Python code for all the Questions with Output

Question no.1

What was the highest-selling product in September?

```
import pandas as pd

file_path = r'C:\Users\kanch\Downloads\ELB-Sales-Data.xlsx'

data = pd.read_excel(file_path)

data['Date'] = pd.to_datetime(data['Date'])

data['Month'] = data['Date'].dt.month_name()

september_data = data[data['Month'] == 'September']

print(september_data.head())

product_sales_september = september_data.groupby('Item Name')['Primary Sales'].sum()

highest_selling_product = product_sales_september.idxmax()

highest_sales_value = product_sales_september.max()

print(f"The highest-selling product in September is '{highest_selling_product}' with sales of {highest_sales_value}.")
```

output:

The highest-selling product in September is 'NEURONZ D' with sales of 2308078.58.

Question no.2

Which product had the highest sales for the "CND Chennai" sales team in May?

```
import pandas as pd

file_path = r'C:\Users\kanch\Downloads\ELB-Sales-Data.xlsx'

data = pd.read_excel(file_path)

data['Date'] = pd.to_datetime(data['Date'])

data['Month'] = data['Date'].dt.month_name()

cnd_chennai_may_data = data[(data['Sales Team'] == 'CND Chennai') & (data['Month'] == 'May')]

product_sales_may = cnd_chennai_may_data.groupby('Item Name')['Primary Sales'].sum()

highest_selling_product = product_sales_may.idxmax()

highest_sales_value = product_sales_may.max()
```

```
print(f"The product with the highest sales for 'CND Chennai' in May is '{highest_selling_product}' with sales of {highest_sales_value}.")
```

output:

The product with the highest sales for 'CND Chennai' in May is 'NEURONZ D' with sales of 1161546.19.

Question no.3

Which customer had the maximum stock returns in October for the Bangalore HQ?

```
import pandas as pd

file_path = r'C:\Users\kanch\Downloads\ELB-Sales-Data.xlsx'

data = pd.read_excel(file_path)

data['Date'] = pd.to_datetime(data['Date'])

data['Month'] = data['Date'].dt.month_name()

data['HQ'] = data['HQ'].str.strip()

data['Month'] = data['Month'].str.strip()

print("Unique HQ values:", data['HQ'].unique())

print("Unique Month values:", data['Month'].unique())

bangalore_october_data = data[(data['HQ'] == 'Bangalore') & (data['Month'] == 'October')]

if bangalore_october_data.empty:
    print("No data found for Bangalore HQ in October.")
else:
    customer_returns = bangalore_october_data.groupby('Customer')['Sales Return'].sum()
    max_return_customer = customer_returns.idxmax()
    max_return_value = customer_returns.max()
    print(f"The customer with the maximum stock returns in October for Bangalore HQ is '{max_return_customer}' with returns of {max_return_value}.")
```

output:

No data found for Bangalore HQ in October.

Question no.4

Which sales team had the maximum percentage of primary sales returned due to expiry?

```
import pandas as pd
```

```
file_path = r'C:\Users\kanch\Downloads\ELB-Sales-Data.xlsx'

data = pd.read_excel(file_path)

sales_team_totals = data.groupby('Sales Team')['Primary Sales'].sum()

top_sales_team = sales_team_totals.idxmax()

top_sales_value = sales_team_totals.max()

print(f"The sales team with the highest total primary sales is '{top_sales_team}' with a total of {top_sales_value}.")
```

output:

The sales team with the highest total primary sales is 'Elbrit Karnataka' with a total of 42666314.49.

Question no.5

What percentage of overall primary sales was aU̓ected by breakage?

```
import pandas as pd

file_path = r'C:\Users\kanch\Downloads\ELB-Sales-Data.xlsx'

data = pd.read_excel(file_path)

data['Primary Sales'] = pd.to_numeric(data['Primary Sales'], errors='coerce')

data['Breakage'] = pd.to_numeric(data['Breakage'], errors='coerce')

total_primary_sales = data['Primary Sales'].sum()

total_breakage = data['Breakage'].sum()

breakage_percentage = (total_breakage / total_primary_sales) * 100

print(f"The percentage of overall primary sales affected by breakage is {breakage_percentage:.2f}%.")
```

output:

The percentage of overall primary sales affected by breakage is -0.39%.

Question no.6

What were the primary sales for the Delhi HQ in the month of September?

```
import pandas as pd

file_path = r'C:\Users\kanch\Downloads\ELB-Sales-Data.xlsx'

data = pd.read_excel(file_path)

data['Primary Sales'] = pd.to_numeric(data['Primary Sales'], errors='coerce')

data['Date'] = pd.to_datetime(data['Date'], errors='coerce')
```

```
data['Month'] = data['Date'].dt.strftime('%B')  # Extract month as string

delhi_september_data = data[(data['HQ'] == 'Delhi') & (data['Month'] == 'September')]

total_primary_sales_delhi_september = delhi_september_data['Primary Sales'].sum()

print(f"The primary sales for Delhi HQ in the month of September is {total_primary_sales_delhi_september:.2f}.")
```

output:

The primary sales for Delhi HQ in the month of September is 0.00.

Question no.7

What were the sales of "Britorva 20" in September for PALEPU PHARMA DIST PVT LTD under Coimbatore HQ?

```
import pandas as pd

file_path = r'C:\Users\kanch\Downloads\ELB-Sales-Data.xlsx'

data = pd.read_excel(file_path)

data['Primary Sales'] = pd.to_numeric(data['Primary Sales'], errors='coerce')

data['Date'] = pd.to_datetime(data['Date'], errors='coerce')

data['Month'] = data['Date'].dt.strftime('%B')  # Extract month as string

britorva_sales = data[
    (data['HQ'] == 'Coimbatore') &
    (data['Customer'] == 'PALEPU PHARMA DIST PVT LTD') &
    (data['Item Name'] == 'Britorva 20') &
    (data['Month'] == 'September')
]

total_britorva_sales = britorva_sales['Primary Sales'].sum()

print(f"The sales of 'Britorva 20' in September for PALEPU PHARMA DIST PVT LTD under Coimbatore HQ is {total_britorva_sales:.2f}.")
```

output:

The sales of 'Britorva 20' in September for PALEPU PHARMA DIST PVT LTD under Coimbatore HQ is 0.00.

Bonus

Question no.1

What is the forecasted value of primary sales for the October month

```
import pandas as pd

file_path = r'C:\Users\kanch\Downloads\ELB-Sales-Data.xlsx'

data = pd.read_excel(file_path)

data['Primary Sales'] = pd.to_numeric(data['Primary Sales'], errors='coerce')

data['Date'] = pd.to_datetime(data['Date'], errors='coerce')

data['Month'] = data['Date'].dt.strftime('%B')  # Extract month as string

historical_data = data[data['Month'].isin(['April', 'May', 'June', 'July', 'August', 'September'])]

average_sales = historical_data['Primary Sales'].mean()

print(f"The forecasted value of primary sales for October is {average_sales:.2f}.")
```

output:

The forecasted value of primary sales for October is 2514.40.

Question no.2

Which product had the highest forecasted sales for the "CND Chennai" sales team in November?

```
import pandas as pd

file_path = r'C:\Users\kanch\Downloads\ELB-Sales-Data.xlsx'

data = pd.read_excel(file_path)

data['Primary Sales'] = pd.to_numeric(data['Primary Sales'], errors='coerce')

data['Date'] = pd.to_datetime(data['Date'], errors='coerce')

data['Month'] = data['Date'].dt.strftime('%B')  # Extract month as string

chennai_data = data[(data['Sales Team'] == 'CND Chennai') & (data['Month'].isin(['April', 'May', 'June', 'July', 'August', 'September']))]

product_sales = chennai_data.groupby('Item Name')['Primary Sales'].mean()

highest_sales_product = product_sales.idxmax()

highest_sales_value = product_sales.max()

print(f"The product with the highest forecasted sales for the 'CND Chennai' sales team in November is '{highest_sales_product}' with forecasted sales of {highest_sales_value:.2f}.")
```

output:

The product with the highest forecasted sales for the 'CND Chennai' sales team in November is 'NEURONZ D' with forecasted sales of 7893.22.

Question no.3

What were the forecasted sales of "Britorva 20" in October under Coimbatore HQ? (5 Points)

```
import pandas as pd

file_path = r'C:\Users\kanch\Downloads\ELB-Sales-Data.xlsx' data =

pd.read_excel(file_path)

data['Primary Sales'] = pd.to_numeric(data['Primary Sales'], errors='coerce') data['Date'] =

pd.to_datetime(data['Date'], errors='coerce')

data['Month'] = data['Date'].dt.strftime('%B')  # Extract month as string

coimbatore_data = data[(data['HQ'] == 'Coimbatore') & (data['Item Name'] == 'Britorva 20') & (data['Month'].isin(['April', 'May', 'June', 'July', 'August', 'September']))]

forecasted_sales_britorva_20 = coimbatore_data['Primary Sales'].mean()

print(f"The forecasted sales of 'Britorva 20' in October under Coimbatore HQ are {forecasted_sales_britorva_20:.2f}.")
```

output:

The forecasted sales of 'Britorva 20' in October under Coimbatore HQ are nan.