```
!unzip Dataset.csv.zip
```

```
/usr/local/lib/python3.10/dist-packages/ipykernel/ipykernel.py:283: DeprecationWarning:

`should_run_async` will not call `transform_cell` automatically in the future. Please pass the result to `transformed_ce

Archive:  Dataset.csv.zip
  inflating: Dataset.csv
```

```
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns
```

```
/usr/local/lib/python3.10/dist-packages/ipykernel/ipykernel.py:283: DeprecationWarning:

`should_run_async` will not call `transform_cell` automatically in the future. Please pass the result to `transformed_ce
```

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

```
/usr/local/lib/python3.10/dist-packages/ipykernel/ipykernel.py:283: DeprecationWarning:

`should_run_async` will not call `transform_cell` automatically in the future. Please pass the result to `transformed_ce
```

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


selected_products = [
    'WHITE HANGING HEART T-LIGHT HOLDER', 'WHITE METAL LANTERN', 'CREAM CUPID HEARTS COAT HANGER',
    'KNITTED UNION FLAG HOT WATER BOTTLE', 'RED WOOLLY HOTTIE WHITE HEART.', 'SET 7 BABUSHKA NESTING BOXES',
    'GLASS STAR FROSTED T-LIGHT HOLDER', 'HAND WARMER UNION JACK', 'HAND WARMER RED POLKA DOT',
    'ASSORTED COLOUR BIRD ORNAMENT'
]

selected_regions = ['United Kingdom', 'Germany', 'France', 'Netherlands', 'EIRE']


df = df[df['Description'].isin(selected_products) & df['Country'].isin(selected_regions)]


df['TotalRevenue'] = df['Quantity'] * df['UnitPrice']
df['TotalRevenue'] = df['TotalRevenue'].apply(lambda x: np.nan if x < 0 else x)

plt.figure(figsize=(10, 6))
sns.barplot(x='Description', y='Quantity', data=df, ci=None)
plt.title('Product-wise Sales Distribution')
plt.xticks(rotation=90)
plt.show()
```

```
/usr/local/lib/python3.10/dist-packages/ipykernel/ipkernel.py:283: Deprecatio

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<ipython-input-37-d406db3412e6>:17: 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: https://pandas.pydata.org/pandas-docs/s

<ipython-input-37-d406db3412e6>:18: 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: https://pandas.pydata.org/pandas-docs/s

<ipython-input-37-d406db3412e6>:21: FutureWarning:



The `ci` parameter is deprecated. Use `errorbar=None` for the same effect.
```

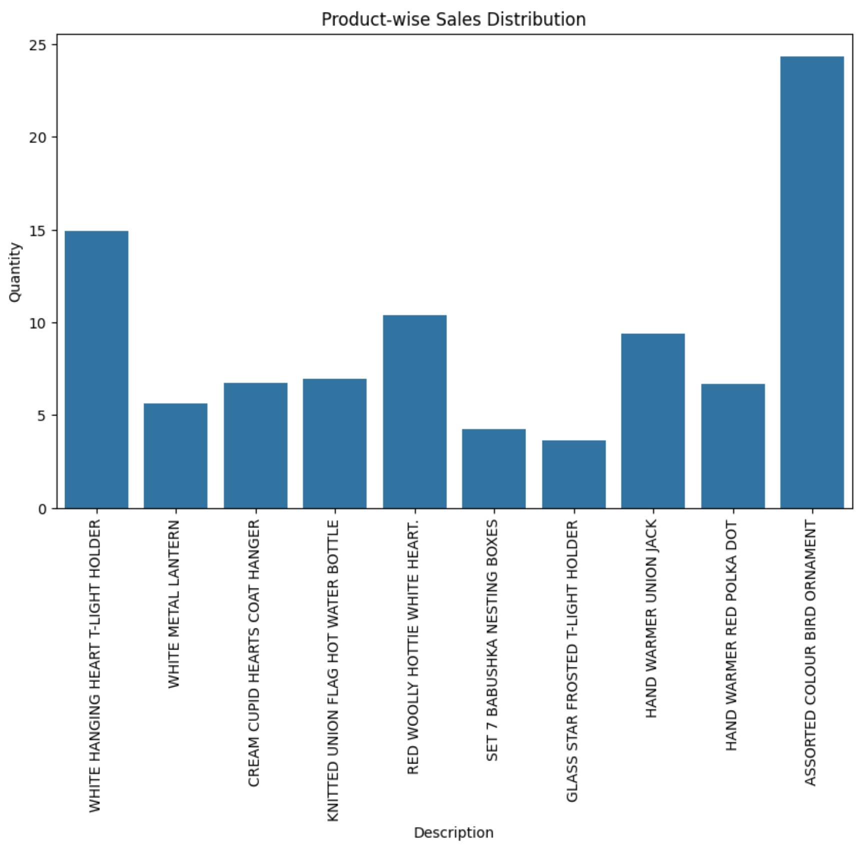

Observation :- Assorted COlour BIRD ORNAMENT has highest quantity sold

```
# 2. Pie Chart: Region-wise Sales Distribution
region_sales = df.groupby('Country')['Quantity'].sum()
plt.figure(figsize=(8, 8))
region_sales.plot.pie(autopct='%1.1f%%')
plt.title('Region-wise Sales Distribution')
plt.ylabel('')
plt.show()
```

```
/usr/local/lib/python3.10/dist-packages/ipykernel/ipkernel.py:283: Deprecatio

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```

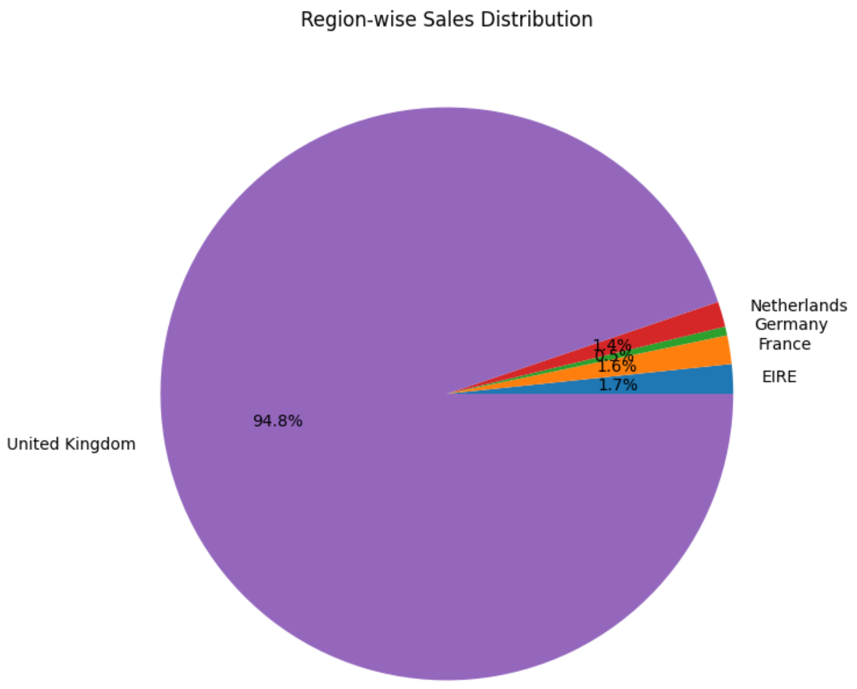

Obseravation :- United States has highest sales

```
df['InvoiceDate'] = pd.to_datetime(df['InvoiceDate'])

# Create a new column for Year-Month
df['YearMonth'] = df['InvoiceDate'].dt.to_period('M')

# Group the data by Year-Month and sum the quantities
timeline_data = df.groupby('YearMonth')['Quantity'].sum().reset_index()

# Convert 'YearMonth' back to a datetime format for plotting
timeline_data['YearMonth'] = timeline_data['YearMonth'].dt.to_timestamp()

# Plotting the timeline chart
plt.figure(figsize=(12, 6))
plt.plot(timeline_data['YearMonth'], timeline_data['Quantity'], marker='o')
plt.title('Timeline of Sales (Aggregated by Month)')
plt.xlabel('Month')
plt.ylabel('Quantity Sold')
plt.xticks(rotation=45)
plt.show()
```

```
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```

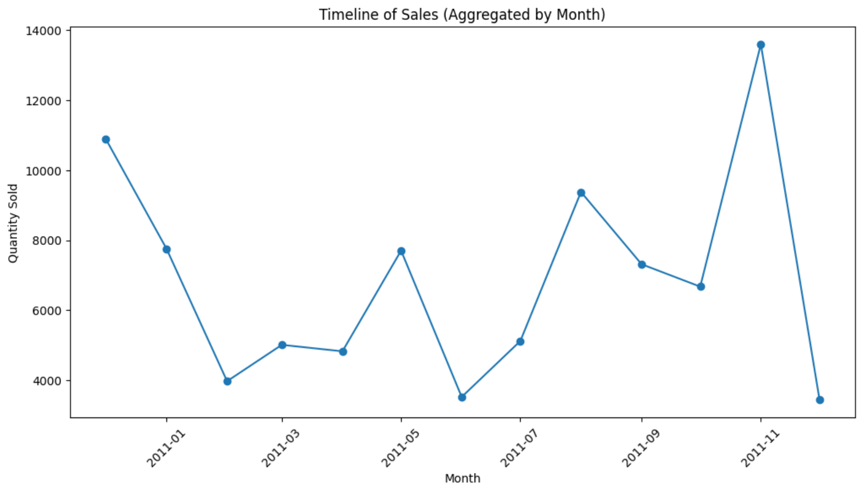

Observation :- In 11 month highest sales happened

```
# 5. Scatter Plot: Price vs. Quantity Ordered
df = df[df['Quantity'] >= 0]

plt.figure(figsize=(8, 6))
sns.scatterplot(x='UnitPrice', y='Quantity', data=df)
plt.title('Price vs. Quantity Ordered')
plt.xlabel('Unit Price')
plt.ylabel('Quantity')
plt.show()
```

```
/usr/local/lib/python3.10/dist-packages/ipykernel/ipykernel.py:283: Deprecatio
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```

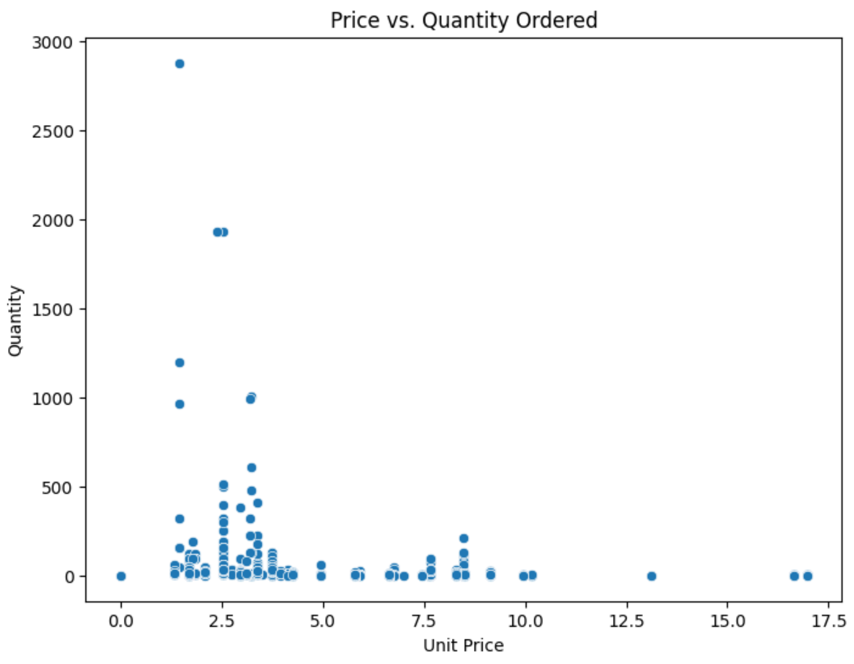

Observation :- Cheap Products has highest Sales

```
Start coding or generate with AI.
```

```
# 6. Bubble Plot: Total Sales (Revenue) by Product
plt.figure(figsize=(12, 8))
sns.scatterplot(x='Description', y='TotalRevenue', size='TotalRevenue', data=df, legend=False, sizes=(100, 1000))
plt.title('Total Sales (Revenue) by Product')
plt.xticks(rotation=90)
plt.show()
```

```
/usr/local/lib/python3.10/dist-packages/ipykernel/ipykernel.py:283: Deprecatio
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```

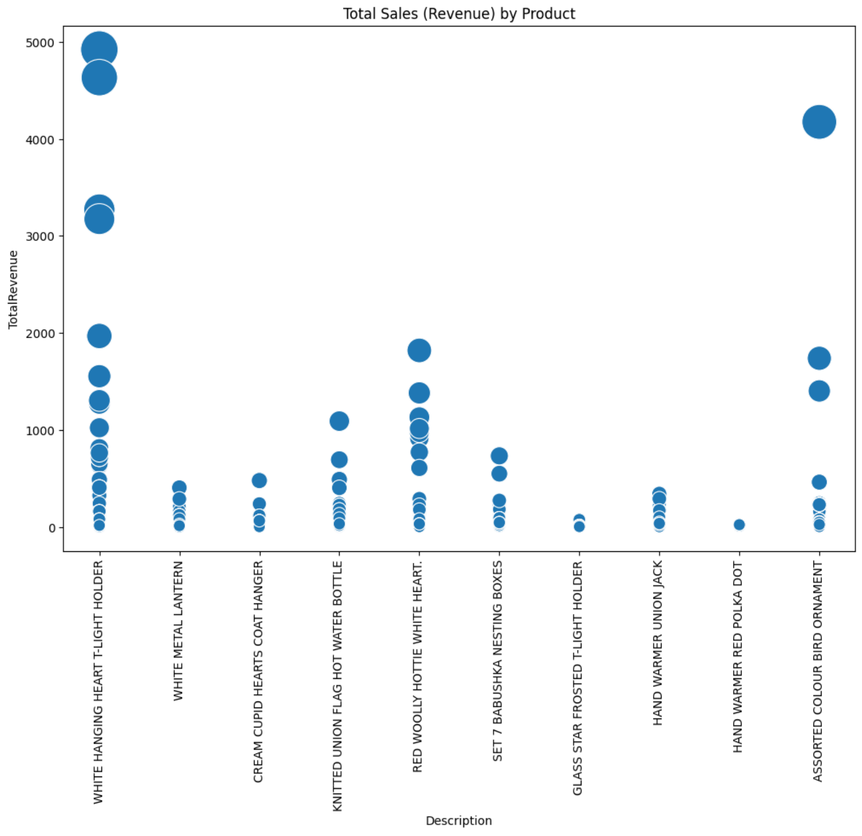

White Hanging Heart T-LIGHT Holder has generated highest Revenus

Start coding or generate with AI.

```
/usr/local/lib/python3.10/dist-packages/ipykernel/ipykernel.py:283: DeprecationWarning:
  `should_run_async` will not call `transform_cell` automatically in the future. Please pass the result to `transformed_ce
```

```
# Assuming df is already loaded and InvoiceDate is converted to datetime
df['Hour'] = df['InvoiceDate'].dt.hour

# Plotting the histogram for sales by the hour of the day
plt.figure(figsize=(10, 6))
sns.histplot(df['Hour'], bins=24, kde=False)  # 24 bins for each hour of the day
plt.title('Sales Frequency by Hour of Day')
plt.xlabel('Hour')
plt.ylabel('Frequency of Sales')
plt.xticks(range(0, 24))  # Setting x-ticks for each hour
plt.show()
```

```
/usr/local/lib/python3.10/dist-packages/ipykernel/ipkernel.py:283: Deprecatio
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```