In [2]:
```
import pandas as pd

df = pd.read_csv("C:\\Users\\alayp\\Downloads\\Orders_2024-01-01_2025-01-01 - Or
df
```

Out[2]:

	Sales Order	Purchase Order	Order Date	Order Type	Sold-To	Sold-To Name	Ship-To	Ship-To Name	S
0	SX105810	CFW 12/2/24	2024-12-02	supplies	NaN	Carson Weis	NaN	NaN	
1	SX105810	CFW 12/2/24	2024-12-02	supplies	NaN	Carson Weis	NaN	NaN	
2	SX105810	CFW 12/2/24	2024-12-02	supplies	NaN	Carson Weis	NaN	NaN	
3	SX105810	CFW 12/2/24	2024-12-02	supplies	NaN	Carson Weis	NaN	NaN	
4	SX105810	CFW 12/2/24	2024-12-02	supplies	NaN	Carson Weis	NaN	NaN	
...	...	...	...	...	...	...	...	...	
285	[SN937650]	CFW 1/2/24	2024-01-02	supplies	11555.0	Carson Weis	11555500.0	ARIZONA STATE UNIVERSITY	M
286	[SN937650]	CFW 1/2/24	2024-01-02	supplies	11555.0	Carson Weis	11555500.0	ARIZONA STATE UNIVERSITY	M
287	[SN937650]	CFW 1/2/24	2024-01-02	supplies	11555.0	Carson Weis	11555500.0	ARIZONA STATE UNIVERSITY	M
288	[SN937650]	CFW 1/2/24	2024-01-02	supplies	11555.0	Carson Weis	11555500.0	ARIZONA STATE UNIVERSITY	M
289	[SN937650]	CFW 1/2/24	2024-01-02	supplies	11555.0	Carson Weis	11555500.0	ARIZONA STATE UNIVERSITY	M

290 rows × 21 columns

In [3]:
```
df1 = df[["Item Description", "Qty Ordered"]]
```

```
df1
```

Out[3]:

	Item Description	Qty Ordered
0	Black Ink HP - Ser.3	4
1	IMAGING AGENT HP - WS6X00,(W)7XX0,8000	2
2	Binary Ink Developer ROLLER (for S3)	4
3	Blanket HP - Ser.3 sheet-fed	6
4	YELLOW INK HP - SER.3	4
...	...	...
285	Magenta Ink HP - Ser.3	12
286	Blanket HP - Ser.3 sheet-fed	6
287	IMAGING AGENT HP - WS6X00,(W)7XX0,8000	1
288	YELLOW INK HP - SER.3	8
289	Binary Ink Developer ROLLER (for S3)	3

290 rows × 2 columns

In [4]:
```
df1["Item Description"].unique()
```

Out[4]:
```
array(['Black Ink HP - Ser.3', 'IMAGING AGENT HP - WS6X00,(W)7XX0,8000',
       'Binary Ink Developer ROLLER (for S3)',
       'Blanket HP -  Ser.3 sheet-fed', 'YELLOW INK HP - SER.3',
       'HP RECYCLE AGENT 4.5 (4X 0.78KG) SER.III', 'Cyan Ink HP - Ser.3',
       'Magenta Ink HP - Ser.3', 'Binary Ink Developer BASE (for S3)',
       'Print Imaging Plate (PIP) HP - Ser.3 sheet-fed',
       'HP IMAGING OIL FILTER 2 MIC (THAI)',
       'HP SPONGE ROLLER FOR 7X0 0 PRESSES', 'HP IMPRESSION PAPER',
       'HP SILICA GEL FILTER 12"', 'FILTER 3 MICRON FOR OFIR',
       'WIPER CLEANING STAT.  S3 - 10 UNITS',
       'HP INDIGO CR 1 UNIT FOR 6000 & 7000 SERIES'], dtype=object)
```

In [5]:
```
df1["Item Description"].value_counts()
```

Out[5]:
```
Item Description
YELLOW INK HP - SER.3                                28
Cyan Ink HP - Ser.3                                  28
Magenta Ink HP - Ser.3                               28
IMAGING AGENT HP - WS6X00,(W)7XX0,8000               26
Black Ink HP - Ser.3                                 24
Blanket HP -  Ser.3 sheet-fed                        24
Print Imaging Plate (PIP) HP - Ser.3 sheet-fed       22
Binary Ink Developer ROLLER (for S3)                 18
HP IMPRESSION PAPER                                  18
Binary Ink Developer BASE (for S3)                   14
HP RECYCLE AGENT 4.5 (4X 0.78KG) SER.III             14
HP IMAGING OIL FILTER 2 MIC (THAI)                   12
HP SPONGE ROLLER FOR 7X0 0 PRESSES                   10
WIPER CLEANING STAT.  S3 - 10 UNITS                   8
HP SILICA GEL FILTER 12"                              6
FILTER 3 MICRON FOR OFIR                              6
HP INDIGO CR 1 UNIT FOR 6000 & 7000 SERIES            4
Name: count, dtype: int64
```

In [6]:
```
df["Order Month"] = pd.to_datetime(df["Order Date"]).dt.strftime('%b').str.upper

print(df)
```

	Sales Order	Purchase Order	Order Date	Order Type	Sold-To	Sold-To Name
0	SX105810	CFW 12/2/24	2024-12-02	supplies	NaN	Carson Weis
1	SX105810	CFW 12/2/24	2024-12-02	supplies	NaN	Carson Weis
2	SX105810	CFW 12/2/24	2024-12-02	supplies	NaN	Carson Weis
3	SX105810	CFW 12/2/24	2024-12-02	supplies	NaN	Carson Weis
4	SX105810	CFW 12/2/24	2024-12-02	supplies	NaN	Carson Weis
..	...	...	...	...	...	...
285	[SN937650]	CFW 1/2/24	2024-01-02	supplies	11555.0	Carson Weis
286	[SN937650]	CFW 1/2/24	2024-01-02	supplies	11555.0	Carson Weis
287	[SN937650]	CFW 1/2/24	2024-01-02	supplies	11555.0	Carson Weis
288	[SN937650]	CFW 1/2/24	2024-01-02	supplies	11555.0	Carson Weis
289	[SN937650]	CFW 1/2/24	2024-01-02	supplies	11555.0	Carson Weis

	Ship-To	Ship-To Name	Ship-To City
0	NaN	NaN	NaN
1	NaN	NaN	NaN
2	NaN	NaN	NaN
3	NaN	NaN	NaN
4	NaN	NaN	NaN
..	...	...	...
285	11555500.0	ARIZONA STATE UNIVERSITY	MESA
286	11555500.0	ARIZONA STATE UNIVERSITY	MESA
287	11555500.0	ARIZONA STATE UNIVERSITY	MESA
288	11555500.0	ARIZONA STATE UNIVERSITY	MESA
289	11555500.0	ARIZONA STATE UNIVERSITY	MESA

	Ship-To Address	...
0	NaN	...
1	NaN	...
2	NaN	...
3	NaN	...
4	NaN	...
..	...	...
285	PRINT & IMAGING LAB 6075 S INNOVATION WAY WEST	...
286	PRINT & IMAGING LAB 6075 S INNOVATION WAY WEST	...
287	PRINT & IMAGING LAB 6075 S INNOVATION WAY WEST	...
288	PRINT & IMAGING LAB 6075 S INNOVATION WAY WEST	...
289	PRINT & IMAGING LAB 6075 S INNOVATION WAY WEST	...

	Item Description	Qty Ordered	Qty Shipped
0	Black Ink HP - Ser.3	4	NaN
1	IMAGING AGENT HP - WS6X00,(W)7XX0,8000	2	NaN
2	Binary Ink Developer ROLLER (for S3)	4	NaN
3	Blanket HP - Ser.3 sheet-fed	6	NaN
4	YELLOW INK HP - SER.3	4	NaN
..	...	...	...
285	Magenta Ink HP - Ser.3	12	12.0
286	Blanket HP - Ser.3 sheet-fed	6	6.0
287	IMAGING AGENT HP - WS6X00,(W)7XX0,8000	1	1.0
288	YELLOW INK HP - SER.3	8	8.0
289	Binary Ink Developer ROLLER (for S3)	3	3.0

	Ship Date	Shipper Number	Carrier	Tracking Number	Extended Price
0	NaN	NaN	NaN	NaN	NaN
1	NaN	NaN	NaN	NaN	NaN
2	NaN	NaN	NaN	NaN	NaN
3	NaN	NaN	NaN	NaN	NaN
4	NaN	NaN	NaN	NaN	NaN
..	...	...	...	...	...
285	2024-01-03	S-NA24000420	FEDEX	5.608449e+09	0.0

```
286  2024-01-03    S-NA24000420   FEDEX    5.608449e+09            0.0
287  2024-01-03    S-NA24000420   FEDEX    5.608449e+09            0.0
288  2024-01-03    S-NA24000420   FEDEX    5.608449e+09            0.0
289  2024-01-03    S-NA24000420   FEDEX    5.608449e+09            0.0

     Currency  Order Month
0         NaN          DEC
1         NaN          DEC
2         NaN          DEC
3         NaN          DEC
4         NaN          DEC
..        ...          ...
285       USD          JAN
286       USD          JAN
287       NaN          JAN
288       USD          JAN
289       USD          JAN

[290 rows x 22 columns]
```

In [7]:
```
columns_to_drop = [
    'Sales Order', 'Purchase Order', 'Order Type', 'Sold-To', 'Sold-To Name',
    'Ship-To', 'Ship-To Name', 'Ship-To City', 'Ship-To Address', 'Qty Shipped',
    'Ship Date', 'Shipper Number', 'Carrier', 'Tracking Number', 'Extended Price
]

df_cleaned = df.drop(columns=columns_to_drop, errors='ignore')
print(df_cleaned)
```

```
    Order Date                        Item Description  Qty Ordered  \
0    2024-12-02                    Black Ink HP - Ser.3            4
1    2024-12-02  IMAGING AGENT HP - WS6X00,(W)7XX0,8000            2
2    2024-12-02    Binary Ink Developer ROLLER (for S3)            4
3    2024-12-02           Blanket HP -  Ser.3 sheet-fed            6
4    2024-12-02                    YELLOW INK HP - SER.3            4
..          ...                                     ...          ...
285  2024-01-02                 Magenta Ink HP - Ser.3           12
286  2024-01-02           Blanket HP -  Ser.3 sheet-fed            6
287  2024-01-02  IMAGING AGENT HP - WS6X00,(W)7XX0,8000            1
288  2024-01-02                    YELLOW INK HP - SER.3            8
289  2024-01-02    Binary Ink Developer ROLLER (for S3)            3

    Order Month
0           DEC
1           DEC
2           DEC
3           DEC
4           DEC
..          ...
285         JAN
286         JAN
287         JAN
288         JAN
289         JAN

[290 rows x 4 columns]
```

In [8]:
```
df_cleaned
```

Out[8]:

	Order Date	Item Description	Qty Ordered	Order Month
0	2024-12-02	Black Ink HP - Ser.3	4	DEC
1	2024-12-02	IMAGING AGENT HP - WS6X00, (W)7XX0,8000	2	DEC
2	2024-12-02	Binary Ink Developer ROLLER (for S3)	4	DEC
3	2024-12-02	Blanket HP - Ser.3 sheet-fed	6	DEC
4	2024-12-02	YELLOW INK HP - SER.3	4	DEC
...	...	...	...	...
285	2024-01-02	Magenta Ink HP - Ser.3	12	JAN
286	2024-01-02	Blanket HP - Ser.3 sheet-fed	6	JAN
287	2024-01-02	IMAGING AGENT HP - WS6X00, (W)7XX0,8000	1	JAN
288	2024-01-02	YELLOW INK HP - SER.3	8	JAN
289	2024-01-02	Binary Ink Developer ROLLER (for S3)	3	JAN

290 rows × 4 columns

In [9]:
```
from bokeh.plotting import figure, show
from bokeh.io import output_notebook
output_notebook()
```

BokehJS 3.6.0 successfully loaded.

In [10]:
```
df1["Item Description"].unique()
```

Out[10]:
```
array(['Black Ink HP - Ser.3', 'IMAGING AGENT HP - WS6X00,(W)7XX0,8000',
       'Binary Ink Developer ROLLER (for S3)',
       'Blanket HP -  Ser.3 sheet-fed', 'YELLOW INK HP - SER.3',
       'HP RECYCLE AGENT 4.5 (4X 0.78KG) SER.III', 'Cyan Ink HP - Ser.3',
       'Magenta Ink HP - Ser.3', 'Binary Ink Developer BASE (for S3)',
       'Print Imaging Plate (PIP) HP - Ser.3 sheet-fed',
       'HP IMAGING OIL FILTER 2 MIC (THAI)',
       'HP SPONGE ROLLER FOR 7X0 0 PRESSES', 'HP IMPRESSION PAPER',
       'HP SILICA GEL FILTER 12"', 'FILTER 3 MICRON FOR OFIR',
       'WIPER CLEANING STAT.  S3 - 10 UNITS',
       'HP INDIGO CR 1 UNIT FOR 6000 & 7000 SERIES'], dtype=object)
```

In [11]:
```
from itertools import cycle
from bokeh.models import ColumnDataSource, FactorRange
```

In [12]:
```
x = df["Order Month"].unique()
y = df["Qty Ordered"]
```

In [13]:
```
df2 = df_cleaned
```

In [14]:
```
df2
```

Out[14]:

	Order Date	Item Description	Qty Ordered	Order Month
0	2024-12-02	Black Ink HP - Ser.3	4	DEC
1	2024-12-02	IMAGING AGENT HP - WS6X00, (W)7XX0,8000	2	DEC
2	2024-12-02	Binary Ink Developer ROLLER (for S3)	4	DEC
3	2024-12-02	Blanket HP - Ser.3 sheet-fed	6	DEC
4	2024-12-02	YELLOW INK HP - SER.3	4	DEC
...	...	...	...	...
285	2024-01-02	Magenta Ink HP - Ser.3	12	JAN
286	2024-01-02	Blanket HP - Ser.3 sheet-fed	6	JAN
287	2024-01-02	IMAGING AGENT HP - WS6X00, (W)7XX0,8000	1	JAN
288	2024-01-02	YELLOW INK HP - SER.3	8	JAN
289	2024-01-02	Binary Ink Developer ROLLER (for S3)	3	JAN

290 rows × 4 columns

In [15]:
```
df2.to_excel('cleaned_data_saved.xlsx', index=False)

print("Excel file saved successfully as 'cleaned_data_saved.xlsx'")
```

```
Excel file saved successfully as 'cleaned_data_saved.xlsx'
```

In [ ]:
```

```