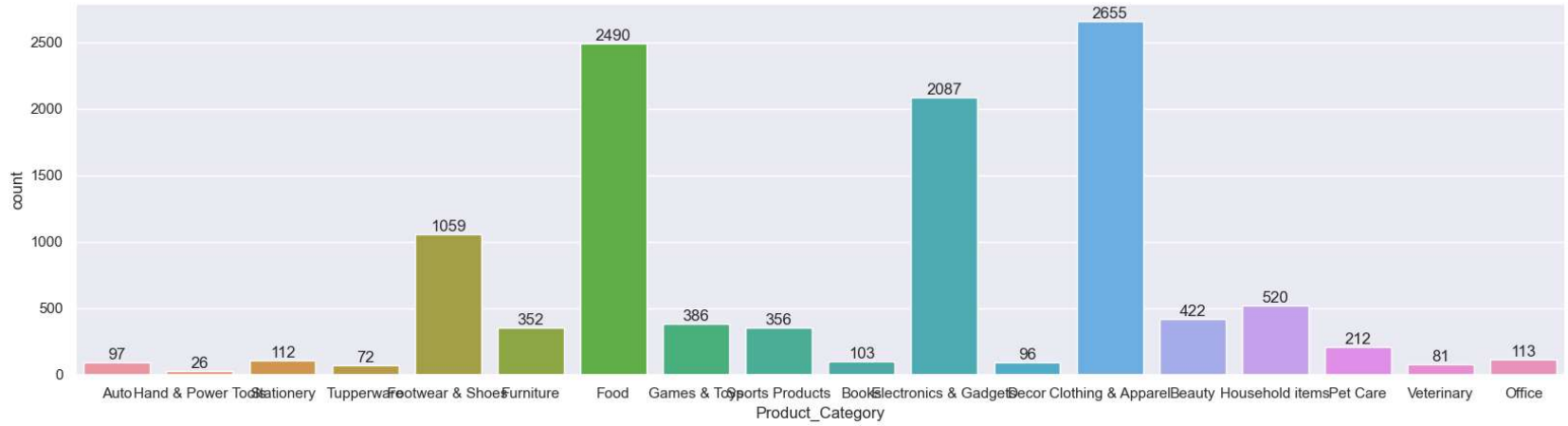


In [45]:
```
sales_state=df.groupby(['Occupation',],as_index=False)['Amount'].sum().sort_values(by='Amount',ascending=Fals
sns.set(rc={'figure.figsize':(20,5)})
sns.barplot(data=sales_state,x='Occupation',y='Amount')
```

Out[45]: <AxesSubplot:xlabel='Occupation', ylabel='Amount'>

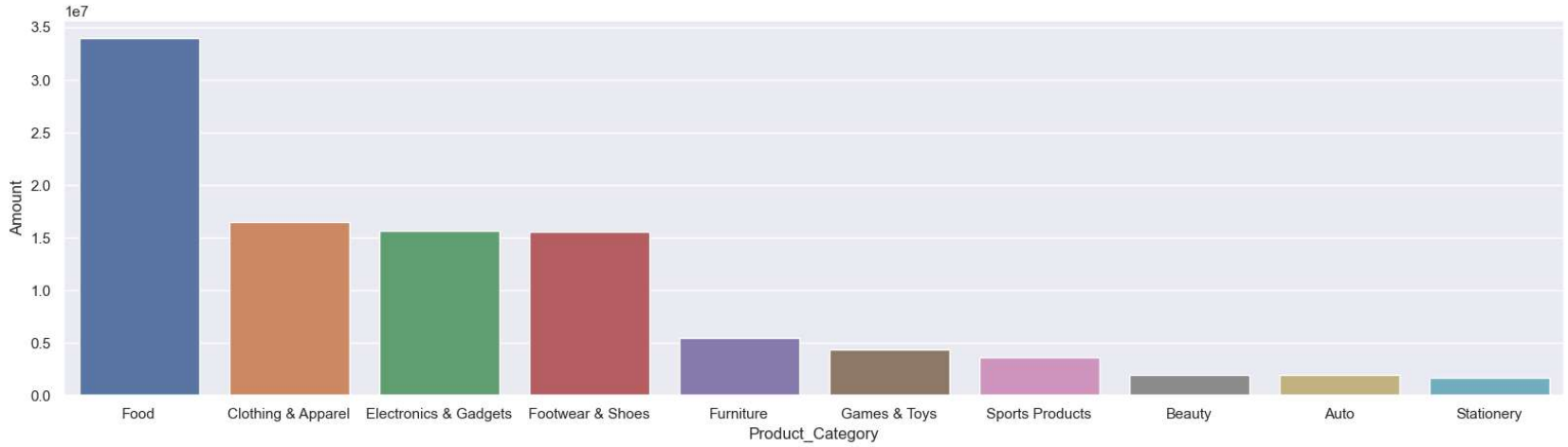


In [46]:
```
sns.set(rc={'figure.figsize':(20,5)})
ax=sns.countplot(data=df,x='Product_Category')
for bars in ax.containers:
    ax.bar_label(bars)
```



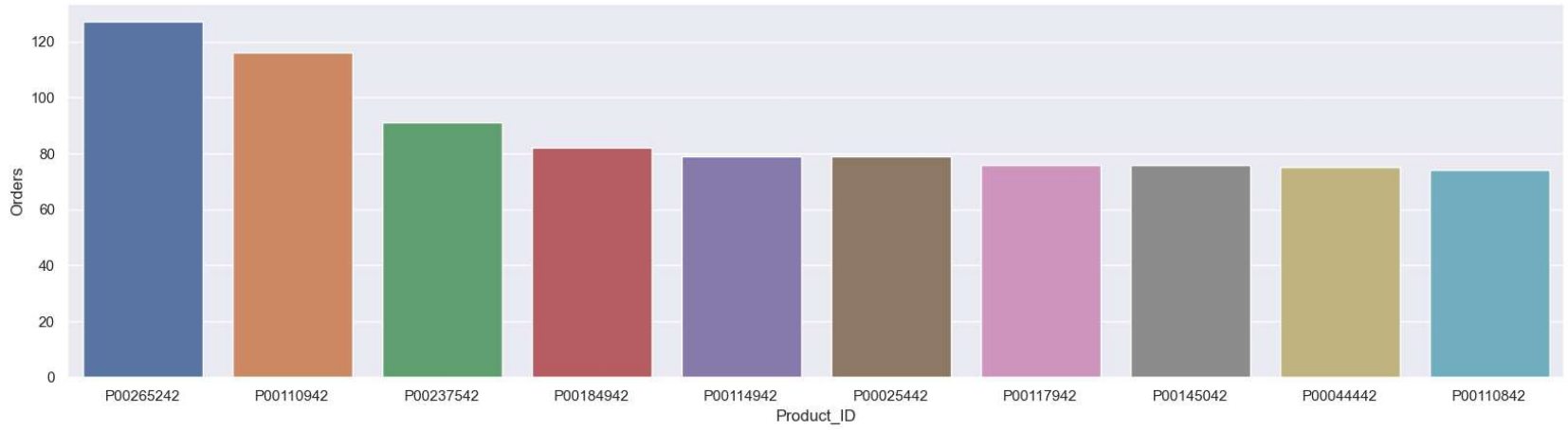
In [47]:
```
sales_state=df.groupby(['Product_Category'],as_index=False)['Amount'].sum().sort_values(by='Amount',ascending
sns.set(rc={'figure.figsize':(20,5)})
sns.barplot(data=sales_state,x='Product_Category',y='Amount')
```

Out[47]: <AxesSubplot:xlabel='Product_Category', ylabel='Amount'>



In [48]:
```
sales_state=df.groupby(['Product_ID'],as_index=False)['Orders'].sum().sort_values(by='Orders',ascending=Fals
sns.set(rc={'figure.figsize':(20,5)})
sns.barplot(data=sales_state,x='Product_ID',y='Orders')
```

Out[48]: <AxesSubplot:xlabel='Product_ID', ylabel='Orders'>



In [ ]: