premium_supplier_scorecard

May 23, 2025

[20]:
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#Adding the pandas pack to our data
import pandas as pd
import re

with pd.ExcelWriter('scorecard_output.xlsx', engine='openpyxl') as writer:
    top_10_percent.to_excel(writer, sheet_name='Premium_Suppliers', index=False)

pd.read_excel('scorecard_output.xlsx')


# Load aliexpress pet supplier data- each "title" row corresponds to a single␣
 ↪product
df = pd.read_csv('aliexpress_pet_supplies.csv')

#Clean data
# Remove 'sold', '+', as well as any alphabetic characters from the data␣
 ↪(specifically the column 'tradeAmount')
df['tradeAmount'] = df['tradeAmount'].astype(str).str.
 ↪replace(r'sold|\+|[A-Za-z]', '', regex=True)

# Remove any extra spaces and converting column to a numeric character (int or␣
 ↪float)
df['tradeAmount'] = df['tradeAmount'].str.strip()
df['tradeAmount'] = pd.to_numeric(df['tradeAmount'], errors='coerce')

# df['tradeAmount'] contains only numbers after cleaning

# Calculate Turnover Ratio and Conversion Rate, my two key metrics that we will␣
 ↪calculate and utilize to measure and rank our suppliers
df['Turnover Ratio'] = df['quantity'] / df['tradeAmount'] #amouunt sold/␣
 ↪current quantity in inventory
df['Conversion Rate'] = df['tradeAmount'] / df['wishedCount'] #amount sold/␣
 ↪current wished count

# Standardize each metric from 0-100, giving each score a rating on the same␣
 ↪initial plane
df['Star Rating Score'] = (df['averageStar'] / 5) * 100
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df['Turnover Score'] = (df['Turnover Ratio'] / df['Turnover Ratio'].max()) * 100
df['Conversion Score'] = (df['Conversion Rate'] / df['Conversion Rate'].max())␣
 ↪* 100

# Weighted final score, asscociated weights are as follows
#Star rating encompasses 40% of my final supplier score, Turnover score 35%,␣
 ↪and Conversion score 25%.
#Weights of course reflect my personal judgement and opinions in terms of my␣
 ↪analysis and could misconstrue the totality of our suppliers viability. This␣
 ↪completely depends on the business you run, the weights are subjective.
df['Final Score'] = (
    df['Star Rating Score'] * 0.4 +
    df['Turnover Score'] * 0.35 +
    df['Conversion Score'] * 0.25
)

# Setting final score to 0 if 'tradeAmount' is 0 to remove bias and error␣
 ↪asscociated with companies that have 0 sales (inheritely untrustworthy)
df.loc[df['tradeAmount'] == 0, 'Final Score'] = 0

#To measure our suppliers (based on the above criteria)
# Calculate the 90th percentile threshold
threshold = df['Final Score'].quantile(0.9)

# Filter for my top 10% suppliers
top_10_percent = df[df['Final Score'] >= threshold]

# Sort by Final Score 'descending' to cleanly distinguish our best suppliers
top_10_percent = top_10_percent.sort_values(by='Final Score', ascending=False)
print('top_10_percent')
print(top_10_percent)

# Save to Excel or print
top_10_percent.to_excel('aliexpress_top_10_percent.xlsx', index=False)

print(df[['title', 'Star Rating Score', 'Turnover Ratio', 'Conversion Rate',␣
 ↪'Final Score']])
```

```
top_10_percent
                                                  title  averageStar  \
1996  Pet Dog Cat Car Seat Belt For Accessories Good…          5.0
1     Rechargeable Mini Pet Communication Small Reco…          5.0
7     Cats and Dogs Pet Plush Dinosaur Toys Interact…          5.0
29    Degradable Dog Poop Bag Dispenser LED light Wa…          5.0
30    Dog Shock Collar - Dog Training Collar for Dog…          5.0
…                                                   …          …
101   7.5 x 7.5 x 5.6 foot outdoor dog house with ro…          5.0
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119   Yellow Duck bubble pet cleaning machine, USB c…          5.0
129   20cm Cat Favor Fish Toy Stuffed Fish Shape Cat…          5.0
133   Smart Cat Toy Car Interactive Cat Toy Ball Aut…          5.0
135   Multifunctional Cat Steamy Brush 2024 New 3 in…          5.0

      quantity  tradeAmount  wishedCount  Turnover Ratio  Conversion Rate  \
1996       598         34.0           14       17.588235         2.428571
1         1986         28.0           64       70.928571         0.437500
7           78         98.0           85        0.795918         1.152941
29           8          4.0            5        2.000000         0.800000
30       39990          9.0           45     4443.333333         0.200000
…            …            …            …               …                …
101         18          8.0           35        2.250000         0.228571
119         70         52.0           41        1.346154         1.268293
129       2481        195.0          108       12.723077         1.805556
133       7949         43.0           69      184.860465         0.623188
135         52         12.0           41        4.333333         0.292683

      Star Rating Score  Turnover Score  Conversion Score  Final Score
1996              100.0             0.0               0.0         40.0
1                 100.0             0.0               0.0         40.0
7                 100.0             0.0               0.0         40.0
29                100.0             0.0               0.0         40.0
30                100.0             0.0               0.0         40.0
…                     …               …                 …           …
101               100.0             0.0               0.0         40.0
119               100.0             0.0               0.0         40.0
129               100.0             0.0               0.0         40.0
133               100.0             0.0               0.0         40.0
135               100.0             0.0               0.0         40.0

[422 rows x 11 columns]
                                                  title  Star Rating Score  \
0     Mesh Litter Spatula Poop Remover Pet Cleaning …                0.0
1     Rechargeable Mini Pet Communication Small Reco…              100.0
2     Dog Cooling Bed Mat Summer Puppy Cushion Soft …               90.0
3     Automatic Pet Feeder with Active RFID Technolo…                0.0
4     Replace Plush Cat Toy Accessories Worms Replac…               98.0
…                                                   …                …
1993  Dog Birthday Party Decoration Set Pet Triangle…               96.0
1994  PuppyToothbrush Cats Toothbrush- Pet Toothbrus…              100.0
1995  Dog Toy Dogs Accessories Pet Toys Plush Toys f…               96.0
1996  Pet Dog Cat Car Seat Belt For Accessories Good…              100.0
1997  350ml/550ml Portable Dog Water Bottle Bowl Out…               98.0

      Turnover Ratio  Conversion Rate  Final Score
0        1998.600000             inf          NaN
1          70.928571        0.437500         40.0
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2          26.450000         0.526316         36.0
3                inf         0.000000          0.0
4                NaN              NaN          NaN
…                …                …            …
1993        0.288732         1.059701         38.4
1994        0.416667         1.714286         40.0
1995        7.407407         0.219870         38.4
1996       17.588235         2.428571         40.0
1997     1085.836957         1.057471         39.2

[1998 rows x 5 columns]
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