```
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns
d = pd.read_csv("Diwali_sales.csv",encoding="unicode_escape")
sns.set(style = "whitegrid")
```

```
d
```

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

11239 rows × 14 columns

Next steps: Generate code with d | View recommended plots | New interactive sheet

```
d.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
```

```
print(d.isnull().sum())
```

```
User_ID             0
Cust_name           0
Product_ID          0
Gender              0
Age Group           0
```

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Age                   0
Marital_Status        0
State                 0
Zone                  0
Occupation            0
Product_Category      0
Orders                0
Amount               12
Status            11251
unnamed1          11251
dtype: int64
```

```
print(d.drop(columns = "unnamed1: 0",errors = "ignore"))
print(d.columns)
```

```
       User_ID    Cust_name Product_ID Gender Age Group  Age  Marital_Status  \
0      1002903    Sanskriti  P00125942      F     26-35   28               0
1      1000732       Kartik  P00110942      F     26-35   35               1
2      1001990        Bindu  P00118542      F     26-35   35               1
3      1001425       Sudevi  P00237842      M      0-17   16               0
4      1000588         Joni  P00057942      M     26-35   28               1
...        ...          ...        ...    ...       ...  ...             ...
11246  1000695      Manning  P00296942      M     18-25   19               1
11247  1004089  Reichenbach  P00171342      M     26-35   33               0
11248  1001209        Oshin  P00201342      F     36-45   40               0
11249  1004023       Noonan  P00059442      M     36-45   37               0
11250  1002744      Brumley  P00281742      F     18-25   19               0

                State      Zone       Occupation Product_Category  Orders  \
0         Maharashtra   Western       Healthcare             Auto       1
1      Andhra Pradesh  Southern             Govt             Auto       3
2       Uttar Pradesh   Central       Automobile             Auto       3
3           Karnataka  Southern     Construction             Auto       2
4             Gujarat   Western  Food Processing             Auto       2
...               ...       ...              ...              ...     ...
11246     Maharashtra   Western         Chemical           Office       4
11247         Haryana  Northern       Healthcare       Veterinary       3
11248  Madhya Pradesh   Central          Textile           Office       4
11249       Karnataka  Southern      Agriculture           Office       3
11250     Maharashtra   Western       Healthcare           Office       3

        Amount  Status  unnamed1
0      23952.0     NaN       NaN
1      23934.0     NaN       NaN
2      23924.0     NaN       NaN
3      23912.0     NaN       NaN
4      23877.0     NaN       NaN
...        ...     ...       ...
11246    370.0     NaN       NaN
11247    367.0     NaN       NaN
11248    213.0     NaN       NaN
11249    206.0     NaN       NaN
11250    188.0     NaN       NaN

[11251 rows x 15 columns]
Index(['User_ID', 'Cust_name', 'Product_ID', 'Gender', 'Age Group', 'Age',
       'Marital_Status', 'State', 'Zone', 'Occupation', 'Product_Category',
       'Orders', 'Amount', 'Status', 'unnamed1'],
      dtype='object')
```

```
d.drop(columns = ["unnamed1"] , inplace = True)
```

Double-click (or enter) to edit

```
d["Amount"].head(10)
```

	Amount
0	23952.00
1	23934.00
2	23924.00
3	23912.00
4	23877.00
5	23877.00
6	23841.00
7	NaN
8	23809.00
9	23799.99

dtype: float64

```
print(d.columns)
```

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

```
d.dtypes
```

	0
User_ID	int64
Cust_name	object
Product_ID	object
Gender	object
Age Group	object
Age	int64
Marital_Status	int64
State	object
Zone	object
Occupation	object
Product_Category	object
Orders	int64
Amount	float64

dtype: object

```
d.dropna(inplace = True)
print(d["Amount"].head(10))
```

```
0     23952.00
1     23934.00
2     23924.00
3     23912.00
4     23877.00
5     23877.00
6     23841.00
8     23809.00
9     23799.99
10    23770.00
Name: Amount, dtype: float64
```

```
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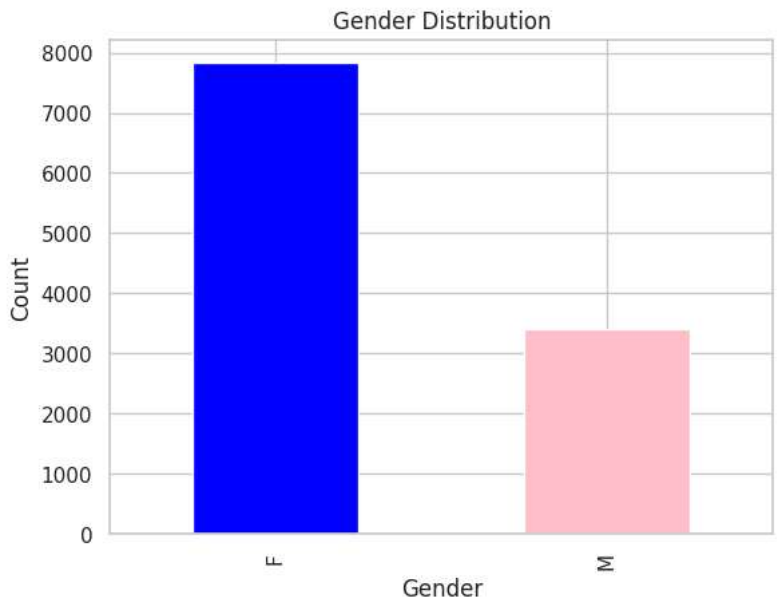
User_ID	Cust_name	Product_ID	Gender	Age Group	Age	Marital_Status	State	Zone	Occupation	Product_Category	Orders	Amount

```
#exploratery data analysis
exp  = d["Product_Category"].value_counts().head(10)

print(exp)
```

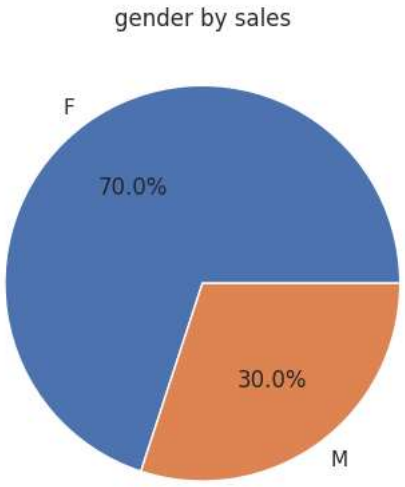
```
Product_Category
Clothing & Apparel       2655
Food                     2490
Electronics & Gadgets    2087
Footwear & Shoes         1059
Household items           520
Beauty                    422
Games & Toys              386
Sports Products           356
Furniture                 352
Pet Care                  212
Name: count, dtype: int64
```

```
d['Gender'].value_counts().plot(kind='bar', color=['blue', 'pink'])
plt.title('Gender Distribution')
plt.xlabel('Gender')
plt.ylabel('Count')
plt.show()
```

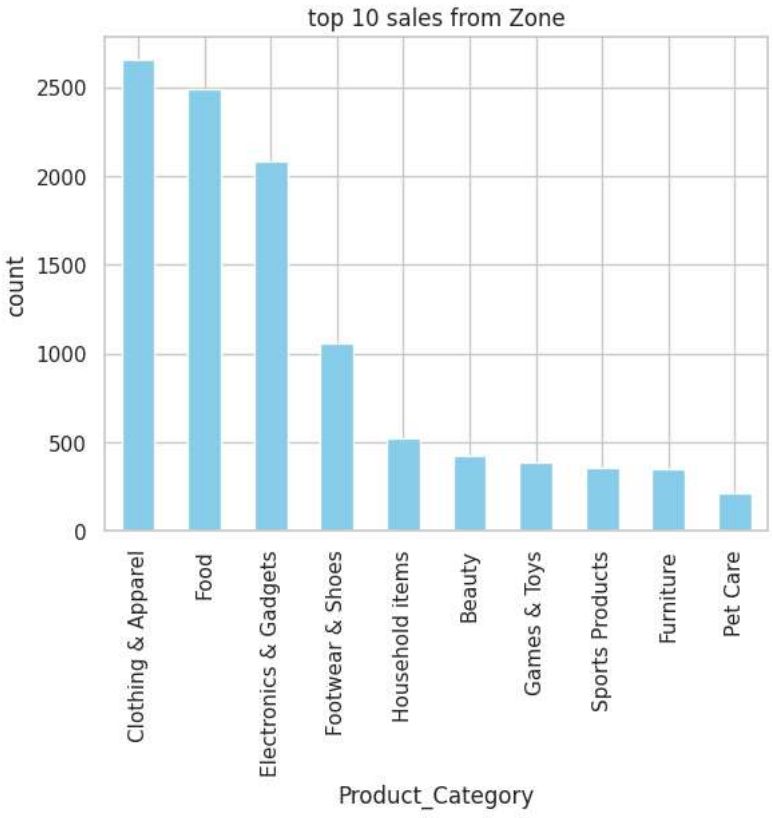



```
gender_by_group = d.groupby("Gender")["Amount"].sum()
print(gender_by_group)
gender_by_group.plot(kind = "pie" ,autopct = "%1.1f%%",title = "gender by sales")
plt.ylabel("")
plt.show()
```

```
Gender
F    74335856.43
M    31913276.00
Name: Amount, dtype: float64
```

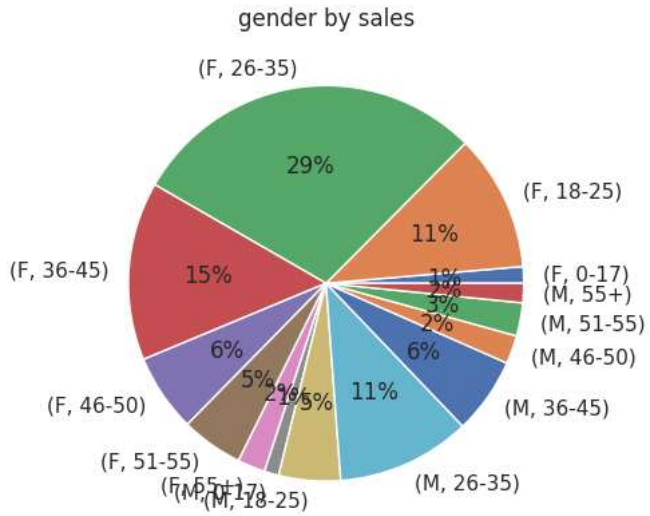



```
exp.plot(kind = "bar",title = "top 10 sales from Zone" , color = "skyblue")
plt.ylabel("count")
plt.show()
```

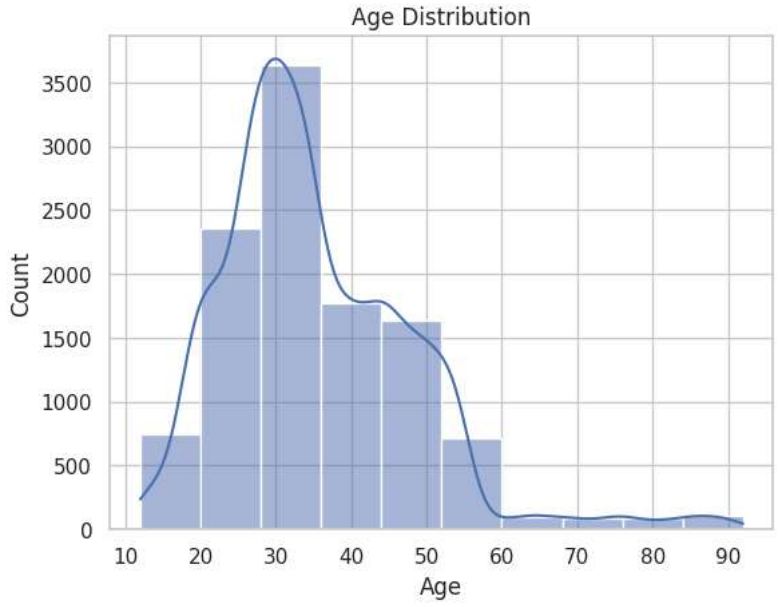



```
gender_by_group = d.groupby(["Gender","Age Group"])["Amount"].sum()
print(gender_by_group)
gender_by_group.plot(kind = "pie" ,autopct = "%1.f%%",title = "gender by sales")
plt.ylabel("")
plt.show()
```

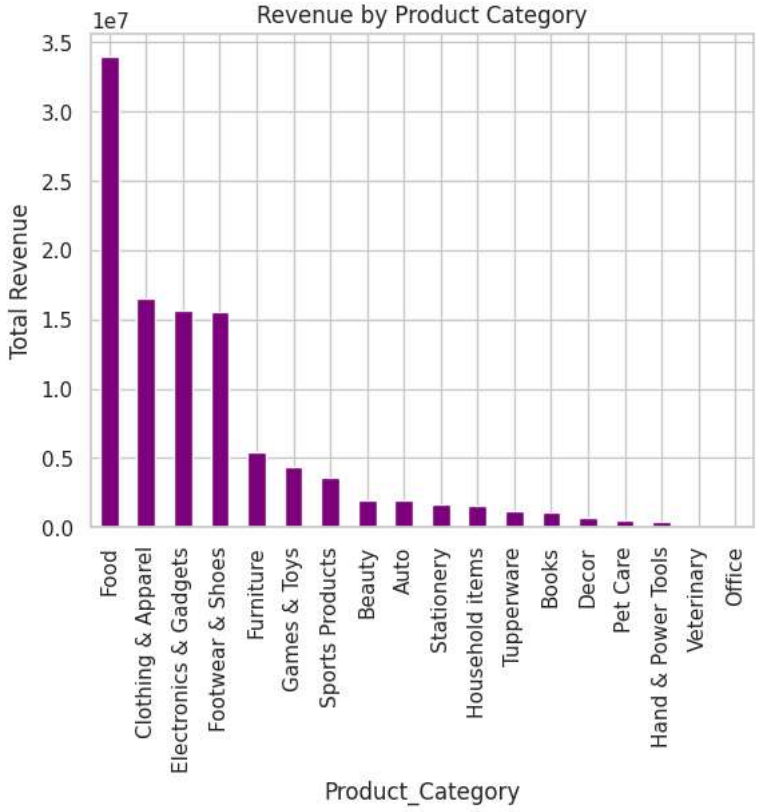
```
Gender  Age Group
F       0-17          1441409.00
        18-25        11887003.00
        26-35        30963954.94
        36-45        15509957.49
        46-50         6743393.00
        51-55         5385208.00
        55+           2404931.00
M       0-17          1258244.00
        18-25         5353729.00
        26-35        11649489.00
        36-45         6635038.00
        46-50         2464451.00
        51-55         2876269.00
        55+           1676056.00
Name: Amount, dtype: float64
```




```
sns.histplot(d['Age'], bins=10, kde=True)
plt.title('Age Distribution')
plt.show()
```




```
category_revenue = d.groupby('Product_Category')['Amount'].sum().sort_values(ascending=False)
category_revenue.plot(kind='bar', color='purple')
plt.title('Revenue by Product Category')
plt.ylabel('Total Revenue')
plt.show()
```




```
d['date'] = pd.date_range(start='1995-10-01', periods=len(d))
```

```
d
```

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

11239 rows × 14 columns

Next steps: Generate code with d | View recommended plots | New interactive sheet

```
d['date'] = pd.to_datetime(d['date'])  # Ensure date format
daily_sales = d.groupby('date')['Amount'].sum()
```

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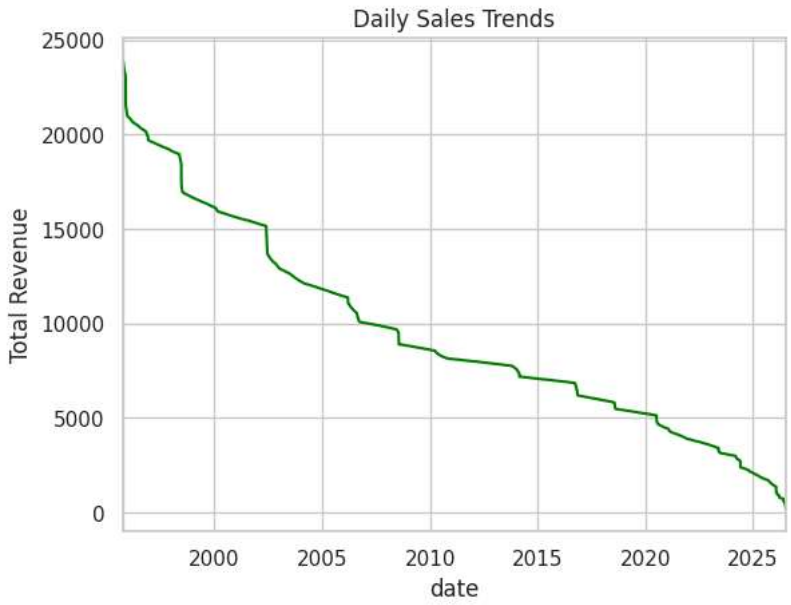
```
daily_sales.plot(kind='line', color='green')
plt.title('Daily Sales Trends')
plt.ylabel('Total Revenue')
plt.show()
```



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