

Data Analysis Code for BU Sustainability Project

Part 1: Loading data

```
In [ ]: # Import Python functions
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
import matplotlib.cm as cm
from google.colab import drive
import datetime
%matplotlib inline
```

```
In [ ]: # Mount drive from Google Drive
drive.mount('/content/drive')
```

Drive already mounted at /content/drive; to attempt to forcibly remount, call drive.mount("/content/drive", force_remount=True).

```
In [ ]: # Loading University wide purchasing data as "df"
df = pd.read_excel('/content/drive/Shareddrives/Spark! and Sustainable
Purchasing/Data/WB Mason Toner and Coffee Purchases_no pricing.xlsx')
df
```

Out[]:

	Requisition ID	Requisitioning Date	Supplier - ERP Supplier	Description	Requester - Shopper ID	Part - Supplier Part Number	Category
0	PR8853	2020-09-08	WB Mason Company	952 Ink Cartridges - Cyan, Magenta, Yellow, 3 ...	AMBERFW	HEWN9K27AN	Toner
1	PR32062	2021-01-05	WB Mason Company	61XL Ink Cartridge, Black (CH563WN)	TWARE	HEWCH563WN	Toner
2	PR12682	2020-09-24	WB Mason Company	63 Ink Cartridges - Black, Tri-color, 2 Cartri...	SARAHBF	HEWL0R46AN	Toner
3	PR31013	2020-12-21	WB Mason Company	62 Ink Cartridge, Black (C2P04AN)	JGGOMEZ	HEWC2P04AN	Toner

4	PR28465	2020-12-09	WB Mason Company	962XL Ink Cartridge, Black (3JA03AN)	TAFELSKI	HEW3JA03AN	Toner
...
61425	PR42131	2021-02-17	WB Mason Company	French Vanilla Liquid Coffee Creamer, 0.38 oz....	AJZALESK	NES35170BX	Coffee
61426	PR42169	2021-02-17	WB Mason Company	Original Liquid Coffee Creamer, 0.38 oz. Singl...	LINHARES	NES35010	Coffee
61427	PR41858	2021-02-17	WB Mason Company	Original Liquid Coffee Creamer, 0.38 oz. Singl...	YRODRIGU	NES35110BX	Coffee
61428	PR42131	2021-02-17	WB Mason Company	Original Liquid Coffee Creamer, 0.38 oz. Singl...	AJZALESK	NES35110BX	Coffee
61429	PR42392	2021-02-17	WB Mason Company	Original Liquid Coffee Creamer, 0.38 oz. Singl...	RMREGAN	NES35110BX	Coffee

61430 rows × 7 columns

```
In [ ]: # Loading Department spending data as "df1"
df1 = pd.read_excel('/content/drive/Shareddrives/Spark! and Sustainable Purchasing/Data/Department Mason spend.xlsx')
df1 = df1.drop(columns=['Without\nPurchase Order', 'Unnamed: 19', 'Unnamed: 20']).dropna()
df1
```

Out[]:

	ARAVO Vendor ID	Vendor	Vendor Name	Type of Business	PO Creation Date	Product P/N (Vendor)	Shopper
0	10572031.0	10000800.0	WB Mason Company	OFFICE SUPPLIES & COMMERCIAL S	2016-01-06	GMT6505	TIARAT Z
1	10572031.0	10000800.0	WB Mason Company	OFFICE SUPPLIES & COMMERCIAL S	2016-01-06	NES35110BX	TIARAT Z
2	10572031.0	10000800.0	WB Mason Company	OFFICE SUPPLIES & COMMERCIAL S	2016-01-11	GMT4050	MIKEJD Z
3	10572031.0	10000800.0	WB Mason Company	OFFICE SUPPLIES & COMMERCIAL S	2016-01-11	ITD102042	MLMORRIS Z
4	10572031.0	10000800.0	WB Mason Company	OFFICE SUPPLIES & COMMERCIAL S	2016-01-12	HEWC9731A	AMACKIN Z
...
61047	10572031.0	10000800.0	WB Mason Company	OFFICE SUPPLIES & COMMERCIAL S	2020-06-04	GMT6003	ADASILVA Z
61048	10572031.0	10000800.0	WB Mason Company	OFFICE SUPPLIES & COMMERCIAL S	2020-06-04	GMT6520	ADASILVA Z
61049	10572031.0	10000800.0	WB Mason Company	OFFICE SUPPLIES & COMMERCIAL S	2020-06-04	GMT6570	ADASILVA Z
61050	10572031.0	10000800.0	WB Mason Company	OFFICE SUPPLIES & COMMERCIAL S	2020-06-04	GMT6663	ADASILVA Z
61051	10572031.0	10000800.0	WB Mason Company	OFFICE SUPPLIES & COMMERCIAL S	2020-06-08	NES35110BX	YRODRIGU Z

61048 rows × 18 columns

```
In [ ]: # Loading paper purchasing data as "df2"
excel_reader=pd.ExcelFile('/content/drive/Shareddrives/Spark! and Sustainable Purchasing/Data/WBMason Paper and Toner.xlsx')
sheet_names = excel_reader.sheet_names
df2 = excel_reader.parse(sheet_name=sheet_names[1])
df2
```

Out[]:

	Requisition ID	Requisitioning Date	Supplier - ERP Supplier	Description	Requester - Shopper ID	Sup
0	SH449754	2018-11-26	WB Mason Company	59301110 5821035628 Astrobrights Color Paper...	C- ANDREAMR	V
1	SH449839	2018-11-26	WB Mason Company	C-59311433 5821081290 78A, (CE278A) Black Orig...	JMORAN	HE
2	SH455528	2018-12-17	WB Mason Company	59869171 5823461205 Continuous Paper Label T...	C- CANNUN	BF
3	SH452999	2018-12-06	WB Mason Company	C-59620403 5822419340 12A, (Q2612A) Black Orig...	JMALZONE	HE
4	SH453242	2018-12-06	WB Mason Company	59637773 5822492854 70C1HM0 (LEX-701HM) High...	C- JANEMAH	LEX
...
7846	PR13081	2020-09-28	WB Mason Company	30% Recycled Copy Paper, 92 Bright, 20 lb., 8 ...	SARAHBF	W
7847	PR7995	2020-09-03	WB Mason Company	78 Extra Bright AND Heavy Copy Paper, 98 Bright...	CHRISQL	I
7848	PR8853	2020-09-08	WB Mason Company	952 Ink Cartridge, Black (F6U15AN)	AMBERFW	HEW
7849	PR1294	2020-08-05	WB Mason Company	C-74454871 5881962155 Premium Copy Paper, 92 B...	KPRICCI	W
7850	PR19281	2020-10-27	WB Mason Company	#10 Envelopes, 4 1/8" x 9 1/2", Gummed, 24 lb ...	NRUERAS	C

7851 rows × 16 columns

Part 2: Data Processing

Snapshot of the first 10 items in coffee and toner

```
In [ ]: coffee_req, toner_req = df[df.Category=='Coffee'], df[df.Category=='Toner']
coffee_req[:10], toner_req[:10]
```

```

Out[ ]: (      Requisition ID Requisitioning Date ... Part - Supplier Part
Number Category
    16228      SH218419      2016-01-06 ... G
MT6505  Coffee
    16229      SH218687      2016-01-06 ... G
MT6505  Coffee
    16230      SH218692      2016-01-06 ... G
MT6505  Coffee
    16231      SH218425      2016-01-06 ... G
MT6505  Coffee
    16232      SH219652      2016-01-11 ... G
MT4050  Coffee
    16233      SH219657      2016-01-11 ... ITD
102042  Coffee
    16234      SH219699      2016-01-11 ... ITD
102042  Coffee
    16235      SH219791      2016-01-12 ... TW
G08762  Coffee
    16236      SH220241      2016-01-13 ... G
MT6792  Coffee
    16237      SH220177      2016-01-13 ... G
MT4061  Coffee

[10 rows x 7 columns],
      Requisition ID Requisitioning Date ... Part - Supplier Part Number
Category
    0      PR8853      2020-09-08 ... HEWN9K27
AN  Toner
    1      PR32062      2021-01-05 ... HEWCH563
WN  Toner
    2      PR12682      2020-09-24 ... HEWL0R46
AN  Toner
    3      PR31013      2020-12-21 ... HEWC2P04
AN  Toner
    4      PR28465      2020-12-09 ... HEW3JA03
AN  Toner
    5      PR22162      2020-11-10 ... HEWCN045
AN  Toner
    6      PR37770      2021-01-28 ... HEWCC644
WN  Toner
    7      PR25272      2020-11-23 ... HEWL0R46
AN  Toner
    8      PR24179-V2      2020-11-18 ... HEWC2P05
AN  Toner
    9      PR22042      2020-11-09 ... CNM2075C0
06  Toner

[10 rows x 7 columns])

```

List of all unique items in coffee categorize

```
In [ ]: coffee_req_cat = coffee_req['Description'].str.split(',', expand=True)
coffee_req_cat[0].unique(), coffee_req_cat[1].unique(), coffee_req_cat[2].unique()
```

```
Out[ ]: (array(['Tea K-Cups Sampler', 'C-19323837|5725967831|Tea K-Cups Samp
ler',
       'C-19324327|5725970348|Tea K-Cups Sampler', ...,
       'Coffee machine service to re-program and change water filte
r. The fee to service the unit and change out the filter is $79.99',
       'Laminate Computer Table Desk with Drawer',
       'Caffe Espresso Ground Coffee'], dtype=object),
 array([' Assorted Flavors', ' 24/Box', ' .375oz', ' 24/BX', ' 22/Bo
x',
       ' Pike Place', ' Breakfast Blend', ' Paper', ' 8/10-Cup Size
',
       ' Regular Ground', ' 24/ Box', None, ' Hazelnut', ' Country
Roast',
       ' House Blend', ' Singles', ' Original', ' French Roast',
       ' Arabica', ' Cafe Verona', ' Fits 26 Pods',
       ' Classic Roast Ground', ' 25/BX', ' 25 Pods/Box',
       ' 5 2/5 x 11 x 12 3/5', ' Dark Roast', ' Sweetened Original'
',
       ' Fractional Packs', ' Black Silk', ' 12 Cup', ' 12-Cups',
       ' Signature-Level 3', ' French Vanilla', ' Cinnamon Vanilla'
',
       ' Pike Place Decaf', ' Caramel', ' 16 oz Canister', ' 2.2oz'
',
       ' 96/Carton', ' 1.5 Gallon Urn Style', ' 12-Cup Size',
       ' Caf Mocha', ' Hazelnut Creme', ' 2/BX', ' 2.2 oz. bags',
       ' Classic Roast', ' Verona', ' Light Roast', ' 8 Compartment
s',
       ' 10 to 12-Cups', ' 16/Box', ' Breakfast Blend Decaf',
       ' Vernanda Blend', ' Lemon', ' Ground', ' Medium Roast', ' P
each',
       ' Italian Sweet Creme', ' French Vanilla Flavor .375 oz.',
       ' Vanilla Caramel', ' Colombian', ' Pre-Measured', ' 25 Per
Box',
       ' French Caramel', ' Pike Place Roast', ' Decaf', ' Whole Be
an',
       ' 12 oz', ' Coffee Bean', ' Regular House Blend', ' 7 oz Bot
tle',
       ' Coffee', ' Sugar Free', ' Breakfast Blend-Level 2', ' Rasp
berry',
       ' Kona Blend', ' 42/CT', ' 2.2 OZ', ' 14 oz.', ' 12 Cups',
       ' 2 Ounces', ' Decaf Signature-Level 3', ' Mini Cups',
       ' 18 1/4 x 6 5/8 x 9 7/8', ' 5 1/2" Long', ' 2.5oz',
       ' 13 23/50 x 12 87/100 x 2 18/25', ' 22/BX',
       ' Raspberry Chocolate Truffle', ' Premium Blend',
       ' Ultimate Roast', ' Vienna', ' 9/BX', ' 16 oz. Bottle', ' 1
60/PK',
       ' Decaffeinated Ground Coffee', ' Red/White', ' 12oz Bottle'
',
       ' Brown', ' Classic Roast Decaffeinated', ' K-Cup Pods',
```

' Half Caff', ' Espresso', ' Espresso Roast', ' Get Up Stand Up',
' 1.5oz', ' 6 Gallon Urn Style', ' 100% Colombian Supremo',
' .44 oz.', ' Fraction Pack', ' 3-Gallon Urn Style',
' Colombian Decaf', ' Decaf Pike Place Roast', ' 100% Colombian',
' Morning Blend', ' 70/BX', ' Coffee Design',
' Swiss Hazelnut Coffee', ' 100% Colombian Coffee',
' 100% Colombian Decaf', ' 1.5 Gallon Brewer', ' 2.2 oz.',
' Black', ' Simmer Down Swiss Water Decaf',
' 100% Colombian Regular', ' 16oz', ' 2.5 oz.',
' Salted Caramel Chocolate', ' Caf Domingo',
" Major Dickason's Blend", ' 2.2lb Bag', ' Full City',
" Dunkin' Dark", ' Original Blend', ' Vanilla Hazelnut Decaf
'
' Fits 72 Pods', ' Vanilla Hazelnut', ' Caf Domingo Blend',
' KCUP',
' Dulce De Leche', ' Sumatra', ' 3/25oz',
' Fair Trade Organic House Blend', ' Colombian Supremo',
' Reserve', ' Privateer Dark', ' Firefly Decaf',
' Donut Shop Original', ' Colombia Las Hermosas', ' 96/CT',
' Vermont Country Blend', ' 1.75 oz.', ' Naturally Decaffeinated',
' Colombian Blend', ' Level 4', ' Chocolate Coconut Cake',
' Insulated', ' Classic Bold', ' Guatemala', ' Vienna Espresso',
' Hazelnut Decaf', ' Smooth AND Rich Ground Coffee',
' Simply Smooth', ' Decaf Green Tea', ' 4 Compartments',
' Raspberry Chocolate Lava', ' Peppermint Bark',
' Jamaican Me Crazy', ' 10 Gallon Urn Style', ' 100 Count',
' Natural Cinnamon', ' Pumpkin Spice', ' 24 x 11 4/5 x 12 1/2
'
' 0.38 oz. Single-Serve Cups', ' 0.3 oz. Single-Serve Cups',
' 0.44 oz. Single-Serve Cups', ' 16 oz. Canisters',
' 22 oz. Canister', ' 12 oz. Reclosable Canisters',
' 12 oz. Reclosable Canister', ' 12 oz. Canister',
' Caramel Hideaway', ' 15 oz. Canister', ' 11 oz. Canister',
' 35.3 oz. Tub', ' 1.5 L Pump Bottle', ' Vienna Coffee House
'
' Regular', ' Dark Magic', ' Caramel Vanilla', ' Donut Shop'
'
' Big Bang', ' 196/CT', " Dunkin' Turbo", ' For Coffee Brewr',
" Dunkin' Decaf", ' 7 1/2" Long', ' Veranda Blend', ' 3g Pac
kets',
' 10.2 oz. Canister', ' Fits 36 Pods', ' 2.8g Packets', ' 16
/BX',
' 20/BX', ' Sumatra Reserve', ' Special House Blend',
' Black Mesh', ' 0.1oz Stick', ' Black Gold', ' Cinnamon Cof
fee',
' Colombia Luminosa', ' Trailblazer', ' Lantern Glow',
' Pioneer Blend', ' Chocolate Espresso', ' Maple Glazed',
' Double Caff', ' Cold Brew Coffee',

' and Michael Khoury will be submitting a service call on my behalf.',
 ' Tea', " Dukale's Blend", ' 11 oz. Canisters'], dtype=object),
array([' 22/Box', None, ' 180/Carton', ' Ground', ' 12oz', ' 100/Pack',
 ' 30.6 oz Canister', ' 2 1/2 Packet', ' 0.375 oz Cups',
 ' 31.1 oz Canister', ' Original', ' 0.375 oz Mini-Cups', ' 8
oz',
 ' 2.5oz Packet', ' 14 3/4 x 13 1/4 x 2 3/4', ' 30.5 oz. Can'
,
 ' 25/BX', ' Black', ' 24/BX', ' 16oz', ' 1500mL Pump Dispens
er',
 ' 2.5oz', ' 24.2 oz Canister', ' Vanilla Caramel', ' 16 oz.'
,
 ' 500/CT', ' 10oz', ' White', ' 2 oz Packet', ' 0.4375 oz Cu
p',
 ' 0.375 oz Mini Cups', ' 2 1/2 oz Packet',
 ' 1.62 oz Squeeze Bottle', ' 8/Carton', ' 100/Carton', ' 500
/Pack',
 ' 250/Pack', ' 12 oz Bag', ' 12 to 15 Cups', ' 100/CT',
 ' 16oz Jar', ' 24/Box', ' 50/Carton', ' 2.5 oz Pack', ' 2.5o
z Bag',
 ' Medium', ' Single Cup', ' 1500mL Pump Bottle', ' 384/Carto
n',
 ' Pike Place Decaf', ' 2.5 lbs', ' 2.5 oz Frack Pack',
 ' 200 Creamers/Carton', ' 20oz', ' 2.25oz.', ' .44 oz Liquid
,
 ' 1.5 oz.', ' 1 lb Bag', ' Whole Bean', ' 12 oz.', ' Coffee
Haze',
 ' 18/Box', ' 0.75 oz', ' 6 oz.', ' 2.75 oz.', ' 1.5 oz Pack'
,
 ' 42 Per Case', ' 1000 Filters/Carton', ' .44oz Cup', ' 42/C
ase',
 ' French Vanilla', ' Woodgrain', ' Caramel Drizzle', ' 1.5oz
Pack',
 ' 12/Box', ' 5 lb.', ' Breakfast Blend', ' .44 oz. Cups',
 ' 8 oz Can', ' Traditional Roast', ' 29.3 oz Can', ' Plastic
,
 ' 200/Carton', ' Morning Caf', ' 10 oz. Squat', ' 4 Boxes/Ca
rton',
 ' 4/CT', ' 8 oz.', ' 25.4 oz Canister', ' 1000/Carton',
 ' 21oz Pump Bottle', ' 10 oz Brick Pack', ' 8 oz Bag',
 ' 42/Carton', ' 250/Carton', ' 2.5 oz.', ' 48/BX',
 ' 12 oz Canister', ' Gourmet Supreme', ' 252/Carton', ' 15/B
X',
 ' 500/Carton', ' Hawaiian Islands Blend', ' 1000/CT', ' Bold
,
 ' 50/CT', ' 4 BX/CT', ' 7.76 x 15.98 x 5 1/4', ' Decaf',
 ' French Roast', ' 0.38 oz. Mini Cup', ' Medium Roast',
 ' 2.5 oz. Frack Pack', ' Vacuum-Packed', ' Dark Roast',
 ' 18.4 oz. Bag', ' 20 oz. Bag', ' 11 oz. Bag', ' 12 oz. Bag'
,

```

        ' 12 3/4"w x 12 1/2" x 5"h', ' Mild Roast',
        ' STARBUCKS PIKE PLACE DECAF', ' Colombia', ' 0.39 oz.',
        ' Italian Roast', '.375 oz.', ' 42/CS', ' 2 oz. Bag', ' 0.3
oz.,
        ' Dark', ' Stick Packets', ' Mini Cups', ' Light Roast',
        ' Satin Finish', ' Light', '.44 oz Cups', ' 8.46-Ounce',
        ' 31oz Can', ' House Blend', ' 1 lb. Bag', ' 4BX/CT', ' 22/B
X',
        ' 24.2 oz. Canister', ' 15/Box', ' 22.6 oz.', ' 24/Bx', ' 3/
BX',
        ' 10 oz', ' 50/BX', ' 384/CS', ' 8/CT', ' 180/CS', ' 384/CT'
,
        ' 180/CT', ' 3/PK', ' 360/CS', ' 25.1 oz.', ' 34.5oz Can',
        ' Medium-Dark', ' 18 oz.', ' 192/CT', ' 2 oz Pack', ' 200/CT
',
        ' K-Cup', ' 200/CS', ' 2.25 oz.', ' 12 1/2"w x 13 1/4"d x 3
1/8" h',
        ' 10 oz Can', ' 18 oz. Bag', ' 18/Carton',
        ' 5 2/5"w x 12 3/5"d x 11" h', ' 5/Box', ' Dark Roast Ground'
,
        ' 0.375 oz.', ' Medium Dark Roast Ground', ' Light Roast Gro
und',
        ' Medium Roast Ground', ' 9 oz.', ' Green', ' 12/CS',
        ' English Breakfast', ' Lemon Ginger'], dtype=object))

```

List of all unique items in toner categorize

```
In [ ]: toner_req_cat = toner_req['Description'].str.split(',', expand=True)
toner_req_cat[0].unique(), toner_req_cat[1].unique(), toner_req_cat[2]
.unique()
```

```
Out[ ]: (array(['952 Ink Cartridges - Cyan', '61XL Ink Cartridge',
       '63 Ink Cartridges - Black', ..., 'C-29404873|5772035762|130
A',
       'C-22196188|5738506362|X264H11G High-Yield Toner',
       'C-19635261|5727182732|HP 78A'], dtype=object),
 array(['Magenta', 'Black (CH563WN)', 'Tri-color', 'Black (C2P04
AN)',
       'Black (3JA03AN)', 'Black (CN045AN)', 'Tri-color (CC644WN
)', 'Black (C2P05AN)', 'Black', 'Black (F6U19AN)', 'Paper',
       'Black (T6M14AN)', 'Black (3YM56AN)', 'Black (N9K04AN)', 'Black
(F6U64AN)', 'Tri-color (N9J89AN)', 'Black (N9J90AN
)', '2 Cartridges (3YN96AN)', 'Black (F6U62AN)', 'Tri-color
(F6U63AN)', 'Tri-color (N9K03AN)', 'Black (CH5
61WN)', 'Black (F6U15AN)', '2 Cartridges (3JB40AN)', 'Tri-color
(CH562WN)', '(C9370A) Photo Black Original Ink Cartridge', 'Black
(3YL
65AN)',
```

None, ' Magenta (CN055AN)', ' Black (CN049AN)', ' Cyan (CN054AN)',
' (C9449A) Photo Black Original Ink Cartridge', ' Black (CN053AN)',
' Yellow (CN056AN)', ' (C9374A) Gray Original Ink Cartridge'
,

' (C9372A) Magenta Original Ink Cartridge',
' (C9373A) Yellow Original Ink Cartridge',
' (C9403A) Matte Black Original Ink Cartridge', ' Black (C8767WN)',
' Cyan (L0S61AN)', ' Yellow (L0S67AN)', ' Magenta (L0S64AN)'
,

' Tri-color (F6U61AN)', ' Black (N9K02AN)', ' Tri-color (N9K01AN)',
' Magenta (CN047AN)', ' Cyan (CN046AN)', ' Yellow (CN048AN)'
,

' 2 Cartridges (3YP22AN)', ' Tri-color (C2P06AN)',
' Tri-color (CC656AN)', ' Black (CB336WN)', ' Black (CC641WN)
)',
' Black (CC640WN)', ' Tri-color (C2P07AN)', ' Black (C4906AN)
)',
' Cyan', ' Black (CC654AN)', ' 2 Cartridges (L0S28AN)',
' Black (L0R39AN)', ' 2 Cartridges (3YP21AN)', ' Black (CN057AN)',
' (C4912A) Magenta Original Ink Cartridge',
' (N9H64FN) 2-pack Black/Tri-Color Original Ink Cartridges',
' (CN069FN) 2-pack Black/Tri-color Original Ink Cartridges',
' (CR314FN) 3-pack Cyan/Magenta/Yellow Original Ink Cartridges',
' (C8766WN) Tri-color Original Ink Cartridge',
' (CN045AN) High Yield Black Original Ink Cartridge',
' (F6U62AN) Black Original Ink Cartridge',
' (C8765WN) Black Original Ink Cartridge',
' (C2P07AN) High Yield Tri-color Original Ink Cartridge',
' (CB324WN) High Yield Magenta Original Ink Cartridge', ' 80
z',
' (CD973AN) High Yield Magenta Original Ink Cartridge',
' (C2P05AN) High Yield Black Original Ink Cartridge',
' (CN060AN) Yellow Original Ink Cartridge',
' (CN059AN) Magenta Original Ink Cartridge',
' (CB322WN) High Yield Photo Black Original Ink Cartridge',
' (CD974AN) High Yield Yellow Original Ink Cartridge',
' (CD972AN) High Yield Cyan Original Ink Cartridge',
' (CH561WN) Black Original Ink Cartridge', ' Assorted Inks',
' (CN065FN) 3-pack Cyan/Magenta/Yellow Original Ink Cartridges',
' (C8721WN) Black Original Ink Cartridge',
' (C8773WN) Yellow Original Ink Cartridge',
' (C8772WN) Magenta Original Ink Cartridge',
' (C8771WN) Cyan Original Ink Cartridge', ' 1',
' (CC644WN) High Yield Tri-color Original Ink Cartridge',
' L0S67AN High Yield Yellow Original Ink Cartridge', ' 2',
' (CN684WN) High Yield Black Original Ink Cartridge',

' L0S61AN High Yield Cyan Original Ink Cartridge',
' (CN049AN) Black Original Ink Cartridge',
' (CN052AN) Yellow Original Ink Cartridge',
' (CN050AN) Cyan Original Ink Cartridge',
' (CC640WN) Black Original Ink Cartridge',
' (CN051AN) Magenta Original Ink Cartridge',
' (CN047AN) High Yield Magenta Original Ink Cartridge', ' Wh
ite',
' (CN048AN) High Yield Yellow Original Ink Cartridge',
' (CN046AN) High Yield Cyan Original Ink Cartridge',
' (CB325WN) High Yield Yellow Original Ink Cartridge',
' 3 3/5 x 6 1/2"', ' 6oz',
' (CC641WN) High Yield Black Original Ink Cartridge',
' (C9371A) Cyan Original Ink Cartridge', ' 20lb',
' (CB327FN) Black / 95',
' (F6U61AN) Tri-Color Original Ink Cartridge',
' (C4913A) Yellow Original Ink Cartridge',
' (51645A) Black Original Ink Cartridge',
' (C4906AN) High Yield Black Original Ink Cartridge',
' (C2P04AN) Black Original Ink Cartridge',
' (CB323WN) High Yield Cyan Original Ink Cartridge',
' (L0R46AN) 2-pack Black/Tri-Color Original Ink Cartridges',
' (C6578DN) Tri-Color Original Ink Cartridge',
' (CB320WN) Yellow Original Ink Cartridge',
' (CB318WN) Cyan Original Ink Cartridge',
' (CN054AN) High Yield Cyan Original Ink Cartridge',
' (CN053AN) High Yield Black Original Ink Cartridge',
' (C2P23AN) High Yield Black Original Ink Cartridge',
' (CN055AN) High Yield Magenta Original Ink Cartridge',
' (CN056AN) High Yield Yellow Original Ink Cartridge',
' (CZ074FN) 2-pack Tri-color Original Ink Cartridges',
' Fits 12-16oz Paper Hot Cups',
' (L0S28AN) 2-pack Black Original Ink Cartridge',
' (CZ071FN) 2-pack Black Original Ink Cartridges',
' (C2P06AN) Tri-color Original Ink Cartridge',
' (CC653AN) Black Original Ink Cartridge',
' (C9361WN) Tri-color Original Ink Cartridge',
' (C9364WN) Black Original Ink Cartridge', ' (C9353FN) Black
/ 97',
' (CN058AN) Cyan Original Ink Cartridge',
' (C8731WN) High Yield Magenta Original Ink Cartridge',
' (CH563WN) High Yield Black Original Ink Cartridge',
' (CH564WN) High Yield Tri-color Original Ink Cartridge',
' (CZ131A) Magenta Original Ink Cartridge',
' (CZ133A) Black Original Ink Cartridge',
' (CZ132A) Yellow Original Ink Cartridge',
' (C9396AN) High Yield Black Original Ink Cartridge',
' (CZ130A) Cyan Original Ink Cartridge', ' Pink Grapefruit',
' (C8767WN) Black Original Ink Cartridge',
' (CH568A) Yellow Original Ink Cartridge',
' (3YP00AN) 3-Pack Cyan/Magenta/Yellow Original Ink Cartridg
e',
' (CH566A) Cyan Original Ink Cartridge',

' (CC643WN) Tri-color Original Ink Cartridge',
' (CH565A) Black Original Ink Cartridge',
' (3JA03AN) High Yield Black Original Ink Cartridge',
' (CH567A) Magenta Original Ink Cartridge',
' (F6U64AN) High Yield Black Original Ink Cartridge', ' 12/1
4 oz',
' (CD975AN) High Yield Black Original Ink Cartridge',
' (CB337WN) Tri-color Original Ink Cartridge',
' (CB335WN) Black Original Ink Cartridge',
' (C4902AN) Black Original Ink Cartridge',
' (CH562WN) Tri-color Original Ink Cartridge', ' 12oz',
' (C9509FN) Black / 22', ' (CN057AN) Black Original Ink Cart
ridge',
' (C6656AN) Black Original Ink Cartridge',
' (CN628AM) High Yield Yellow Original Ink Cartridge',
' (CN626AM) High Yield Cyan Original Ink Cartridge',
' (CN627AM) High Yield Magenta Original Ink Cartridge',
' (C4911A) Cyan Original Ink Cartridge',
' (CN625AM) High Yield Black Original Ink Cartridge',
' (CB336WN) High Yield Black Original Ink Cartridge',
' (C9454A) Yellow Original Ink Cartridge',
' (C9453A) Magenta Original Ink Cartridge',
' (C9452A) Cyan Original Ink Cartridge',
' (C9451A) Light Gray Original Ink Cartridge',
' (C9448A) Matte Black Original Ink Cartridge',
' (CC635A) Black Original Ink Cartridge',
' (C4871A) Black Original Ink Cartridge',
' (C4904AN) Magenta Original Ink Cartridge',
' (C4903AN) Cyan Original Ink Cartridge',
' (C4905AN) Yellow Original Ink Cartridge',
' (CR259FN) 2-pack Black/Tri-Color Original Ink Cartridges',
' 400 Pg-Yld', ' (C8727AN) Black Original Ink Cartridge', '
16oz',
' (C2P51FN) 2-pack Black Original Ink Cartridges',
' (CC659FN) Black / 75',
' (C9363WN) Tri-color Original Ink Cartridge',
' (C9387AN) Magenta Original Ink Cartridge',
' (CB338WN) High Yield Tri-color Original Ink Cartridge',
' (C9385AN) Black Original Ink Cartridge',
' (C9388AN) Yellow Original Ink Cartridge',
' (C9386AN) Cyan Original Ink Cartridge',
' (CZ073FN) 2-pack Black Original Ink Cartridges',
' 3-pack Cyan/Magenta/Yellow Original Ink Cartridges',
' (C8730WN) High Yield Cyan Original Ink Cartridge',
' (C2P26AN) High Yield Yellow Original Ink Cartridge',
' (C2P25AN) High Yield Magenta Original Ink Cartridge',
' (C2P24AN) High Yield Cyan Original Ink Cartridge', ' 28 x
22',
' (CB319WN) Magenta Original Ink Cartridge',
' (CB317WN) Photo Black Original Ink Cartridge',
' (CB316WN) Black Original Ink Cartridge',
' (CN633A) Photo Black Original Ink Cartridge',
' (C2P22AN) Yellow Original Ink Cartridge',

' (C2P19AN) Black Original Ink Cartridge',
' (C2P21AN) Magenta Original Ink Cartridge',
' (C2P20AN) Cyan Original Ink Cartridge',
' (C6657AN) Tri-color Original Ink Cartridge',
' (C8728AN) Tri-color Original Ink Cartridge',
' (CH634AN) Cyan Original Ink Cartridge',
' (CH636AN) Yellow Original Ink Cartridge',
' (CD971AN) Black Original Ink Cartridge',
' (C6578AN) High Yield Tri-Color Original Ink Cartridge',
' (CH635AN) Magenta Original Ink Cartridge',
' (C9393AN) High Yield Yellow Original Ink Cartridge',
' Fits 8oz Hot Drink Cups',
' (F6U63AN) High Yield Tri-Color Original Ink Cartridge',
' (C8774WN) Light Cyan Original Ink Cartridge',
' (C8775WN) Light Magenta Original Ink Cartridge',
' (C6614D) Large Black Original Ink Cartridge',
' (C9351AN) Black Original Ink Cartridge',
' (CN621AM) Black Original Ink Cartridge',
' (C9352AN) Tri-color Original Ink Cartridge',
' (C6625A) Tri-color Original Ink Cartridge',
' (C6615DN) Black Original Ink Cartridge',
' (C9353FN) Black / HP 97',
' (CZ075FN) 2-pack Black Original Ink Cartridges',
' (CC656AN) Tri-color Original Ink Cartridge', ' Crisp Clean
,

' (N9H63FN) 2-pack Black/Tri-Color Original Ink Cartridges',
' (C4844A) Black Original Ink Cartridge',
' (CC654AN) High Yield Black Original Ink Cartridge',
' (B6Y21A) Photo Black Original Ink Cartridge',
' (B6Y22A) Light Gray Original Ink Cartridge', ' High-Yield'
,

' 13 1/2 x 20', ' Black (CN684WN)', ' Magenta (T6L90AN)',
' Tri-color (CH564WN)', ' (L0S27AN) Black Original Ink Cartridge',
' Drink Jar', ' Fits 12-16oz (Large) Paper Hot Cups',
' (C9455A) Light Magenta Original Ink Cartridge', ' 12 AND 1
6oz',
' (CN624AM) Yellow Original Ink Cartridge',
' (CN623AM) Magenta Original Ink Cartridge',
' (CN622AM) Cyan Original Ink Cartridge',
' (C1823D) Tri-color Original Ink Cartridge',
' (N9J90AN) Black Original Ink Cartridge', ' 2/Pk', ' 2 oz.'

' (C9390A) Light Cyan Original Ink Cartridge',
' (B6Y17A) Magenta Original Ink Cartridge',
' (B6Y19A) Light Magenta Original Ink Cartridge',
' (CE037A) Matte Black Original Ink Cartridge',
' (C9391AN) High Yield Cyan Original Ink Cartridge',
' (B6Y20A) Light Cyan Original Ink Cartridge',
' (B6Y18A) Yellow Original Ink Cartridge',
' (C9392AN) High Yield Magenta Original Ink Cartridge',
' (B6Y16A) Chromatic Red Original Ink Cartridge',
' (C8732WN) High Yield Yellow Original Ink Cartridge',

' (C4908AN) High Yield Magenta Original Ink Cartridge', ' 10
oz',
' Black High Yield', ' Replacement for HP 508A (CF360A)',
' Yellow', ' Replacement for Brother TN450',
' (CF362A) Yellow Original LaserJet Toner Cartridge',
' Replacement for HP 64AM (CC364AM)', ' 6000 Page-Yield',
' (CE410X-D) 2-pack High Yield Black Original LaserJet Toner
Cartridges',
' Magenta High Yield', ' Yellow High Yield', ' Cyan High Yie
ld',
' 14400 Page-Yield', ' Replacement for HP 26X (CF226X)',
' Replacement for Dell B2360 (3319803)', ' 43000 Page-Yield'
,' (CF353A) Magenta Original LaserJet Toner Cartridge',
' Replacement for HP 508X (CF363X)',
' Replacement for HP 87A (CF287A)', ' Super High-Yield Toner
,' 3000 Page-Yield', ' (CE254A) Toner Collection Unit',
' Standard-Yield', ' CF-280X', ' 20000 Page-Yield',
' (CB542A) Yellow Original LaserJet Toner Cartridge',
' (CE410A) Black Original LaserJet Toner Cartridge',
' (CE278A) Black Original LaserJet Toner Cartridge',
' (CF382A) Yellow Original LaserJet Toner Cartridge',
' (CF383A) Magenta Original LaserJet Toner Cartridge',
' (CE251A) Cyan Original LaserJet Toner Cartridge',
' (Q2612A) Black Original LaserJet Toner Cartridge',
' (CB541A) Cyan Original LaserJet Toner Cartridge',
' (CE250X) High Yield Black Original LaserJet Toner Cartridg
e',
' (CF381A) Cyan Original LaserJet Toner Cartridge',
' (CF360A) Black Original LaserJet Toner Cartridge',
' (CF380A) Black Original LaserJet Toner Cartridge',
' (CE400A) Black Original LaserJet Toner Cartridge',
' (CF461X) Cyan Original LaserJet Toner Cartridge',
' (CE260A) Black Original LaserJet Toner Cartridge',
' 4000 Page-Yield',
' (CE390A) Black Original LaserJet Toner Cartridge', ' 2/BX'
,' 17200 Page-Yield',
' (CF370A-M) 3-pk Cyan/Magenta/Yellow Original LaserJet Tone
r Cartridges',
' (CE505A) Black Original LaserJet Toner Cartridge',
' (CC364A) Black Original LaserJet Toner Cartridge',
' (CB540A) Black Original LaserJet Toner Cartridge',
' (CE253A) Magenta Original LaserJet Toner Cartridge',
' (CB543A) Magenta Original LaserJet Toner Cartridge',
' (CE252A) Yellow Original LaserJet Toner Cartridge',
' (CF400X) High Yield Black Original LaserJet Toner Cartridg
e',
' (CF360X) High Yield Black Original LaserJet Toner Cartridg
e',
' 24000 Page-Yield',
' (CF460X) Black Original LaserJet Toner Cartridge',

' (CF440A-M) 3-pk Cyan/Magenta/Yellow Original LaserJet Toner Cartridges',
' (CF500A) Black Original LaserJet Toner Cartridge',
' (Q5952A) Yellow Original LaserJet Toner Cartridge', ' 3',
' (CC364X) High Yield Black Original LaserJet Toner Cartridge',
' 9', ' (Q6470A) Black Original LaserJet Toner Cartridge',
' (CC531A) Cyan Original LaserJet Toner Cartridge', ' 18',
' (CC532A) Yellow Original LaserJet Toner Cartridge',
' (CE412A) Yellow Original LaserJet Toner Cartridge',
' (CE413A) Magenta Original LaserJet Toner Cartridge',
' (CC533A) Magenta Original LaserJet Toner Cartridge', ' 6',
' (CE505D) 2-pack Black Original LaserJet Toner Cartridges',
' (CE411A) Cyan Original LaserJet Toner Cartridge',
' (CF280A) Black Original LaserJet Toner Cartridge',
' (CF280X) High Yield Black Original LaserJet Toner Cartridge',
' (CC530A) Black Original LaserJet Toner Cartridge',
' (CF410X-D) 2-pack High Yield Black Original LaserJet Toner Cartridges',
' (CF501A) Cyan Original LaserJet Toner Cartridge',
' (CF502A) Yellow Original LaserJet Toner Cartridge',
' (CF503A) Magenta Original LaserJet Toner Cartridge',
' (CF403A) Magenta Original LaserJet Toner Cartridge',
' (CF213A) Magenta Original LaserJet Toner Cartridge',
' (CF340A) 3-pack Cyan/Magenta/Yellow Original LaserJet Toner Cartridges',
' (CF363A) Magenta Original LaserJet Toner Cartridge',
' (CF401A) Cyan Original LaserJet Toner Cartridge',
' (CC530A-D) 2-pack Black Original LaserJet Toner Cartridges',
' (CF211A) Cyan Original LaserJet Toner Cartridge',
' (CE255X) High Yield Black Original LaserJet Toner Cartridge',
' (Q7553A) Black Original LaserJet Toner Cartridge',
' (CE278D) 2-pack Black Original LaserJet Toner Cartridges',
' (CB436D) 2-pack Black Original LaserJet Toner Cartridges',
' (CF402A) Yellow Original LaserJet Toner Cartridge',
' (CF212A) Yellow Original LaserJet Toner Cartridge',
' (CF331A) Cyan Original LaserJet Toner Cartridge',
' (CF380X) High Yield Black Original LaserJet Toner Cartridge',
' (CF283A) Black Original LaserJet Toner Cartridge',
' (CF210A) Black Original LaserJet Toner Cartridge',
' (CE390X) High Yield Black Original LaserJet Toner Cartridge',
' (CF320A) Black Original LaserJet Toner Cartridge',
' (CF510A) Black Original LaserJet Toner Cartridge',
' (CE410X) High Yield Black Original LaserJet Toner Cartridge',
' Cyan/Magenta/Yellow',
' (CF226X-D) 2-pack High Yield Black Original LaserJet Toner Cartridges',

' (CF362X) High Yield Yellow Original LaserJet Toner Cartridge',
' (CE285D) 2-pack Black Original LaserJet Toner Cartridges',
' (CF400A) Black Original LaserJet Toner Cartridge',
' (CF363X) High Yield Magenta Original LaserJet Toner Cartridge',
' 2500 Page-Yield',
' (CF351A) Cyan Original LaserJet Toner Cartridge',
' (CE270A) Black Original LaserJet Toner Cartridge',
' (Q5949A) Black Original LaserJet Toner Cartridge',
' (CE255A) Black Original LaserJet Toner Cartridge',
' (CE261A) Cyan Original LaserJet Toner Cartridge',
' (CF361X) High Yield Cyan Original LaserJet Toner Cartridge',
,

' (CB400A) Black Original LaserJet Toner Cartridge',
' (Q5942X-D) 2-pack High Yield Black Original LaserJet Toner Cartridges',
' (CE262A) Yellow Original LaserJet Toner Cartridge',
' (CF332A) Yellow Original LaserJet Toner Cartridge',
' (CF333A) Magenta Original LaserJet Toner Cartridge',
' 10000 Page-Yield',
' (C8543X) High Yield Black Original LaserJet Toner Cartridge',
,

' (CE263A) Magenta Original LaserJet Toner Cartridge',
' (Q5942X) High Yield Black Original LaserJet Toner Cartridge',
,

' (CE260X) High Yield Black Original LaserJet Toner Cartridge',
,

' (CE400X) High Yield Black Original LaserJet Toner Cartridge',
,

' (Q5950A) Black Original LaserJet Toner Cartridge',
' (CF281A) Black Original LaserJet Toner Cartridge',
' (CF280X-D) 2-pack High Yield Black Original LaserJet Toner Cartridges',
' 9000 Page-Yield', ' Return Program', ' 1500 Page-Yield',
' (CF281X) High Yield Black Original LaserJet Toner Cartridge',
,

' (Q7551X) High Yield Black Original LaserJet Toner Cartridge',
,

' Yellow',
' (CF500X) High Yield Black Original LaserJet Toner Cartridge',
,

' (CE505X-D) 2-pack High Yield Black Original LaserJet Toner Cartridges',
' (CF330X) High Yield Black Original LaserJet Toner Cartridge',
,

' 3100 Page-Yield',
' (CE312A) Yellow Original LaserJet Toner Cartridge',
' (C7115X) High Yield Black Original LaserJet Toner Cartridge',
,

' 1000 Page-Yield',
' (CE255X-D) 2-pack High Yield Black Original LaserJet Toner Cartridges',

' 8000 Page-Yield', ' 4100 Page-Yield',
' (Q6473A) Magenta Original LaserJet Toner Cartridge',
' 23000 Page-Yield', ' 5',
' (CF402X) High Yield Yellow Original LaserJet Toner Cartridge',
' (CE285A) Black Original LaserJet Toner Cartridge',
' (CF401X) High Yield Cyan Original LaserJet Toner Cartridge',
,

' (CF403X) High Yield Magenta Original LaserJet Toner Cartridge',
' (CE265A) Toner Collection Unit',
' (CF410AQ) 4-Pack Black; Cyan; Magenta; Yellow Original LaserJet Toner Cartridges',
' 7000 Page-Yield', ' 17800 Page-Yield', ' 19800 Page-Yield',
,

' (CF350A) Black Original LaserJet Toner Cartridge',
' 25000 Page-Yield',
' (CF352A) Yellow Original LaserJet Toner Cartridge',
' 20K Page Yield',
' (CE390X-D) 2-pack High Yield Black Original LaserJet Toner Cartridges',
' (CE250A) Black Original LaserJet Toner Cartridge',
' (Q5949X) High Yield Black Original LaserJet Toner Cartridge',
,

' (CE320A-D) 2-pack Black Original LaserJet Toner Cartridges',
,

' (Q5942A) Black Original LaserJet Toner Cartridge',
' (CE505X) High Yield Black Original LaserJet Toner Cartridge',
,

' (CE271A) Cyan Original LaserJet Toner Cartridge',
' (CB436A) Black Original LaserJet Toner Cartridge',
' (Q5951A) Cyan Original LaserJet Toner Cartridge',
' (CB401A) Cyan Original LaserJet Toner Cartridge',
' (Q2610A) Black Original LaserJet Toner Cartridge',
' 5000 Page-Yield',
' (Q6472A) Yellow Original LaserJet Toner Cartridge',
' 17200 Page-Yield', ' 3500 Page-Yield',
' (CC364X-D) 2-pack High Yield Black Original LaserJet Toner Cartridges',
' (CE743A) Magenta Original LaserJet Toner Cartridge',
' (CE742A) Yellow Original LaserJet Toner Cartridge',
' (CB403A) Magenta Original LaserJet Toner Cartridge',
' (CE741A) Cyan Original LaserJet Toner Cartridge',
' 2000 Page-Yield',
' (CE740A) Black Original LaserJet Toner Cartridge',
' 1400 Page-Yield',
' (C9722A) Yellow Original LaserJet Toner Cartridge',
' (CF512A) Yellow Original LaserJet Toner Cartridge',
' (CB435D) 2-pack Black Original LaserJet Toner Cartridges',
' (C9720A) Black Original LaserJet Toner Cartridge',
' (C9721A) Cyan Original LaserJet Toner Cartridge',
' (CF511A) Cyan Original LaserJet Toner Cartridge',
' (CF513A) Magenta Original LaserJet Toner Cartridge',

' (C9723A) Magenta Original LaserJet Toner Cartridge',
' (CB402A) Yellow Original LaserJet Toner Cartridge',
' 9500 Page-Yield', ' Black Original LaserJet Toner Cartridg
e',
' (C9733A) Magenta Original LaserJet Toner Cartridge',
' (C9731A) Cyan Original LaserJet Toner Cartridge',
' (Q6000A) Black Original LaserJet Toner Cartridge',
' (Q6002A) Yellow Original LaserJet Toner Cartridge',
' (Q6001A) Cyan Original LaserJet Toner Cartridge',
' 18000 Page-Yield',
' (C9730A) Black Original LaserJet Toner Cartridge',
' (C9732A) Yellow Original LaserJet Toner Cartridge',
' (C7115A) Black Original LaserJet Toner Cartridge',
' (Q6003A) Magenta Original LaserJet Toner Cartridge',
' (CF501X) High Yield Cyan Original LaserJet Toner Cartridge
,' (CF503X) High Yield Magenta Original LaserJet Toner Cartri
dge',
' (Q2613X) High Yield Black Original LaserJet Toner Cartridg
e',
' (Q6471A) Cyan Original LaserJet Toner Cartridge',
' (CF502X) High Yield Yellow Original LaserJet Toner Cartrid
ge',
' (CE272A) Yellow Original LaserJet Toner Cartridge',
' (CE273A) Magenta Original LaserJet Toner Cartridge',
' (CF210X) High Yield Black Original LaserJet Toner Cartridg
e',
' (Q2612D) 2-pack Black Original LaserJet Toner Cartridges',
' 11000 Page-Yield', ' 9000 Yield', '1500 Page-Yield',
' 31000 Page-Yield',
' (Q6511X) High Yield Black Original LaserJet Toner Cartridg
e',
' (CE310A) Black Original LaserJet Toner Cartridge',
' (CE313A) Magenta Original LaserJet Toner Cartridge',
' (CB435A) Black Original LaserJet Toner Cartridge', ' 5400
Yield',
' (Q7516A) Black Original LaserJet Toner Cartridge',
' 5900 Page-Yield',
' (CE402A) Yellow Original LaserJet Toner Cartridge', ' 41',
' (CE401A) Cyan Original LaserJet Toner Cartridge',
' (CE403A) Magenta Original LaserJet Toner Cartridge', ' 4',
' 23',
' 25', ' (CF462X) Yellow Original LaserJet Toner Cartridge',
' (CF463X) Magenta Original LaserJet Toner Cartridge',
' (CF400X-D) 2-pack High Yield Black Original LaserJet Toner
Cartridges',
' (CF283X) High Yield Black Original LaserJet Toner Cartridg
e',
' 11', ' (CE320A) Black Original LaserJet Toner Cartridge',
' (Q6461A) Cyan Original LaserJet Toner Cartridge', ' C736 S
eries',
' (Q5953A) Magenta Original LaserJet Toner Cartridge',
' (Q6460A) Black Original LaserJet Toner Cartridge',

' 21000 Yield',
' (Q1339A) Black Original LaserJet Toner Cartridge', ' 10',
' 6000 Yield', ' 9000 Page Yield',
' (Q6463A) Magenta Original LaserJet Toner Cartridge',
' (CF214A) Black Original LaserJet Toner Cartridge',
' (Q6462A) Yellow Original LaserJet Toner Cartridge',
' 1800 Yield', ' 2-pack Black Original LaserJet Toner Cartridges',
' (CE311A) Cyan Original LaserJet Toner Cartridge',
' (Q2624A) Black Original LaserJet Toner Cartridge',
' 1080 Page-Yield', ' 2070 Yield',
' (C4127X) High Yield Black Original LaserJet Toner Cartridges',
' 2250 Page-Yield',
' (Q7581A) Cyan Original LaserJet Toner Cartridge',
' (Q7583A) Magenta Original LaserJet Toner Cartridge',
' Return Program',
' (C4182X) High Yield Black Original LaserJet Toner Cartridges',
' (C8061X) High Yield Black Original LaserJet Toner Cartridges',
' 5500 Page-Yield', ' 2600 Page-Yield', ' 2200 Page-Yield',
' 35',
' 300 Page-Yld', ' 331-0778 (810WH) High-Yield Toner', ' 15'
,

' 17', ' 9900 Yield',
' (C4096A) Black Original LaserJet Toner Cartridge',
' (Q2612L) Economy Black Original LaserJet Toner Cartridge',
' 6300 Yield', ' 1200 Page-Yield',
' (CE310A-D) 2-pack Black Original LaserJet Toner Cartridges',
,

' (CF341A) 3-pack Cyan/Magenta/Yellow Original LaserJet Toner Cartridges',
' 30000 Page-Yield', ' 3500 Yield', ' 15000 Page-Yield',
' 8500 Page-Yield', ' 2520 Yield',
' (CB540A-D) 2-pack Black Original LaserJet Toner Cartridges',
,

' (CE259A) 3-pack Cyan/Magenta/Yellow Original LaserJet Toner Cartridges',
' Reman', ' (C4092A) Black Original LaserJet Toner Cartridge',
,

' 331-0719 (MY5TJ) High-Yield Toner',
' (CE321A) Cyan Original LaserJet Toner Cartridge',
' (Q7582A) Yellow Original LaserJet Toner Cartridge',
' (Q7553X) High Yield Black Original LaserJet Toner Cartridges',
,

' (CF371A-M) 3-pk Cyan/Magenta/Yellow Original LaserJet Toner Cartridges',
' 5850 Yield',
' (CE322A) Yellow Original LaserJet Toner Cartridge',
' (CE323A) Magenta Original LaserJet Toner Cartridge', ' 2 Pack',
' 3-pack Cyan/Magenta/Yellow Original LaserJet Toner Cartridges'

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ges',
    ' 8', ' 480-0068 (4800068) Toner', ' 22500 Page-Yield',
    '(Q1338A) Black Original LaserJet Toner Cartridge',
    ' 2340 Page-Yield', ' 1350 Yield',
    '(Q7551X-D) 2-pack High Yield Black Original LaserJet Toner
Cartridges',
    ' 4500 Page-Yield', ' 30', ' 1400 Page-Yld', 'F/2330-6K',
    '(CF033A) Magenta Original LaserJet Toner Cartridge',
    '(CF032A) Yellow Original LaserJet Toner Cartridge',
    ' 2100 Page-Yield',
    '(Q6511A) Black Original LaserJet Toner Cartridge',
    ' 2700 Page-Yield', ' 331-0717 (8WNV5) High-Yield Toner',
    ' 331-0716 (769T5) High-Yield Toner',
    ' 331-0718 (NPDXG) High-Yield Toner', ' 20000 Yield',
    ' 21600 Yield', ' 27K Page Yield',
    ' 331-0780 (5GDTC) High-Yield Toner',
    ' 331-0779 (5M1VR) High-Yield Toner',
    ' 331-0777 (79K5P) High-Yield Toner', ' 11250 Yield',
    '(CE505X) High-Yield Black Original LaserJet Toner Cartridg
e',
    '(Q5949X-D) 2-pack High Yield Black Original LaserJet Toner
Cartridges',
    '(Q7570A) Black Original LaserJet Toner Cartridge', ' 7500
Yield',
    ' 13', ' 8000 Yield',
    '(C3903A) Black Original LaserJet Toner Cartridge',
    '(Q7553X-D) 2-pack High Yield Black Original LaserJet Toner
Cartridges',
    ' 2500 Yield',
    '(CF287X-D) 2-pack High Yield Black Original LaserJet Toner
Cartridges',
    ' Replacement for Canon 137 (9435B001AA)',
    ' Replacement for HP 55AM (CE255AM)', ' 4300 Page-Yield',
    ' 1980 Yield', '(CF300A) Black Original LaserJet Toner Cart
ridge',
    '(CF320X) High Yield Black Original LaserJet Toner Cartridg
e',
    ' Laser', ' 2400 Page-Yield', ' 6100 Page-Yield',
    '(CF410XD) 2-pack High Yield Black Original LaserJet Toner
Cartridges',
    '(Q2613A) Black Original LaserJet Toner Cartridge',
    ' 4k Page Yield', '1400 Page-Yield', ' 9450 Yield',
    ' 43200 Page-Yield', ' 45000 Page-Yield',
    '(Q2672A) Yellow Original LaserJet Toner Cartridge',
    '(Q2670A) Black Original LaserJet Toner Cartridge',
    ' 2-pack High Yield Black Original LaserJet Toner Cartridges
',
    ' 2250 Yield', ' 20', ' 11700 Yield', ' 13000 Yield',
    ' 18000 Yield', ' 4400 Page-Yield',
    '(CE278A) Black Original LaserJet Toner Cartridges'],
    dtype
=object),
array([' Yellow', None, ' 2 Cartridges (L0R46AN)', ' Cyan', ' 12oz'
,
'']
```

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        ' 10oz', ' Magenta', ' 2 Cartridges (N9H63FN)',  

        ' Yellow Original Ink Cartridges', ' White',  

        ' Yellow Original Ink Cartridge', ' .5mm',  

        ' 12 oz (Fits Large Lids)', ' 600 Page-Yield', ' 000 Page-Yield',  

        ' 100/Pack', ' 9/10" Thick', ' 8-1/2 x 11',  

        ' Tri-Color 2-pack Original Ink Cartridges', ' 12 oz Pump Bottle',  

        ' Clear', ' 16oz', ' Tri-Color', ' Green/Pink/Red/Yellow',  

        ' 300/Carton', ' 1000/Carton', ' Pink', ' 10oz Squat',  

        ' Black/Cyan/Magenta/Yellow', ' 16.5oz', ' Black', ' 1200/Carton',  

        ' 8oz', ' 6', ' 2', ' 10', ' Yellow (3 pack)', ' 9',  

        ' 4500 Page-Yield', ' Toner', ' MICR High-Yield Toner Secure',  

        ' Black', ' 300 Page-Yield', ' 100 Page-Yield', ' 2600 Page-Yield',  

        ' 500 Page-Yield', ' 3/PK', ' 20K Page Yield', ' 6000 Page-Yield',  

        ' 400 pg. yield', ' 000 pg. yield', ' 100 pg. yield',  

        ' 25K Page Yield', ' 500 Page Yield', ' 5000 Page-Yield',  

        ' 7000 Page-Yield', ' 2000 Page-Yield', ' 1000 Yield',  

        ' 113R00726 Laser Toner', ' 3000 Page-Yield', ' 11000 Yield',  

        ' 2/PK', ' 8000 Page-Yield', ' 2200 Page-Yield',  

        ' 2800 Page-Yield', ' 113R00724 Laser Toner', ' 2500 Page-Yield',  

        ' F/3110C-8K', ' 1400 Page Yield', ' 1400 Page-Yield',  

        ' 6500 Yield', ' 2300 Page-Yield', ' 310-8095 Laser Toner',  

        ' Standard Yield', ' Yields approx. 3', ' 310-8093 Laser Toner'],
    dtype=object))

```

List of all unique item in paper categorize

```
In [ ]: paper_df = df2[df2['Description'].str.contains('Ream')]  
paper_df['Description'].unique()
```

```
Out[ ]: array(['C-56417606|5808667711|FIREWORX Colored Paper, 20lb, 8-1/2 x  
11, Bottle Rocket Blue, 500 Sheets/Rream',  
    'C-59489757|5821852877|FIREWORX Colored Paper, 20lb, 8-1/2 x  
11, Crackling Canary, 500 Sheets/Rream',  
    'C-56050265|5806950473|BriteHue Multipurpose Colored Paper, 2  
4lb, 8-1/2 x 11, Green, 500 Sheets/Rream, 10 Reams/Carton',  
    'C-59410909|5821512163|FIREWORX Colored Paper, 20lb, 8-1/2 x  
11, Bottle Rocket Blue, 500 Sheets/Rream',  
    'C-56050265|5806951262|Recycled Colored Paper, 20lb, 11 x 17,  
Blue, 500 Sheets/Rream, 5 Reams/Carton',  
    'C-58927034|5819472813|FIREWORX Colored Paper, 24lb, 8-1/2 x  
11, Bottle Rocket Blue, 500 Sheets/Rream',  
    'C-58231079|5816514390|FIREWORX Colored Paper, 20lb, 8-1/2 x  
14, Flashing Ivory, 500 Sheets/Rream',
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'C-58261715|5816646430|FIREWORX Colored Paper, 20lb, 8-1/2 x 11, Golden Glimmer, 500 Sheets/Rream',
'C-59961900|5823845086|FIREWORX Colored Paper, 20lb, 8-1/2 x 11, Popper-mint Green, 500 Sheets/Rream',
'C-59959747|5823843507|FIREWORX Colored Paper, 20lb, 8-1/2 x 11, Bottle Rocket Blue, 500 Sheets/Rream',
'C-59959747|5823843748|FIREWORX Colored Paper, 20lb, 8-1/2 x 11, Popper-mint Green, 500 Sheets/Rream',
'C-59961900|5823845638|FIREWORX Colored Paper, 20lb, 8-1/2 x 11, Bottle Rocket Blue, 500 Sheets/Rream',
'C-59959525|5823834848|FIREWORX Colored Paper, 20lb, 8-1/2 x 11, Crackling Canary, 500 Sheets/Rream',
'C-59959525|5823834847|FIREWORX Colored Paper, 20lb, 11 x 17, Bottle Rocket Blue, 500 Sheets/Rream',
'C-59959525|5823834849|FIREWORX Colored Paper, 20lb, 8-1/2 x 11, Popper-mint Green, 500 Sheets/Rream',
'C-59959747|5823843515|FIREWORX Colored Paper, 20lb, 8-1/2 x 11, Crackling Canary, 500 Sheets/Rream',
'C-59961900|5823845621|FIREWORX Colored Paper, 20lb, 8-1/2 x 11, Crackling Canary, 500 Sheets/Rream',
'C-57185176|5812034967|BriteHue Multipurpose Colored Paper, 60lb, 8 1/2 x 11, Red, 500 Sheets/Rream',
'C-57172990|5811982401|BriteHue Multipurpose Colored Paper, 60lb, 8 1/2 x 11, Red, 500 Sheets/Rream',
'C-56952512|5811009660|FIREWORX Colored Paper, 20lb, 8-1/2 x 14, Flashing Ivory, 500 Sheets/Rream',
'C-56955322|5811018063|FIREWORX Colored Paper, 20lb, 8-1/2 x 11, Popper-mint Green, 500 Sheets/Rream',
'C-57442604|5813167373|Fore MP Multipurpose Paper, 96 Brightness, 20lb, 210mm x 297mm, White, 500/Rream',
'C-58020470|5815608185|FIREWORX Colored Paper, 24lb, 8-1/2 x 11, Bottle Rocket Blue, 500 Sheets/Rream',
'C-58020470|5815608164|FIREWORX Colored Paper, 20lb, 8-1/2 x 11, Crackling Canary, 500 Sheets/Rream',
'C-58020470|5815608428|FIREWORX Colored Paper, 24lb, 8-1/2 x 11, Lightning Lime, 500 Sheets/Rream',
"C-58020470|5815608489|FIREWORX Colored Paper, 20lb, 8-1/2 x 11, Jammin' Salmon, 500 Sheets/Rream",
'C-58360343|5817123996|FIREWORX Colored Paper, 20lb, 8-1/2 x 11, Bottle Rocket Blue, 500 Sheets/Rream',
'C-57370661|5812861262|FIREWORX Colored Paper, 24lb, 8-1/2 x 11, Powder Pink, 500 Sheets/Rream',
'C-57370661|5812861696|FIREWORX Colored Paper, 24lb, 8-1/2 x 11, Popper-mint Green, 500 Sheets/Rream',
'C-57370661|5812860339|FIREWORX Colored Paper, 24lb, 8-1/2 x 11, Bottle Rocket Blue, 500 Sheets/Rream',
'C-58439448|5817398426|FIREWORX Colored Paper, 20lb, 8-1/2 x 11, Bottle Rocket Blue, 500 Sheets/Rream',
"C-58432650|5817371213|FIREWORX Colored Paper, 20lb, 8-1/2 x 11, Jammin' Salmon, 500 Sheets/Rream",
'C-58562561|5817910900|FIREWORX Colored Paper, 24lb, 8-1/2 x 11, Lemon Zest, 500 Sheets/Rream',
'C-58562561|5817919828|FIREWORX Colored Paper, 24lb, 8-1/2 x

11, Combustible Orange, 500 Sheets/Rream',
 'C-58578304|5817977515|Great White 30 Recycled Copy Paper, 92
Brightness, 20lb, 8-1/2 x 14, 500 Shts/Rream, 10 Reams/CT',
 'C-58556570|5817884475|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Crackling Canary, 500 Sheets/Rream',
 'C-58562561|5817910153|FIREWORX Colored Paper, 24lb, 8-1/2 x
11, Lightning Lime, 500 Sheets/Rream',
 'C-57140724|5811853505|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Smoke Gray, 500 Sheets/Rream',
 'C-57140724|5811853511|BriteHue Multipurpose Colored Paper, 6
0lb, 8 1/2 x 11, Red, 500 Sheets/Rream',
 'C-57138468|5811827263|BriteHue Multipurpose Colored Paper, 6
0lb, 8 1/2 x 11, Red, 500 Sheets/Rream',
 'C-57138468|5811827262|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Smoke Gray, 500 Sheets/Rream',
 'C-57151945|5811888964|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Smoke Gray, 500 Sheets/Rream',
 'C-57150838|5811884324|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Smoke Gray, 500 Sheets/Rream',
 'C-57151945|5811889410|BriteHue Multipurpose Colored Paper, 6
0lb, 8 1/2 x 11, Red, 500 Sheets/Rream',
 'C-57150838|5811884336|BriteHue Multipurpose Colored Paper, 6
0lb, 8 1/2 x 11, Red, 500 Sheets/Rream',
 'C-57721664|5814343584|FIREWORX Colored Paper, 24lb, 8-1/2 x
11, Aerial Aqua, 500 Sheets/Rream',
 'C-58927034|5819472960|FIREWORX Colored Paper, 24lb, 8-1/2 x
11, Crackling Canary, 500 Sheets/Rream',
 'C-59758808|5822995695|FIREWORX Colored Paper, 24lb, 8-1/2 x
11, Crackling Canary, 500 Sheets/Rream',
 'C-57126863|5811778885|FIREWORX Colored Paper, 24lb, 8-1/2 x
11, Aerial Aqua, 500 Sheets/Rream',
 'C-57126863|5811779764|FIREWORX Colored Paper, 24lb, 8-1/2 x
11, Emerald Thunder, 500 Sheets/Rream',
 'C-59477035|5821797525|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Crackling Canary, 500 Sheets/Rream',
 'C-57482824|5813342261|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Bottle Rocket Blue, 500 Sheets/Rream',
 'C-59845569|5823364414|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Popper-mint Green, 500 Sheets/Rream',
 'C-57482824|5813341639|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Popper-mint Green, 500 Sheets/Rream',
 'C-57044317|5811413772|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Bottle Rocket Blue, 500 Sheets/Rream',
 'C-57993918|5815491823|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Powder Pink, 500 Sheets/Rream',
 'C-58081646|5815876595|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Powder Pink, 500 Sheets/Rream',
 'C-56063401|5807007812|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Bottle Rocket Blue, 500 Sheets/Rream',
 'C-56063401|5807007824|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Luminous Lavender, 500 Sheets/Rream',
 'C-57993918|5815492763|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Bottle Rocket Blue, 500 Sheets/Rream',

'C-56271467|5807955132|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Popper-mint Green, 500 Sheets/Rream',
 'C-57712091|5814912866|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Popper-mint Green, 500 Sheets/Rream',
 'C-59439239|5821636175|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Bottle Rocket Blue, 500 Sheets/Rream',
 'C-59574728|5822233064|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Popper-mint Green, 500 Sheets/Rream',
 'C-58081525|5815875654|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Popper-mint Green, 500 Sheets/Rream',
 'C-59067249|5820066224|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Bottle Rocket Blue, 500 Sheets/Rream',
 'C-57993918|5815492588|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Luminous Lavender, 500 Sheets/Rream',
 'C-57337282|5812716132|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Bottle Rocket Blue, 500 Sheets/Rream',
 'C-59439239|5821636169|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Popper-mint Green, 500 Sheets/Rream',
 'C-57507537|5813444145|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Popper-mint Green, 500 Sheets/Rream',
 'C-58774424|5818808628|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Powder Pink, 500 Sheets/Rream',
 'C-59803987|5823188472|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Crackling Canary, 500 Sheets/Rream',
 'C-57044317|5811413703|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Popper-mint Green, 500 Sheets/Rream',
 'C-59212239|5820676957|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Flashing Ivory, 500 Sheets/Rream',
 'C-57831981|5814800118|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Flashing Ivory, 500 Sheets/Rream',
 'C-59803987|5823188471|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Powder Pink, 500 Sheets/Rream',
 'C-59655711|5822566970|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Powder Pink, 500 Sheets/Rream',
 'C-59439239|5821634789|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Crackling Canary, 500 Sheets/Rream',
 'C-57990160|5815489750|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Bottle Rocket Blue, 500 Sheets/Rream',
 'C-58176881|5816282815|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Crackling Canary, 500 Sheets/Rream',
 'C-56357333|5808338051|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Bottle Rocket Blue, 500 Sheets/Rream',
 'C-57990160|5815490641|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Powder Pink, 500 Sheets/Rream',
 'C-57726534|5814363699|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Bottle Rocket Blue, 500 Sheets/Rream',
 'C-59803987|5823188470|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Flashing Ivory, 500 Sheets/Rream',
 'C-59574728|5822233059|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Luminous Lavender, 500 Sheets/Rream',
 'C-58597266|5818059934|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Bottle Rocket Blue, 500 Sheets/Rream',
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11, Powder Pink, 500 Sheets/Rream',
 'C-57172990|5811981611|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Smoke Gray, 500 Sheets/Rream',
 'C-58981400|5819706044|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Powder Pink, 500 Sheets/Rream',
 'C-59694521|5822728689|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Powder Pink, 500 Sheets/Rream',
 'C-58337621|5816959929|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Popper-mint Green, 500 Sheets/Rream',
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11, Powder Pink, 500 Sheets/Rream',
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11, Luminous Lavender, 500 Sheets/Rream',
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11, Bottle Rocket Blue, 500 Sheets/Rream',
 'C-57926353|5815203933|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Bottle Rocket Blue, 500 Sheets/Rream',
 'C-57926353|5815203577|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Luminous Lavender, 500 Sheets/Rream',
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11, Smoke Gray, 500 Sheets/Rream',
 'C-58261715|5816646134|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Popper-mint Green, 500 Sheets/Rream',
 'C-59067249|5820063855|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Popper-mint Green, 500 Sheets/Rream',
 'C-56962177|5811048999|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Popper-mint Green, 500 Sheets/Rream',
 'C-57337282|5812716135|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Crackling Canary, 500 Sheets/Rream',
 'C-57044317|5811412828|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Powder Pink, 500 Sheets/Rream',
 "C-57686930|5814199216|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Jammin' Salmon, 500 Sheets/Rream",
 'C-57853340|5814889540|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Bottle Rocket Blue, 500 Sheets/Rream',
 'C-59694521|5822728697|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Bottle Rocket Blue, 500 Sheets/Rream',
 'C-59477035|5821797114|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Golden Glimmer, 500 Sheets/Rream',
 'C-58600051|5818071437|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Bottle Rocket Blue, 500 Sheets/Rream',
 'C-59477035|5821797096|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Powder Pink, 500 Sheets/Rream',
 'C-59803987|5823188473|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Bottle Rocket Blue, 500 Sheets/Rream',
 'C-58927034|5819473078|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Powder Pink, 500 Sheets/Rream',
 'C-56515991|5809049946|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Bottle Rocket Blue, 500 Sheets/Rream',
 'C-58268600|5816671472|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Flashing Ivory, 500 Sheets/Rream',
 'C-58983652|5819713875|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Crackling Canary, 500 Sheets/Rream',

'C-59845569|5823363591|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Bottle Rocket Blue, 500 Sheets/Rream',
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11, Popper-mint Green, 500 Sheets/Rream',
 'C-58981400|5819706274|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Bottle Rocket Blue, 500 Sheets/Rream',
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11, Crackling Canary, 500 Sheets/Rream',
 'C-57853340|5814889384|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Crackling Canary, 500 Sheets/Rream',
 'C-57185176|5812034981|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Smoke Gray, 500 Sheets/Rream',
 "C-56063401|5807007377|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Jammin' Salmon, 500 Sheets/Rream",
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11, Crackling Canary, 500 Sheets/Rream',
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11, Popper-mint Green, 500 Sheets/Rream',
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11, Crackling Canary, 500 Sheets/Rream',
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11, Popper-mint Green, 500 Sheets/Rream',
 'C-58597266|5818059235|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Luminous Lavender, 500 Sheets/Rream',
 'C-57686930|5814199218|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Bottle Rocket Blue, 500 Sheets/Rream',
 'C-58268600|5816671453|FIREWORX Colored Paper, 24lb, 8-1/2 x
11, Combustible Orange, 500 Sheets/Rream',
 'C-58321426|5816889785|FIREWORX Colored Paper, 24lb, 8-1/2 x
11, Bottle Rocket Blue, 500 Sheets/Rream',
 'C-58994449|5819761174|Copy Paper, 100 Brightness, 28lb, 8 1/
2 x 11, Photo White, 500/Rream',
 'C-56342582|5808268812|FIREWORX Colored Paper, 24lb, 8-1/2 x
11, Lemon Zest, 500 Sheets/Rream',
 'C-56494427|5808950872|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Luminous Lavender, 500 Sheets/Rream',
 'C-58751109|5818708579|Copy Paper, 100 Brightness, 28lb, 8 1/
2 x 11, Photo White, 500/Rream',
 'C-55985906|5806654293|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Bottle Rocket Blue, 500 Sheets/Rream',
 'C-55987871|5806663775|White Drawing Paper, 78 lbs., 9 x 12,
Pure White, 500 Sheets/Rream',
 'C-56063401|5807008851|FIREWORX Colored Paper, 24lb, 8-1/2 x
11, Lightning Lime, 500 Sheets/Rream',
 'C-59987173|5823946454|FIREWORX Colored Paper, 24lb, 8-1/2 x
11, Bottle Rocket Blue, 500 Sheets/Rream',
 'C-57463095|5813268413|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Bottle Rocket Blue, 500 Sheets/Rream',
 'C-57467831|5813275728|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Bottle Rocket Blue, 500 Sheets/Rream',
 'C-57460631|5813246108|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Bottle Rocket Blue, 500 Sheets/Rream',
 'C-57927676|5815208835|FIREWORX Colored Paper, 20lb, 8-1/2 x

14, Flashing Ivory, 500 Sheets/Rream',
 'C-56228644|5807762647|FIREWORX Colored Paper, 24lb, 8-1/2 x
11, Lemon Zest, 500 Sheets/Rream',
 'C-56271467|5807953562|FIREWORX Colored Paper, 24lb, 8-1/2 x
11, Bottle Rocket Blue, 500 Sheets/Rream',
 'C-56262132|5807912944|FIREWORX Colored Paper, 24lb, 8-1/2 x
11, Bottle Rocket Blue, 500 Sheets/Rream',
 'C-56270921|5807953665|FIREWORX Colored Paper, 24lb, 8-1/2 x
11, Bottle Rocket Blue, 500 Sheets/Rream',
 'C-58211283|5816427817|FIREWORX Colored Paper, 24lb, 8-1/2 x
11, Bottle Rocket Blue, 500 Sheets/Rream',
 'C-58710628|5818537707|Copy Plus Copy Paper, 92 Brightness, 2
0lb, 11 x 17, White, 500 Sheets/Rream',
 'C-58211135|5816427683|FIREWORX Colored Paper, 24lb, 8-1/2 x
11, Bottle Rocket Blue, 500 Sheets/Rream',
 'C-58710628|5818536880|FIREWORX Colored Paper, 20lb, 8-1/2 x
14, Flashing Ivory, 500 Sheets/Rream',
 'C-59331470|5821170879|FIREWORX Colored Paper, 24lb, 8-1/2 x
11, Lemon Zest, 500 Sheets/Rream',
 'C-56097051|5807164663|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Bottle Rocket Blue, 500 Sheets/Rream',
 'C-56097051|5807162874|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Luminous Lavender, 500 Sheets/Rream',
 'C-56097051|5807164669|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Popper-mint Green, 500 Sheets/Rream',
 'C-56097051|5807162855|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Crackling Canary, 500 Sheets/Rream',
 'C-56097051|5807164673|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Powder Pink, 500 Sheets/Rream',
 'C-58176881|5816282817|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Powder Pink, 500 Sheets/Rream',
 'C-56007760|5806752851|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Powder Pink, 500 Sheets/Rream',
 "C-56018014|5806798650|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Boomin' Buff, 500 Sheets/Rream",
 'C-56007760|5806752840|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Crackling Canary, 500 Sheets/Rream',
 'C-56007760|5806753252|FIREWORX Colored Paper, 24lb, 8-1/2 x
11, Popper-mint Green, 500 Sheets/Rream',
 'C-55991248|5806682640|Copy Plus Copy Paper, 92 Brightness, 2
0lb, 11 x 17, White, 500 Sheets/Rream',
 'C-59664294|5822603752|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Popper-mint Green, 500 Sheets/Rream',
 'C-57138839|5811829443|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Echo Orchid, 500 Sheets/Rream',
 'C-56719950|5809974779|FIREWORX Colored Paper, 24lb, 8-1/2 x
11, Bottle Rocket Blue, 500 Sheets/Rream',
 'C-57721664|5814344055|FIREWORX Colored Paper, 24lb, 8-1/2 x
11, Combustible Orange, 500 Sheets/Rream',
 'C-59210835|5820667845|Copy Plus Copy Paper, 92 Brightness, 2
0lb, 11 x 17, White, 500 Sheets/Rream',
 'C-59210835|5820668591|Copy Plus Copy Paper, 92 Brightness, 2
0lb, 8-1/2 x 14, White, 500 Sheets/Rream',

'C-59194231|5820599334|FIREWORX Colored Paper, 24lb, 8-1/2 x
11, Crackling Canary, 500 Sheets/Rream',
 'C-59194231|5820598598|FIREWORX Colored Paper, 24lb, 8-1/2 x
11, Bottle Rocket Blue, 500 Sheets/Rream',
 'C-59194231|5820599380|FIREWORX Colored Paper, 24lb, 8-1/2 x
11, Flashing Ivory, 500 Sheets/Rream',
 'C-59194231|5820598851|FIREWORX Colored Paper, 24lb, 8-1/2 x
11, Powder Pink, 500 Sheets/Rream',
 'C-59194231|5820599063|FIREWORX Colored Paper, 24lb, 8-1/2 x
11, Popper-mint Green, 500 Sheets/Rream',
 'C-59150445|5820416069|FIREWORX Colored Paper, 20lb, 8-1/2 x
14, Flashing Ivory, 500 Sheets/Rream',
 'C-59150445|5820416649|Copy Plus Copy Paper, 92 Brightness, 2
0lb, 11 x 17, White, 500 Sheets/Rream',
 'C-56182232|5807551491|FIREWORX Colored Paper, 24lb, 8-1/2 x
11, Lemon Zest, 500 Sheets/Rream',
 'C-59737362|5822907552|FIREWORX Colored Paper, 24lb, 8-1/2 x
11, Crackling Canary, 500 Sheets/Rream',
 'C-59737362|5822907553|FIREWORX Colored Paper, 24lb, 8-1/2 x
11, Powder Pink, 500 Sheets/Rream',
 'C-57645820|5814018527|FIREWORX Colored Paper, 20lb, 8-1/2 x
14, Flashing Ivory, 500 Sheets/Rream',
 'C-59737362|5822907550|FIREWORX Colored Paper, 24lb, 8-1/2 x
11, Bottle Rocket Blue, 500 Sheets/Rream',
 'C-57646105|5814019473|FIREWORX Colored Paper, 20lb, 8-1/2 x
14, Flashing Ivory, 500 Sheets/Rream',
 'C-59737362|5822907551|FIREWORX Colored Paper, 24lb, 8-1/2 x
11, Popper-mint Green, 500 Sheets/Rream',
 'C-58774424|5818809041|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Luminous Lavender, 500 Sheets/Rream',
 'C-58783600|5818850744|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Bottle Rocket Blue, 500 Sheets/Rream',
 'C-58770789|5818792483|FIREWORX Colored Paper, 24lb, 8-1/2 x
11, Crackling Canary, 500 Sheets/Rream',
 'C-58774424|5818809069|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Popper-mint Green, 500 Sheets/Rream',
 'C-56860709|5810603373|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Flashing Ivory, 500 Sheets/Rream',
 'C-56860709|5810602108|FIREWORX Colored Paper, 24lb, 8-1/2 x
11, Combustible Orange, 500 Sheets/Rream',
 'C-56860709|5810602630|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Popper-mint Green, 500 Sheets/Rream',
 'C-56860709|5810603012|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Cherry Charge, 500 Sheets/Rream',
 'C-57898923|5815085187|FIREWORX Colored Paper, 24lb, 8-1/2 x
11, Bottle Rocket Blue, 500 Sheets/Rream',
 'C-57909655|5815132294|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Rat-a-Tat Tan, 500 Sheets/Rream',
 'C-57909655|5815132264|FIREWORX Colored Paper, 24lb, 8-1/2 x
11, Flashing Ivory, 500 Sheets/Rream',
 'C-57909655|5815132241|FIREWORX Colored Paper, 24lb, 8-1/2 x
11, Popper-mint Green, 500 Sheets/Rream',
 'C-57909655|5815131500|FIREWORX Colored Paper, 24lb, 8-1/2 x

11, Bottle Rocket Blue, 500 Sheets/Rream',
 'C-57909655|5815132234|FIREWORX Colored Paper, 24lb, 8-1/2 x
11, Crackling Canary, 500 Sheets/Rream',
 'C-56975263|5811104384|FIREWORX Colored Paper, 24lb, 8-1/2 x
11, Bottle Rocket Blue, 500 Sheets/Rream',
 'C-56178334|5807534379|FIREWORX Colored Paper, 24lb, 8-1/2 x
11, Lemon Zest, 500 Sheets/Rream',
 'C-56178395|5807534952|FIREWORX Colored Paper, 24lb, 8-1/2 x
11, Lemon Zest, 500 Sheets/Rream',
 'C-58890184|5819313831|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Echo Orchid, 500 Sheets/Rream',
 'C-58887725|5819303477|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Garden Springs Green, 500 Sheets/Rream',
 'C-58890184|5819314400|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Garden Springs Green, 500 Sheets/Rream',
 'C-58889800|5819312002|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Echo Orchid, 500 Sheets/Rream',
 'C-58887725|5819303040|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Pumpkin Glow, 500 Sheets/Rream',
 'C-58876962|5819258978|Fore MP Multipurpose Paper, 96 Brightness, 20lb, 210mm x 297mm, White, 500/Rream',
 'C-58885583|5819302147|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Garden Springs Green, 500 Sheets/Rream',
 'C-58885583|5819299643|FIREWORX Colored Paper, 24lb, 8-1/2 x
11, Combustible Orange, 500 Sheets/Rream',
 'C-58890184|5819313838|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Pumpkin Glow, 500 Sheets/Rream',
 'C-58887725|5819303470|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Echo Orchid, 500 Sheets/Rream',
 'C-58885583|5819295351|FIREWORX Colored Paper, 24lb, 8-1/2 x
11, Lightning Lime, 500 Sheets/Rream',
 'C-58081525|5815875653|FIREWORX Colored Paper, 20lb, 11 x 17, Powder Pink, 500 Sheets/Rream',
 'C-57521283|5813500034|Copy Paper, 100 Brightness, 28lb, 8-1/2 x 14, Photo White, 500/Rream',
 'C-59549902|5822115587|FIREWORX Colored Paper, 24lb, 8-1/2 x
11, Combustible Orange, 500 Sheets/Rream',
 'C-59546628|5822105458|FIREWORX Colored Paper, 24lb, 8-1/2 x
11, Combustible Orange, 500 Sheets/Rream',
 'C-59549902|5822114588|FIREWORX Colored Paper, 24lb, 8-1/2 x
11, Powder Pink, 500 Sheets/Rream',
 'C-59546628|5822104825|FIREWORX Colored Paper, 24lb, 8-1/2 x
11, Lemon Zest, 500 Sheets/Rream',
 'C-57501886|5813418629|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Pastel Popper Mix, 500 Sheets/Rream',
 'C-58822431|5819020619|Copy Paper, 100 Brightness, 28lb, 11 x 17, Photo White, 500/Rream',
 'C-58825885|5819035032|FIREWORX Colored Paper, 24lb, 8-1/2 x
11, Bottle Rocket Blue, 500 Sheets/Rream',
 'C-58820789|5819017878|Copy Paper, 100 Brightness, 28lb, 11 x 17, Photo White, 500/Rream',
 'C-59549902|5822115956|FIREWORX Colored Paper, 24lb, 8-1/2 x
11, Lemon Zest, 500 Sheets/Rream',

'C-59581627|5822251126|Copy Paper, 100 Brightness, 28lb, 8 1/2 x 11, Photo White, 500/Rream',
'C-59477035|5821797075|FIREWORX Colored Paper, 24lb, 8-1/2 x 11, Lemon Zest, 500 Sheets/Rream',
'C-59477035|5821797519|FIREWORX Colored Paper, 24lb, 8-1/2 x 11, Roman Candle Red, 500 Sheets/Rream',
'C-59477035|5821797011|Copy Plus Copy Paper, 92 Brightness, 20lb, 11 x 17, White, 500 Sheets/Rream',
'C-59758431|5822994044|FIREWORX Colored Paper, 20lb, 11 x 17, Powder Pink, 500 Sheets/Rream',
'C-59758808|5822996480|FIREWORX Colored Paper, 24lb, 8-1/2 x 11, Popper-mint Green, 500 Sheets/Rream',
'C-59762556|5823016774|FIREWORX Colored Paper, 24lb, 8-1/2 x 11, Lightning Lime, 500 Sheets/Rream',
'C-59758431|5822993111|FIREWORX Colored Paper, 20lb, 11 x 17, Bottle Rocket Blue, 500 Sheets/Rream',
'C-59762556|5823016222|FIREWORX Colored Paper, 24lb, 8-1/2 x 11, Lemon Zest, 500 Sheets/Rream',
'C-59758431|5822995141|FIREWORX Colored Paper, 20lb, 11 x 17, Crackling Canary, 500 Sheets/Rream',
'C-59758808|5822996466|FIREWORX Colored Paper, 24lb, 8-1/2 x 11, Bottle Rocket Blue, 500 Sheets/Rream',
'C-59758431|5822994914|FIREWORX Colored Paper, 20lb, 11 x 17, Popper-mint Green, 500 Sheets/Rream',
'C-58963587|5819629768|FIREWORX Colored Paper, 20lb, 8-1/2 x 14, Flashing Ivory, 500 Sheets/Rream',
'C-58965088|5819636239|FIREWORX Colored Paper, 20lb, 8-1/2 x 14, Flashing Ivory, 500 Sheets/Rream',
'C-59926998|5823699243|FIREWORX Colored Paper, 24lb, 8-1/2 x 11, Lemon Zest, 500 Sheets/Rream',
'C-59914065|5823646447|FIREWORX Colored Paper, 20lb, 8-1/2 x 14, Flashing Ivory, 500 Sheets/Rream',
'C-58774424|5818809109|FIREWORX Colored Paper, 20lb, 8-1/2 x 11, Bottle Rocket Blue, 500 Sheets/Rream',
'C-57653299|5814051993|FIREWORX Colored Paper, 20lb, 8-1/2 x 11, Powder Pink, 500 Sheets/Rream',
"C-58887725|5819302933|FIREWORX Colored Paper, 20lb, 8-1/2 x 11, Jammin' Salmon, 500 Sheets/Rream",
"C-58885583|5819293224|FIREWORX Colored Paper, 20lb, 8-1/2 x 11, Jammin' Salmon, 500 Sheets/Rream",
'C-59845569|5823363783|FIREWORX Colored Paper, 20lb, 8-1/2 x 11, Powder Pink, 500 Sheets/Rream',
'C-58890184|5819313736|FIREWORX Colored Paper, 20lb, 8-1/2 x 11, Luminous Lavender, 500 Sheets/Rream',
'C-58885583|5819298193|FIREWORX Colored Paper, 20lb, 8-1/2 x 11, Luminous Lavender, 500 Sheets/Rream',
'C-57022511|5811319903|FIREWORX Colored Paper, 20lb, 8-1/2 x 11, Popper-mint Green, 500 Sheets/Rream',
'C-57023438|5811320876|FIREWORX Colored Paper, 20lb, 8-1/2 x 11, Flashing Ivory, 500 Sheets/Rream',
'C-58887725|5819302660|FIREWORX Colored Paper, 20lb, 8-1/2 x 11, Cherry Charge, 500 Sheets/Rream',
'C-59569937|5822200978|FIREWORX Colored Paper, 20lb, 8-1/2 x

11, Crackling Canary, 500 Sheets/Rream',
 'C-58562561|5817911464|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Luminous Lavender, 500 Sheets/Rream',
 'C-57045455|5811420212|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Luminous Lavender, 500 Sheets/Rream',
 'C-59987173|5823946948|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Bottle Rocket Blue, 500 Sheets/Rream',
 'C-59946909|5823781064|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Powder Pink, 500 Sheets/Rream',
 "C-58562561|5817908817|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Jammin' Salmon, 500 Sheets/Rream",
 'C-57933217|5815234660|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Bottle Rocket Blue, 500 Sheets/Rream',
 'C-57337282|5812716134|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Golden Glimmer, 500 Sheets/Rream',
 'C-56622689|5809541060|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Rat-a-Tat Tan, 500 Sheets/Rream',
 'C-56912247|5810831736|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Powder Pink, 500 Sheets/Rream',
 'C-56955295|5811019057|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Powder Pink, 500 Sheets/Rream',
 'C-58774424|5818809091|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Crackling Canary, 500 Sheets/Rream',
 'C-59775802|5823068900|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Powder Pink, 500 Sheets/Rream',
 'C-56912247|5810831493|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Bottle Rocket Blue, 500 Sheets/Rream',
 'C-57931148|5815225176|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Bottle Rocket Blue, 500 Sheets/Rream',
 'C-58887725|5819302909|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Luminous Lavender, 500 Sheets/Rream',
 'C-58885583|5819292539|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Cherry Charge, 500 Sheets/Rream',
 'C-57022511|5811319656|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Flashing Ivory, 500 Sheets/Rream',
 'C-59845569|5823363787|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Crackling Canary, 500 Sheets/Rream',
 'C-57046981|5811424599|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Luminous Lavender, 500 Sheets/Rream',
 'C-56955295|5811019681|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Bottle Rocket Blue, 500 Sheets/Rream',
 "C-59987173|5823946085|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Jammin' Salmon, 500 Sheets/Rream",
 'C-56063401|5807007369|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Golden Glimmer, 500 Sheets/Rream',
 'C-57023438|5811320860|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Popper-mint Green, 500 Sheets/Rream',
 "C-58890184|5819313447|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Jammin' Salmon, 500 Sheets/Rream",
 'C-57072286|5811538905|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Popper-mint Green, 500 Sheets/Rream',
 'C-58890184|5819313322|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Cherry Charge, 500 Sheets/Rream',

'C-57721664|5814344892|FIREWORX Colored Paper, 20lb, 8-1/2 x 11, Echo Orchid, 500 Sheets/Rream',
'C-57126863|5811779798|FIREWORX Colored Paper, 20lb, 8-1/2 x 11, Echo Orchid, 500 Sheets/Rream',
'C-59072660|5820086634|Recycled Colored Paper, 20lb, 11 x 17, Goldenrod, 500 Sheets/Rream',
'C-59758808|5822996494|FIREWORX Colored Paper, 24lb, 8-1/2 x 11, Powder Pink, 500 Sheets/Rream',
'C-59994158|5823974376|FIREWORX Colored Paper, 24lb, 8-1/2 x 11, Powder Pink, 500 Sheets/Rream',
'C-59546628|5822103626|FIREWORX Colored Paper, 24lb, 8-1/2 x 11, Powder Pink, 500 Sheets/Rream',
'C-66942115|5853186588|FIREWORX Colored Paper, 20lb, 8-1/2 x 11, Popper-mint Green, 500 Sheets/Rream',
'C-66258926|5850361773|FIREWORX Colored Paper, 20lb, 8-1/2 x 11, Powder Pink, 500 Sheets/Rream',
'C-66258926|5850361061|FIREWORX Colored Paper, 20lb, 8-1/2 x 11, Popper-mint Green, 500 Sheets/Rream',
'C-66258926|5850361057|FIREWORX Colored Paper, 20lb, 8-1/2 x 11, Bottle Rocket Blue, 500 Sheets/Rream',
'C-66734899|5852337410|Fore MP Multipurpose Paper, 96 Brightness, 20lb, 210mm x 297mm, White, 500/Rream',
'C-67061136|5853681996|FIREWORX Colored Paper, 20lb, 8-1/2 x 11, Popper-mint Green, 500 Sheets/Rream',
'C-67022027|5853515506|FIREWORX Colored Paper, 20lb, 8-1/2 x 11, Popper-mint Green, 500 Sheets/Rream',
'C-67079823|5853769400|FIREWORX Colored Paper, 24lb, 8-1/2 x 11, Lightning Lime, 500 Sheets/Rream',
'C-67061136|5853682414|FIREWORX Colored Paper, 20lb, 8-1/2 x 11, Luminous Lavender, 500 Sheets/Rream',
'C-67080625|5853772121|FIREWORX Colored Paper, 20lb, 8-1/2 x 11, Popper-mint Green, 500 Sheets/Rream',
"C-67033751|5853565293|FIREWORX Colored Paper, 20lb, 8-1/2 x 11, Jammin' Salmon, 500 Sheets/Rream",
'C-67029488|5853547400|FIREWORX Colored Paper, 20lb, 8-1/2 x 11, Popper-mint Green, 500 Sheets/Rream',
'C-67089177|5853810415|Premium Color Copy Paper, 100 Brightness, 28lb, 8 1/2 x 11, Photo White, 500/Rream',
"C-67032608|5853564056|FIREWORX Colored Paper, 20lb, 8-1/2 x 11, Jammin' Salmon, 500 Sheets/Rream",
'C-66029775|5849390690|Copy Plus Copy Paper, 92 Brightness, 20lb, 11 x 17, White, 500 Sheets/Rream',
'C-67006211|5853451500|FIREWORX Colored Paper, 20lb, 8-1/2 x 11, Popper-mint Green, 500 Sheets/Rream',
'C-66996097|5853408127|Premium Color Copy Paper, 100 Brightness, 28lb, 8 1/2 x 11, Photo White, 500/Rream',
'C-66996440|5853409978|Premium Color Copy Paper, 100 Brightness, 28lb, 8 1/2 x 11, Photo White, 500/Rream',
'C-67011077|5853469809|Premium Color Copy Paper, 100 Brightness, 28lb, 8 1/2 x 11, Photo White, 500/Rream',
'C-68045168|5857795973|Copy Plus Copy Paper, 92 Brightness, 20lb, 11 x 17, White, 500 Sheets/Rream',
'C-68040115|5857774015|Premium Color Copy Paper, 100 Brightne

ss, 28lb, 8 1/2 x 11, Photo White, 500/Rream',
 'C-66686677|5852131134|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Boomin' Buff, 500 Sheets/Rream",
 'C-66686677|5852132400|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Popper-mint Green, 500 Sheets/Rream',
 'C-66501531|5851372052|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Cherry Charge, 500 Sheets/Rream',
 'C-66862109|5852852516|Premium Color Copy Paper, 100 Brightne
ss, 28lb, 8 1/2 x 11, Photo White, 500/Rream',
 'C-66839765|5852761397|Great White 30 Recycled Copy Paper, 92
Brightness, 20lb, 11 x 17, 500 Sheets/Rream',
 'C-65271662|5846204591|FIREWORX Colored Paper, 24lb, 8-1/2 x
11, Lemon Zest, 500 Sheets/Rream',
 "C-65631480|5847725237|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Jammin' Salmon, 500 Sheets/Rream",
 'C-65645667|5847783321|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Popper-mint Green, 500 Sheets/Rream',
 'C-65648352|5847795231|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Popper-mint Green, 500 Sheets/Rream',
 'C-65633732|5847732790|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Turbulent Turquoise, 500 Sheets/Rream',
 "C-65625857|5847697751|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Jammin' Salmon, 500 Sheets/Rream",
 'C-65648352|5847795233|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Powder Pink, 500 Sheets/Rream',
 "C-65633732|5847733572|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Jammin' Salmon, 500 Sheets/Rream",
 'C-65631480|5847726204|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Echo Orchid, 500 Sheets/Rream',
 'C-65633732|5847732815|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Echo Orchid, 500 Sheets/Rream',
 'C-65631480|5847726213|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Turbulent Turquoise, 500 Sheets/Rream',
 'C-67917718|5857257497|Fore MP Multipurpose Paper, 96 Brightn
ess, 20 lb, 8-1/2 x 14, White, 500/Rream',
 'C-67006211|5853451499|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Bottle Rocket Blue, 500 Sheets/Rream',
 'C-65677163|5847917843|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Powder Pink, 500 Sheets/Rream',
 'C-65271662|5846205491|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Bottle Rocket Blue, 500 Sheets/Rream',
 'C-65271662|5846204567|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Powder Pink, 500 Sheets/Rream',
 'C-65535534|5847313693|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Bottle Rocket Blue, 500 Sheets/Rream',
 'C-65633732|5847733801|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Crackling Canary, 500 Sheets/Rream',
 'C-65677163|5847917578|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Luminous Lavender, 500 Sheets/Rream',
 'C-66942115|5853187913|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Luminous Lavender, 500 Sheets/Rream',
 'C-65633732|5847732796|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Bottle Rocket Blue, 500 Sheets/Rream',

'C-65631480|5847725667|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Bottle Rocket Blue, 500 Sheets/Rream',
 'C-64943707|5844832639|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Luminous Lavender, 500 Sheets/Rream',
 'C-65906127|5848877120|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Golden Glimmer, 500 Sheets/Rream',
 'C-65906127|5848877117|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Powder Pink, 500 Sheets/Rream',
 'C-65677163|5847918415|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Bottle Rocket Blue, 500 Sheets/Rream',
 'C-65906127|5848877119|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Luminous Lavender, 500 Sheets/Rream',
 'C-65679166|5847925830|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Bottle Rocket Blue, 500 Sheets/Rream',
 'C-65645667|5847783324|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Luminous Lavender, 500 Sheets/Rream',
 'C-65631480|5847725742|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Crackling Canary, 500 Sheets/Rream',
 'C-65906127|5848877114|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Crackling Canary, 500 Sheets/Rream',
 'C-65679166|5847925837|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Luminous Lavender, 500 Sheets/Rream',
 'C-65681492|5847935745|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Luminous Lavender, 500 Sheets/Rream',
 'C-66938629|5853171796|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Powder Pink, 500 Sheets/Rream',
 'C-66506383|5851390360|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Bottle Rocket Blue, 500 Sheets/Rream',
 'C-65906127|5848877115|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Bottle Rocket Blue, 500 Sheets/Rream',
 'C-67080625|5853772082|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Bottle Rocket Blue, 500 Sheets/Rream',
 'C-67105385|5853884671|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Bottle Rocket Blue, 500 Sheets/Rream',
 'C-67022027|5853514852|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Luminous Lavender, 500 Sheets/Rream',
 'C-66490250|5851323556|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Crackling Canary, 500 Sheets/Rream',
 'C-67022027|5853515009|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Powder Pink, 500 Sheets/Rream',
 'C-67022027|5853515513|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Bottle Rocket Blue, 500 Sheets/Rream',
 'C-65681492|5847934826|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Bottle Rocket Blue, 500 Sheets/Rream',
 'C-64893042|5844617430|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Bottle Rocket Blue, 500 Sheets/Rream',
 'C-67022027|5853515502|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Crackling Canary, 500 Sheets/Rream',
 'C-66501531|5851371982|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Golden Glimmer, 500 Sheets/Rream',
 'C-64943707|5844832927|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Golden Glimmer, 500 Sheets/Rream',
 'C-66937290|5853165575|FIREWORX Colored Paper, 20lb, 8-1/2 x

11, Powder Pink, 500 Sheets/Rream',
 'C-67006211|5853451498|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Crackling Canary, 500 Sheets/Rream',
 'C-66490250|5851323560|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Powder Pink, 500 Sheets/Rream',
 'C-65047398|5845269388|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Luminous Lavender, 500 Sheets/Rream',
 'C-64893042|5844617643|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Crackling Canary, 500 Sheets/Rream',
 'C-67029488|5853547019|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Luminous Lavender, 500 Sheets/Rream',
 'C-66501531|5851372260|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Luminous Lavender, 500 Sheets/Rream',
 'C-67006211|5853451505|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Powder Pink, 500 Sheets/Rream',
 'C-66282176|5850459573|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Golden Glimmer, 500 Sheets/Rream',
 'C-64879768|5844558400|FIREWORX Colored Paper, 20lb, 8-1/2 x
14, Flashing Ivory, 500 Sheets/Rream',
 'C-64958389|5844896643|Copy Plus Copy Paper, 92 Brightness, 2
0lb, 11 x 17, White, 500 Sheets/Rream',
 'C-66791893|5852572989|FIREWORX Colored Paper, 20lb, 8-1/2 x
14, Flashing Ivory, 500 Sheets/Rream',
 'C-64795098|5844191291|Premium Color Copy Paper, 100 Brightne
ss, 28lb, 8 1/2 x 11, Photo White, 500/Rream',
 'C-66066308|5849539190|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Pumpkin Glow, 500 Sheets/Rream',
 'C-65524030|5847264483|Copy Plus Copy Paper, 92 Brightness, 2
0lb, 11 x 17, White, 500 Sheets/Rream',
 'C-64799327|5844213661|Rainbow Super Value Construction Paper
Rream, 45 lb, 9 x 12, Assorted, 500 Sheets',
 'C-66066308|5849538747|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Popper-mint Green, 500 Sheets/Rream',
 'C-65535534|5847313680|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Popper-mint Green, 500 Sheets/Rream',
 'C-65515626|5847229474|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Bottle Rocket Blue, 500 Sheets/Rream',
 'C-66027819|5849428847|FIREWORX Colored Paper, 24lb, 8-1/2 x
11, Flashing Ivory, 500 Sheets/Rream',
 'C-66057099|5849500366|FIREWORX Colored Paper, 24lb, 8-1/2 x
11, Flashing Ivory, 500 Sheets/Rream',
 'C-65769202|5848299709|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Popper-mint Green, 500 Sheets/Rream',
 'C-65769202|5848299298|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Bottle Rocket Blue, 500 Sheets/Rream',
 'C-65508394|5847200788|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Bottle Rocket Blue, 500 Sheets/Rream',
 'C-64905740|5844669803|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Bottle Rocket Blue, 500 Sheets/Rream',
 'C-64905740|5844669806|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Popper-mint Green, 500 Sheets/Rream',

'C-64905740|5844669801|FIREWORX Colored Paper, 24lb, 8-1/2 x 11, Aerial Aqua, 500 Sheets/Rream',
'C-65677163|5847917875|FIREWORX Colored Paper, 20lb, 8-1/2 x 11, Smoke Gray, 500 Sheets/Rream',
'C-65679166|5847925992|FIREWORX Colored Paper, 20lb, 8-1/2 x 11, Smoke Gray, 500 Sheets/Rream',
'C-65679166|5847925311|FIREWORX Colored Paper, 20lb, 8-1/2 x 11, Popper-mint Green, 500 Sheets/Rream',
'C-65681492|5847934828|FIREWORX Colored Paper, 20lb, 8-1/2 x 11, Popper-mint Green, 500 Sheets/Rream',
'C-65681492|5847935961|FIREWORX Colored Paper, 20lb, 8-1/2 x 11, Smoke Gray, 500 Sheets/Rream',
'C-65677163|5847918731|FIREWORX Colored Paper, 20lb, 8-1/2 x 11, Popper-mint Green, 500 Sheets/Rream',
'C-64929599|5844773364|FIREWORX Colored Paper, 20lb, 8-1/2 x 11, Popper-mint Green, 500 Sheets/Rream',
'C-64943707|5844832906|FIREWORX Colored Paper, 20lb, 8-1/2 x 11, Popper-mint Green, 500 Sheets/Rream',
'C-64943707|5844832105|FIREWORX Colored Paper, 20lb, 8-1/2 x 11, Pastel Popper Mix, 500 Sheets/Rream',
'C-67471639|5855408940|Deluxe Colored Paper, 20lb, 8.5 x 11, Pink, 500/Rream',
'C-67865185|5857032630|Recycled Colored Paper, 20lb, 8-1/2 x 11, Blue, 500 Sheets/Rream',
'C-65886653|5848794927|FIREWORX Colored Paper, 24lb, 8-1/2 x 11, Roman Candle Red, 500 Sheets/Rream',
"C-65889838|5848805852|FIREWORX Colored Paper, 20lb, 8-1/2 x 11, Jammin' Salmon, 500 Sheets/Rream",
"C-65889796|5848806332|FIREWORX Colored Paper, 20lb, 8-1/2 x 11, Jammin' Salmon, 500 Sheets/Rream",
'C-66396634|5850939732|Fore MP Multipurpose Paper, 96 Brightness, 20lb, 210mm x 297mm, White, 500/Rream',
'C-65002664|5845083248|FIREWORX Colored Paper, 24lb, 8-1/2 x 11, Bottle Rocket Blue, 500 Sheets/Rream',
'C-65002664|5845083408|FIREWORX Colored Paper, 24lb, 8-1/2 x 11, Lightning Lime, 500 Sheets/Rream',
'C-65906127|5848877116|FIREWORX Colored Paper, 20lb, 8-1/2 x 11, Popper-mint Green, 500 Sheets/Rream',
"C-65906127|5848877121|FIREWORX Colored Paper, 20lb, 8-1/2 x 11, Jammin' Salmon, 500 Sheets/Rream",
"C-65924104|5848948026|FIREWORX Colored Paper, 24lb, 8-1/2 x 11, Combustible Orange, 500 Sheets/Rream',
'C-65906127|5848878032|FIREWORX Colored Paper, 24lb, 8-1/2 x 11, Powder Pink, 500 Sheets/Rream',
'C-66882594|5852935060|FIREWORX Colored Paper, 20lb, 8-1/2 x 11, Powder Pink, 500 Sheets/Rream',
'C-66882594|5852935350|FIREWORX Colored Paper, 20lb, 8-1/2 x 11, Flashing Ivory, 500 Sheets/Rream',
'C-66882594|5852935066|FIREWORX Colored Paper, 20lb, 8-1/2 x 11, Crackling Canary, 500 Sheets/Rream',
'C-66882594|5852935072|FIREWORX Colored Paper, 20lb, 8-1/2 x 11, Bottle Rocket Blue, 500 Sheets/Rream',
'C-66882594|5852935457|FIREWORX Colored Paper, 20lb, 8-1/2 x

11, Popper-mint Green, 500 Sheets/Rream',
 'C-66365548|5850808308|FIREWORX Colored Paper, 24lb, 8-1/2 x
11, Roman Candle Red, 500 Sheets/Rream',
 'C-66346636|5850727313|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Smoke Gray, 500 Sheets/Rream',
 'C-66347032|5850728862|FIREWORX Colored Paper, 24lb, 8-1/2 x
11, Lightning Lime, 500 Sheets/Rream',
 'C-66365548|5850808754|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Smoke Gray, 500 Sheets/Rream',
 'C-66365548|5850808296|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Jammin' Salmon, 500 Sheets/Rream',
 'C-66322959|5850630030|FIREWORX Colored Paper, 24lb, 8-1/2 x
11, Bottle Rocket Blue, 500 Sheets/Rream',
 'C-66668460|5852057234|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Golden Glimmer, 500 Sheets/Rream',
 'C-65566726|5847448972|FIREWORX Colored Paper, 24lb, 8-1/2 x
11, Popper-mint Green, 500 Sheets/Rream',
 'C-65566726|5847448895|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Pumpkin Glow, 500 Sheets/Rream',
 'C-65566726|5847447676|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Crackling Canary, 500 Sheets/Rream',
 'C-65566726|5847448163|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Powder Pink, 500 Sheets/Rream',
 'C-65566138|5847442858|Premium Color Copy Paper, 100 Brightness, 28lb, 11 x 17, Photo White, 500/Rream',
 'C-65566726|5847448147|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Bottle Rocket Blue, 500 Sheets/Rream',
 'C-65566726|5847447376|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Luminous Lavender, 500 Sheets/Rream',
 'C-65566726|5847448201|FIREWORX Colored Paper, 24lb, 8-1/2 x
11, Powder Pink, 500 Sheets/Rream',
 'C-66130453|5849820202|FIREWORX Colored Paper, 24lb, 8-1/2 x
11, Popper-mint Green, 500 Sheets/Rream',
 'C-66130453|5849819877|FIREWORX Colored Paper, 24lb, 8-1/2 x
11, Emerald Thunder, 500 Sheets/Rream',
 'C-66117985|5849769366|FIREWORX Colored Paper, 20lb, 8-1/2 x
11, Pastel Popper Mix, 500 Sheets/Rream',
 'C-66127655|5849807743|FIREWORX Colored Paper, 24lb, 8-1/2 x
11, Emerald Thunder, 500 Sheets/Rream',
 'C-66120093|5849776183|FIREWORX Colored Paper, 20lb, 8-1/2 x
14, Flashing Ivory, 500 Sheets/Rream',
 'C-66127655|5849808747|FIREWORX Colored Paper, 24lb, 8-1/2 x
11, Popper-mint Green, 500 Sheets/Rream',
 'C-64769566|5844082702|FIREWORX Colored Paper, 24lb, 8-1/2 x
11, Combustible Orange, 500 Sheets/Rream',
 'C-64769566|5844082322|FIREWORX Colored Paper, 24lb, 8-1/2 x
11, Roman Candle Red, 500 Sheets/Rream',
 'C-64772239|5844091766|FIREWORX Colored Paper, 24lb, 8-1/2 x
11, Combustible Orange, 500 Sheets/Rream',
 'C-64772239|5844091998|FIREWORX Colored Paper, 24lb, 8-1/2 x
11, Roman Candle Red, 500 Sheets/Rream',
 'C-64769566|5844083706|FIREWORX Colored Paper, 24lb, 8-1/2 x
11, Emerald Thunder, 500 Sheets/Rream',

'C-64772239|5844092002|FIREWORX Colored Paper, 24lb, 8-1/2 x 11, Emerald Thunder, 500 Sheets/Rream',
 'C-67585328|5855871094|Fore MP Multipurpose Paper, 96 Brightness, 20lb, 210mm x 297mm, White, 500/Rream',
 'C-66220910|5850199839|FIREWORX Colored Paper, 20lb, 8-1/2 x 11, Crackling Canary, 500 Sheets/Rream',
 'C-66195463|5850095751|FIREWORX Colored Paper, 20lb, 8-1/2 x 11, Bottle Rocket Blue, 500 Sheets/Rream',
 'C-66197785|5850105952|FIREWORX Colored Paper, 20lb, 8-1/2 x 11, Bottle Rocket Blue, 500 Sheets/Rream',
 'C-66202771|5850125998|FIREWORX Colored Paper, 20lb, 8-1/2 x 11, Bottle Rocket Blue, 500 Sheets/Rream',
 'C-65648352|5847795234|FIREWORX Colored Paper, 20lb, 8-1/2 x 11, Bottle Rocket Blue, 500 Sheets/Rream',
 'C-66197694|5850105454|FIREWORX Colored Paper, 20lb, 8-1/2 x 11, Bottle Rocket Blue, 500 Sheets/Rream',
 'C-67080625|5853772101|FIREWORX Colored Paper, 20lb, 8-1/2 x 11, Powder Pink, 500 Sheets/Rream',
 'C-64905740|5844669802|FIREWORX Colored Paper, 20lb, 8-1/2 x 11, Luminous Lavender, 500 Sheets/Rream',
 'C-67061136|5853681977|FIREWORX Colored Paper, 20lb, 8-1/2 x 11, Crackling Canary, 500 Sheets/Rream',
 'C-67061136|5853680528|FIREWORX Colored Paper, 20lb, 8-1/2 x 11, Bottle Rocket Blue, 500 Sheets/Rream',
 'C-64905740|5844669805|FIREWORX Colored Paper, 20lb, 8-1/2 x 11, Crackling Canary, 500 Sheets/Rream',
 'C-64905740|5844669804|FIREWORX Colored Paper, 20lb, 8-1/2 x 11, Powder Pink, 500 Sheets/Rream',
 'C-65515765|5847230207|FIREWORX Colored Paper, 20lb, 8-1/2 x 11, Bottle Rocket Blue, 500 Sheets/Rream',
 'C-67061136|5853682005|FIREWORX Colored Paper, 20lb, 8-1/2 x 11, Powder Pink, 500 Sheets/Rream',
 'C-65566726|5847448395|FIREWORX Colored Paper, 20lb, 8-1/2 x 11, Golden Glimmer, 500 Sheets/Rream',
 'C-65849571|5848636084|FIREWORX Colored Paper, 20lb, 8-1/2 x 11, Powder Pink, 500 Sheets/Rream',
 'C-66553946|5851591149|FIREWORX Colored Paper, 20lb, 8-1/2 x 11, Powder Pink, 500 Sheets/Rream',
 'C-65566726|5847448171|FIREWORX Colored Paper, 20lb, 8-1/2 x 11, Flashing Ivory, 500 Sheets/Rream',
 'C-65566726|5847447491|FIREWORX Colored Paper, 20lb, 8-1/2 x 11, Popper-mint Green, 500 Sheets/Rream',
 'C-65002664|5845082747|FIREWORX Colored Paper, 24lb, 8-1/2 x 11, Powder Pink, 500 Sheets/Rream',
 'Great White 30 Recycled Copy Paper, 92 Brightness, 20lb, 8-1/2 x 14, 500 Shts/Rream, 10 Reams/CT',
 'Premium Color Copy Paper, 100 Brightness, 28lb, 8 1/2 x 11, Photo White, 500/Rream',
 'Array Colored Bond Paper, 24lb, 8-1/2 x 11, Assorted Designer Colors, 500/Rream',
 'Tidal Print Paper, 92 Bright, 20lb, 8.5 x 11, White, 500 Sheets/Rream, 3 Reams/Carton'],
 dtype=object)

Data cleaning for first excel data

```
In [ ]: coffee = coffee_req[~coffee_req['Part - Supplier Part Number'].str.contains("Unclassified")]
toner = toner_req[~toner_req['Part - Supplier Part Number'].str.contains("Unclassified")]
coffee.describe()
```

/usr/local/lib/python3.7/dist-packages/ipykernel_launcher.py:3: FutureWarning: Treating datetime data as categorical rather than numeric in `~.describe` is deprecated and will be removed in a future version of pandas. Specify `datetime_is_numeric=True` to silence this warning and adopt the future behavior now.

This is separate from the ipykernel package so we can avoid doing imports until

Out[]:

	Requisition ID	Requisitioning Date	Supplier - ERP Supplier	Description	Requester - Shopper ID	Part - Supplier Part Number	Category
count	45193	45193	45193	45193	45193	45193	45193
unique	16285	1129	1	44166	798	573	1
top	SH312986	2017-03-13 00:00:00	WB Mason Company	Original Liquid Coffee Creamer, 0.38 oz. Singl...	LSKINNER	GMT6520	Coffee
freq	44	131	45193	77	983	2534	45193
first	NaN	2016-01-06 00:00:00	NaN	NaN	NaN	NaN	NaN
last	NaN	2021-02-17 00:00:00	NaN	NaN	NaN	NaN	NaN

```
In [ ]: toner.describe()
```

```
/usr/local/lib/python3.7/dist-packages/ipykernel_launcher.py:1: FutureWarning: Treating datetime data as categorical rather than numeric in `describe` is deprecated and will be removed in a future version of pandas. Specify `datetime_is_numeric=True` to silence this warning and adopt the future behavior now.
```

```
"""Entry point for launching an IPython kernel.
```

```
Out[ ]:
```

	Requisition ID	Requisitioning Date	Supplier - ERP Supplier	Description	Requester - Shopper ID	Part - Supplier Part Number	Category
count	16221	16221	16221	16221	16221	16221	16221
unique	8916	1088	1	15961	977	971	1
top	SH247682	2017-03-06 00:00:00	WB Mason Company	62XL Ink Cartridge, Black (C2P05AN)	TWARE	HEWCE505A	Toner
freq	16	50	16221	8	281	347	16221
first	NaN	2016-01-12 00:00:00	NaN	NaN	NaN	NaN	NaN
last	NaN	2021-02-17 00:00:00	NaN	NaN	NaN	NaN	NaN

List of all department University wide

```
In [ ]: df1['Unit name'].unique()
```

```
Out[ ]: array(['ADMINISTRATIVE SERVICES', 'INFORMATION SERVICES & TECHNOLOGY',
               'SCHOOL OF MEDICINE (BUSM)', 'THE BU ACADEMY',
               'GENERAL ED SUPPORT & ACADEMIC INITIATIVES',
               'BUMC FACILITIES MANAGEMENT',
               'HENRY M GOLDMAN SCH OF DENTAL MED (GSDM)',
               'PHYSICAL DEVELOPMENT PROGRAMS & ATHLETIC', 'PROVOST',
               'QUESTROM SCHOOL OF BUSINESS (QST)',
               'COLLEGE OF ARTS AND SCIS (CAS)', 'CENTRAL ADMINISTRATION',
               'GLOBAL PROGRAMS', 'MET & EXTENDED EDUCATION ADMINISTRATION',
               'VICE PRESIDENT FINANCE', 'COLLEGE OF ENGINEERING (ENG)',
               'DEVELOPMENT & ALUMNI RELATIONS', 'METROPOLITAN COLLEGE (MET)',
               '',
               'NATL EMERGING INFECTIOUS DIS LAB (NEIDL)',
               'ENROLLMENT & STUDENT AFFAIRS', 'SDM DENTAL CLINICS',
               'SARGENT COLLEGE OF HEALTH & REHAB. SCI.',
               'SCHOOL OF PUBLIC HEALTH (SPH)', 'UNIV PROFESSORS-HONORS COLL
EGE',
               'CRC FACILITIES MANAGEMENT & PLANNING',
               'COLLEGE OF FINE ARTS (CFA)', 'GRADUATE MEDICAL SCIENCES (GMS
)',
               '',
               'ACADEMIC INSTITUTES & CENTERS', 'COLLEGE OF COMMUNICATION (C
OM)',
               'PARDEE SCHOOL OF GLOBAL STUDIES', 'UNIVERSITY LIBRARIES',
               'SCHOOL OF SOCIAL WORK (SSW)', 'FACULTY AND STAFF BENEFITS',
               'MET SPECIAL PROGRAMS NON-CREDIT (MSP)',
               'PHYSICAL EDUCATION, RECREATION & DANCE',
               'MEDICAL CAMPUS ADMINISTRATION (BUMC)', 'SCHOOL OF THEOLOGY (S
TH)',
               'SCHOOL OF HOSPITALITY (SHA)', 'OTHER OPS & AUXILIARY',
               'SCHOOL OF LAW (LAW)', 'WHEELOCK COLLEGE OF EDUC & HUMAN DEVE
LOP',
               'COLLEGE OF GENERAL STUDIES (CGS)', 'STUDENT LIFE',
               'NBL ACADEMIC PLANT', 'STUDENT HEALTH SERVICES',
               'HARRY AGGANIS ARENA', 'HUMAN RESOURCES', 'CRC RENTAL PROPERT
IES',
               'CRC RESIDENCE LIFE', 'EVENTS & CONFERENCES',
               'CRC RESIDENCE HALLS', 'WBUR RADIO', 'GENERAL INSTITUTIONAL E
XP',
               'CRC PARKING', 'MARKETING AND COMMUNICATION', 'SUMMER TERM (S
UM)',
               'BUMC RENTAL PROPERTIES', 'MED CLINICAL TRIALS',
               'COMPUTING AND DATA SCIENCES'], dtype=object)
```

Total request number for both coffee and toner during 2016-2021, categorized by department

```
In [ ]: df1['Unit name'].value_counts()
```

```
Out[ ]: SCHOOL OF MEDICINE (BUSM)          6616
        HENRY M GOLDMAN SCH OF DENTAL MED (GSDM) 5721
```

COLLEGE OF ARTS AND SCIS (CAS)	5421
GENERAL ED SUPPORT & ACADEMIC INITIATIVES	3611
SCHOOL OF PUBLIC HEALTH (SPH)	2538
ADMINISTRATIVE SERVICES	2200
INFORMATION SERVICES & TECHNOLOGY	1973
METROPOLITAN COLLEGE (MET)	1757
ENROLLMENT & STUDENT AFFAIRS	1590
SCHOOL OF LAW (LAW)	1572
COLLEGE OF ENGINEERING (ENG)	1533
CRC FACILITIES MANAGEMENT & PLANNING	1521
SARGENT COLLEGE OF HEALTH & REHAB. SCI.	1511
VICE PRESIDENT FINANCE	1506
ACADEMIC INSTITUTES & CENTERS	1450
QUESTROM SCHOOL OF BUSINESS (QST)	1349
PROVOST	1299
PHYSICAL DEVELOPMENT PROGRAMS & ATHLETIC	1262
GRADUATE MEDICAL SCIENCES (GMS)	1101
COLLEGE OF FINE ARTS (CFA)	1095
MEDICAL CAMPUS ADMINISTRATION (BUMC)	1011
UNIVERSITY LIBRARIES	845
GLOBAL PROGRAMS	833
UNIV PROFESSORS-HONORS COLLEGE	811
WHEELOCK COLLEGE OF EDUC & HUMAN DEVELOP	799
SDM DENTAL CLINICS	625
MET & EXTENDED EDUCATION ADMINISTRATION	622
HUMAN RESOURCES	609
STUDENT LIFE	586
SCHOOL OF SOCIAL WORK (SSW)	563
PARDEE SCHOOL OF GLOBAL STUDIES	556
NBL ACADEMIC PLANT	540
SCHOOL OF THEOLOGY (STH)	513
STUDENT HEALTH SERVICES	502
EVENTS & CONFERENCES	499
CRC RENTAL PROPERTIES	492
NATL EMERGING INFECTIOUS DIS LAB (NEIDL)	462
CENTRAL ADMINISTRATION	432
WBUR RADIO	403
DEVELOPMENT & ALUMNI RELATIONS	338
COLLEGE OF COMMUNICATION (COM)	320
CRC RESIDENCE LIFE	280
FACULTY AND STAFF BENEFITS	226
COLLEGE OF GENERAL STUDIES (CGS)	193
THE BU ACADEMY	174
MARKETING AND COMMUNICATION	168
BUMC FACILITIES MANAGEMENT	167
MET SPECIAL PROGRAMS NON-CREDIT (MSP)	159
PHYSICAL EDUCATION, RECREATION & DANCE	149
HARRY AGGANIS ARENA	121
SUMMER TERM (SUM)	96
SCHOOL OF HOSPITALITY (SHA)	93
CRC RESIDENCE HALLS	69
OTHER OPS & AUXILIARY	57
GENERAL INSTITUTIONAL EXP	55

CRC PARKING	47
BUMC RENTAL PROPERTIES	5
COMPUTING AND DATA SCIENCES	1
MED CLINICAL TRIALS	1
Name: Unit name, dtype: int64	

Total request number for coffee during 2016-2021, categorized by department

```
In [ ]: coffee_req1, toner_req1 = df1[df1.Category=='Coffee'], df1[df1.Category=='Toner']
s_date = datetime.datetime.strptime('20160101', '%Y%m%d')
e_date = datetime.datetime.strptime('20161231', '%Y%m%d')
y2016_req = df1[(df1['PO Creation Date']>=s_date) & (df1['PO Creation Date'] <= e_date) & (df1.Category=='Coffee')]

s_date2 = datetime.datetime.strptime('20170101', '%Y%m%d')
e_date2 = datetime.datetime.strptime('20171231', '%Y%m%d')
y2017_req = df1[(df1['PO Creation Date']>=s_date2) & (df1['PO Creation Date'] <= e_date2) & (df1.Category=='Coffee')]

s_date3 = datetime.datetime.strptime('20180101', '%Y%m%d')
e_date3 = datetime.datetime.strptime('20181231', '%Y%m%d')
y2018_req = df1[(df1['PO Creation Date']>=s_date3) & (df1['PO Creation Date'] <= e_date3)& (df1.Category=='Coffee')]

s_date4 = datetime.datetime.strptime('20190101', '%Y%m%d')
e_date4 = datetime.datetime.strptime('20191231', '%Y%m%d')
y2019_req = df1[(df1['PO Creation Date']>=s_date4) & (df1['PO Creation Date'] <= e_date4)& (df1.Category=='Coffee')]

s_date5 = datetime.datetime.strptime('20200101', '%Y%m%d')
e_date5 = datetime.datetime.strptime('20201231', '%Y%m%d')
y2020_req = df1[(df1['PO Creation Date']>=s_date5) & (df1['PO Creation Date'] <= e_date5)& (df1.Category=='Coffee')]

test1 = pd.Series(coffee_req1['Unit name'].value_counts(), name="total")
test2 = pd.Series(y2016_req['Unit name'].value_counts(), name="2016")
test3 = pd.Series(y2017_req['Unit name'].value_counts(), name="2017")
test4 = pd.Series(y2018_req['Unit name'].value_counts(), name="2018")
test5 = pd.Series(y2019_req['Unit name'].value_counts(), name="2019")
test6 = pd.Series(y2020_req['Unit name'].value_counts(), name="2020")
df3 = pd.concat([test1, test2, test3, test4, test5, test6], axis=1).fillna(0)
df3
```

Out[]:

	total	2016	2017	2018	2019
HENRY M GOLDMAN SCH OF DENTAL MED (GSDM)	4062	962.0	992.0	965.0	895.0
SCHOOL OF MEDICINE (BUSM)	3722	825.0	939.0	897.0	843.0

COLLEGE OF ARTS AND SCIS (CAS)	3366	727.0	835.0	895.0	752.0
GENERAL ED SUPPORT & ACADEMIC INITIATIVES	2696	591.0	636.0	579.0	674.0
ADMINISTRATIVE SERVICES	2014	471.0	470.0	503.0	478.0
INFORMATION SERVICES & TECHNOLOGY	1812	355.0	515.0	600.0	280.0
SCHOOL OF PUBLIC HEALTH (SPH)	1769	469.0	452.0	375.0	391.0
ENROLLMENT & STUDENT AFFAIRS	1558	293.0	319.0	421.0	442.0
METROPOLITAN COLLEGE (MET)	1512	346.0	371.0	372.0	354.0
VICE PRESIDENT FINANCE	1385	349.0	324.0	274.0	359.0
CRC FACILITIES MANAGEMENT & PLANNING	1360	255.0	341.0	345.0	258.0
ACADEMIC INSTITUTES & CENTERS	1247	205.0	263.0	399.0	308.0
PROVOST	1161	156.0	288.0	311.0	327.0
SCHOOL OF LAW (LAW)	1154	230.0	288.0	278.0	275.0
SARGENT COLLEGE OF HEALTH & REHAB. SCI.	1107	213.0	266.0	334.0	259.0
PHYSICAL DEVELOPMENT PROGRAMS & ATHLETIC	1042	249.0	262.0	257.0	215.0
QUESTROM SCHOOL OF BUSINESS (QST)	984	241.0	279.0	209.0	205.0
COLLEGE OF ENGINEERING (ENG)	956	105.0	177.0	272.0	319.0
GRADUATE MEDICAL SCIENCES (GMS)	916	315.0	280.0	143.0	148.0
UNIV PROFESSORS-HONORS COLLEGE	805	192.0	259.0	289.0	58.0
MEDICAL CAMPUS ADMINISTRATION (BUMC)	767	187.0	172.0	174.0	184.0
UNIVERSITY LIBRARIES	715	152.0	189.0	199.0	153.0
COLLEGE OF FINE ARTS (CFA)	665	140.0	202.0	139.0	138.0
GLOBAL PROGRAMS	539	86.0	119.0	183.0	121.0
STUDENT LIFE	524	75.0	108.0	157.0	157.0
WHEELOCK COLLEGE OF EDUC & HUMAN DEVELOP	506	122.0	151.0	122.0	81.0
NBL ACADEMIC PLANT	505	74.0	97.0	113.0	136.0
HUMAN RESOURCES	505	108.0	139.0	116.0	123.0
PARDEE SCHOOL OF GLOBAL STUDIES	505	106.0	107.0	123.0	144.0
MET & EXTENDED EDUCATION ADMINISTRATION	498	121.0	119.0	117.0	115.0
CRC RENTAL PROPERTIES	485	98.0	145.0	130.0	91.0
EVENTS & CONFERENCES	471	107.0	115.0	125.0	105.0
SDM DENTAL CLINICS	465	169.0	158.0	82.0	46.0
STUDENT HEALTH SERVICES	431	30.0	88.0	134.0	139.0
SCHOOL OF THEOLOGY (STH)	398	30.0	95.0	124.0	126.0
CENTRAL ADMINISTRATION	360	97.0	81.0	86.0	81.0

NATL EMERGING INFECTIOUS DIS LAB (NEIDL)	351	62.0	82.0	93.0	77.0
SCHOOL OF SOCIAL WORK (SSW)	282	39.0	83.0	65.0	80.0
DEVELOPMENT & ALUMNI RELATIONS	265	43.0	64.0	66.0	77.0
CRC RESIDENCE LIFE	221	55.0	64.0	67.0	22.0
COLLEGE OF COMMUNICATION (COM)	216	41.0	51.0	64.0	52.0
FACULTY AND STAFF BENEFITS	197	26.0	38.0	56.0	52.0
COLLEGE OF GENERAL STUDIES (CGS)	190	36.0	44.0	43.0	55.0
WBUR RADIO	164	0.0	17.0	64.0	60.0
BUMC FACILITIES MANAGEMENT	161	49.0	47.0	55.0	9.0
MARKETING AND COMMUNICATION	146	2.0	1.0	1.0	141.0
MET SPECIAL PROGRAMS NON-CREDIT (MSP)	144	40.0	30.0	30.0	40.0
HARRY AGGANIS ARENA	105	41.0	18.0	19.0	26.0
PHYSICAL EDUCATION, RECREATION & DANCE	99	18.0	14.0	29.0	37.0
THE BU ACADEMY	85	12.0	24.0	27.0	21.0
OTHER OPS & AUXILIARY	56	14.0	22.0	2.0	10.0
SCHOOL OF HOSPITALITY (SHA)	48	39.0	9.0	0.0	0.0
SUMMER TERM (SUM)	15	2.0	2.0	1.0	3.0
CRC PARKING	14	10.0	2.0	2.0	0.0
GENERAL INSTITUTIONAL EXP	8	0.0	0.0	0.0	0.0
COMPUTING AND DATA SCIENCES	1	0.0	0.0	0.0	0.0

Total request number for toner during 2016-2021, categorized by department

```
In [ ]: s_date = datetime.datetime.strptime('20160101', '%Y%m%d')
e_date = datetime.datetime.strptime('20161231', '%Y%m%d')
y2016_req = df1[(df1['PO Creation Date'] >= s_date) & (df1['PO Creation Date'] <= e_date) & (df1.Category=='Toner')]

s_date2 = datetime.datetime.strptime('20170101', '%Y%m%d')
e_date2 = datetime.datetime.strptime('20171231', '%Y%m%d')
y2017_req = df1[(df1['PO Creation Date'] >= s_date2) & (df1['PO Creation Date'] <= e_date2) & (df1.Category=='Toner')]

s_date3 = datetime.datetime.strptime('20180101', '%Y%m%d')
e_date3 = datetime.datetime.strptime('20181231', '%Y%m%d')
y2018_req = df1[(df1['PO Creation Date'] >= s_date3) & (df1['PO Creation Date'] <= e_date3)& (df1.Category=='Toner')]

s_date4 = datetime.datetime.strptime('20190101', '%Y%m%d')
e_date4 = datetime.datetime.strptime('20191231', '%Y%m%d')
y2019_req = df1[(df1['PO Creation Date'] >= s_date4) & (df1['PO Creation Date'] <= e_date4)& (df1.Category=='Toner')]

s_date5 = datetime.datetime.strptime('20200101', '%Y%m%d')
e_date5 = datetime.datetime.strptime('20201231', '%Y%m%d')
y2020_req = df1[(df1['PO Creation Date'] >= s_date5) & (df1['PO Creation Date'] <= e_date5)& (df1.Category=='Toner')]

test1 = pd.Series(toner_req1['Unit name'].value_counts(), name="total")
test2 = pd.Series(y2016_req['Unit name'].value_counts(), name="2016")
test3 = pd.Series(y2017_req['Unit name'].value_counts(), name="2017")
test4 = pd.Series(y2018_req['Unit name'].value_counts(), name="2018")
test5 = pd.Series(y2019_req['Unit name'].value_counts(), name="2019")
test6 = pd.Series(y2020_req['Unit name'].value_counts(), name="2020")
df4 = pd.concat([test1, test2, test3, test4, test5], axis=1).fillna(0)
df4
```

Out[]:

	total	2016	2017	2018	2019
SCHOOL OF MEDICINE (BUSM)	2894	666.0	755.0	683.0	627.0
COLLEGE OF ARTS AND SCIS (CAS)	2055	522.0	549.0	442.0	433.0
HENRY M GOLDMAN SCH OF DENTAL MED (GSDM)	1659	386.0	414.0	466.0	303.0
GENERAL ED SUPPORT & ACADEMIC INITIATIVES	915	255.0	233.0	179.0	205.0
SCHOOL OF PUBLIC HEALTH (SPH)	769	199.0	211.0	169.0	164.0
COLLEGE OF ENGINEERING (ENG)	577	163.0	129.0	156.0	116.0
COLLEGE OF FINE ARTS (CFA)	430	107.0	124.0	100.0	80.0
SCHOOL OF LAW (LAW)	418	99.0	86.0	105.0	101.0
SARGENT COLLEGE OF HEALTH & REHAB. SCI.	404	98.0	106.0	92.0	89.0
QUESTROM SCHOOL OF BUSINESS (QST)	365	81.0	74.0	101.0	82.0

GLOBAL PROGRAMS	294	51.0	67.0	94.0	60.0
WHEELOCK COLLEGE OF EDUC & HUMAN DEVELOP	293	75.0	46.0	82.0	75.0
SCHOOL OF SOCIAL WORK (SSW)	281	115.0	75.0	56.0	30.0
METROPOLITAN COLLEGE (MET)	245	82.0	81.0	46.0	32.0
MEDICAL CAMPUS ADMINISTRATION (BUMC)	244	61.0	60.0	60.0	53.0
WBUR RADIO	239	18.0	49.0	67.0	77.0
PHYSICAL DEVELOPMENT PROGRAMS & ATHLETIC	220	69.0	43.0	42.0	54.0
ACADEMIC INSTITUTES & CENTERS	203	33.0	38.0	67.0	51.0
ADMINISTRATIVE SERVICES	186	40.0	46.0	52.0	43.0
GRADUATE MEDICAL SCIENCES (GMS)	185	69.0	46.0	29.0	32.0
CRC FACILITIES MANAGEMENT & PLANNING	161	23.0	28.0	45.0	40.0
INFORMATION SERVICES & TECHNOLOGY	161	56.0	56.0	35.0	12.0
SDM DENTAL CLINICS	160	40.0	57.0	29.0	26.0
PROVOST	138	47.0	45.0	19.0	22.0
UNIVERSITY LIBRARIES	130	26.0	22.0	39.0	36.0
MET & EXTENDED EDUCATION ADMINISTRATION	124	26.0	40.0	34.0	23.0
VICE PRESIDENT FINANCE	121	27.0	31.0	29.0	23.0
SCHOOL OF THEOLOGY (STH)	115	34.0	32.0	25.0	23.0
NATL EMERGING INFECTIOUS DIS LAB (NEIDL)	111	28.0	23.0	32.0	26.0
HUMAN RESOURCES	104	32.0	33.0	20.0	14.0
COLLEGE OF COMMUNICATION (COM)	104	39.0	14.0	25.0	19.0
THE BU ACADEMY	89	39.0	14.0	18.0	11.0
SUMMER TERM (SUM)	81	21.0	23.0	19.0	18.0
DEVELOPMENT & ALUMNI RELATIONS	73	7.0	3.0	15.0	36.0
CENTRAL ADMINISTRATION	72	26.0	13.0	12.0	21.0
STUDENT HEALTH SERVICES	71	19.0	4.0	28.0	16.0
CRC RESIDENCE HALLS	69	15.0	18.0	19.0	15.0
STUDENT LIFE	62	18.0	22.0	10.0	11.0
CRC RESIDENCE LIFE	59	6.0	19.0	19.0	15.0
PARDEE SCHOOL OF GLOBAL STUDIES	51	10.0	13.0	7.0	13.0
PHYSICAL EDUCATION, RECREATION & DANCE	50	11.0	12.0	5.0	17.0
GENERAL INSTITUTIONAL EXP	47	13.0	15.0	12.0	4.0
SCHOOL OF HOSPITALITY (SHA)	45	18.0	12.0	9.0	5.0
NBL ACADEMIC PLANT	35	3.0	11.0	10.0	9.0

CRC PARKING	33	7.0	10.0	5.0	8.0
ENROLLMENT & STUDENT AFFAIRS	32	4.0	11.0	7.0	7.0
FACULTY AND STAFF BENEFITS	29	7.0	7.0	6.0	7.0
EVENTS & CONFERENCES	28	7.0	4.0	12.0	5.0
MARKETING AND COMMUNICATION	22	4.0	8.0	6.0	4.0
HARRY AGGANIS ARENA	16	4.0	3.0	5.0	4.0
MET SPECIAL PROGRAMS NON-CREDIT (MSP)	15	6.0	2.0	6.0	1.0
CRC RENTAL PROPERTIES	7	3.0	1.0	0.0	2.0
BUMC FACILITIES MANAGEMENT	6	3.0	2.0	1.0	0.0
UNIV PROFESSORS-HONORS COLLEGE	6	2.0	2.0	0.0	2.0
BUMC RENTAL PROPERTIES	5	3.0	2.0	0.0	0.0
COLLEGE OF GENERAL STUDIES (CGS)	3	2.0	0.0	0.0	1.0
OTHER OPS & AUXILIARY	1	0.0	1.0	0.0	0.0
MED CLINICAL TRIALS	1	0.0	1.0	0.0	0.0

Part 3: Visual Demonstration

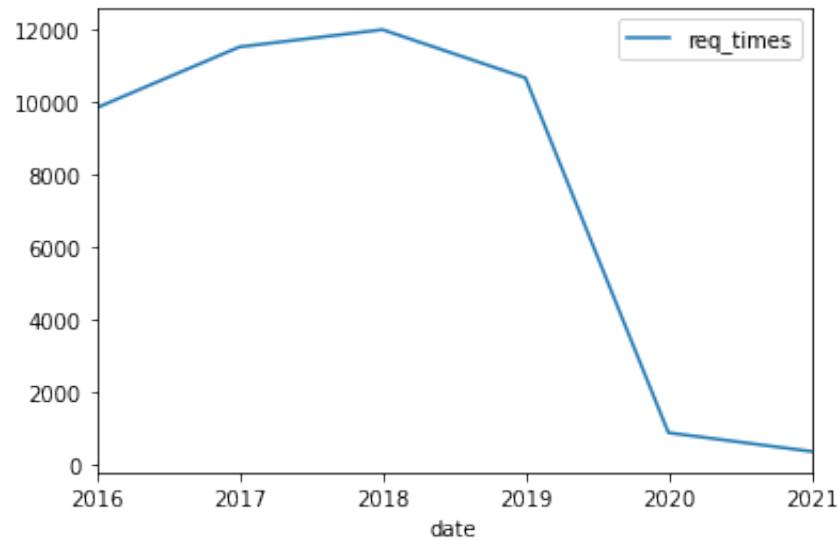
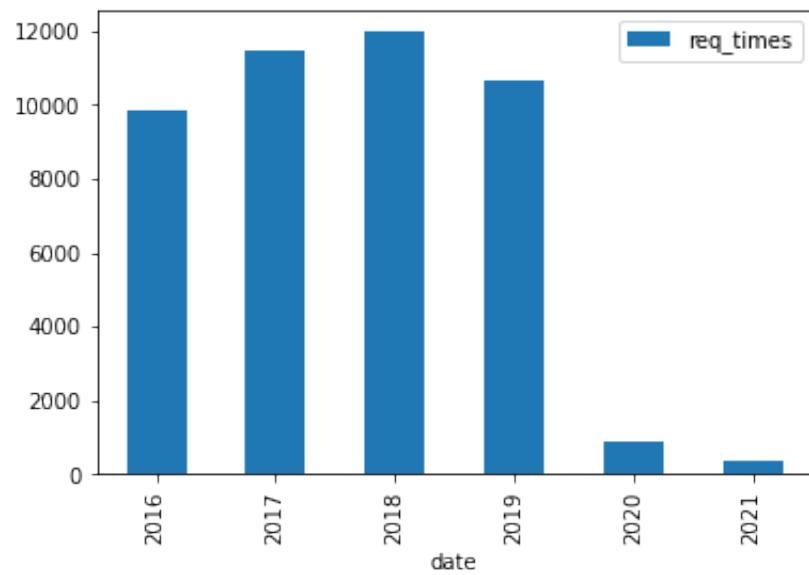
Order request counts for coffee request among the whole university, categorized by date

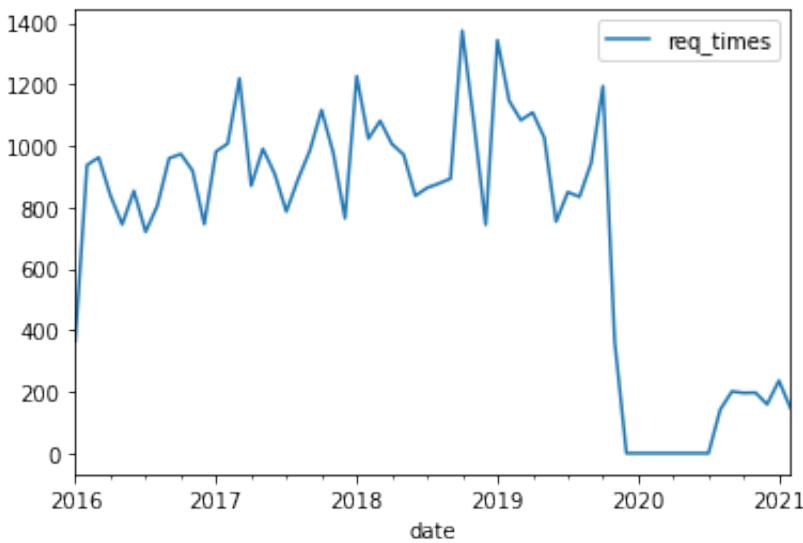
```
In [ ]: ## Now processing the data from coffee_req
coffee_req_num_by_date = coffee_req.groupby(['Requisitioning Date', 'Category']).size().reset_index(name='req_times')[['Requisitioning Date', 'req_times']]
coffee_req_num_by_date.columns = ['date', 'req_times']
cqd = coffee_req_num_by_date.set_index('date')
cqm = cqd.resample('MS').sum().to_period('M')
cqy = cqd.resample('YS').sum().to_period('Y')
cqy.plot(kind='bar')
cqy.plot()
cqm.plot()
cqy
```

Out[]:

req_times

date	req_times
2016	9820
2017	11494
2018	11967
2019	10644
2020	895
2021	382





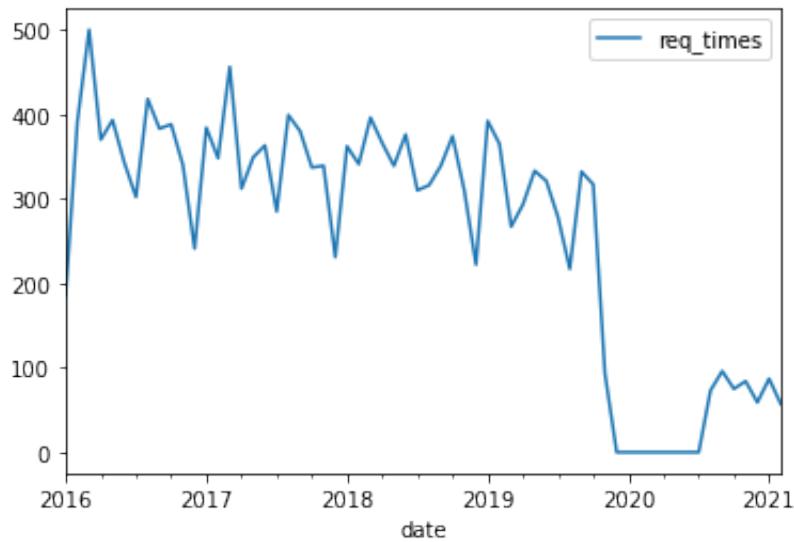
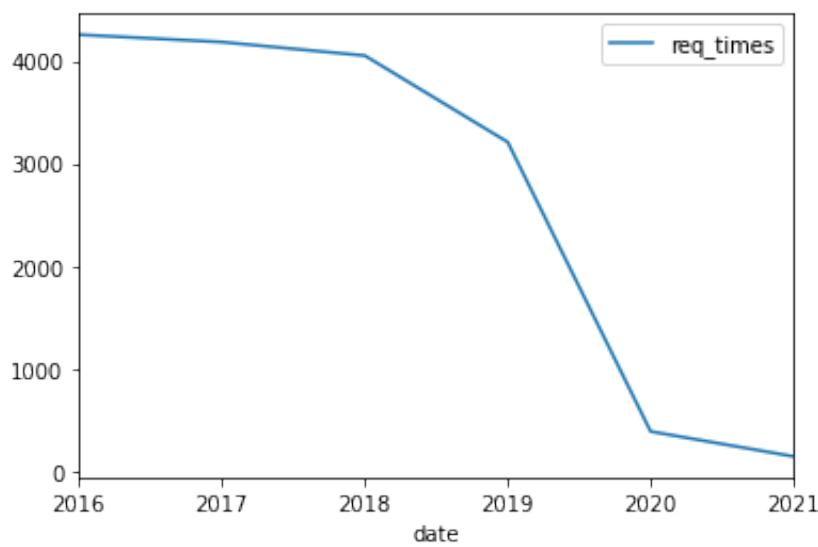
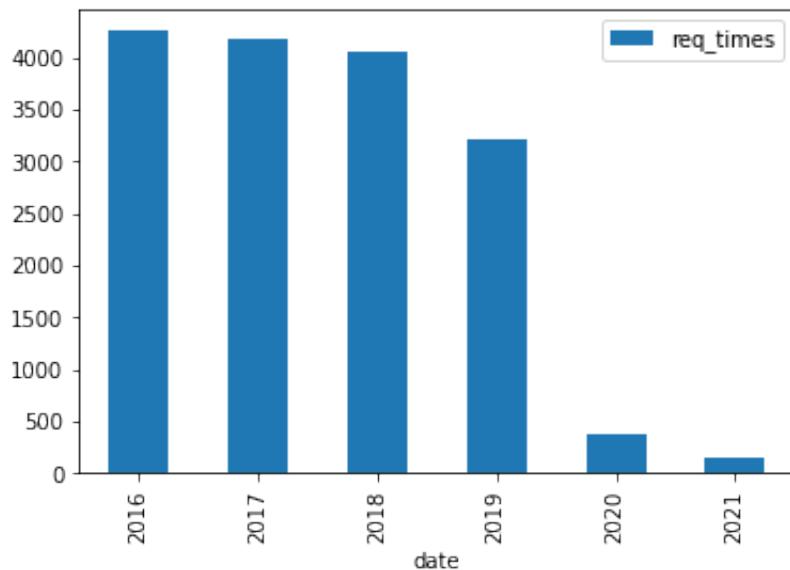
Order request counts for toner request among the whole university, categorized by date

```
In [ ]: ## Now processing the data from toner_req
toner_req_num_by_date = toner_req.groupby(['Requisitioning Date','Category']).size().reset_index(name='req_times')[['Requisitioning Date','req_times']]
toner_req_num_by_date.columns = ['date','req_times']
tqd = toner_req_num_by_date.set_index('date')
tqm = tqd.resample('MS').sum().to_period('M')
tqy = tqd.resample('YS').sum().to_period('Y')
tqy.plot(kind='bar')
tqy.plot()
tqm.plot()
tqy
```

Out[]:

req_times

date	
2016	4255
2017	4183
2018	4051
2019	3208
2020	387
2021	144



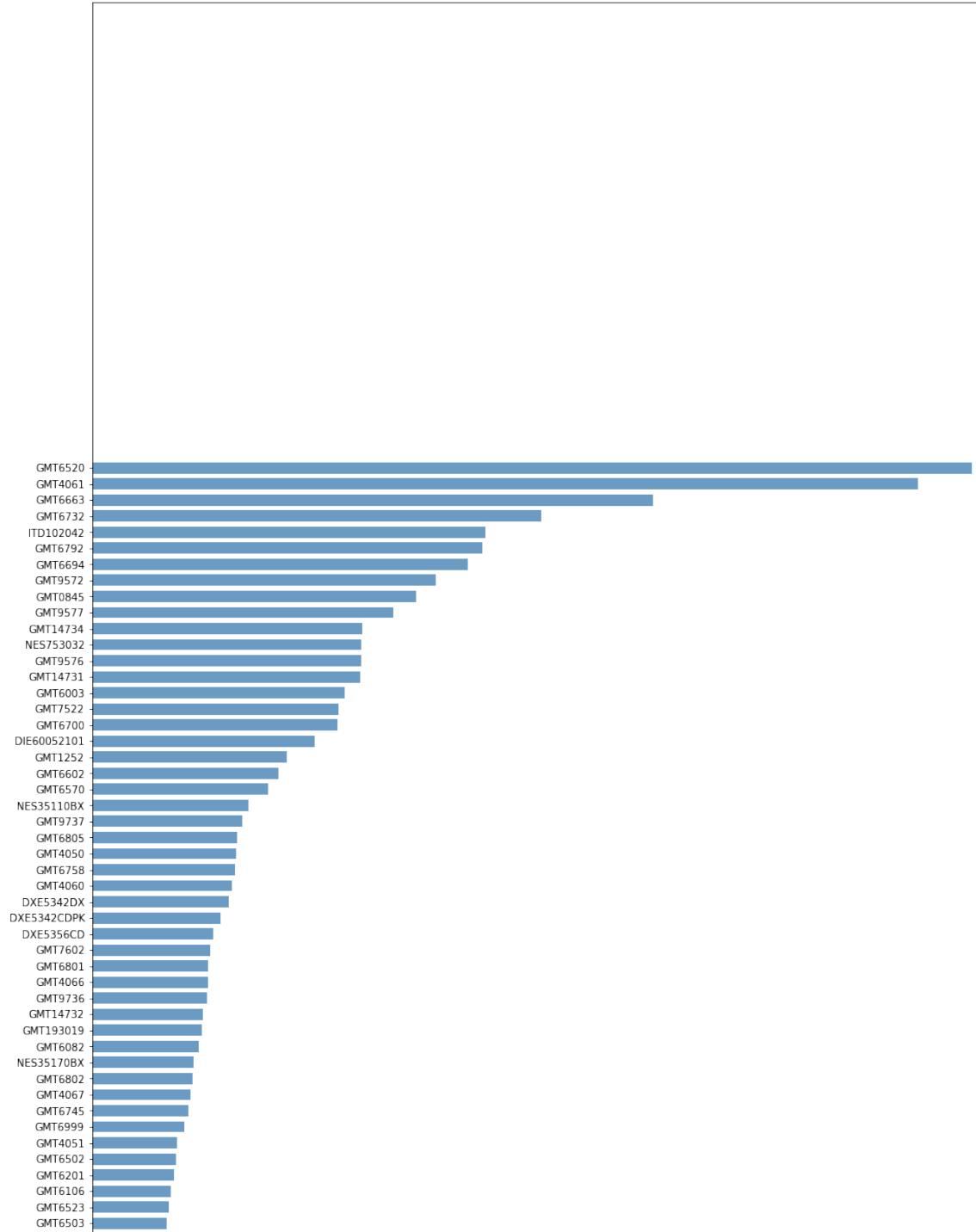
All requested coffee products and their rank by order requests count

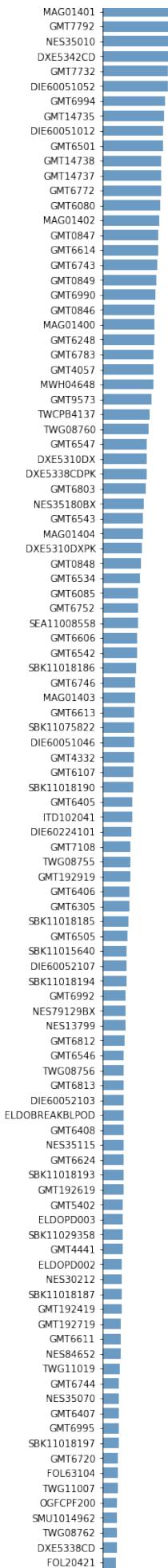
```
In [ ]: items, counts = np.unique(sorted(coffee[ 'Part - Supplier Part Number' ]), return_counts=True)

temp = pd.DataFrame(data={ 'items': items, 'counts': counts}).sort_values(by=[ 'counts' ])

items, counts = temp[ 'items' ], temp[ 'counts' ]

plt.figure(figsize=(16,180))
plt.barh(range(len(counts)), counts, height=0.7, color='steelblue', alpha=0.8)
plt.yticks(range(len(counts)), items)
plt.show()
```





MAG01602
SBK11018192
BUNBCF250
GMT6000
TWG10993
RPPR810BX
TWG08759
GMT6722
GMT6204
GMT192519
ELDOMOCHAPOD
GMT6545
ELDOORGGUATPOD
PEE501619
MAG01600
GMT6685
BGC461571
GMTPB4141
GMT5304
ELDOSOPECANPOD
GMT6856
NES42498
GMT6728
ITD100680
FOL63100
GMT037568
GMT6336
BUNTEASY52
NES91757
DXE5356DX
OGFCPF250
MAG01608
MAG01605
DXE5342CD5BPK
MAG01609
GMT6727
UBIS2012
GMT7596
DIE60051056
TWG09954
ELDDODCEPOD
GMT6544
MAG01601
ELDOPD004
NES31803
GMT6868
NJO827783
GMT0995
MAG01612
MAG01607
MAG01606
MAG01604
GMT1120
NES35080
NES55882
FOL63100CT
ITD02284
RUI8005
EIG320820
SBK11023061
MAG01611
MAG01610
GMT6661
WGP016430
GMT4432
GMT6006
DXE5338DX
GMT6680
PME75000244
RUI8001
TWG08758
FOL63103
GMT6855
SBK11019631
GMT7111
MAG01618
GMT5814
PME75000242
ITD012041
GMT7428
TWG08761
GMT6873
ELDOPD020
GMT6001
SBK11075823
BUNBCF100B
GMT6739
GMT0243
ITD02282
GMT7595
GMT6002
PCO33700
FOL63102
KRF04358
GMT7534
MAG01503
MAG01501
GMT7594
GMT1266
RUI8010
GMT7674
OFX00020
SBK11018131
GMT037569
GMT4062

- - - - -
GMT5305
GMT6872
GMT6622
GMT4493
ELDOPD001
RUI8200
SST3101CF
ITD827981
NES75520
GMT5531
GMT6659
DIE6958
GMT7000
CFR12HDCCF
GMT1243
NES35112
GMT6825
ITD02283
GMT6870
GMT6024
GMT6774
GMT5303
RPPR810CT
KRF04351
WRTB31498EA
GMT0162
FOL06922
EMSCOMORGBLK
EMSCAD01BLK
GMT6662
JAV30800
ITD827965
MAG01613
GMT5470
TWG08757
BUN1M5002
GMT6115
ITD100722
NES31831
INT121199
GMT5469
FOL20421EA
FOL20631
WGP012663
GMT6425
SBK11017854
ITD100681
CDY62414
KEU5065
LAV4202
GMT8784
KRF04352
SBK11020676
GMT0316
MAG01615
FOL20540
GMT70600
GMT7994
GMT6867
PCO32006
GMT6871
GMT6376
SMU0136
GMT1113
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NES35775
ELDOSUMATRAPOD
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NES77197
RAC36320CT
ROC48101
GMT0570
GMT1281
GMT0448
GMT6205
GMT1101
PEE500350
GMT6528
IDL100708
MAG01603
ITD101766
WMN703457
JAV40300
WGP013663
TWG09955
EMSCOMP7BLK
ELDOFRVANDECPOD
GMT0037
PEE504918
PEE504916
ITD100709
ELDOKONABLEND
NES35115CT
GMT7721
PEE501487
SMU0048
GMT7746
SMU0681
NES68613
DMN0700
WMN2175EA
GMT9373
GMT6110
GCU10001

	TOTDUDS
ITD102579	
GMT14739	
ELDOPLANTABLNDPOD	
NCF026160	
MAG01617	
GMT037120	
GMT037134	
FOL63101	
SEA1100854	
LAV1450	
GMT6996	
FOL00374	
GMT6886	
ELDOHAZDECPOD	
WMN2175	
BUNGOURMET504	
GMT5493	
PME7500243	
WNCCDB11	
GMT0036	
RUI58011	
GMT5339	
ELDONUCONBLPOD	
SEA11008560	
RUI8003	
EMSDBTRYMESH	
FOL60514	
FOL60513	
FOL20513	
PEE504914	
EMSTRYMEHSH	
ELDODONUTSHOP	
EMSTRY01BLK	
PEE504873	
GMT1102	
FOL20672	
YUB04707	
LAV7511	
INT110263	
JAV30220	
GMT7607	
MAG01513	
MAG01614	
GMT7790	
GMT7791	
MWH04658	
NES02441	
NES18447	
GMT8087	
NES30032CT	
INT165230	
NES45773	
GMT6206	
GMT6612	
NES79129CT	
GMT7608	
MWH866150	
TWCPB4137CT	
TAS02379	
PCO22003	
CFR10HDCCF	
DXE5342S160CH	
BUN20100	
GMT6664	
GMT037567	
SMU0680	
SMU0679	
OFX33000	
ELDOCHOCRASPOD	
GMT6742	
MLA620014	
GMT8007	
MAG01502	
GMT7585	
LCT00004	
SMU0076	
KEU5066	
KEU40692	
SMU0046	
SEA11008556	
GMT6863	
GMT6974	
GMT6883	
GMT6882	
GMT6878	
GMT6869R	
NCF16510	
EMSTRY26PCBLK	
NCF16880	
NES12345	
PEE504874	
GMT9352	
INT110260	
GMT6378	
WGP012661	
PEE500705	
GMT6377	
NES22075	
INT109106	
GMT6111	
NCF26260	
PCO32003	
WNCVSS33	
GMT4162	

GMT1279
WGP016447
INT212545
JAV30200
EMSCOMORG02BLK
GMT7586
GMT70575
BUN10GAL23X9
JAV4066
SMU0049
GMT9372
GMT7465
EMSMESHCAD
BUNU318X7252CS
INT210545EA
GMT9315
ELDONC20042
DXE5356CDCT
JAV4097
BUN6GAL21X9
INT240845
TWG12972
TAS66028
SMU0988
WRTB31498
DSP8599961590
DSP599961590
GMT7615
SMU0147
WNCVSS5508
SMU0678
GMT8179
GMT7614
GMT9737CT
SMU0279
GMT8338
TWG12080
GMT7605
GMT9736CT
NJO90780
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MLY02448
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RPPR825CT
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PME75000241
PEE507727
PEE504917
NES30302
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NES38771
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JAV70500
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GMT6114
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PCO23002
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FOL20145
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FOL20527
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SBK11019880
FOLG60516
GENSIPSTIRST
GMT0038
GMT0040
MAG01616
MAG01619
MAG01620
MAG01700
SBK11017860EA
GMT037571
MKL11778



Top 20 requested coffee products and their proportions

```
In [ ]: items, counts = np.unique(sorted(coffee[ 'Part - Supplier Part Number' ]),
, return_counts=True)

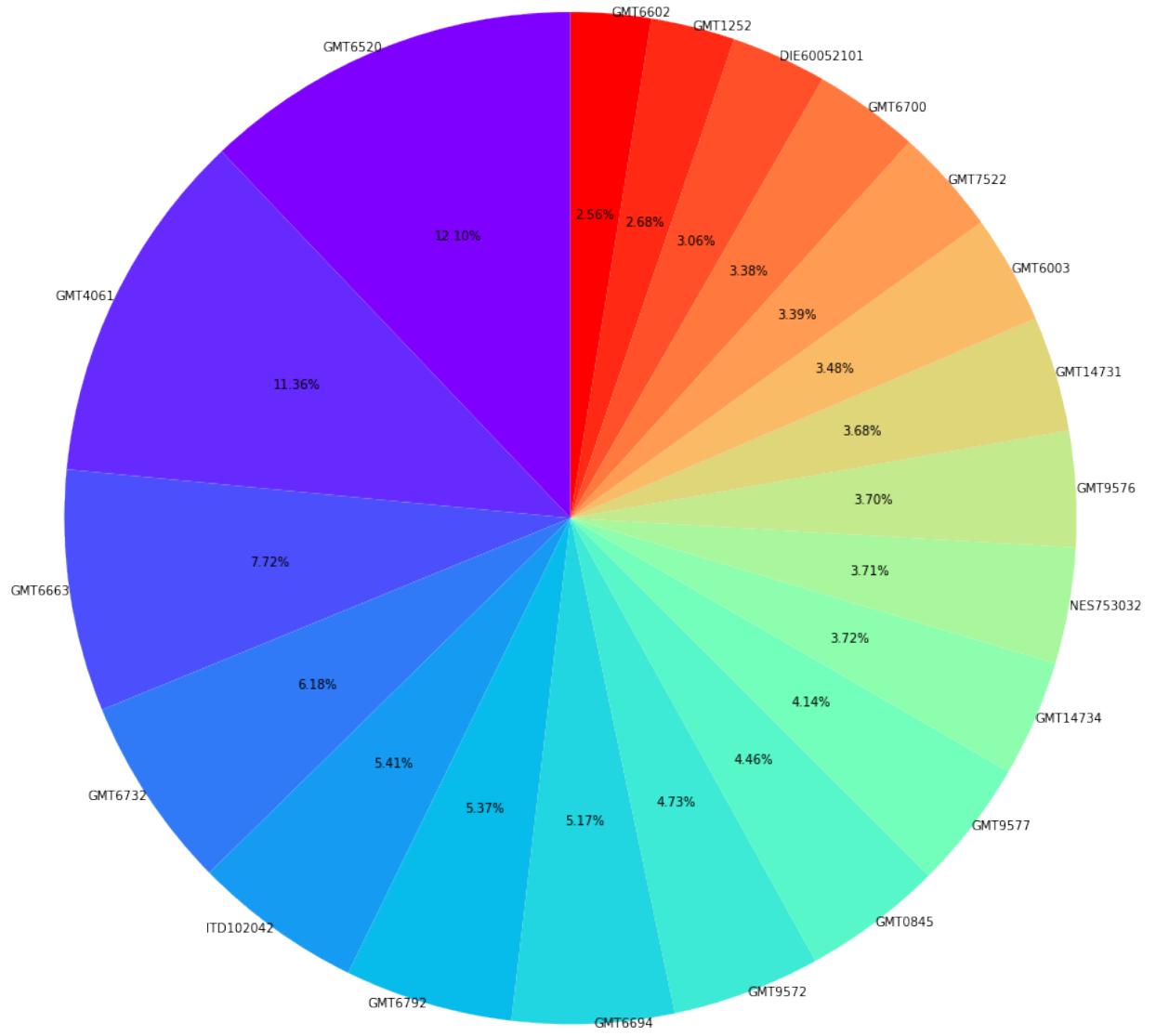
temp = pd.DataFrame(data={ 'items' : items, 'counts' : counts}).sort_values(by=[ 'counts' ])

items, counts = temp[ 'items' ][-20:][::-1],temp [ 'counts' ][-20:][::-1]

plt.figure(figsize=(16,24))                                     #resize the figure
labels = items                                                 #define the labels
as Supplier Part Number
sizes = counts                                                 #define the size co
rresponds to its count
colors = cm.rainbow(np.linspace(0, 1, len(labels)))#define the color f
or each sector
explode = (0,)*len(sizes)                                     #make distance betw
een sectors

patches, text1, text2 = plt.pie(sizes,
                               explode=explode,
                               labels=labels,
                               colors=colors,
                               labeldistance = 1,
                               autopct = '%3.2f%%',
                               shadow = False,
                               startangle =90,
                               pctdistance = 0.6)      #no shadow
                                                               #counter-clockwise
                                                               #value distance fro
m the center of the pie

plt.axis('equal')
plt.show()
```



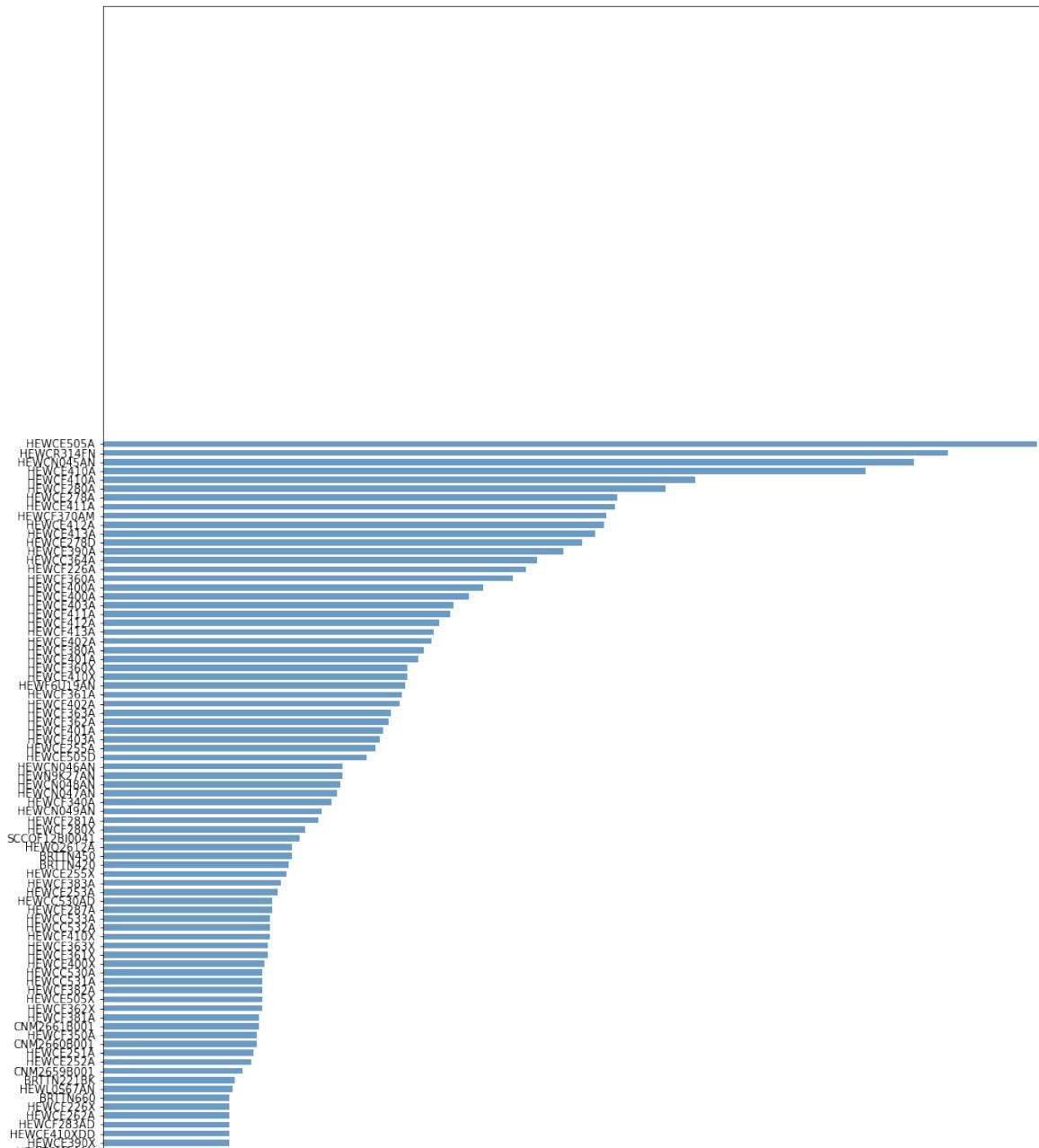
All requested toner products and their rank by order requests count

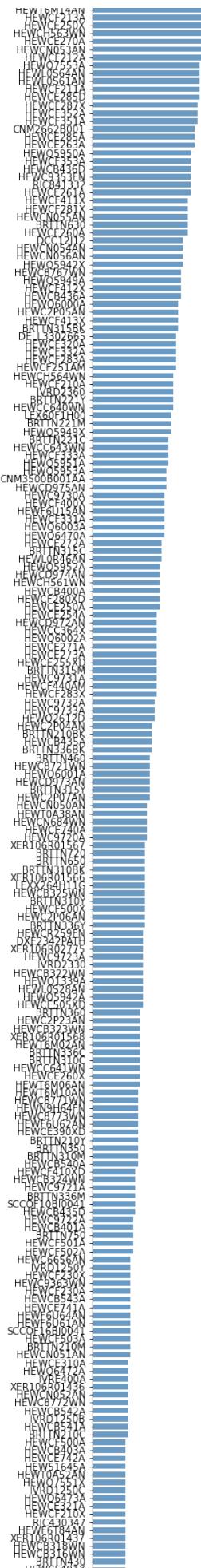
```
In [ ]: items, counts = np.unique(sorted(toner['Part - Supplier Part Number']), return_counts=True)

temp = pd.DataFrame(data={'items': items, 'counts': counts}).sort_values(by=[ 'counts'])

items, counts = temp[ 'items'], temp [ 'counts']

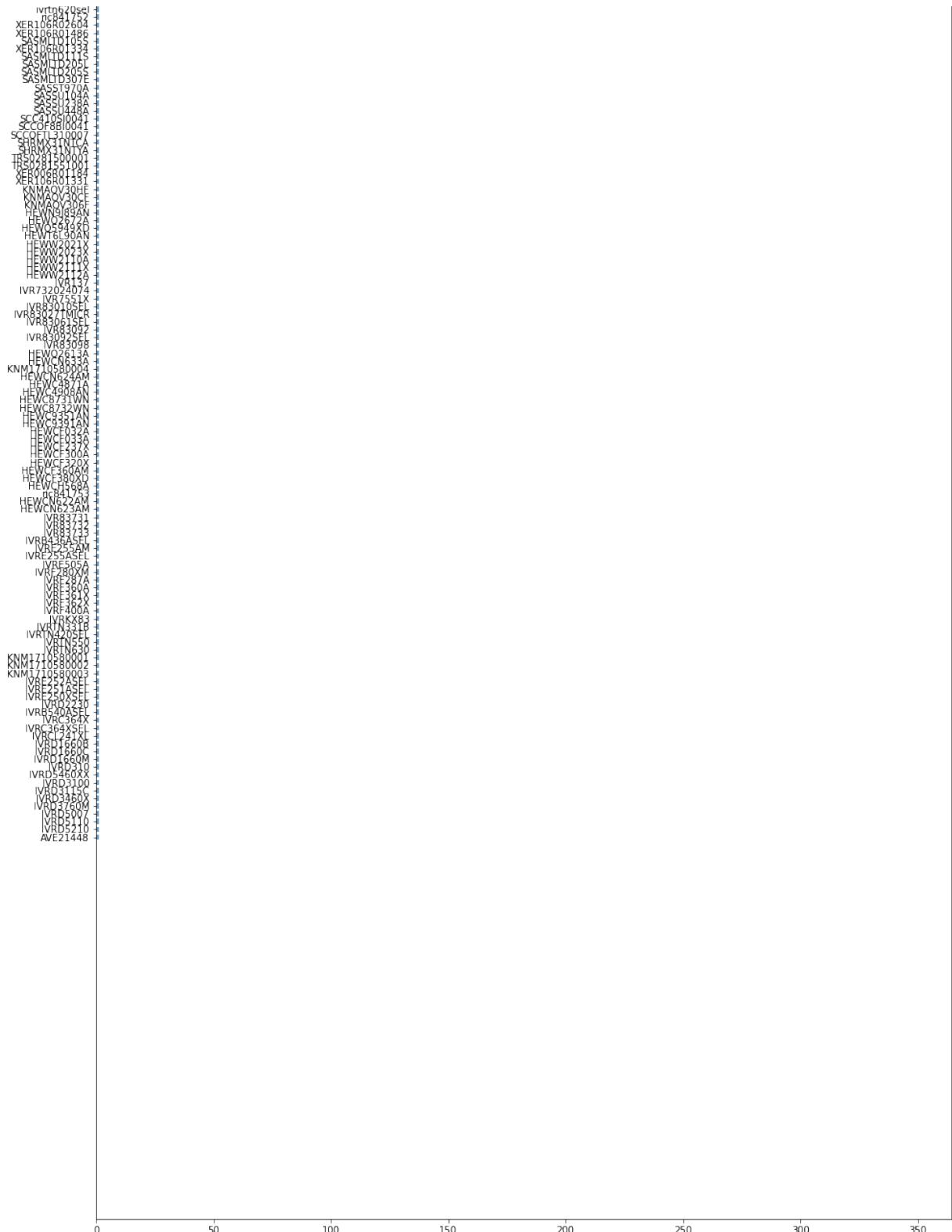
plt.figure(figsize=(16,160))
plt.barh(range(len(counts)), counts, height=0.7, color='steelblue', alpha=0.8)
plt.yticks(range(len(counts)), items)
plt.show()
```





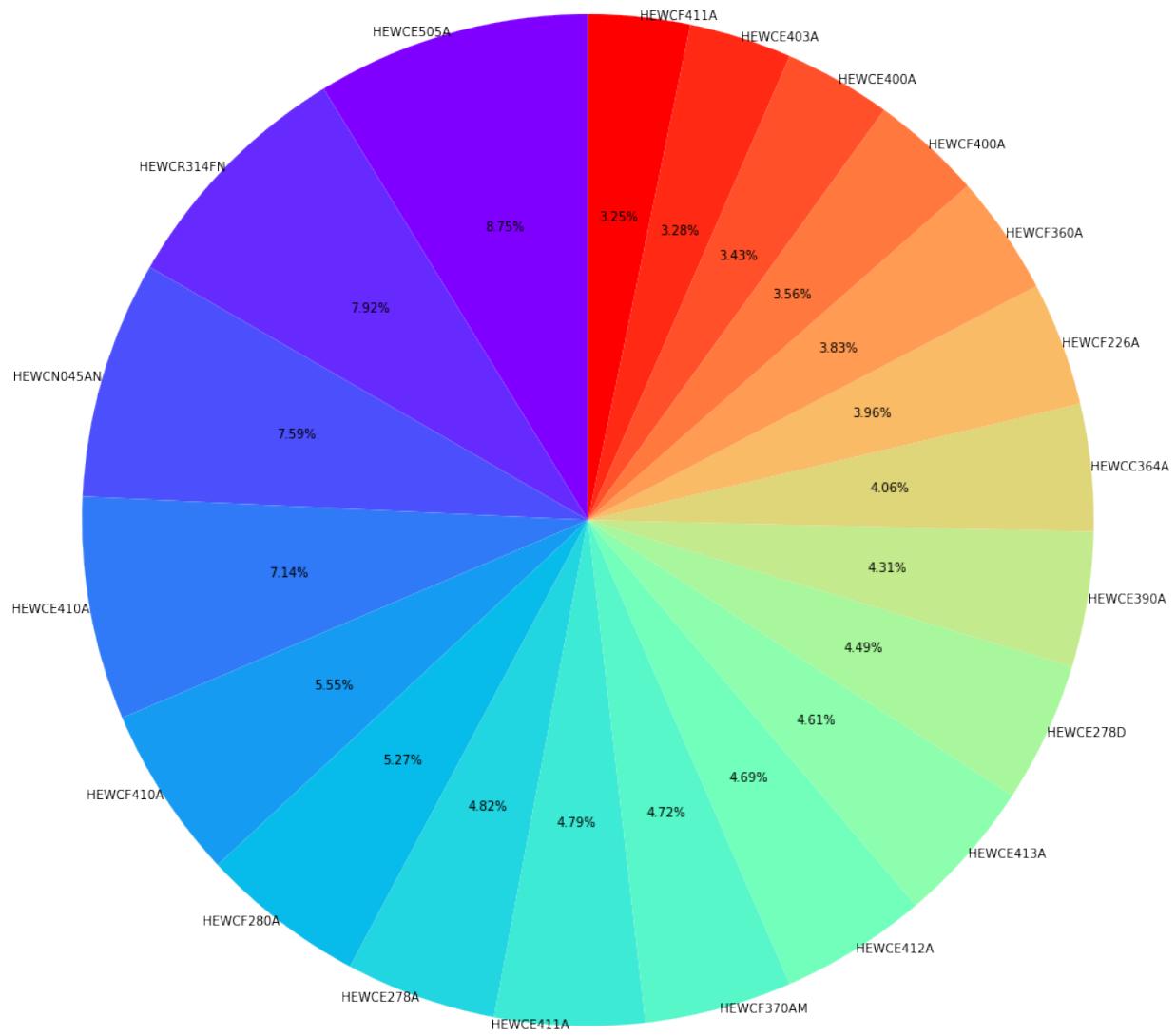
HEWC17240
HEWC4030
HEWC5520N
HEWC6730N
HEWC1730A
CNM1730A
XER10601438
HEWC4550
VBD1250M
HEWC35740
HEWC8766WN
HEWC8320WN
HEWC8655N
HEWC4906AN
HEWC36740
HEWC7150
HEWO2613X
HEWC85616
HEWCN069EN
VBE453A
XER113800726
CNM350080000
HEWC4550
HEWC131A
HEWC0839AN
HEWC131A
VBD2150B
VBD2150G
HEWC0839A
HEWO2610A
XER10601559
IVB3644TMCR
HEWC2073FN
HEWC22160
HEWC4111A
HEWO5460A
HEWC02064A
HEWC4101A
VBE401A
BRTN201A
HEWW2021A
HEWD5620
PAN
DC-818
HEWC657BDN
RIC841586
HEWC4102D
HEWC4912A
HEWC4912A
HEWC320A
HEWC09326A
HEWC09326A
HEC-BRITN50
HEWC12140
HEWC13160
HEWC9336WN
HEWC9373A
HEWC461A
HEWC8543X
HEWC0746A
HEWC322A
HEWC2951FN
VBE475A
HEWC6162AN
HEWC8453W0
HEWCN059AN
HEWC07516A
HEWC0542X0
BRTN620
HEWC0638AN
LEX701CFK0
BRTTN330
XER10601439
HEWC1642WN
HEWC00720
LEX5011H00
HEWC0504AN
BRTN4226M
HEWCN058AN
VBD9720
HEWC2721AN
VBE4552A
DE1130265A
HEWCN625AM
HEWC311A
HEWC5344A
HEWCN0514A
CNM104
LEX701070
HEWC0735A
HEWC8775WN
HEWC0780A
HEWC0780A
HEC84175A
HEWC5320B
HEWC9403A
HEWC7553X
HEWC0086N
XER1060086N
BRTN10110Y
HEWC0501230
XER10601230
BRTN0760
BRITN25C
CNM02838580
HEWC9396AN
HEWC07481A
HEWC4911A
BRTN0730
HEWC380X
DXED9541
CASM027075K
BRTTN820
HEWC2132A
HEWC5103X
HEWC41520
HEWC05100X
HEWCFA53A
HEWC4802AN
HEWC451A
HEWC0452A
HEWC05010X
HEWC5102X
VBE415A
HEWC0538A
HEWC0538AN
HEWC0525AN
SAM1TD116L
HEWC4127X
SAM1TD180C
LEX7001480
VRTN330
HEWC05100A
HEWC4110AD
BRTN100B
BU-BRITN69
BRTN100B
HEWC248A
HEWC9425X
OK44317334
BRTN111C
LEX7001480
VBTN330
OK444574701
HEWC05100A
LEX7001480
HEWCN057AN
EP3973528
HEWC2950AN
HEWC9451A
HEWC2131A
XER10601389
HEWC058A
HEWC841346
BRTN1110M

INSP01XSEL
HEWC010354
HEWC010A0
HEWC0280A0
LEX001000
LEX001HCO
LEX001001A
HEWC010A
VWD3450
HEWC01240N
HEWC01240
HEWC0287XO
BRTTN780
KNA007501F
LEX01B1000
HEWC010354N
HEVN016550
LEX001241A
HEWC0291AN
HEWC0292AN
HEWC0356A
XER106R02738
HEWC0362AN
HEWC0362AN
HEWC0362WN
HEWO0511A
VWD322450
HEWC0353XO
XER106R0262A
HEW0000000
HEWC030124N
HEWC0352A
HEWC0353A
HEWC0393AN
HEW00392AN
VRC533ASEL
VBTM520
HEWO035050
VTD025050
HEWC0255A
HEWL007500
VWD3130M
HEWC0301380
SASM01D051
SASM01D01S
HEVN016550N
HEWC0615DN
HEWC0388AN
VTD035050
VTD035050
HEWC0362AN
0X44314503
0X44315302
BRTTN11580N
HEWC0378AN
HEWC0378AN
MDA011070
MDA440001
MDA41085
IVT001015P
HEWC0453A
SAS004005
NCB011201
NCB011245
SCC01P001
SCCA01335
SKLCE278A
XER106R01374
B01811341
B01811340
HEWC0362XO
XER106R001535
XER106R002260
XER106R02600
XER106R02756
XER106R02757
HEWC036258
HEWC0362Y
LEXC03AATKG
HEVN09010AN
CNM06628004
LEX001000
HEWC06132AN
HEWB6722A
HEWC0574M
HEWC05750
LEX001H90
CNM7021A001AA
HEWC0462X
HEWC0462A
VRES035XSEL
CNM0904600C
VRE03562A
HEWL0555AN
HEVN0824AN
HEVN0821C
VBRN0221M
HEWC02075N
VBTM520X
VBTM520A
HEWB6721A
0XED053001
VWD3760Y
HEWC0460X
DP053500AN
HEWT0453AN
VAB031309
LEX001347Y
HEWC0460A
HEWC0460AM
HEW02020X
VWD35520
CP010915C
CNMF0X3
ONM094358000
HEW0000000
LEXC540A1MG
EXB001000
XER106R001370
HEVN090650
HEWC0386AN
HEWB6115A
XER106R001536
XER106R001580
XER106R001534
HEWC09357AN
VRC533ASEL
VWD31304
ivr83049ase
XER106R0133P
VBTM520X
HEWB616A
VWD31305A
HEWC0364AN
HEWC036490
HEWC036490
VBTM520A
HEWC036302
HEVN090650N
HEW0365AN
HEVN09065AN
HEWC0364AN
XER106R0235A
0XEB02352
XER113R000722
XER113R000724
VBTM520e
HEWC036455A
HEWC036455A
BRTTN1158M
XER106R02065
HEWC0364065
XER106R04065
XER106R04063
XER106R03380
HEWO02670A
XER106R02759



Top 20 requested toner products and their proportions

```
In [ ]: items, counts =np.unique(sorted(toner['Part - Supplier Part Number']),  
return_counts=True)  
  
temp = pd.DataFrame(data={'items': items, 'counts': counts}).sort_values(by=['counts'])  
  
items, counts = temp['items'][-20:][::-1],temp ['counts'][-20:][::-1]  
  
plt.figure(figsize=(16,24)) #resize the figure  
labels = items #define the labels  
as Supplier Part Number  
sizes = counts #define the size co  
rresponds to its count  
colors = cm.rainbow(np.linspace(0, 1, len(labels)))#define the color f  
or each sector  
explode = (0,)*len(sizes) #make distance betw  
een sectors  
  
patches,text1,text2 = plt.pie(sizes,  
explode=explode,  
labels=labels,  
colors=colors,  
labeldistance = 1,  
autopct = '%3.2f%%',  
shadow = False, #no shadow  
startangle =90,  
pctdistance = 0.6) #counter-clockwise  
#value distance fro  
m the center of the pie  
  
plt.axis('equal')  
plt.show()
```



Components for a singel unit of plastic coffee pod

total: 3.0213 g

Shell total: 1.7908 g + 0.7841 g (ring) = 2.5749 g [Polypropylene]

Lid total: 0.2462 g = Aluminum (24%) PET coating (12%) LDPE (50%) Printing ink (14%)

Filter Total: 0.2002 g (6.63%) = Kraft paper, bleached (79%) + LDPE (21%)

reference: <https://www.nature.com/articles/s41598-020-65058-1/tables/3>
[\(https://www.nature.com/articles/s41598-020-65058-1/tables/3\)](https://www.nature.com/articles/s41598-020-65058-1/tables/3)

Waste weight of the top 18 consumed k-cup pods university wide during year 2016-2021

```
In [ ]: items, counts =np.unique(sorted(coffee[ 'Part - Supplier Part Number']),  
, return_counts=True)  
  
temp = pd.DataFrame(data={ 'items': items,'counts': counts}).sort_values(by=[ 'counts'])  
  
items, counts = temp[ 'items'][-20:][::-1],temp [ 'counts'][-20:][::-1]  
  
total_number = sum([ i * 24 for i in counts]) - counts.tolist()[4] - c  
ounts.tolist()[11] # ??????????????????????  
print("the total number of eighteen most used K-cup university wide du  
ring year 2016-2021 is " ,total_number, " pieces")
```

the total number of eighteen most used K-cup university wide during year 2016-2021 is 500508 pieces

```
In [ ]: (Polypropylene,Aluminum,PET,LDPE,Printing,paper) = (2.5749 * total_number,
                                                               0.0591 * total_number,
                                                               0.0295 * total_number,
                                                               ( 0.1231 + 0.042 )*
total_number,
                                                               0.0345 * total_number,
                                                               0.1582 * total_number)
print("the total waste weight of the top 18 consumed k-cup pods university wide during year 2016-2021 includes:")
print("total weight: ", 3.0213 * total_number, " g")
print("total weight of Polypropylene: ", 2.5749 * total_number, " g")
print("total weight of Aluminum: ", 0.0591 * total_number, " g")

print("total weight of PET coating: ", 0.0295 * total_number, " g")
print("total weight of LDPE: ",( 0.1231 + 0.042 )* total_number, " g")
print("total weight of Printing ink: ", 0.0345 * total_number, " g")
print("total weight of bleached Kraft paper: ", 0.1582 * total_number,
" g")
```

the total waste weight of the top 18 consumed k-cup pods university wide during year 2016-2021 includes:

```
total weight: 1512184.8204 g
total weight of Polypropylene: 1288758.0492 g
total weight of Aluminum: 29580.0228 g
total weight of PET coating: 14764.985999999999 g
total weight of LDPE: 82633.8708 g
total weight of Printing ink: 17267.526 g
total weight of bleached Kraft paper: 79180.3656 g
```

```
In [ ]: def draw(lable, size):
    from matplotlib import font_manager as fm
    plt.figure(figsize=(12,18))                                     #resize the figure
    e
        labels = lable                                         #define the label
        s as Supplier Part Number
        sizes = size                                           #define the size corresponds to its count
        rresponds to its count
        colors = cm.rainbow(np.linspace(0.3, 1, len(labels)))#define the color for each sector
        explode = (0,)*len(sizes)                                #make distance between sectors

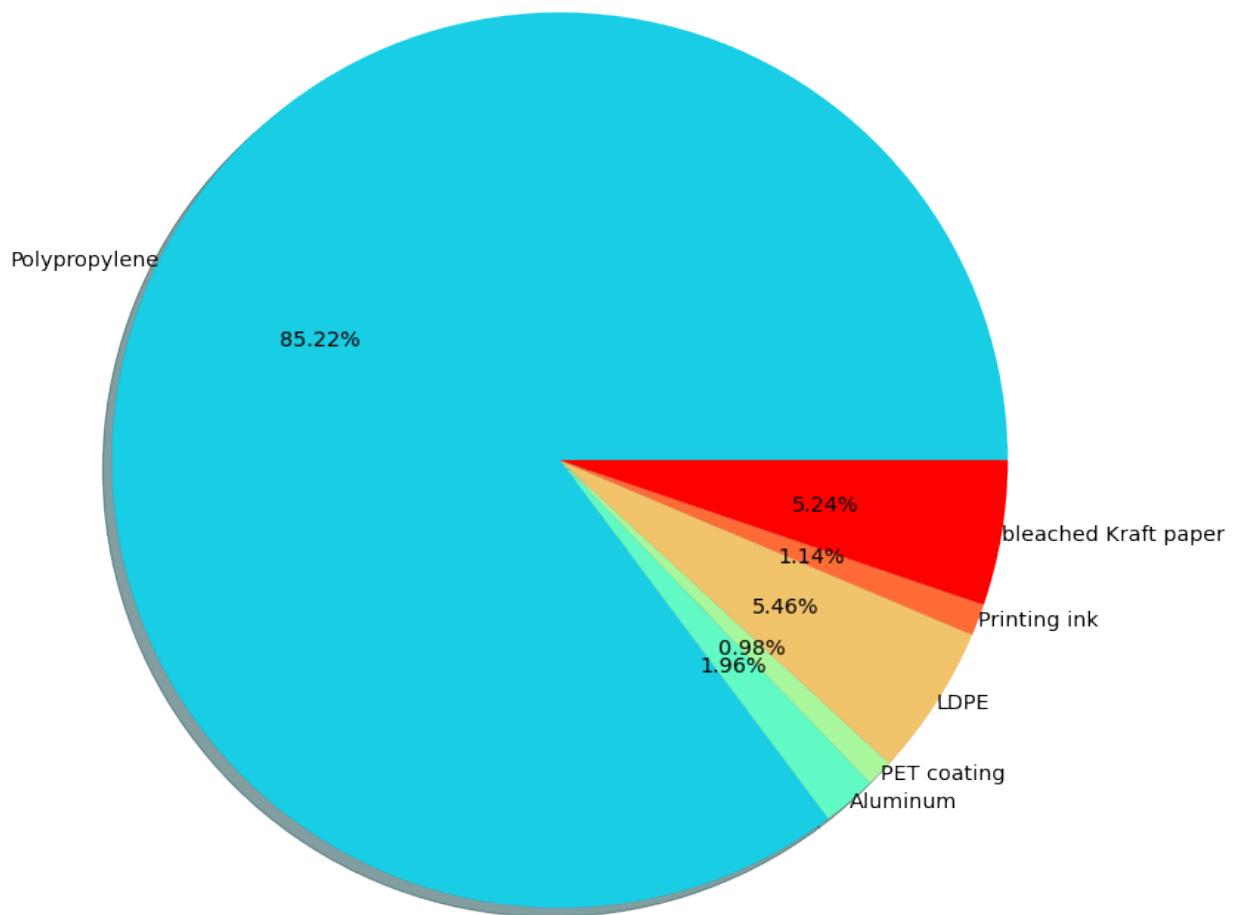
        patches,text1,text2 = plt.pie(sizes,
                                       explode=explode,
                                       labels=labels,
                                       colors=colors,
                                       labeldistance = 1,
                                       autopct = '%3.2f%%',
                                       shadow = True,           #no shadow
                                       startangle =0,          #counter-clockwise
                                       pctdistance = 0.6)       #value distance from the center of the pie

        proptease = fm.FontProperties()
        proptease.set_size('x-large')
        # font size include: 'xx-small', 'x-small', 'small', 'medium', 'large', 'x-large', 'xx-large' or number, e.g. '12'
        plt.setp(text1, fontproperties=proptease)
        plt.setp(text2, fontproperties=proptease)

        plt.axis('equal')
        plt.legend()
        plt.show()
```

```
In [ ]: coffee_comp = ['Polypropylene', 'Aluminum', 'PET coating', 'LDPE', 'Printing ink', 'bleached Kraft paper']
coffee_comp_size = [Polypropylene, Aluminum, PET, LDPE, Printing, paper]
draw(coffee_comp, coffee_comp_size)
```

- Polypropylene
- Aluminum
- PET coating
- LDPE
- Printing ink
- bleached Kraft paper



Components for a single unit of plastic coffee pod

total: 2.3467 g

Shell total: 1.3909 g + 0.6090 g (ring) = 1.999 g [Polypropylene]

Lid total: 0.1912 g = Aluminum (24%) PET coating (12%) LDPE (50%) Printing ink (14%)

Filter Total: 0.1555 g (6.63%) = Kraft paper, bleached (79%) + LDPE (21%)

reference: <https://www.nature.com/articles/s41598-020-65058-1/tables/3>
[\(https://www.nature.com/articles/s41598-020-65058-1/tables/3\)](https://www.nature.com/articles/s41598-020-65058-1/tables/3)

Waste weight of the top 2 consumed coffee creamer pods university wide during year 2016-2021

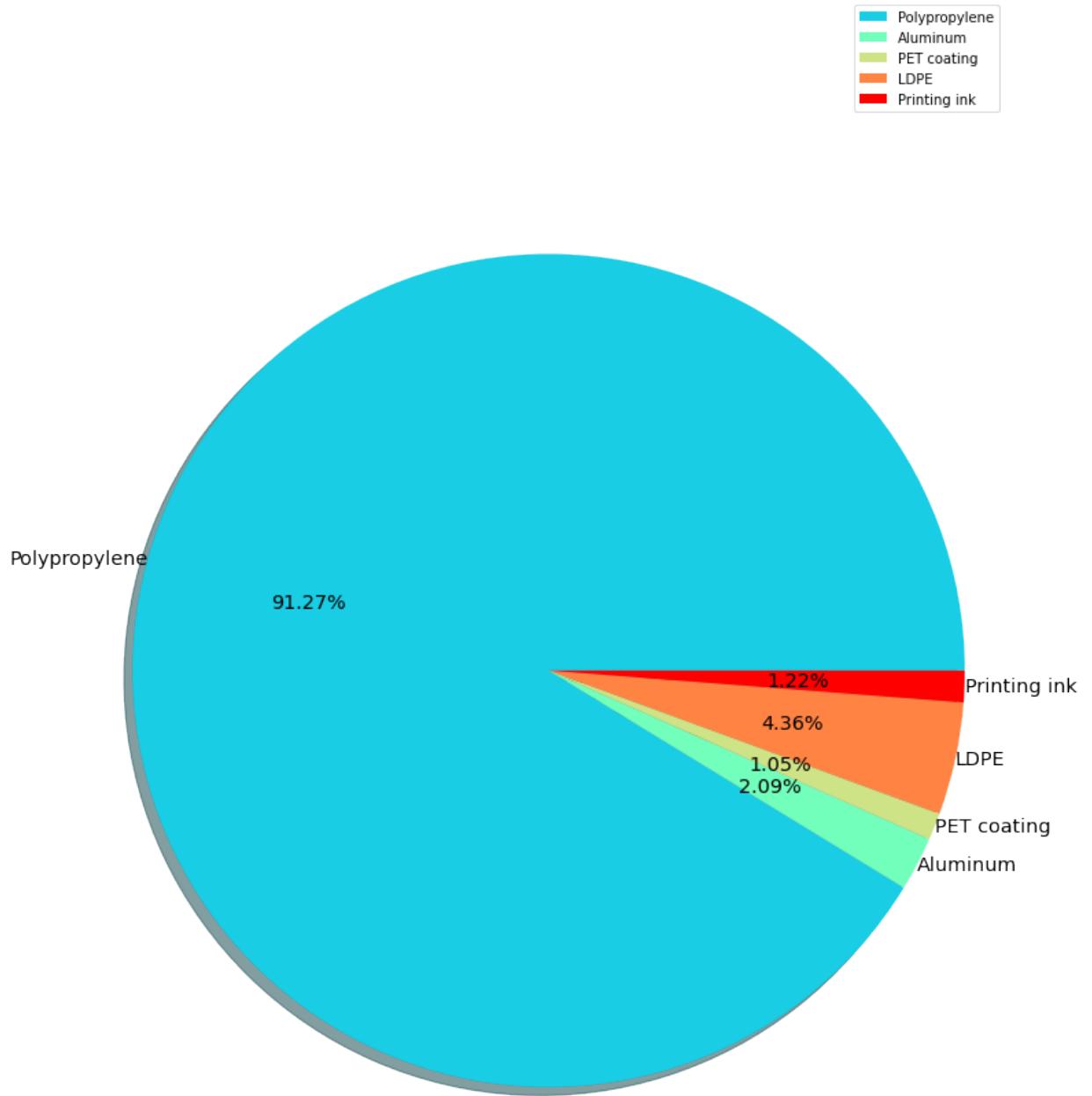
```
In [ ]: print("total waste for the top two creams: ITD102042 + NES753032")
total2 = (counts.tolist()[4] + counts.tolist()[11]) * 2.3467
print("total weight: ", total2 , " g")

print("total weight of Polypropylene: ", 2.5749 / 3.0213 * total2, " g")
print("total weight of Aluminum:", 0.0591 / 3.0213 * total2, "g")
print("total weight of Printing ink: ", 0.0345/ 3.0213 * total2, " g")
print("total weight of PET coating: ", 0.0295/3.0213 * total2, " g")
print("total weight of LDPE: ",0.1231 / 3.0213 * total2, " g")

(Polypropylene,Aluminum,PET,LDPE,Printing) = (2.5749 / 3.0213 * total2
,
,
,
,
)
0.0591 / 3.0213 *
total2,
0.0295/3.0213 * to
tal2,
0.1231 / 3.0213 *
total2,
0.0345/ 3.0213 * t
otal2)
```

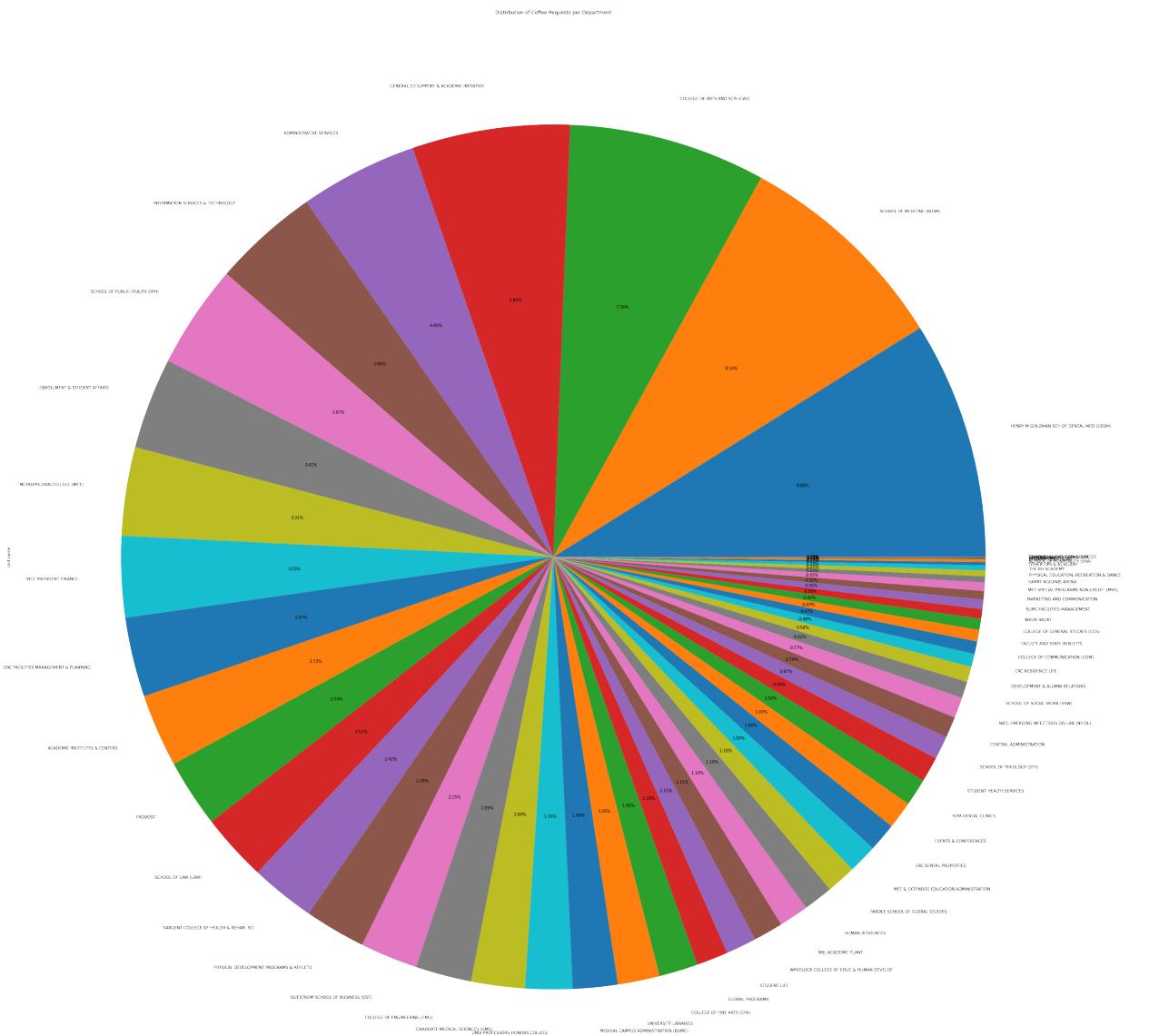
```
total waste for the top two creams: ITD102042 + NES753032
total weight: 4477.5036 g
total weight of Polypropylene: 3815.9481083109918 g
total weight of Aluminum: 87.58496764968721 g
total weight of Printing ink: 51.12828060768544 g
total weight of PET coating: 43.71838486744116 g
total weight of LDPE: 182.4316331248138 g
```

```
In [ ]: cream_comp = ['Polypropylene', 'Aluminum', 'PET coating', 'LDPE', 'Printing ink']
cream_comp_size = [Polypropylene, Aluminum, PET, LDPE, Printing]
draw(cream_comp, cream_comp_size)
```



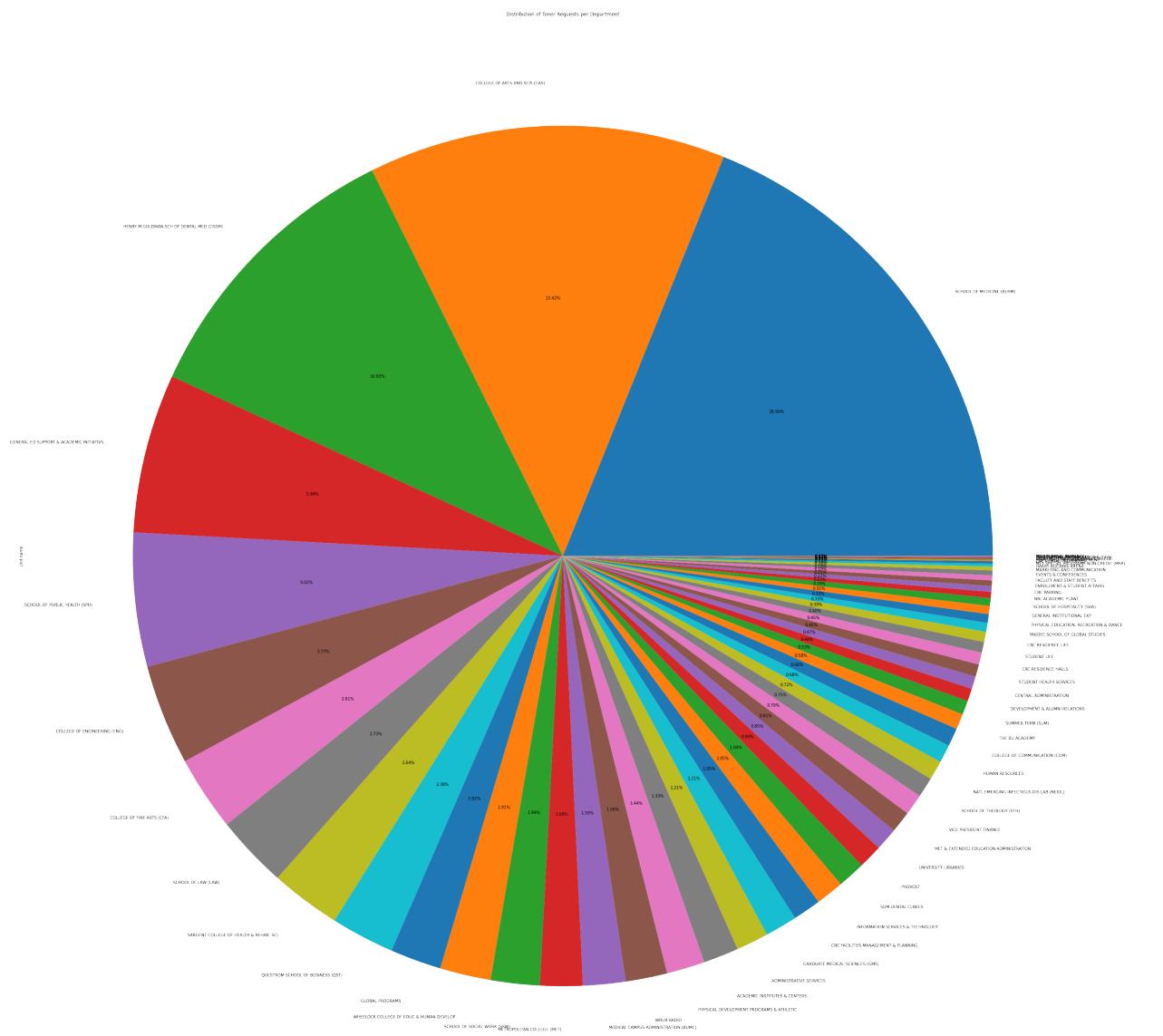
Total request number for coffee during 2016-2021, categorized by department and their proportions

```
In [ ]: coffee_req1['Unit name'].value_counts().plot.pie(figsize=(48,72),title="Distribution of Coffee Requests per Department", autopct='%.1f%%')  
plt.gca().set_aspect('equal')
```



Total request number for toner during 2016-2021, categorized by department and their proportions

```
In [ ]: toner_req1['Unit name'].value_counts().plot.pie(figsize=(48,72),title="Distribution of Toner Requests per Department",autopct='%.2f%%')  
plt.gca().set_aspect('equal')
```



Top 10 consumed coffee product and its order interval during 2016 - 2021, university wide

```
In [ ]: top10coffee=coffee_req1['upper part'].value_counts()[:10]._stat_axis.values.tolist()

def find_thecoffee_gap(name):
    for h in name:
        print(' "{}'.format(h))
        a1=coffee_req1[coffee_req1['Product P/N (Vendor)'] == h]['PO Creation Date'].tolist()
        # print(a1)
        a1 = sorted(a1)

    a11 = []
    for i in range(len(a1)-1):
        a11.append((a1[i+1]-a1[i]).days)
    # print(a11)

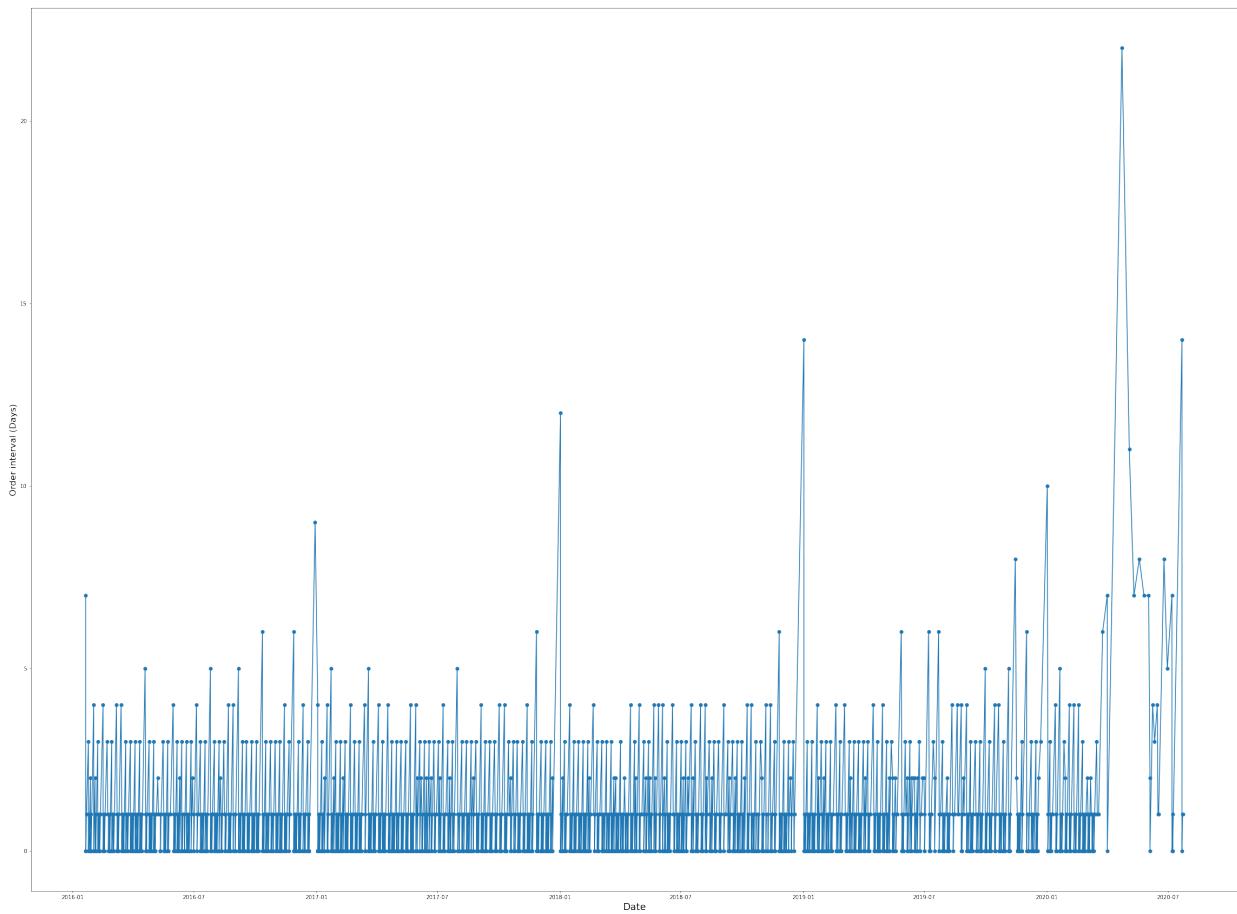
    arr_mean=(np.mean(a11))
    arr_std=(np.std(a11))

    print("The mean is : %f" % arr_mean)

    print("The standard div is : %f" % arr_std)
    plt.plot(a1[1:], a11, '-o')
    plt.rcParams["figure.figsize"] = (40,30)
    plt.xlabel('Date', fontsize=18)
    plt.ylabel('Order interval (Days)', fontsize=16)
    plt.show()

find_thecoffee_gap(top10coffee)
```

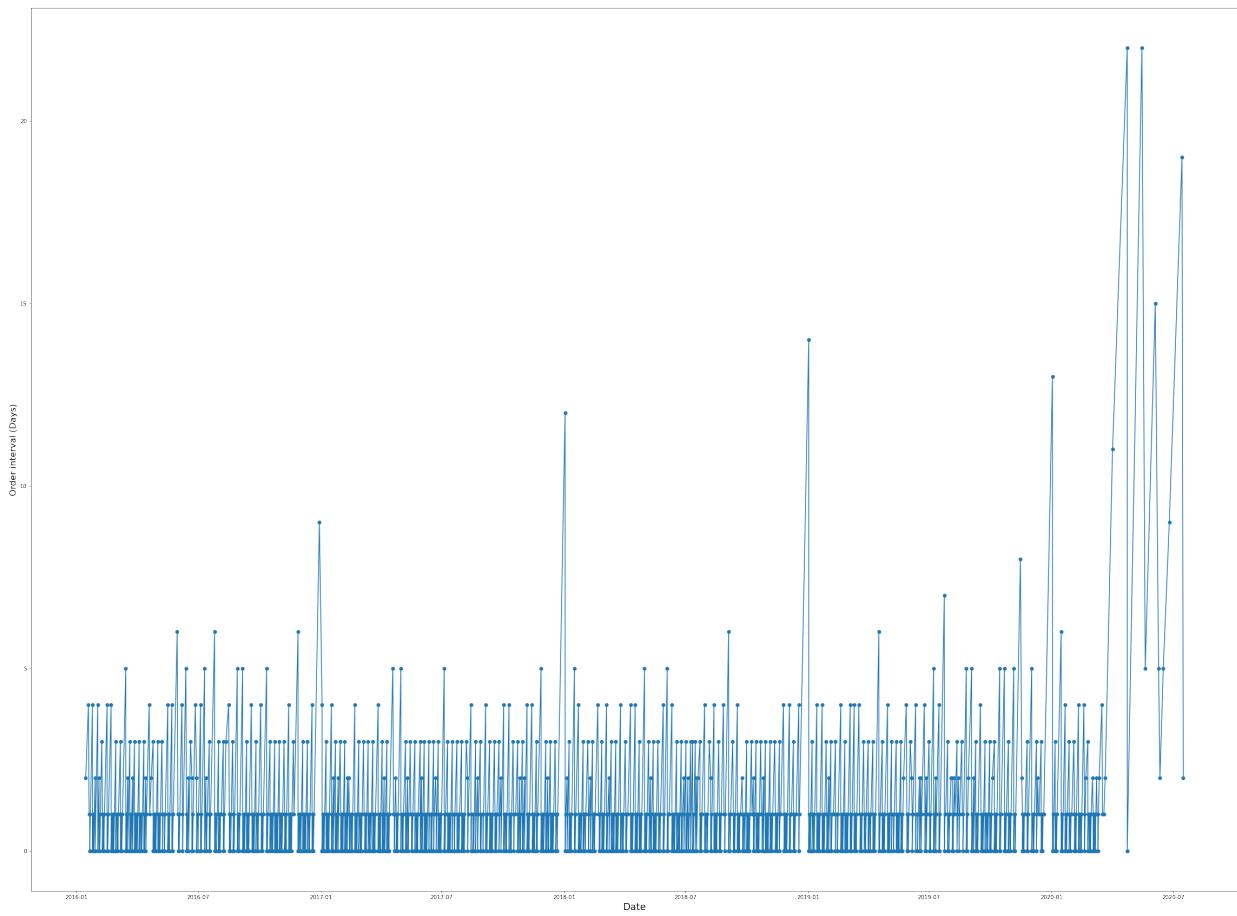
```
"GMT6520"
The mean is : 0.686462
The standard div is : 1.322605
```



"GMT4061"

The mean is : 0.720665

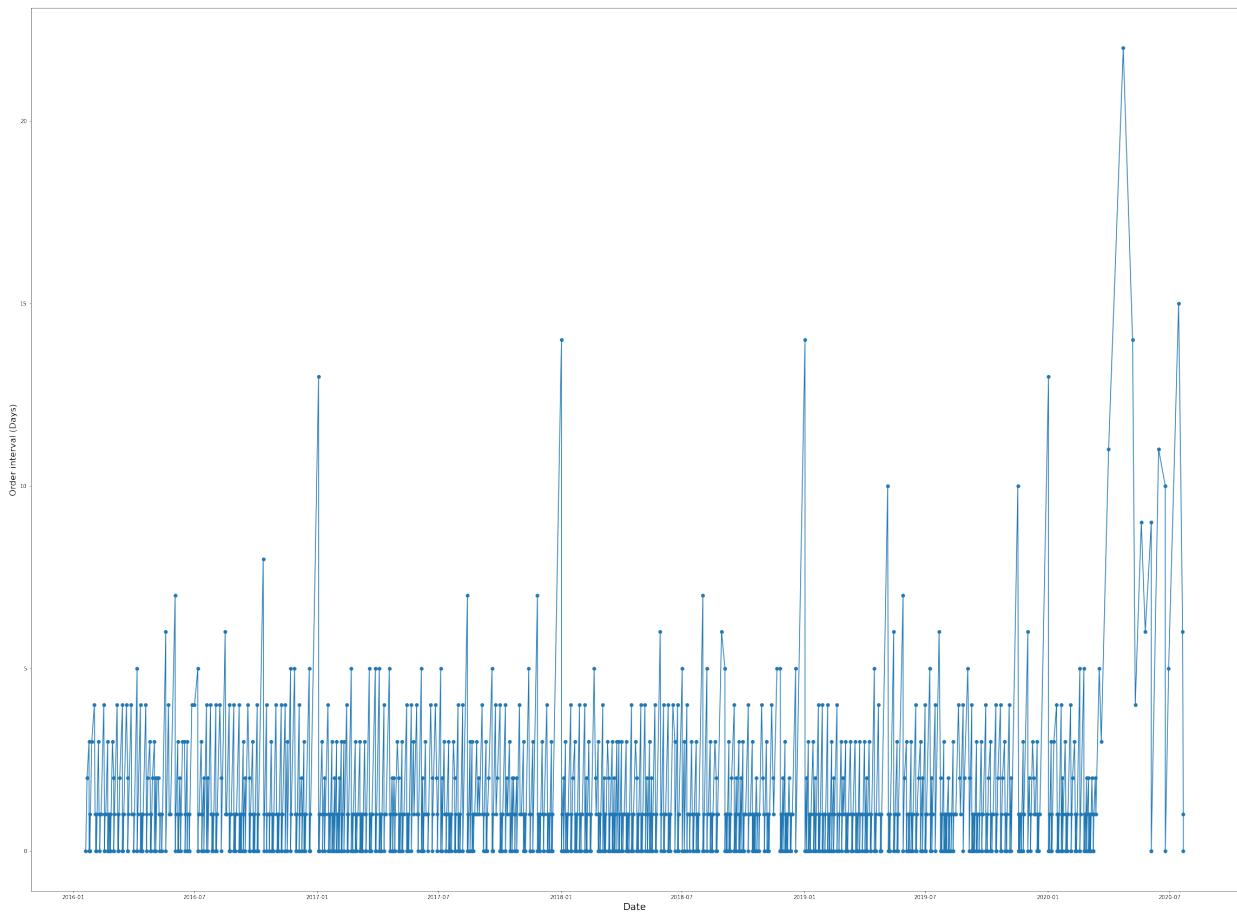
The standard div is : 1.468255



"GMT6663"

The mean is : 1.060606

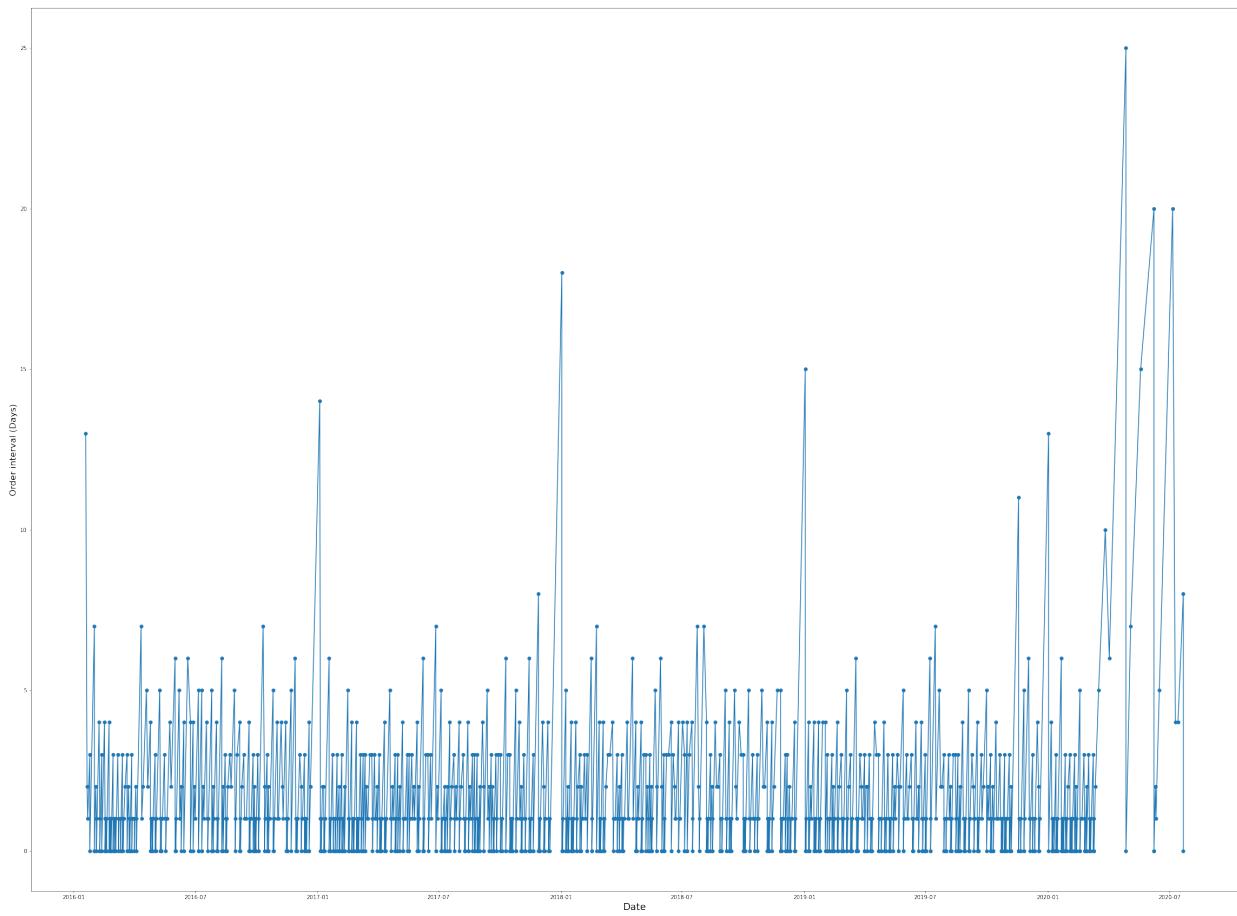
The standard div is : 1.759254



"NES35110BX"

The mean is : 1.261597

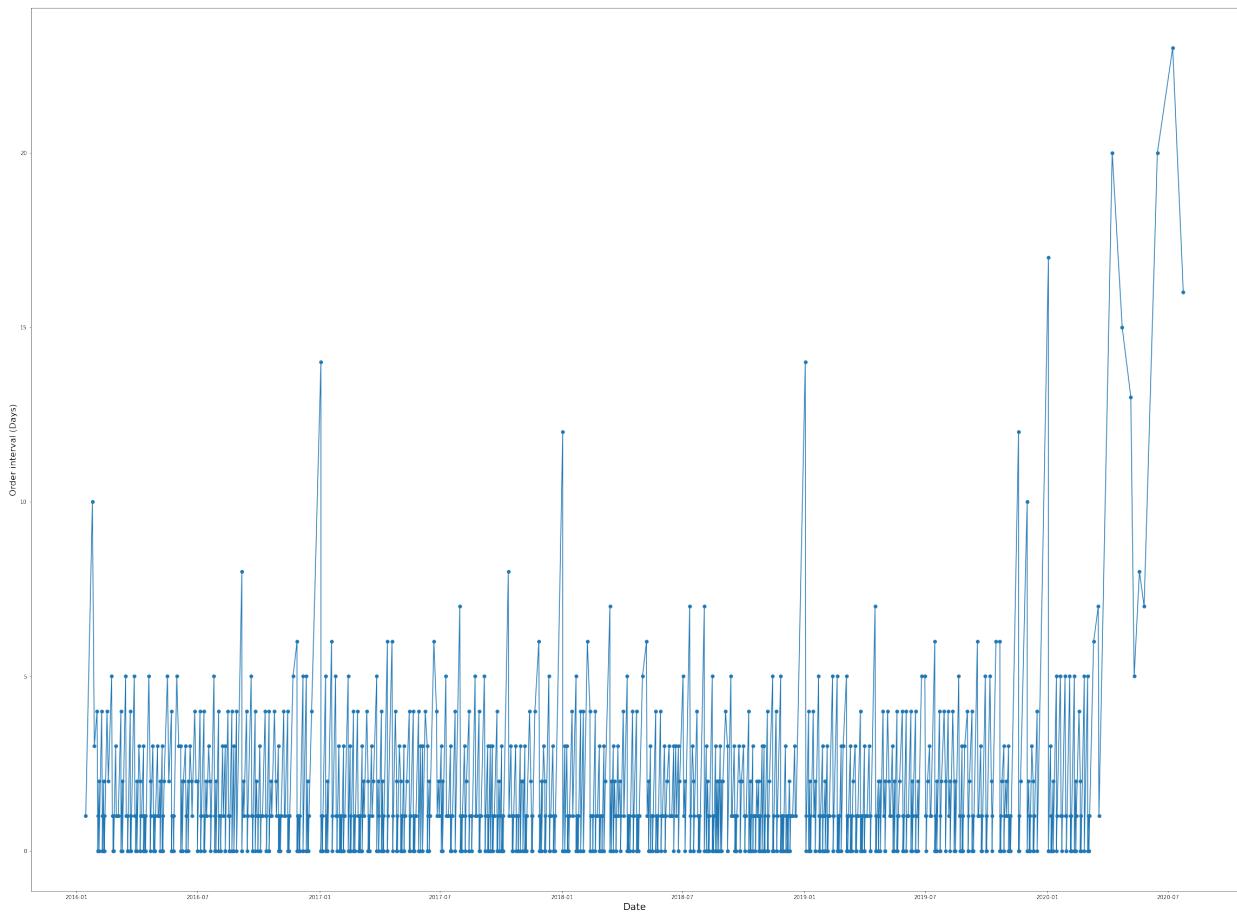
The standard div is : 2.052914



"GMT6732"

The mean is : 1.378649

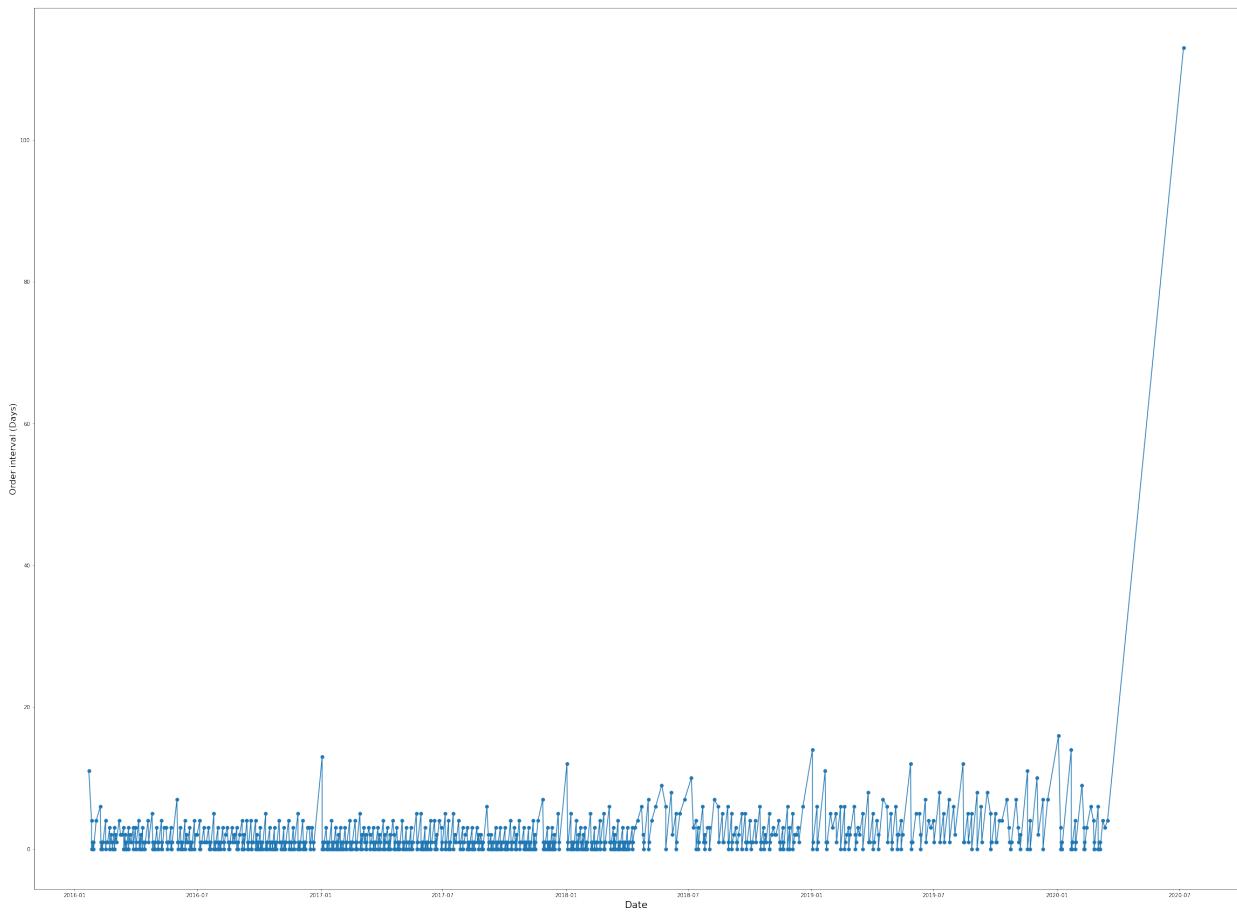
The standard div is : 2.156530



"ITD102042"

The mean is : 1.402053

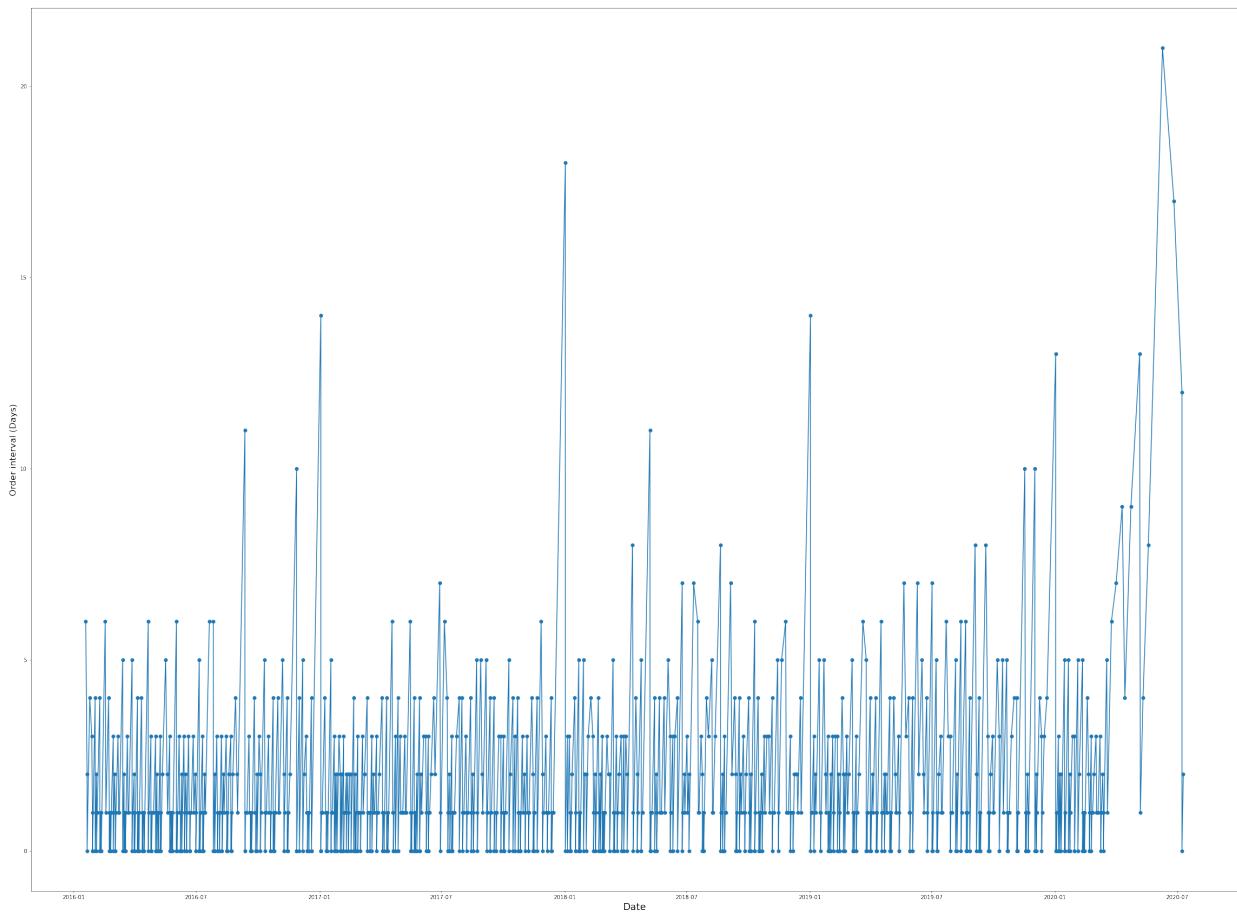
The standard div is : 3.829675



"GMT6792"

The mean is : 1.527002

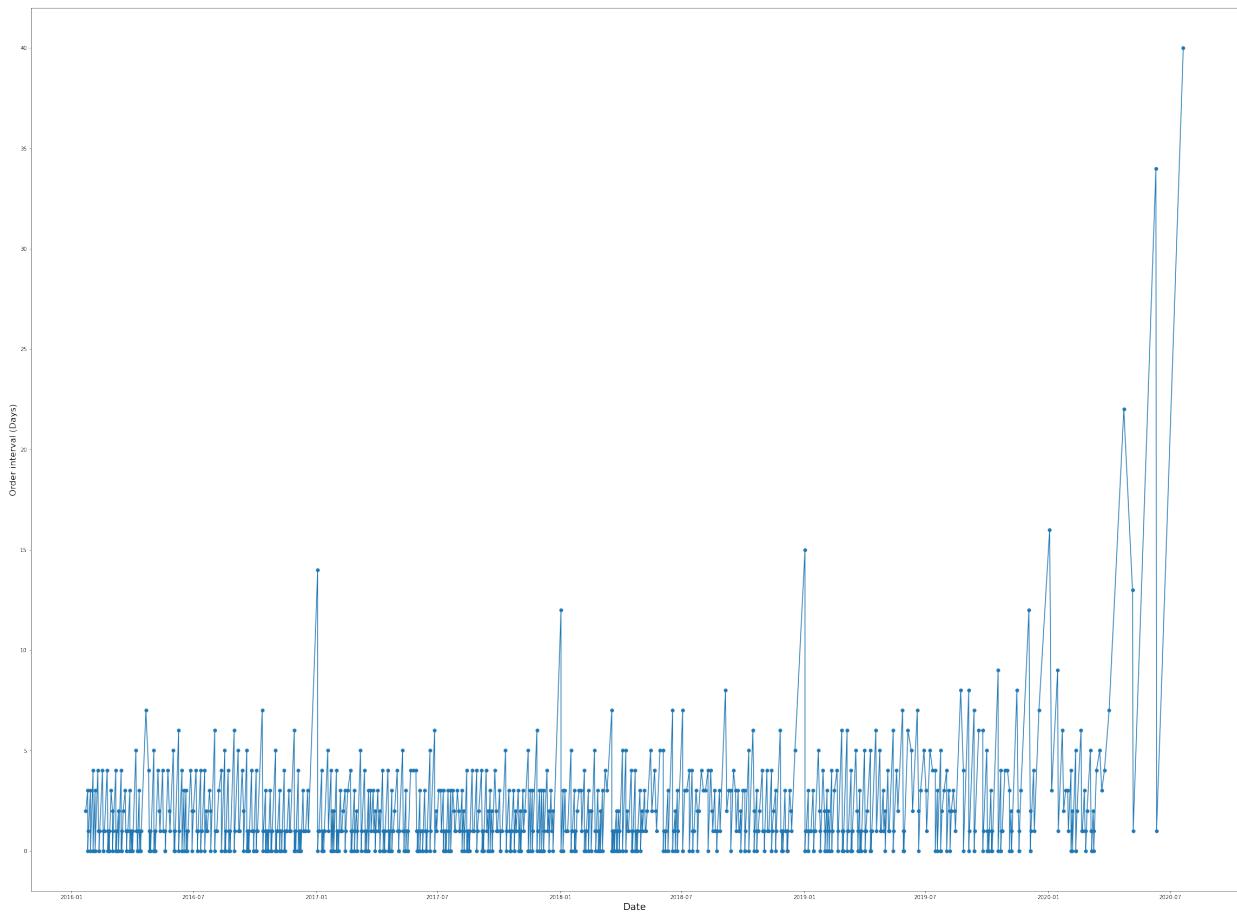
The standard div is : 2.153711



"GMT6694"

The mean is : 1.611765

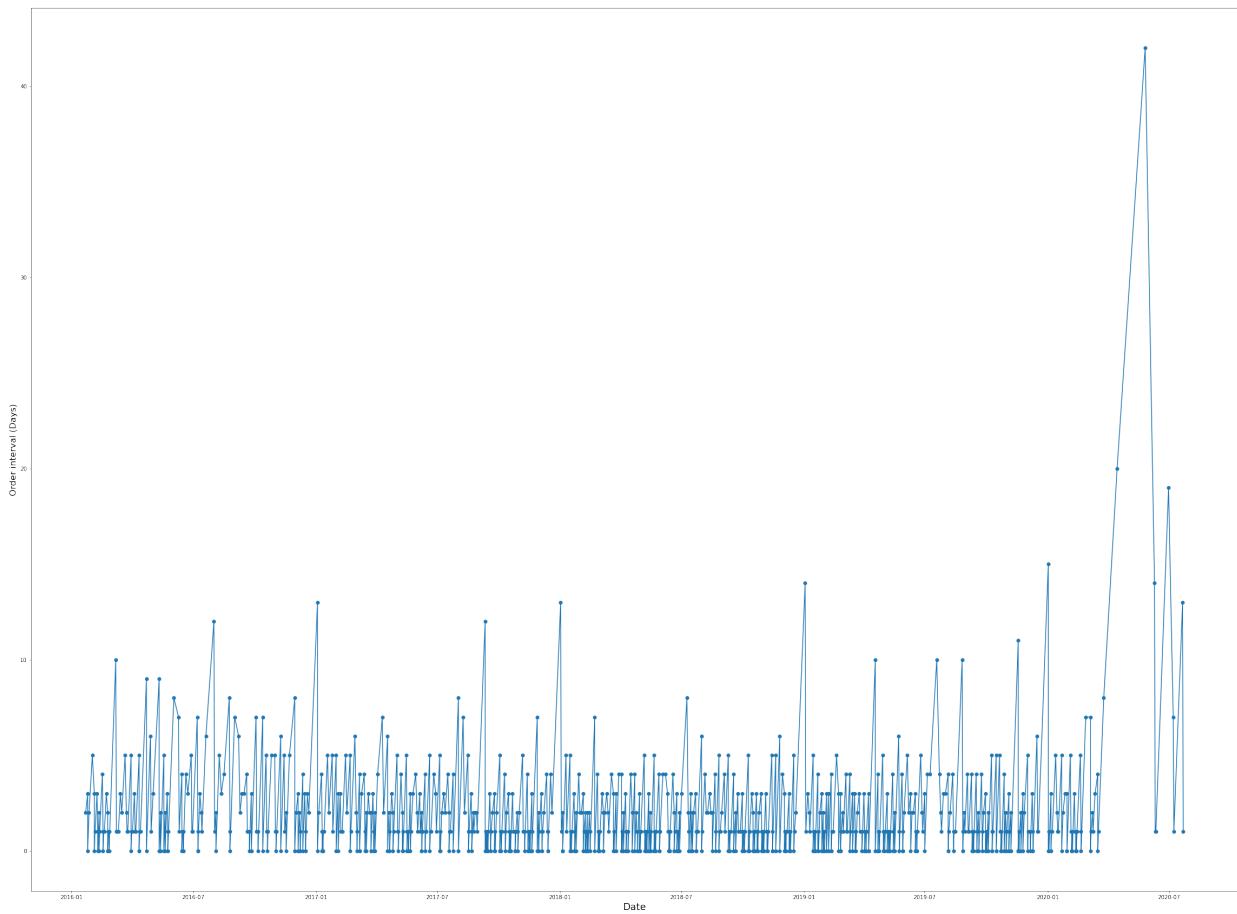
The standard div is : 2.578238



"GMT9572"

The mean is : 1.711759

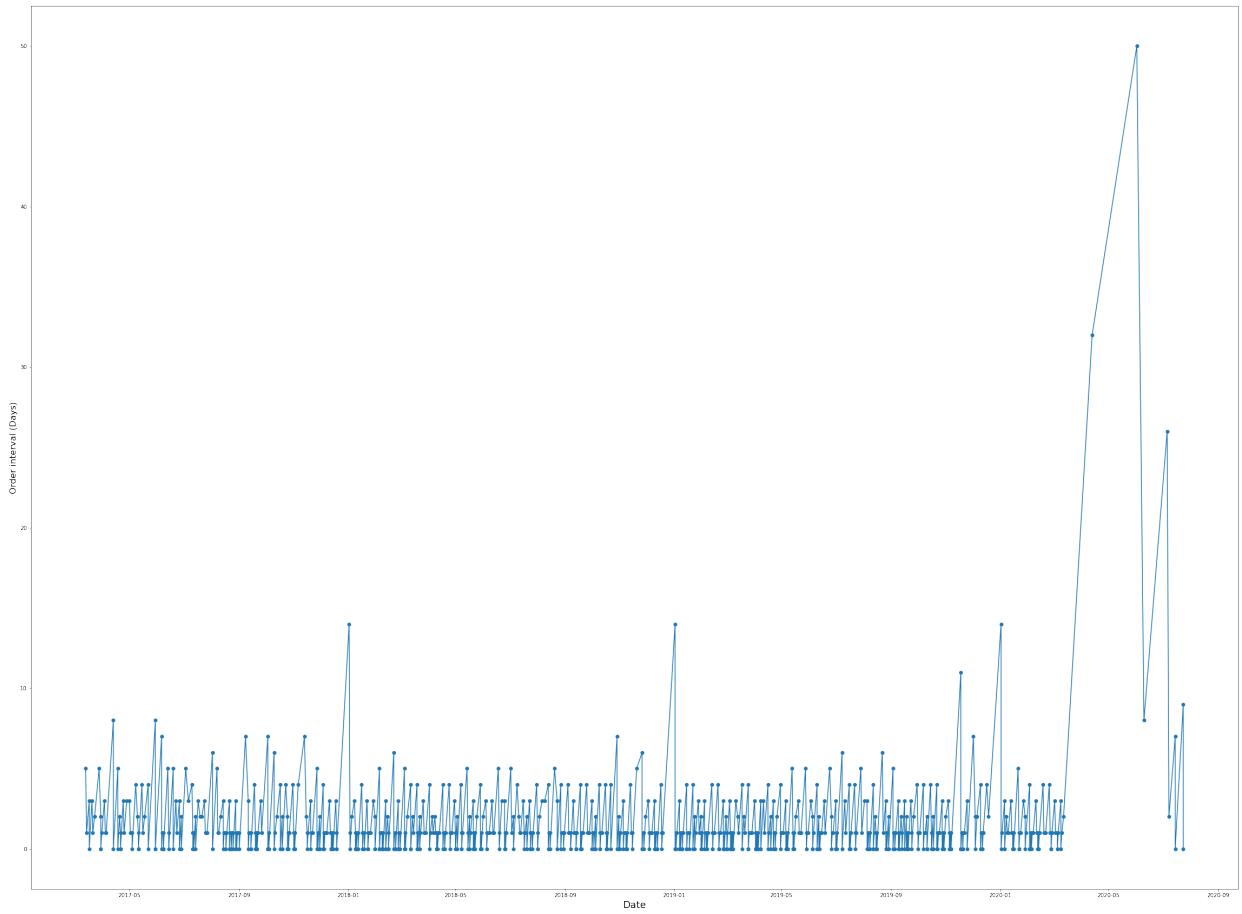
The standard div is : 2.624062



"GMT0845"

The mean is : 1.366556

The standard div is : 2.702214



Top 10 consumed toner product and its order interval during 2016 - 2021, university wide

```
In [ ]: top10toner=toner_req1['upper part'].value_counts()[:10]._stat_axis.values.tolist()

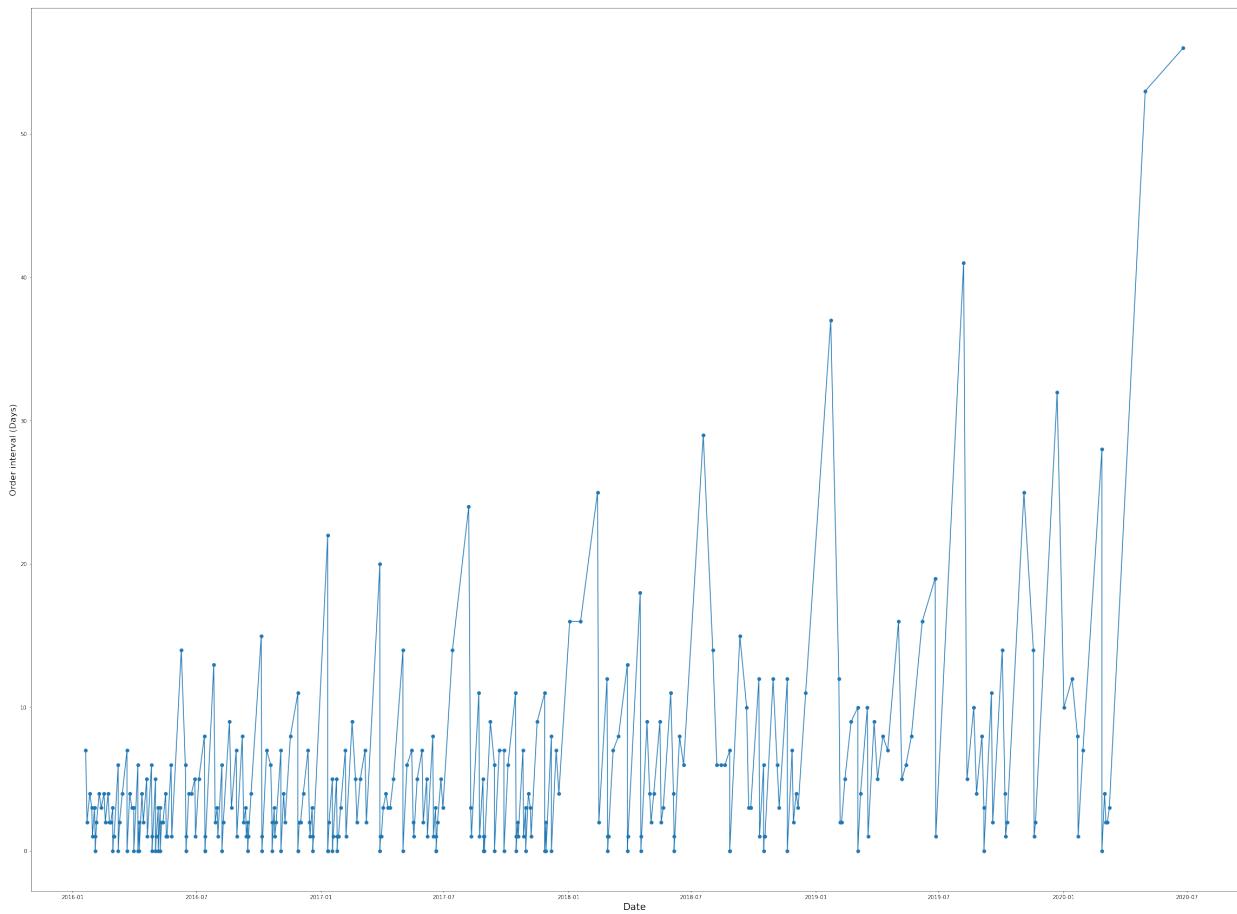
def find_thetoner_gap(name):
    for h in name:
        print(' "{}'.format(h))
        a1=toner_req1[toner_req1['Product P/N (Vendor)'] == h]['PO Creation Date'].tolist()
        # print(a1)
        a1 = sorted(a1)
        a11 = []
        for i in range(len(a1)-1):
            a11.append((a1[i+1]-a1[i]).days)
        arr_mean=(np.mean(a11))
        arr_std=(np.std(a11))

        print("The mean is : %f" % arr_mean)

        print("The standard div is : %f" % arr_std)
    plt.plot(a1[1:], a11, '-o')
    plt.rcParams["figure.figsize"] = (40,30)
    plt.xlabel('Date', fontsize=18)
    plt.ylabel('Order interval (Days)', fontsize=16)
    plt.show()

find_thetoner_gap(top10toner)
```

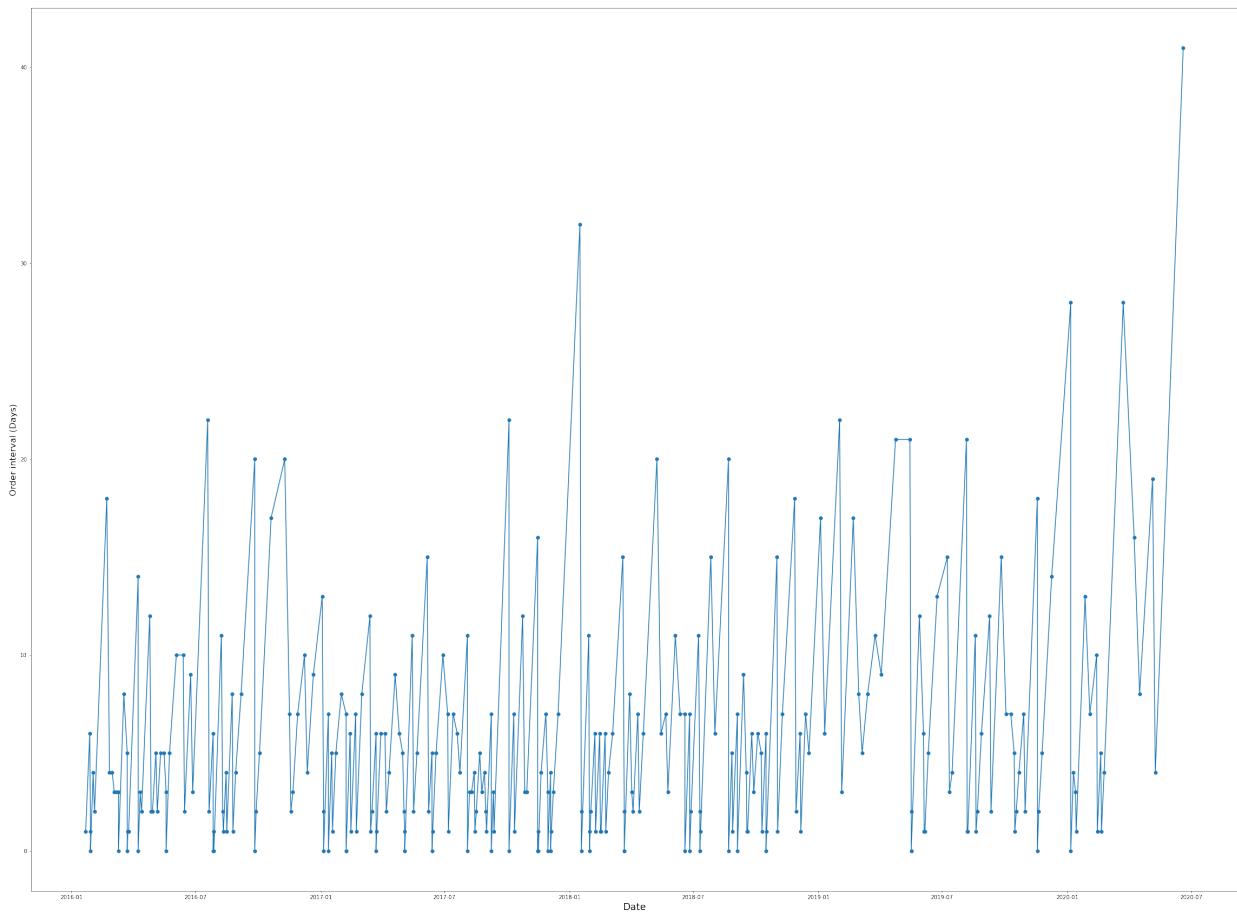
```
"HEWCE505A"
The mean is : 5.145570
The standard div is : 7.125748
```



"HEWCN045AN"

The mean is : 5.672535

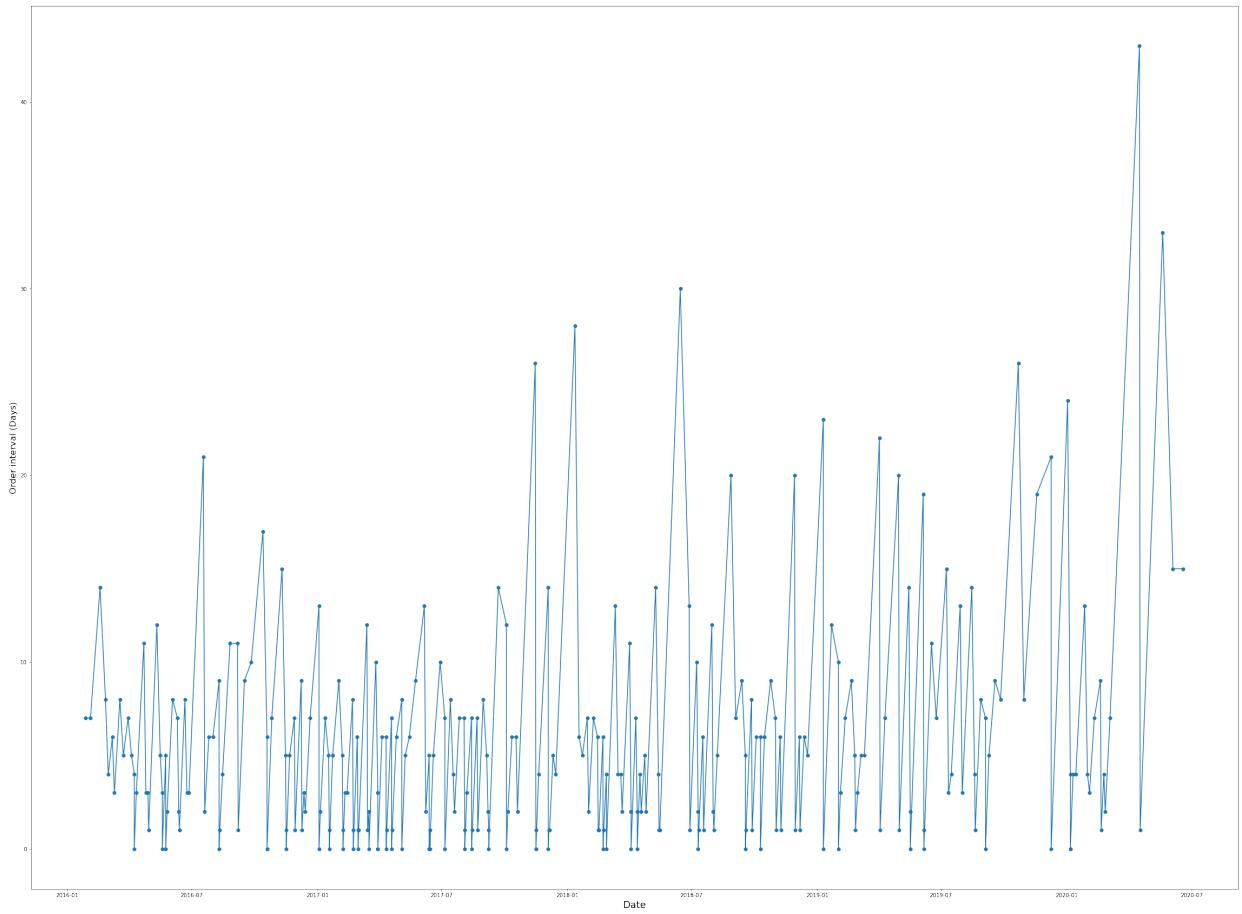
The standard div is : 6.151991



"HEWCR314FN"

The mean is : 5.692580

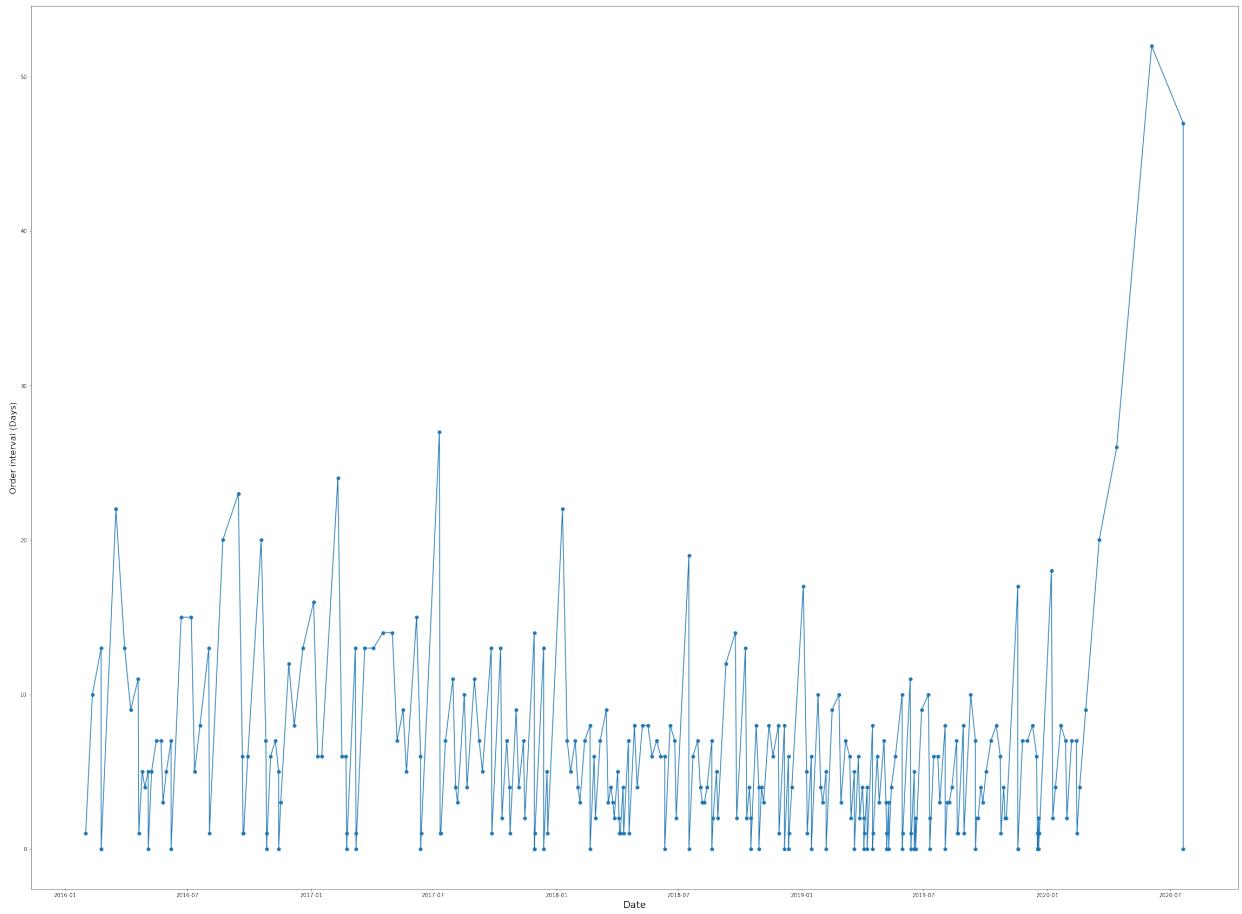
The standard div is : 6.263996



"DXE2342PATH"

The mean is : 5.811388

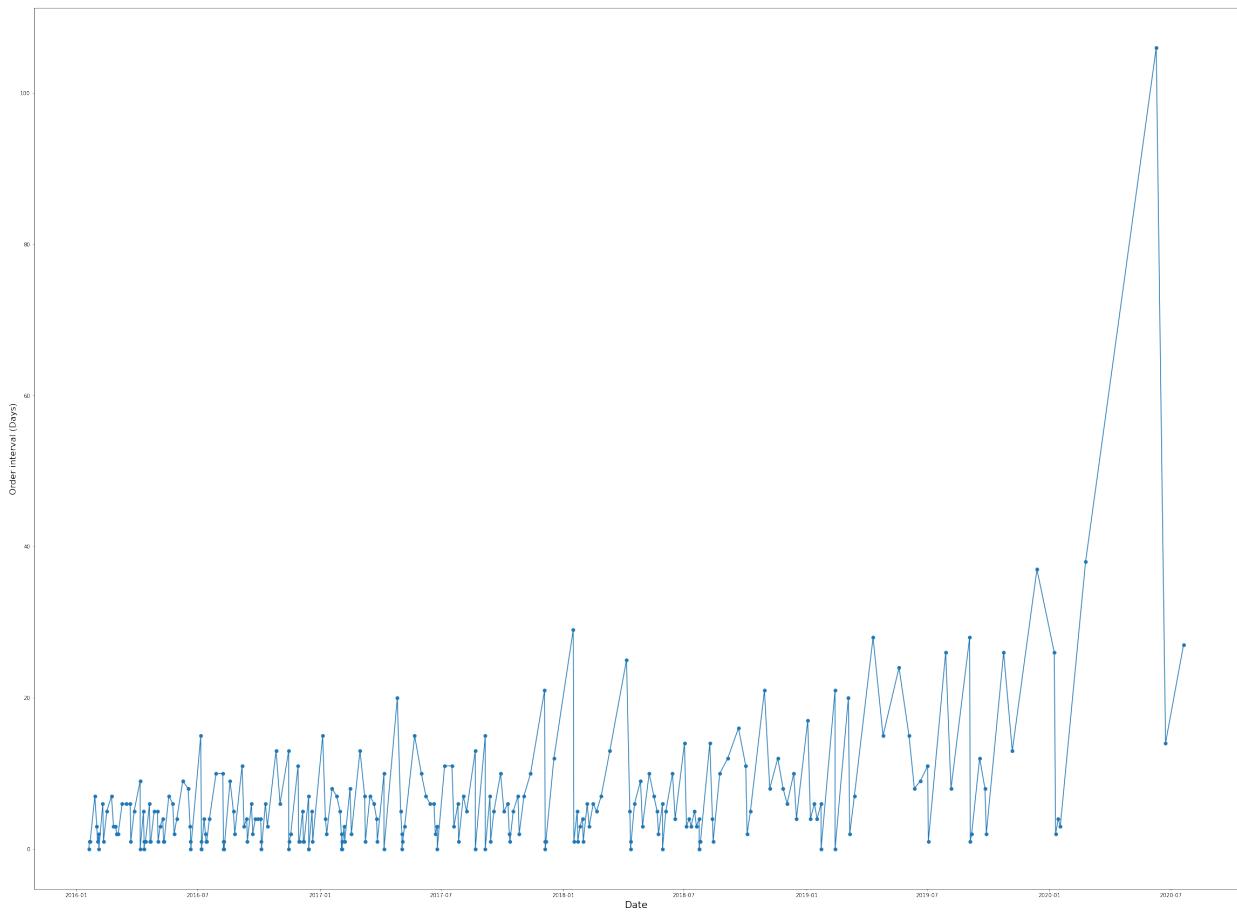
The standard div is : 6.382528



"HEWCE410A"

The mean is : 6.443137

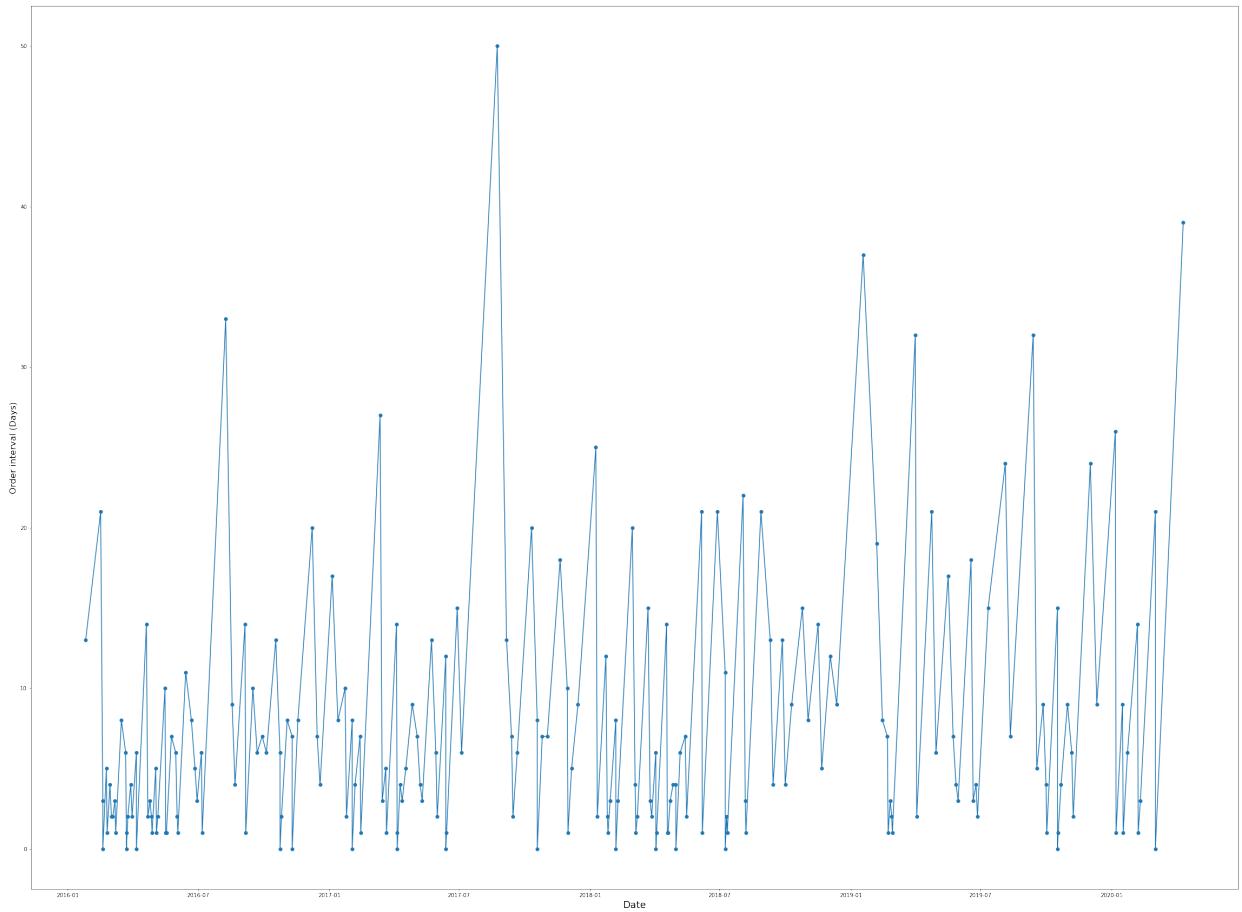
The standard div is : 9.135349



"HEWCF280A"

The mean is : 7.519417

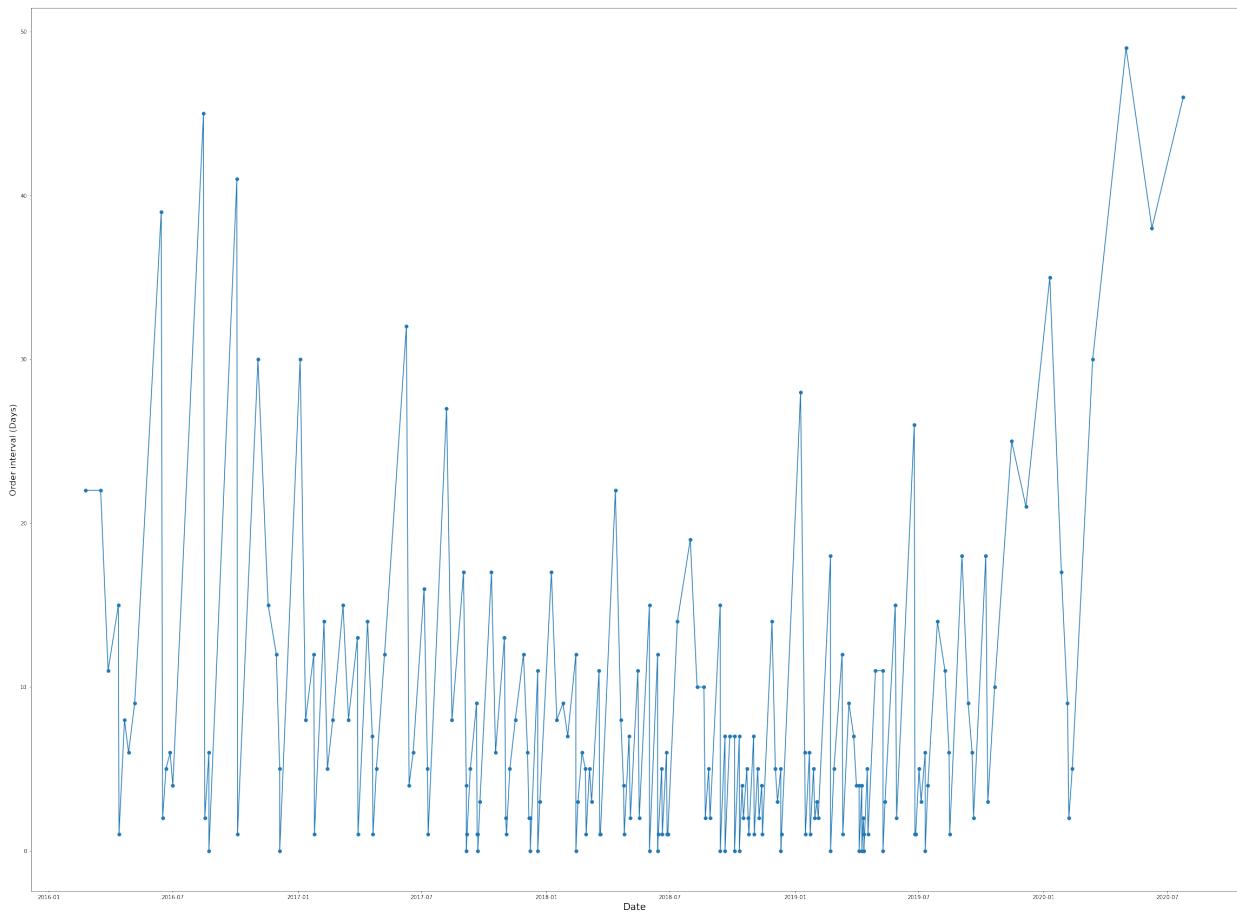
The standard div is : 8.134614



"HEWCF410A"

The mean is : 8.129353

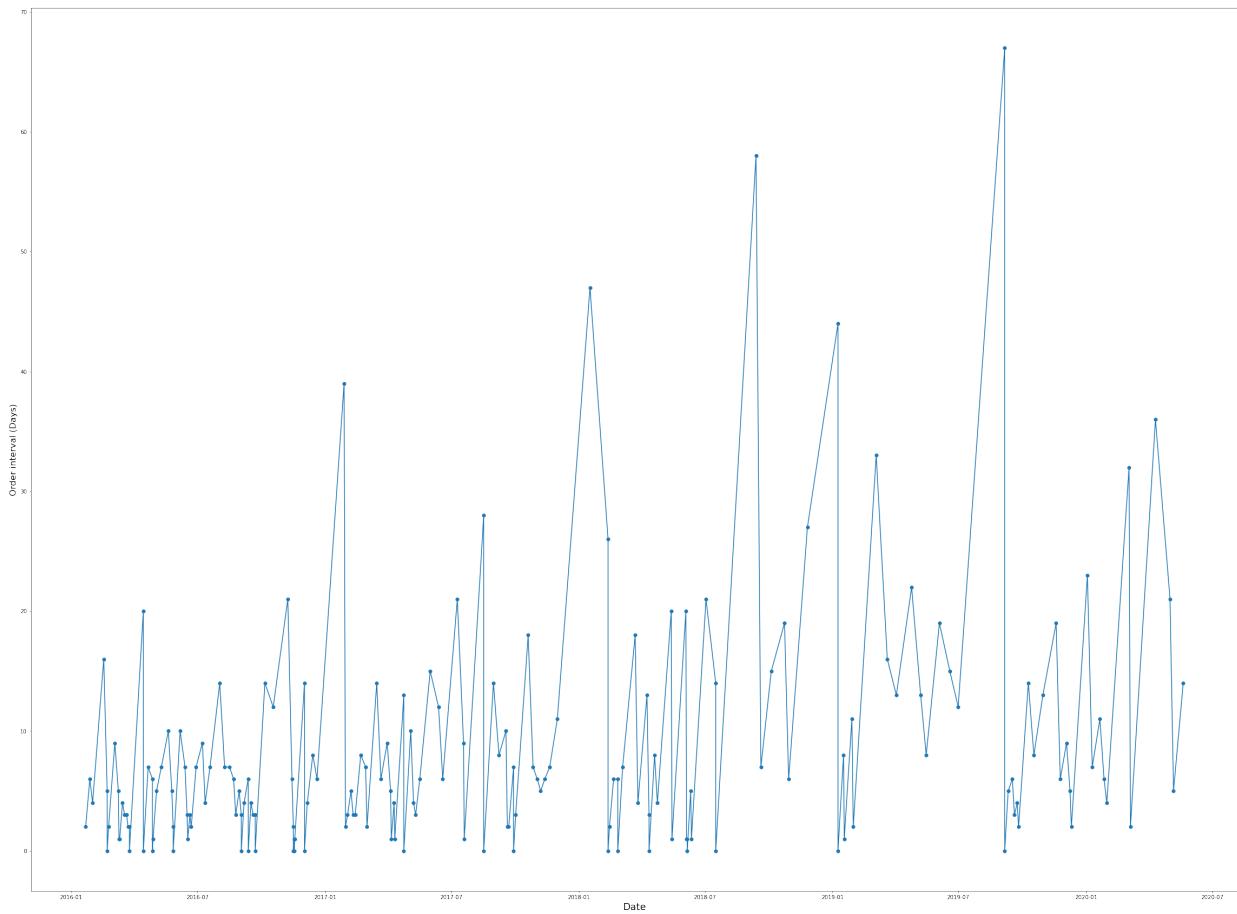
The standard div is : 9.431248



"HEWCE278A"

The mean is : 8.505376

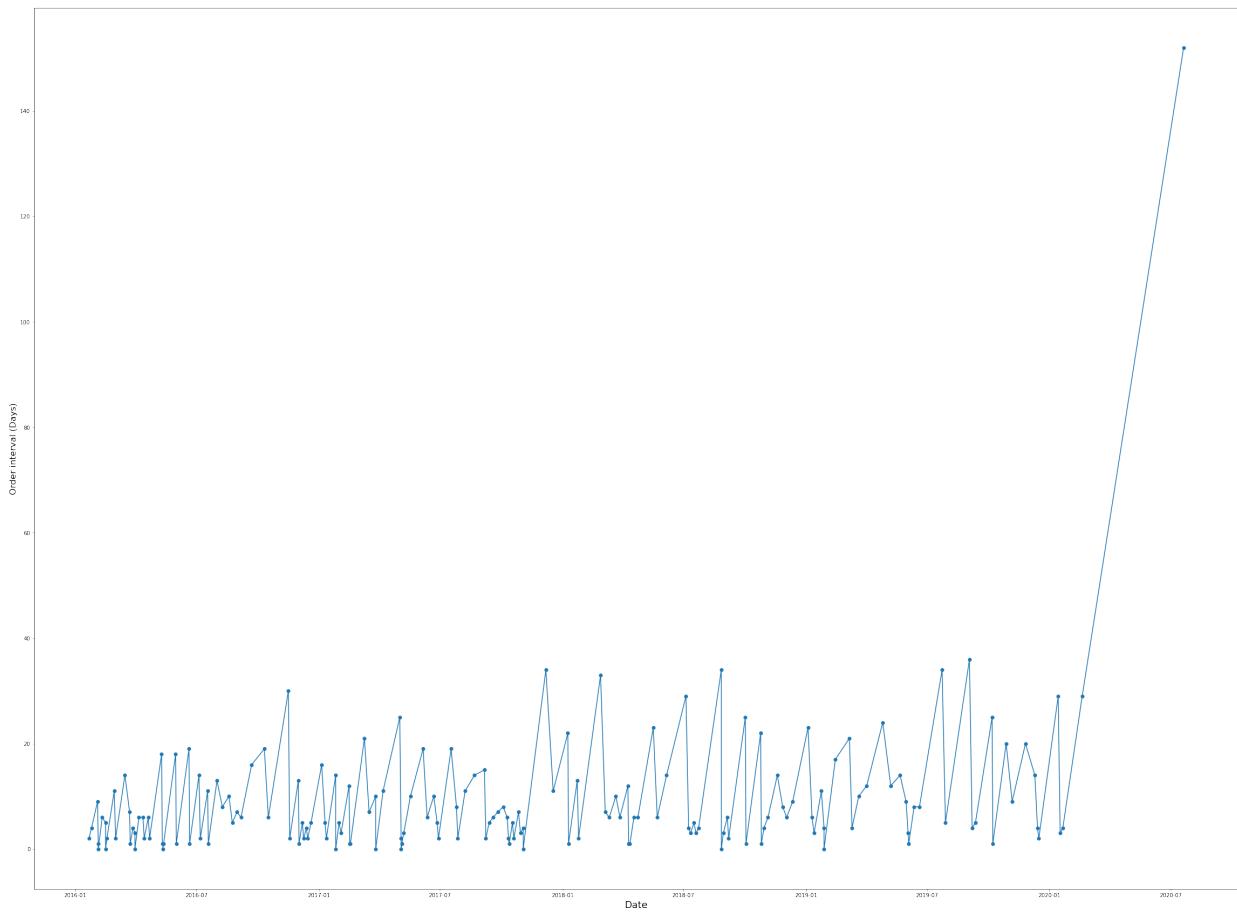
The standard div is : 10.112404



"HEWCE412A"

The mean is : 9.282486

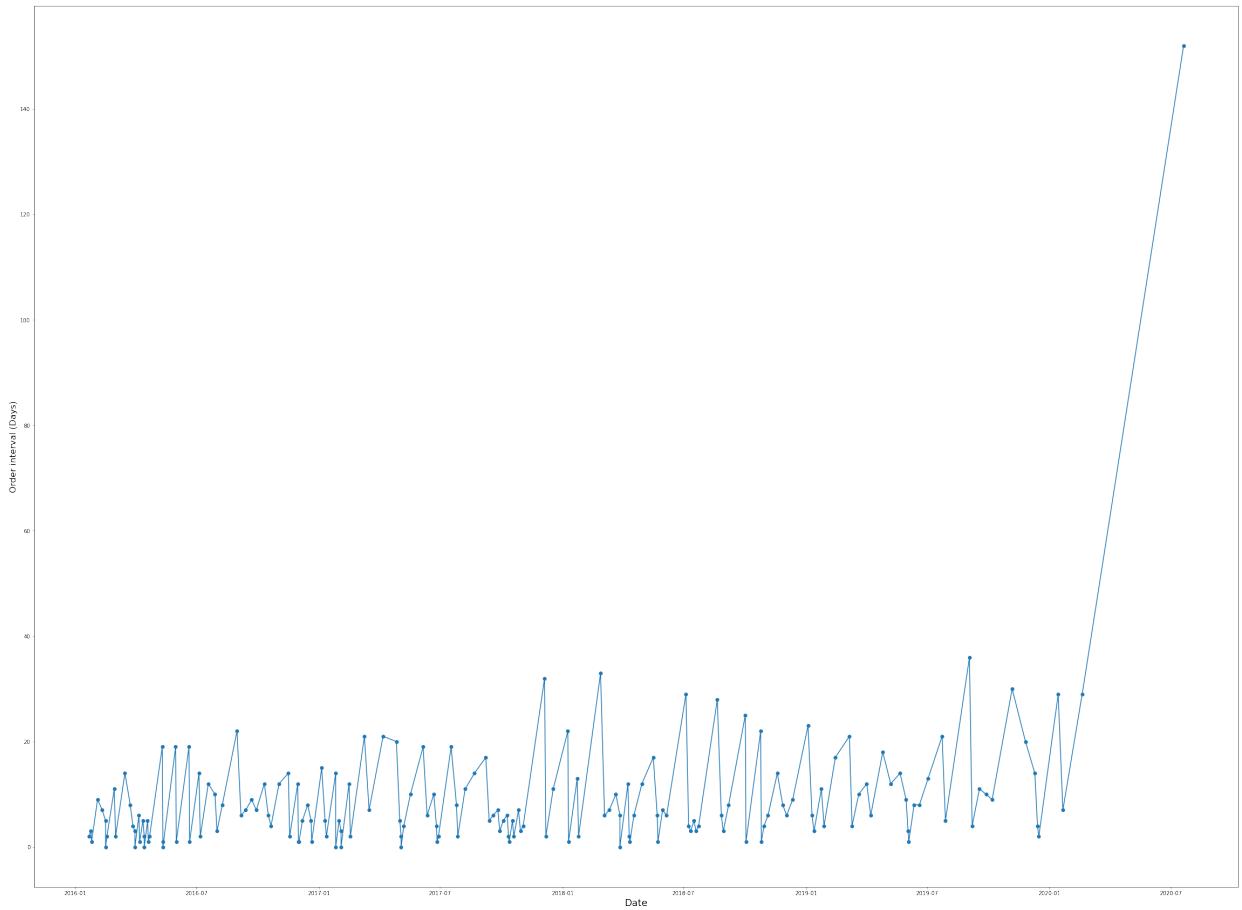
The standard div is : 13.594589



"HEWCE411A"

The mean is : 9.282486

The standard div is : 13.213988



Top 5 consumed coffee product and its order interval during 2016 - 2021, categorized by top 5 most frequent ordered department

```
In [ ]: top10coffee=coffee_req1['upper part'].value_counts()[:5]._stat_axis.values.tolist()
top10toner=toner_req1['upper part'].value_counts()[:5]._stat_axis.values.tolist()

top10dep=coffee_req1['Unit name'].value_counts()[:5]._stat_axis.values.tolist()
top10dep2=toner_req1['Unit name'].value_counts()[:5]._stat_axis.values.tolist()

mark=[ '-o', '-.', '-v', '-s', '-x' ]

def find_thecoffee_gap2(name,dep):
    for h in name:
        print(' "{0}"'.format(h))
        for l in range(len(dep)):
            print(' "{0}"'.format(dep[l]))
            temp = coffee_req1[coffee_req1['Unit name'] == dep[l]]
            a1=temp[temp['Product P/N (Vendor)'] == h]['PO Creation Date'].tolist()
            # print(a1)
            a1 = sorted(a1)

            a11 = []
            for i in range(len(a1)-1):
                a11.append((a1[i+1]-a1[i]).days)
            # print(a11)

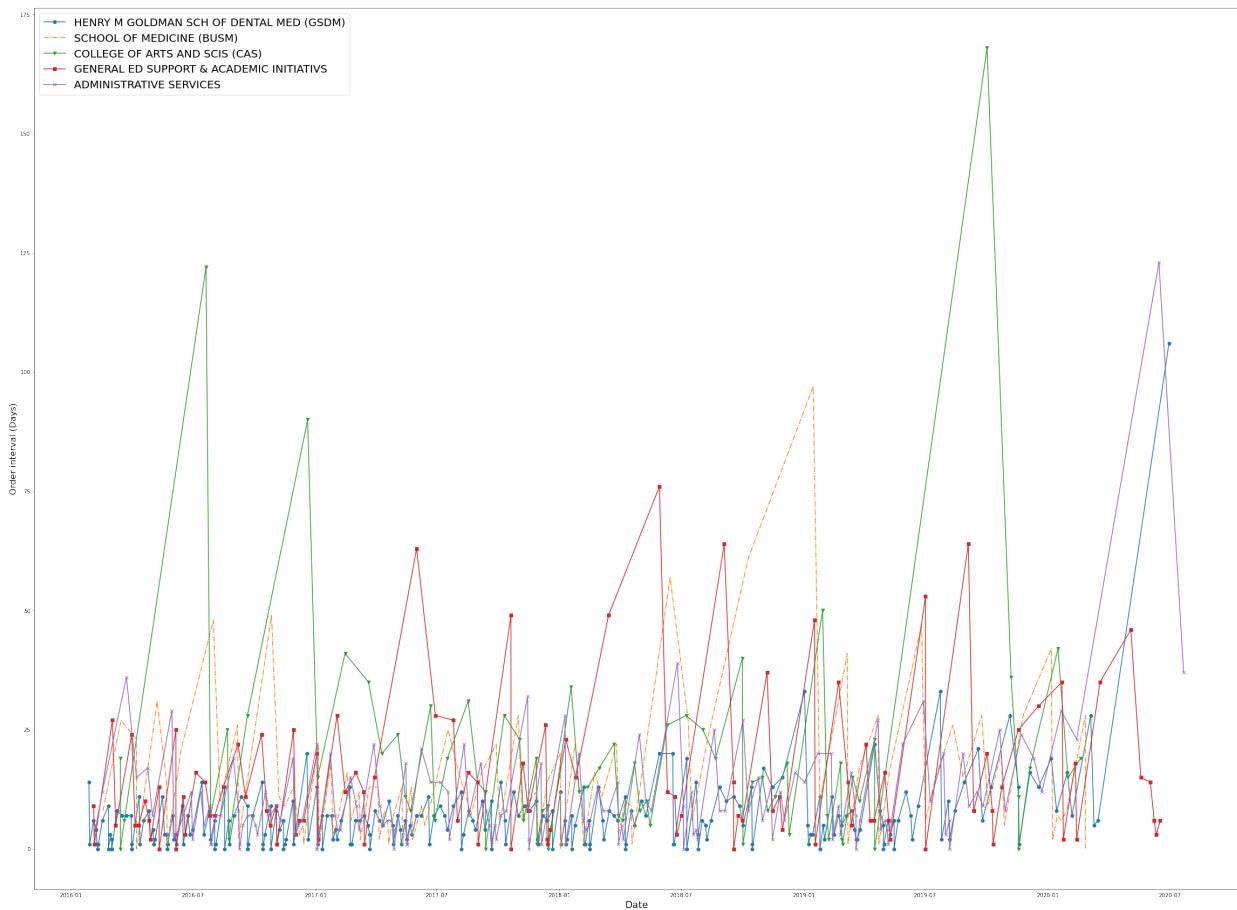
            arr_mean=(np.mean(a11))
            arr_std=(np.std(a11))

            print("The mean is : %f" % arr_mean)

            print("The standard div is : %f" % arr_std)
            plt.plot(a1[1:], a11, mark[l])
            plt.rcParams["figure.figsize"] = (40,30)
            plt.legend(dep,prop={'size': 20})
            plt.xlabel('Date', fontsize=18)
            plt.ylabel('Order interval (Days)', fontsize=16)
            plt.show()

find_thecoffee_gap2(top10coffee,top10dep)
```

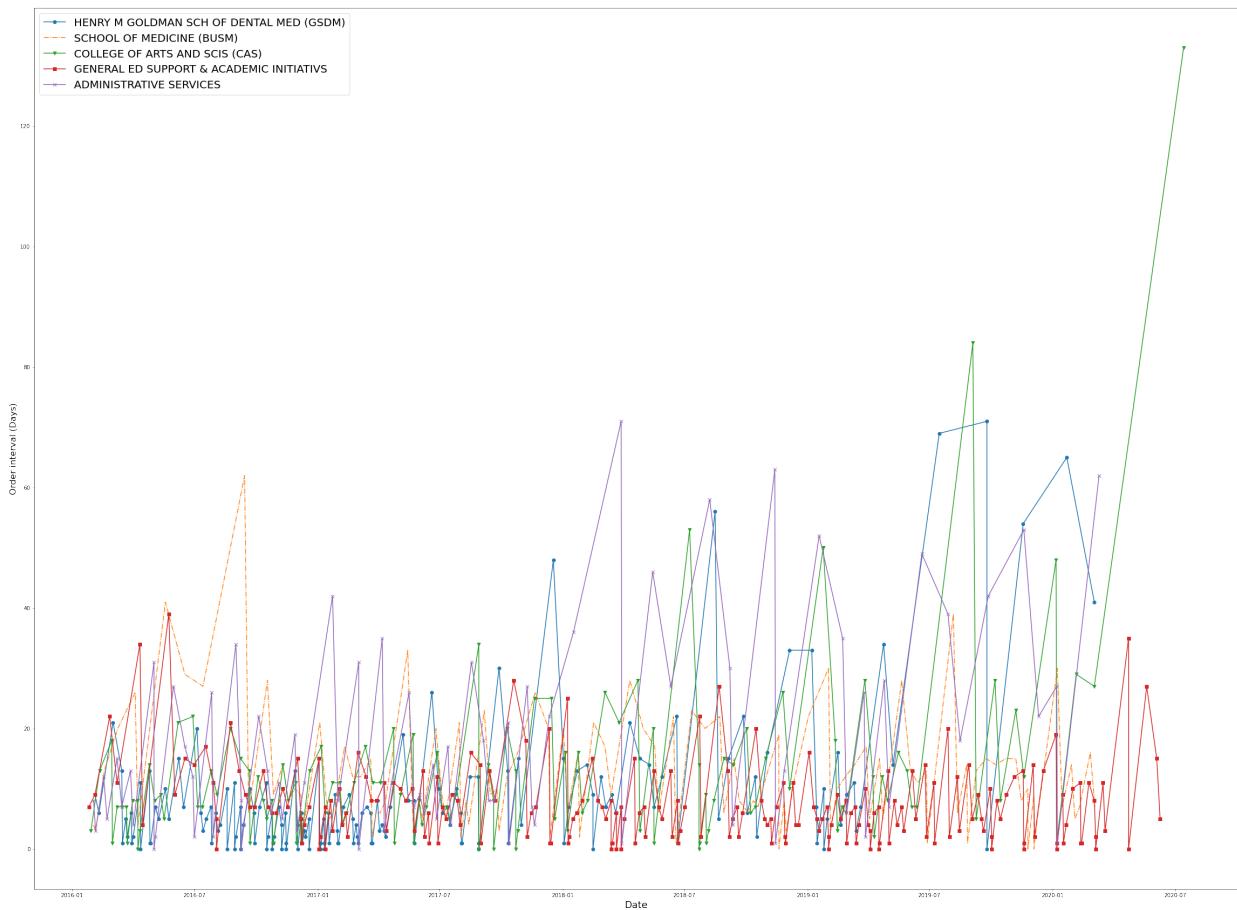
"GMT6520"
 "HENRY M GOLDMAN SCH OF DENTAL MED (GSDM)"
 The mean is : 6.388235
 The standard div is : 8.479402
 "SCHOOL OF MEDICINE (BUSM)"
 The mean is : 14.770000
 The standard div is : 15.306766
 "COLLEGE OF ARTS AND SCIS (CAS)"
 The mean is : 20.208333
 The standard div is : 25.827385
 "GENERAL ED SUPPORT & ACADEMIC INITIATIVES"
 The mean is : 15.423077
 The standard div is : 15.905788
 "ADMINISTRATIVE SERVICES"
 The mean is : 10.953020
 The standard div is : 12.672613



```

"GMT4061"
"HENRY M GOLDMAN SCH OF DENTAL MED (GSDM)"
The mean is : 9.078788
The standard div is : 12.439423
"SCHOOL OF MEDICINE (BUSM)"
The mean is : 12.571429
The standard div is : 9.750304
"COLLEGE OF ARTS AND SCIS (CAS)"
The mean is : 12.944444
The standard div is : 15.865659
"GENERAL ED SUPPORT & ACADEMIC INITIATIVES"
The mean is : 7.597156
The standard div is : 6.700342
"ADMINISTRATIVE SERVICES"
The mean is : 18.592593
The standard div is : 17.096515

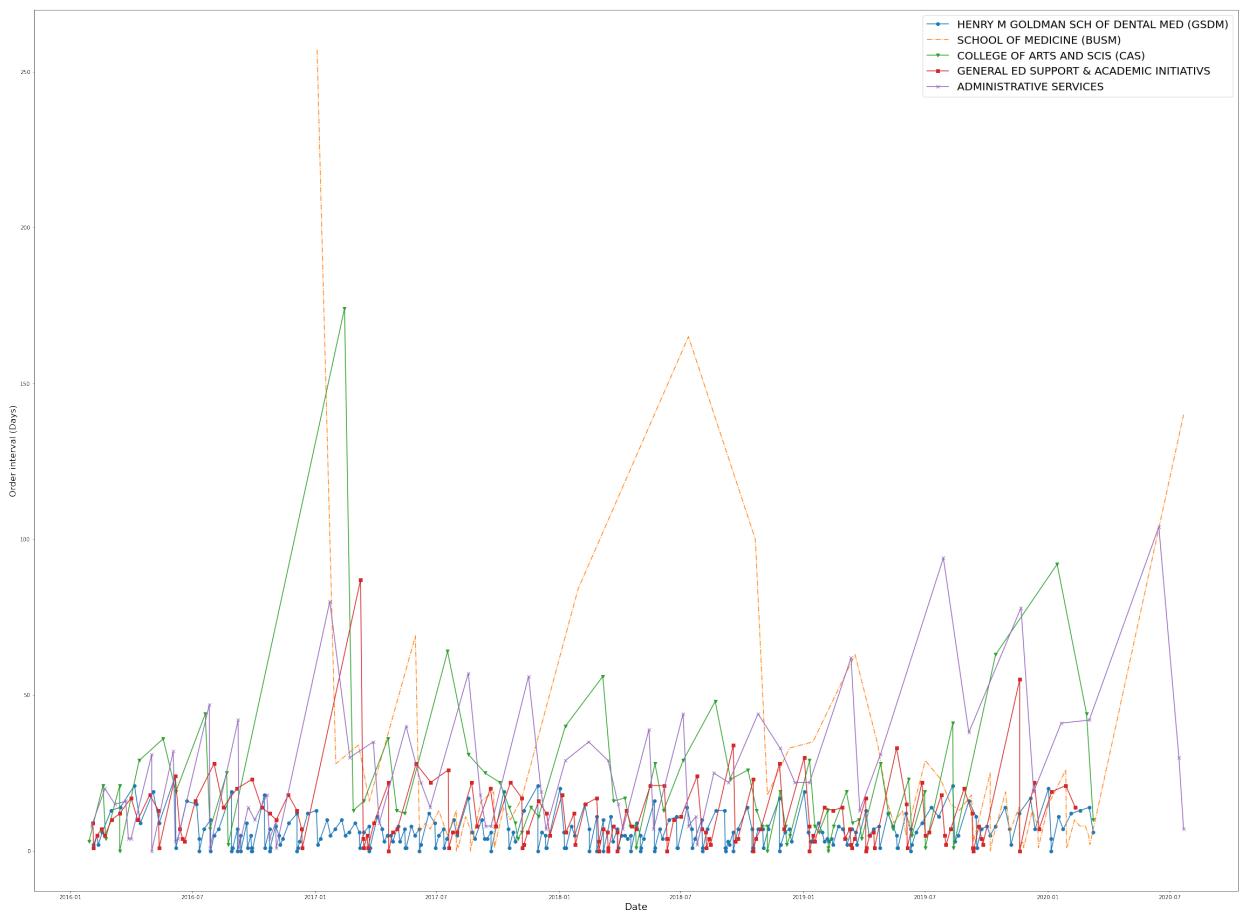
```



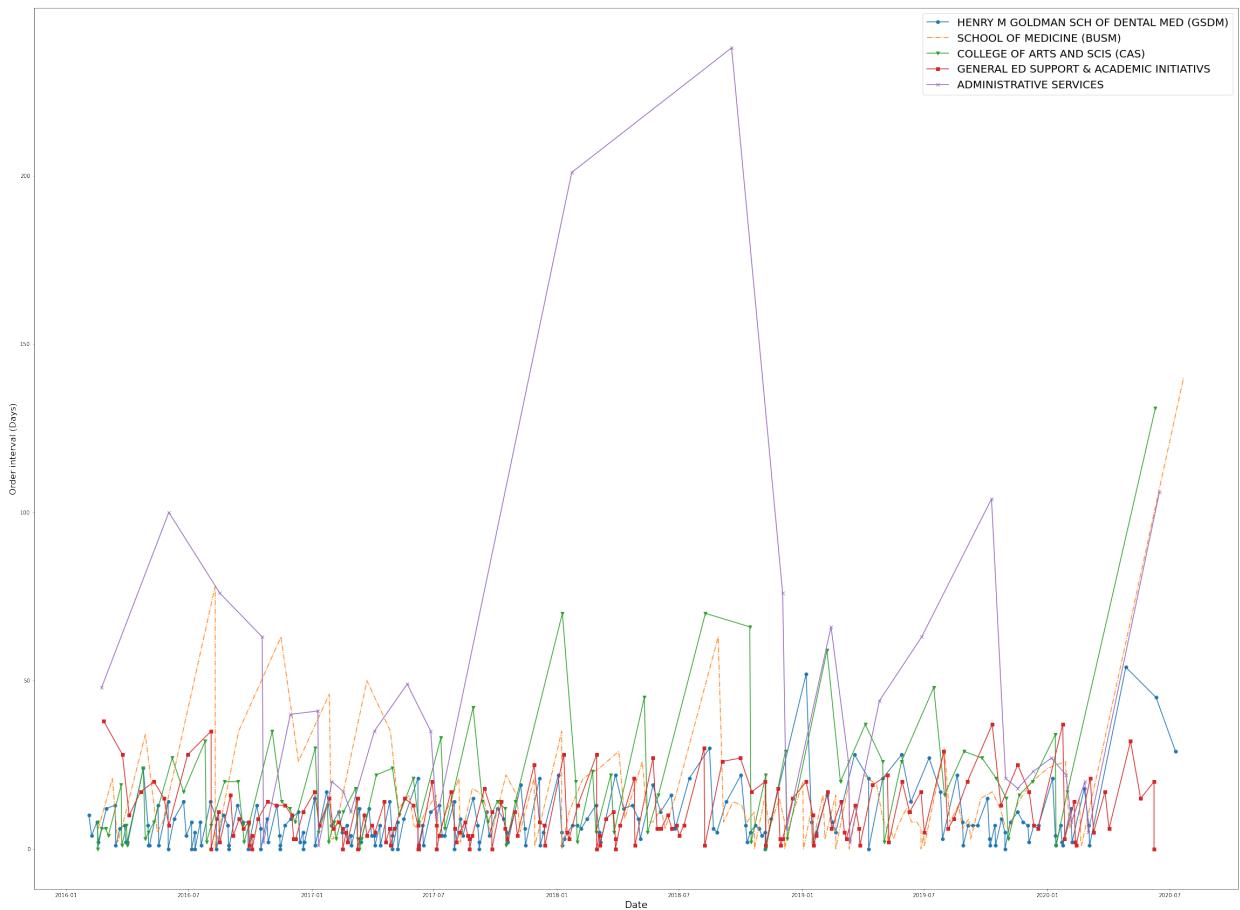
```

"GMT6663"
"HENRY M GOLDMAN SCH OF DENTAL MED (GSDM)"
The mean is : 6.081301
The standard div is : 5.267778
"SCHOOL OF MEDICINE (BUSM)"
The mean is : 23.876923
The standard div is : 42.026917
"COLLEGE OF ARTS AND SCIS (CAS)"
The mean is : 20.602740
The standard div is : 24.937038
"GENERAL ED SUPPORT & ACADEMIC INITIATIVES"
The mean is : 10.550000
The standard div is : 11.150480
"ADMINISTRATIVE SERVICES"
The mean is : 25.625000
The standard div is : 22.595284

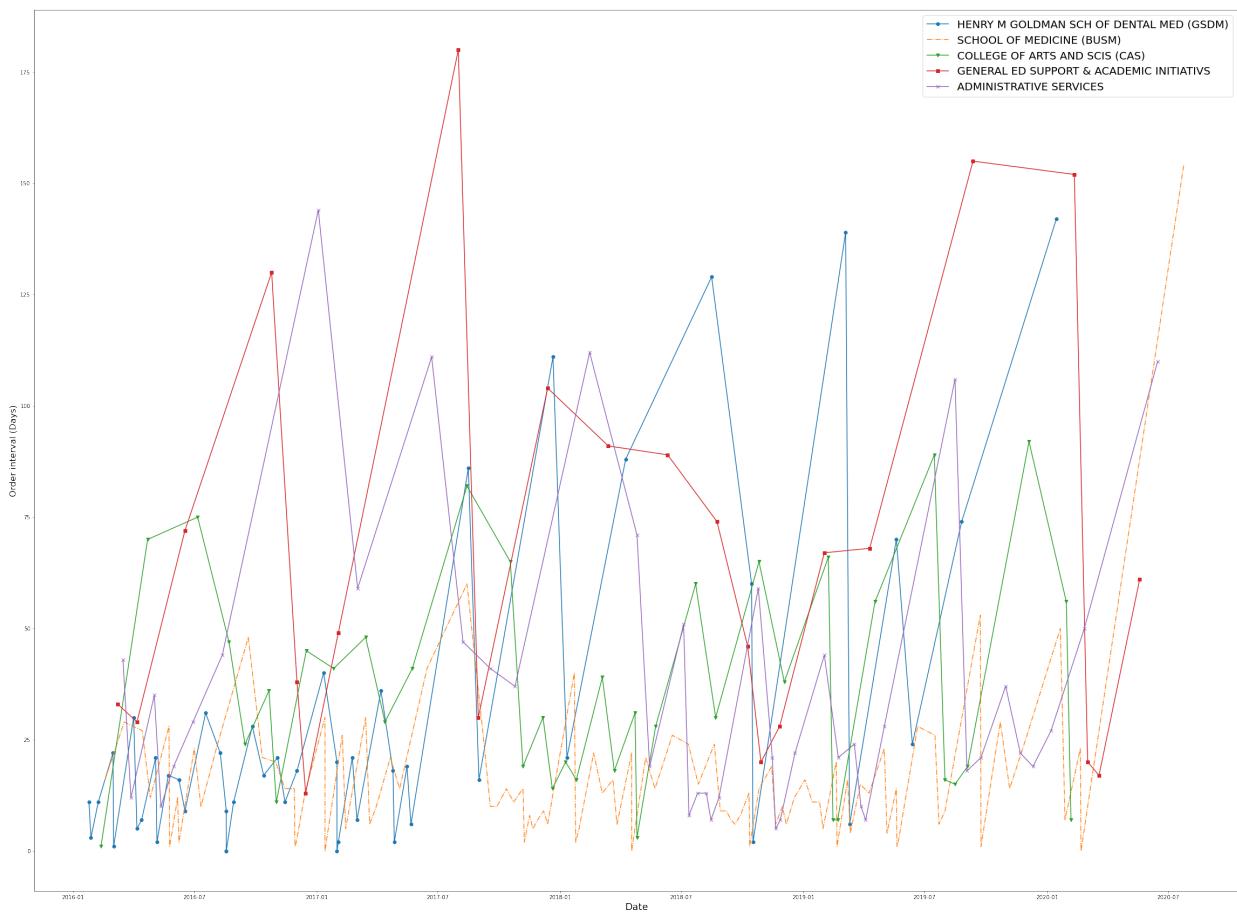
```



"NES35110BX"
 "HENRY M GOLDMAN SCH OF DENTAL MED (GSDM)"
 The mean is : 8.391753
 The standard div is : 8.527768
 "SCHOOL OF MEDICINE (BUSM)"
 The mean is : 14.482143
 The standard div is : 17.940866
 "COLLEGE OF ARTS AND SCIS (CAS)"
 The mean is : 17.786517
 The standard div is : 19.729332
 "GENERAL ED SUPPORT & ACADEMIC INITIATIVES"
 The mean is : 10.203822
 The standard div is : 9.004414
 "ADMINISTRATIVE SERVICES"
 The mean is : 47.735294
 The standard div is : 52.144770



"GMT6732"
 "HENRY M GOLDMAN SCH OF DENTAL MED (GSDM)"
 The mean is : 29.836735
 The standard div is : 36.744205
 "SCHOOL OF MEDICINE (BUSM)"
 The mean is : 16.340000
 The standard div is : 18.320055
 "COLLEGE OF ARTS AND SCIS (CAS)"
 The mean is : 37.333333
 The standard div is : 24.669439
 "GENERAL ED SUPPORT & ACADEMIC INITIATIVES"
 The mean is : 68.086957
 The standard div is : 47.158302
 "ADMINISTRATIVE SERVICES"
 The mean is : 37.976190
 The standard div is : 33.357007



Top 5 consumed toner product and its order interval during 2016 - 2021, categorized by top 5 most frequent ordered department

```
In [ ]: def find_thetoner_gap2(name,dep):
    for h in name:
        print('{0}'.format(h))
        for l in range(len(dep)):
            print('{0}'.format(dep[l]))
            temp = toner_req1[toner_req1['Unit name'] == dep[l]]
            a1=temp[temp['Product P/N (Vendor)'] == h]['PO Creation Date'].tolist()
            # print(a1)
            a1 = sorted(a1)

            a11 = []
            for i in range(len(a1)-1):
                a11.append((a1[i+1]-a1[i]).days)
            # print(a11)

            arr_mean=(np.mean(a11))
            arr_std=(np.std(a11))

            print("The mean is : %f" % arr_mean)

            print("The standard div is : %f" % arr_std)
            plt.plot(a1[1:], a11, mark[1])
            plt.rcParams["figure.figsize"] = (40,30)
            plt.legend(dep,prop={'size': 20})
            plt.xlabel('Date', fontsize=18)
            plt.ylabel('Order interval (Days)', fontsize=16)
            plt.show()
```

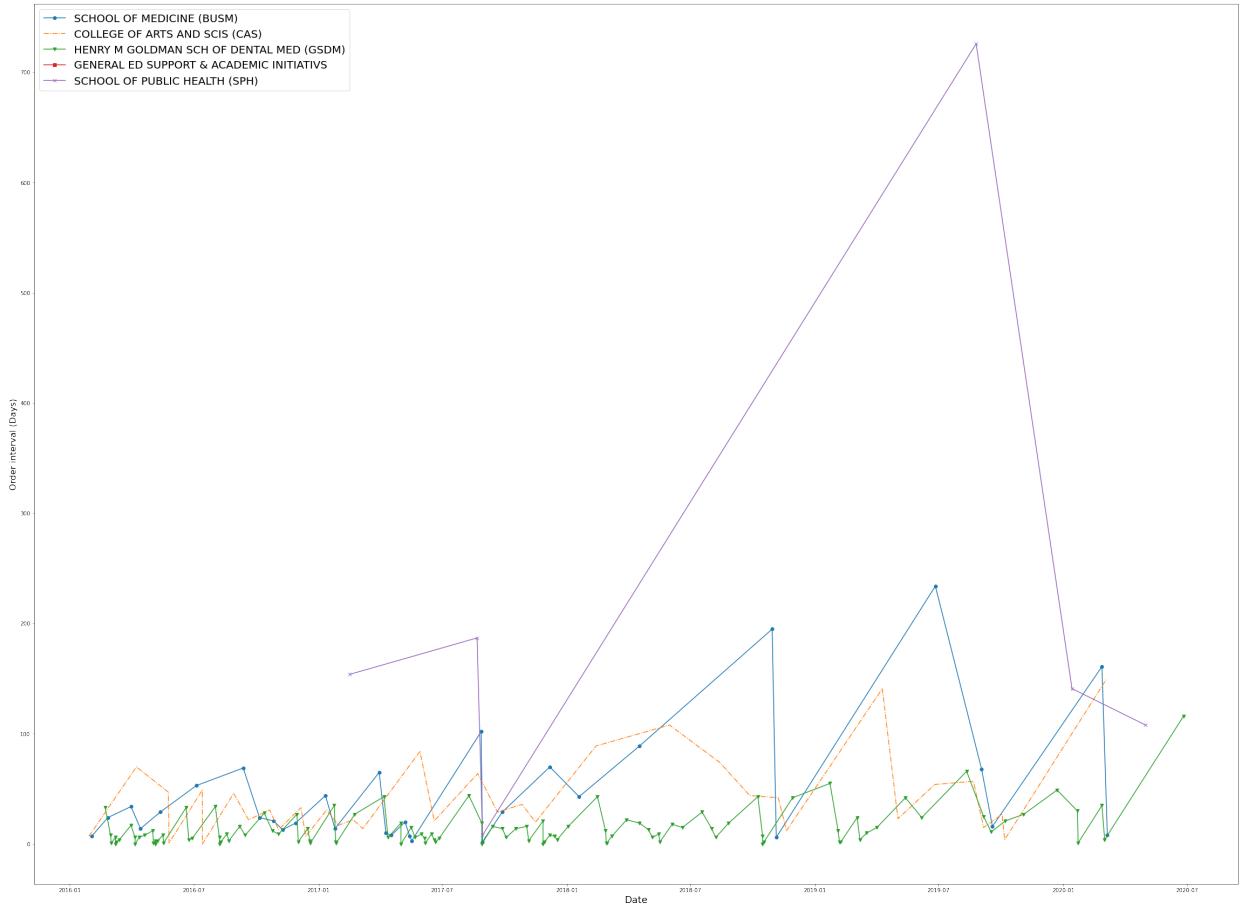
```
find_thetoner_gap2(top10toner,top10dep2)
```

```
"HEWCE505A"
"SCHOOL OF MEDICINE (BUSM)"
The mean is : 46.906250
The standard div is : 55.370547
"COLLEGE OF ARTS AND SCIS (CAS)"
The mean is : 41.750000
The standard div is : 35.896746
"HENRY M GOLDMAN SCH OF DENTAL MED (GSDM)"
The mean is : 14.201754
The standard div is : 16.718086
"GENERAL ED SUPPORT & ACADEMIC INITIATIVES"
The mean is : nan
The standard div is : nan
"SCHOOL OF PUBLIC HEALTH (SPH)"
The mean is : 220.666667
The standard div is : 232.811559
```

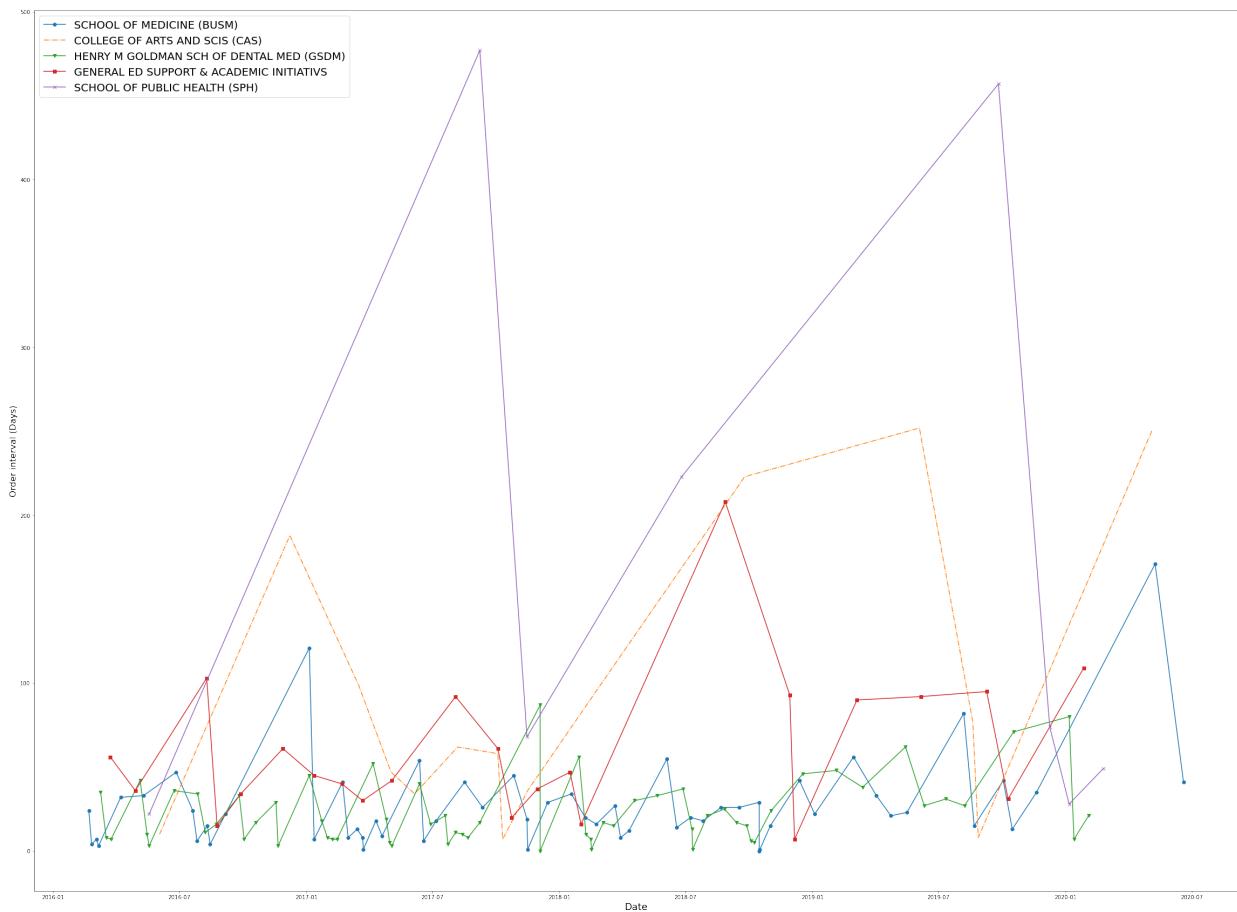
```

/usr/local/lib/python3.7/dist-packages/numpy/core/fromnumeric.py:337
  3: RuntimeWarning: Mean of empty slice.
      out=out, **kwargs)
/usr/local/lib/python3.7/dist-packages/numpy/core/_methods.py:170: R
untimewarning: invalid value encountered in double_scalars
    ret = ret.dtype.type(ret / rcount)
/usr/local/lib/python3.7/dist-packages/numpy/core/_methods.py:234: R
untimewarning: Degrees of freedom <= 0 for slice
    keepdims=keepdims)
/usr/local/lib/python3.7/dist-packages/numpy/core/_methods.py:195: R
untimewarning: invalid value encountered in true_divide
    arrmean, rcount, out=arrmean, casting='unsafe', subok=False)
/usr/local/lib/python3.7/dist-packages/numpy/core/_methods.py:226: R
untimewarning: invalid value encountered in double_scalars
    ret = ret.dtype.type(ret / rcount)

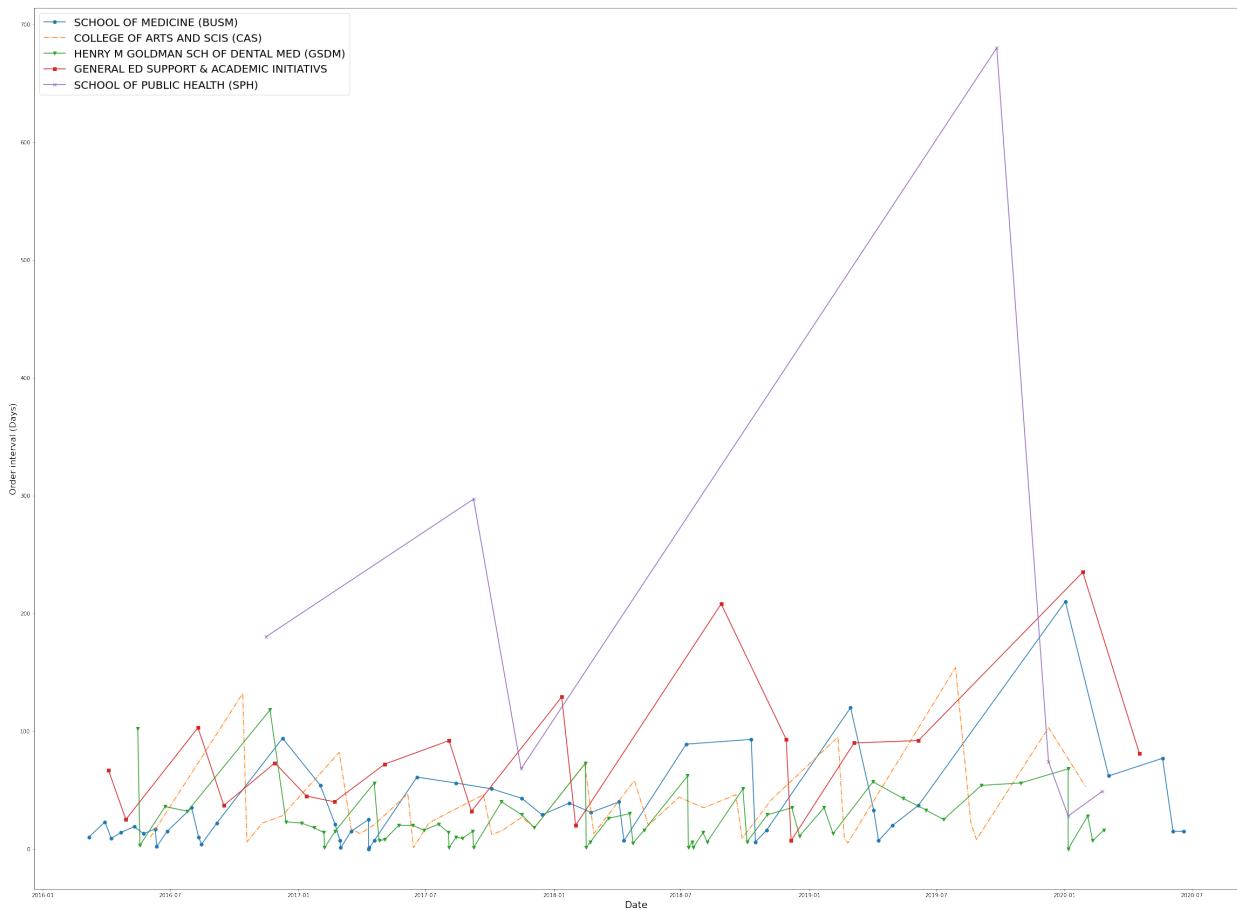
```



"HEWCN045AN"
 "SCHOOL OF MEDICINE (BUSM)"
 The mean is : 27.169492
 The standard div is : 28.006145
 "COLLEGE OF ARTS AND SCIS (CAS)"
 The mean is : 96.133333
 The standard div is : 85.192227
 "HENRY M GOLDMAN SCH OF DENTAL MED (GSDM)"
 The mean is : 23.174603
 The standard div is : 19.579338
 "GENERAL ED SUPPORT & ACADEMIC INITIATIVES"
 The mean is : 60.833333
 The standard div is : 43.024864
 "SCHOOL OF PUBLIC HEALTH (SPH)"
 The mean is : 174.750000
 The standard div is : 178.737062



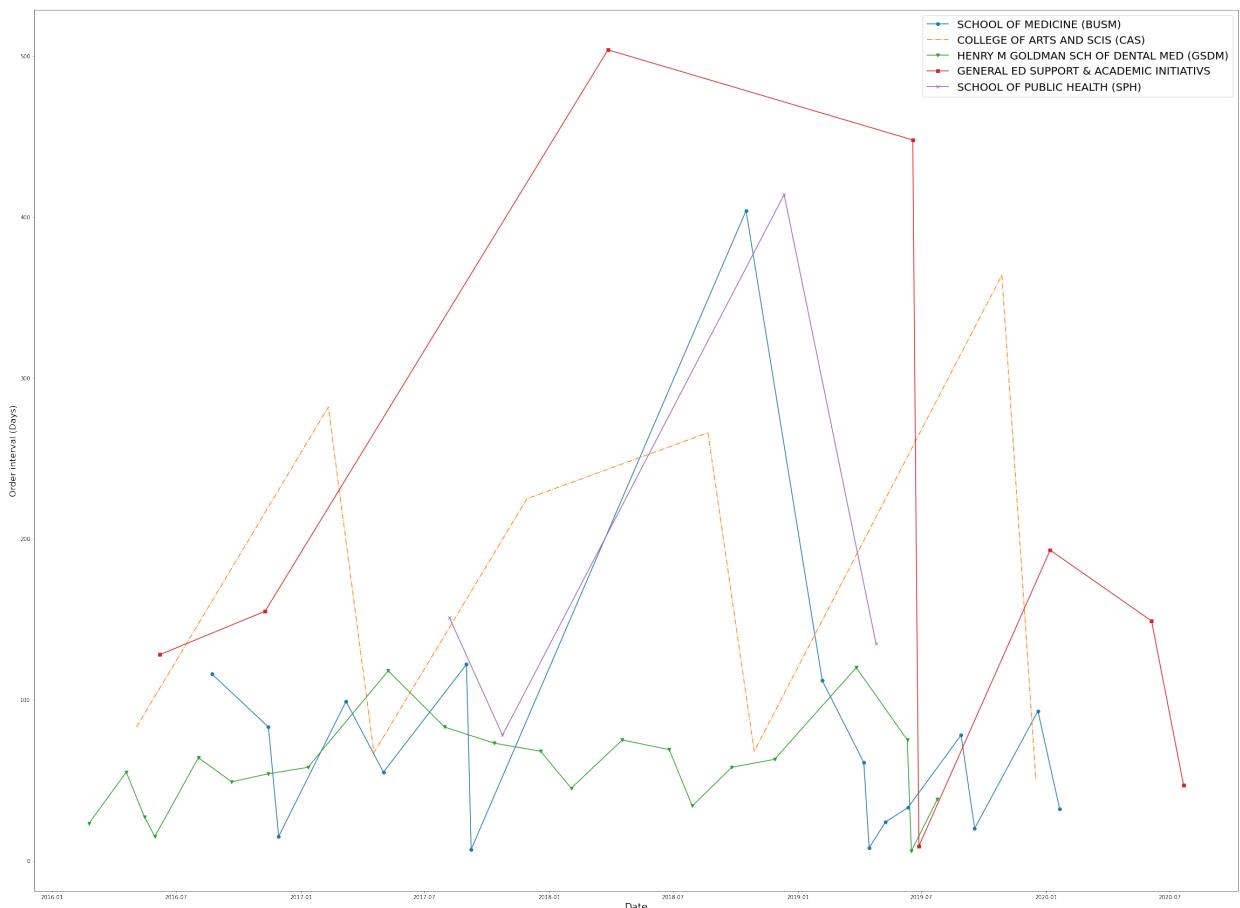
"HEWCR314FN"
 "SCHOOL OF MEDICINE (BUSM)"
 The mean is : 34.239130
 The standard div is : 38.382052
 "COLLEGE OF ARTS AND SCIS (CAS)"
 The mean is : 37.416667
 The standard div is : 35.916087
 "HENRY M GOLDMAN SCH OF DENTAL MED (GSDM)"
 The mean is : 25.568966
 The standard div is : 24.475260
 "GENERAL ED SUPPORT & ACADEMIC INITIATIVES"
 The mean is : 81.105263
 The standard div is : 57.622999
 "SCHOOL OF PUBLIC HEALTH (SPH)"
 The mean is : 196.571429
 The standard div is : 215.741815



```

"DXE2342PATH"
"SCHOOL OF MEDICINE (BUSM)"
The mean is : 80.117647
The standard div is : 89.631850
"COLLEGE OF ARTS AND SCIS (CAS)"
The mean is : 175.625000
The standard div is : 114.646127
"HENRY M GOLDMAN SCH OF DENTAL MED (GSDM)"
The mean is : 57.727273
The standard div is : 27.914125
"GENERAL ED SUPPORT & ACADEMIC INITIATIVES"
The mean is : 204.125000
The standard div is : 167.157439
"SCHOOL OF PUBLIC HEALTH (SPH)"
The mean is : 194.500000
The standard div is : 129.600347

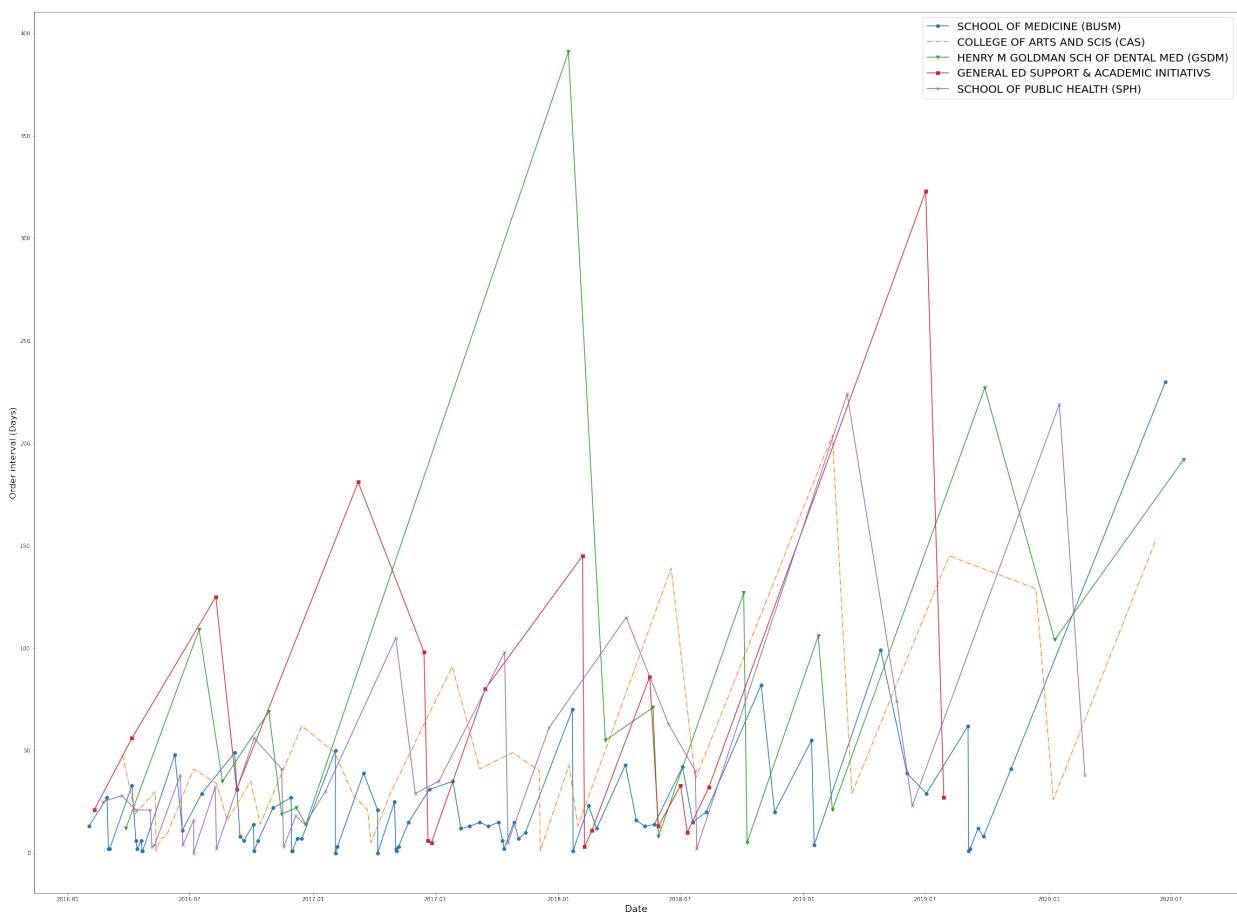
```



```

"HEWCE410A"
"SCHOOL OF MEDICINE (BUSM)"
The mean is : 22.136986
The standard div is : 31.812514
"COLLEGE OF ARTS AND SCIS (CAS)"
The mean is : 49.593750
The standard div is : 49.588847
"HENRY M GOLDMAN SCH OF DENTAL MED (GSDM)"
The mean is : 88.166667
The standard div is : 96.373838
"GENERAL ED SUPPORT & ACADEMIC INITIATIVES"
The mean is : 67.684211
The standard div is : 78.786221
"SCHOOL OF PUBLIC HEALTH (SPH)"
The mean is : 45.060606
The standard div is : 53.689872

```



Top 10 consumed paper product and its order interval during 2016 - 2021, university wide

```
In [ ]: paper_name = paper_df['Description'].str.split(' | ', expand=True)[2].str.split(',', expand=True)[0].value_counts()._stat_axis.values.tolist()

def find_thepaper_gap(name):
    for h in name:
        print('{0}'.format(h))
        a1=paper_df[paper_df['Description'].str.contains(h)][['Requisitioning Date']].tolist()
        print(type(a1))
        a1 = sorted(a1)

    a11 = []
    for i in range(len(a1)-1):
        a11.append((a1[i+1]-a1[i]).days)
    print(set(a11))

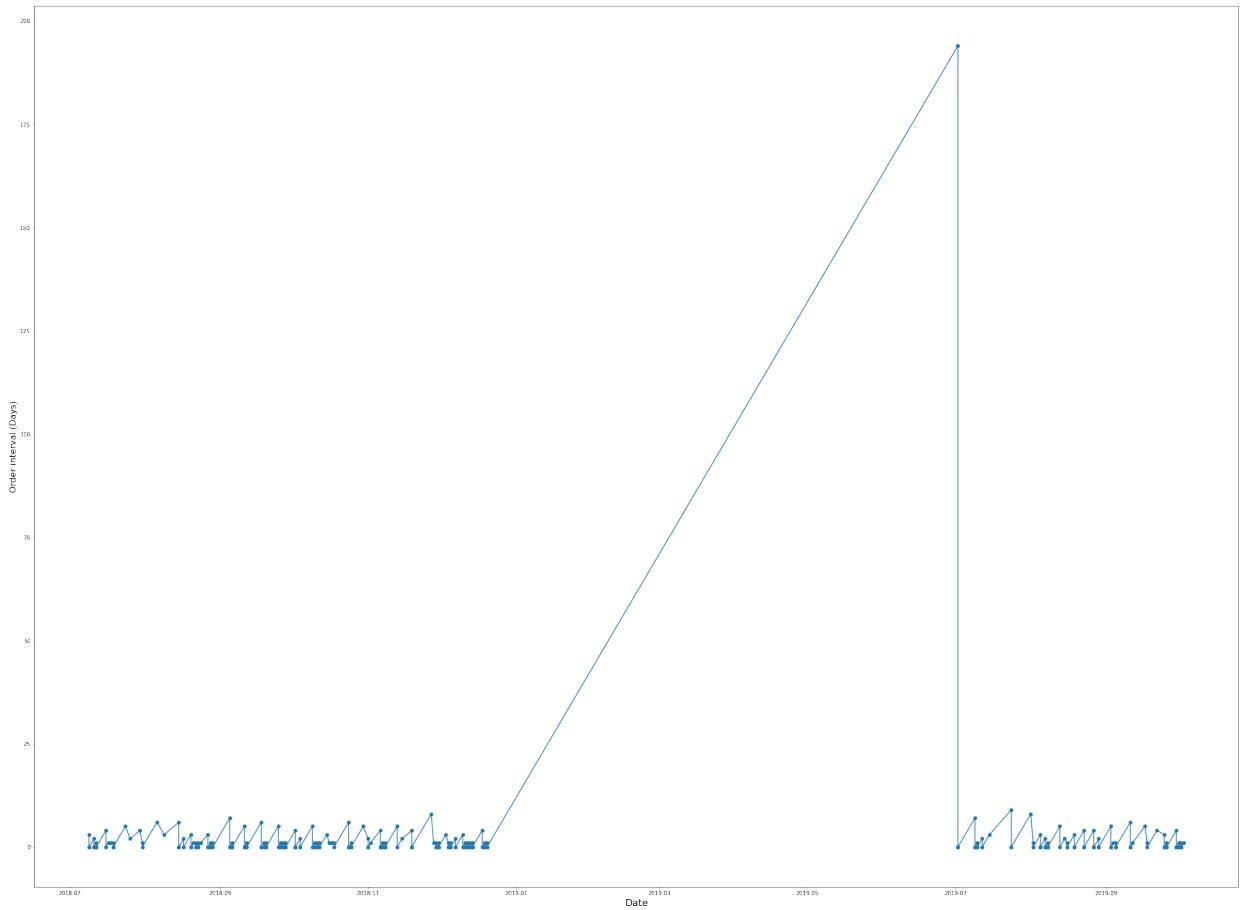
    arr_mean=(np.mean(a11))
    arr_std=(np.std(a11))

    print("The mean is : %f" % arr_mean)

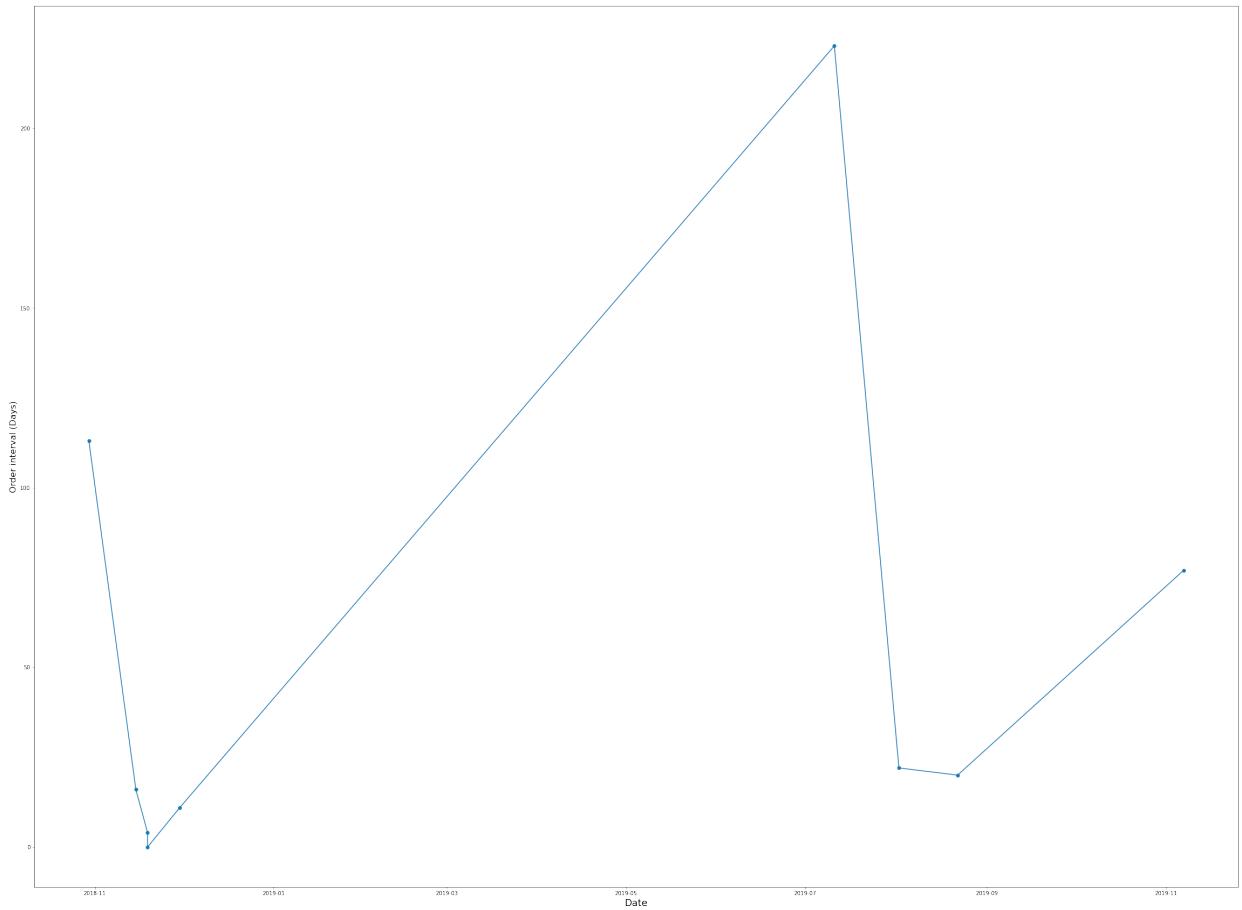
    print("The standard div is : %f" % arr_std)
    plt.plot(a1[1:], a11, '-o')
    plt.rcParams["figure.figsize"] = (40,30)
    plt.xlabel('Date', fontsize=18)
    plt.ylabel('Order interval (Days)', fontsize=16)
    plt.show()

find_thepaper_gap(paper_name[:-3])
```

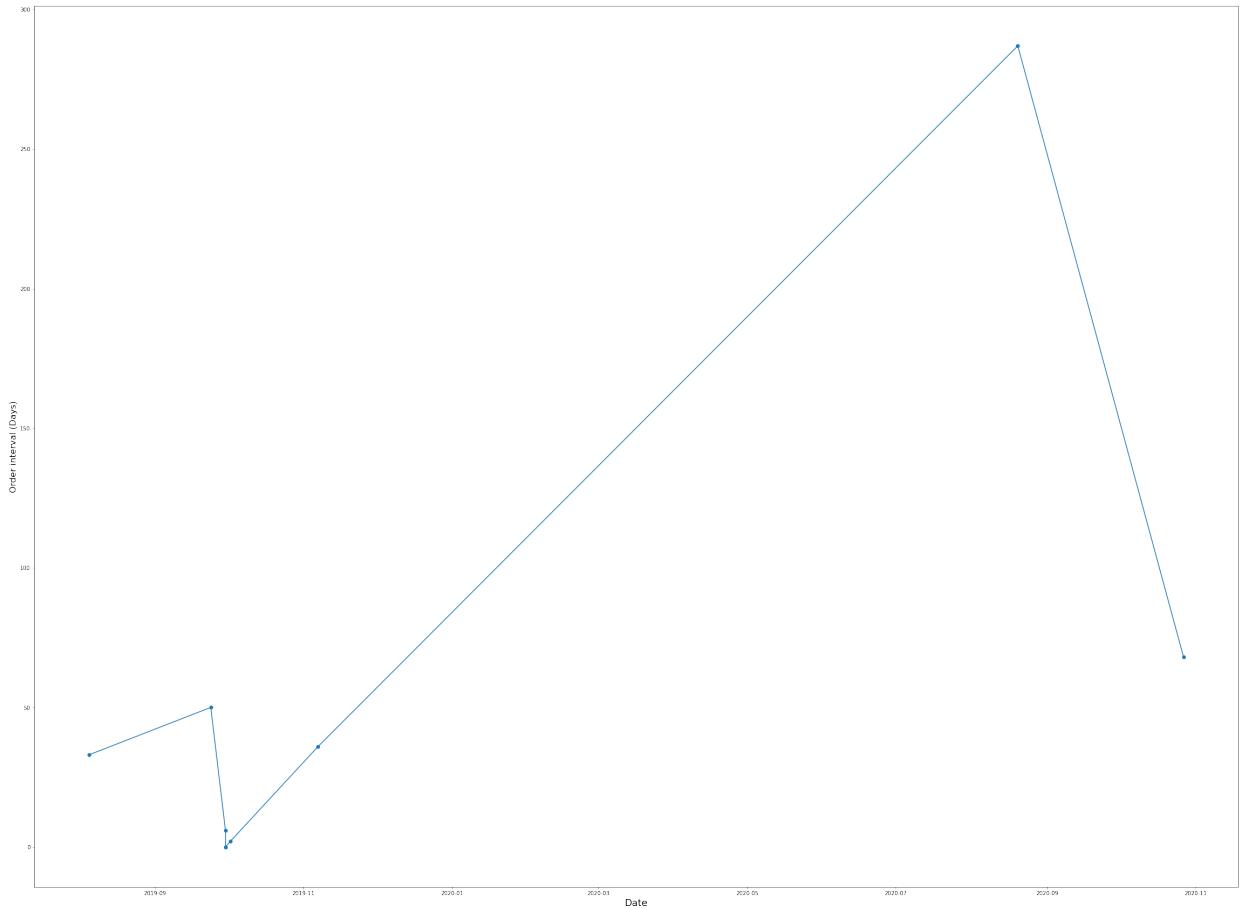
```
"FIREWORX Colored Paper"
<class 'list'>
{0, 1, 2, 3, 4, 5, 6, 7, 8, 194, 9}
The mean is : 1.115479
The standard div is : 9.687446
```



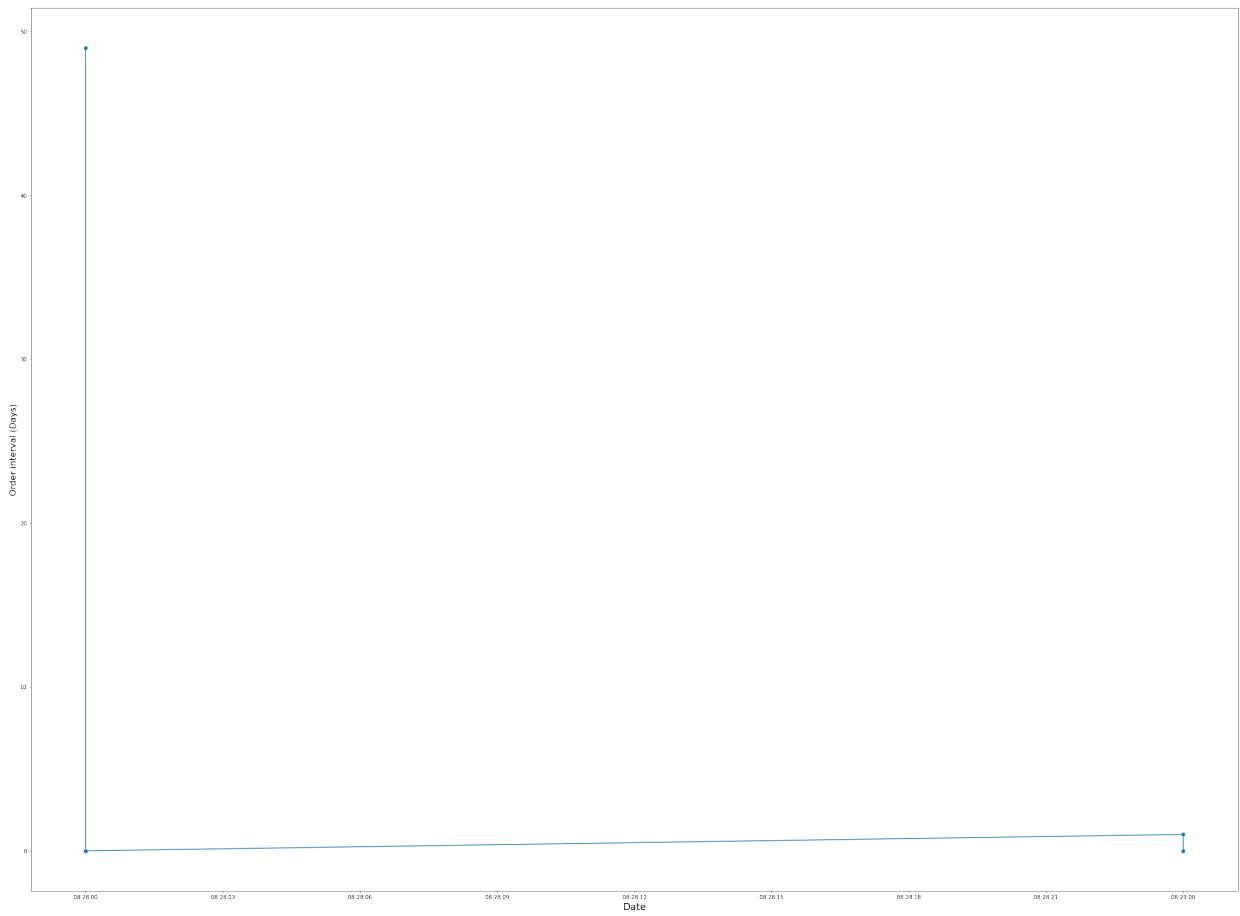
```
"Copy Plus Copy Paper"
<class 'list'>
{0, 4, 11, 77, 16, 113, 20, 22, 223}
The mean is : 54.000000
The standard div is : 69.490207
```



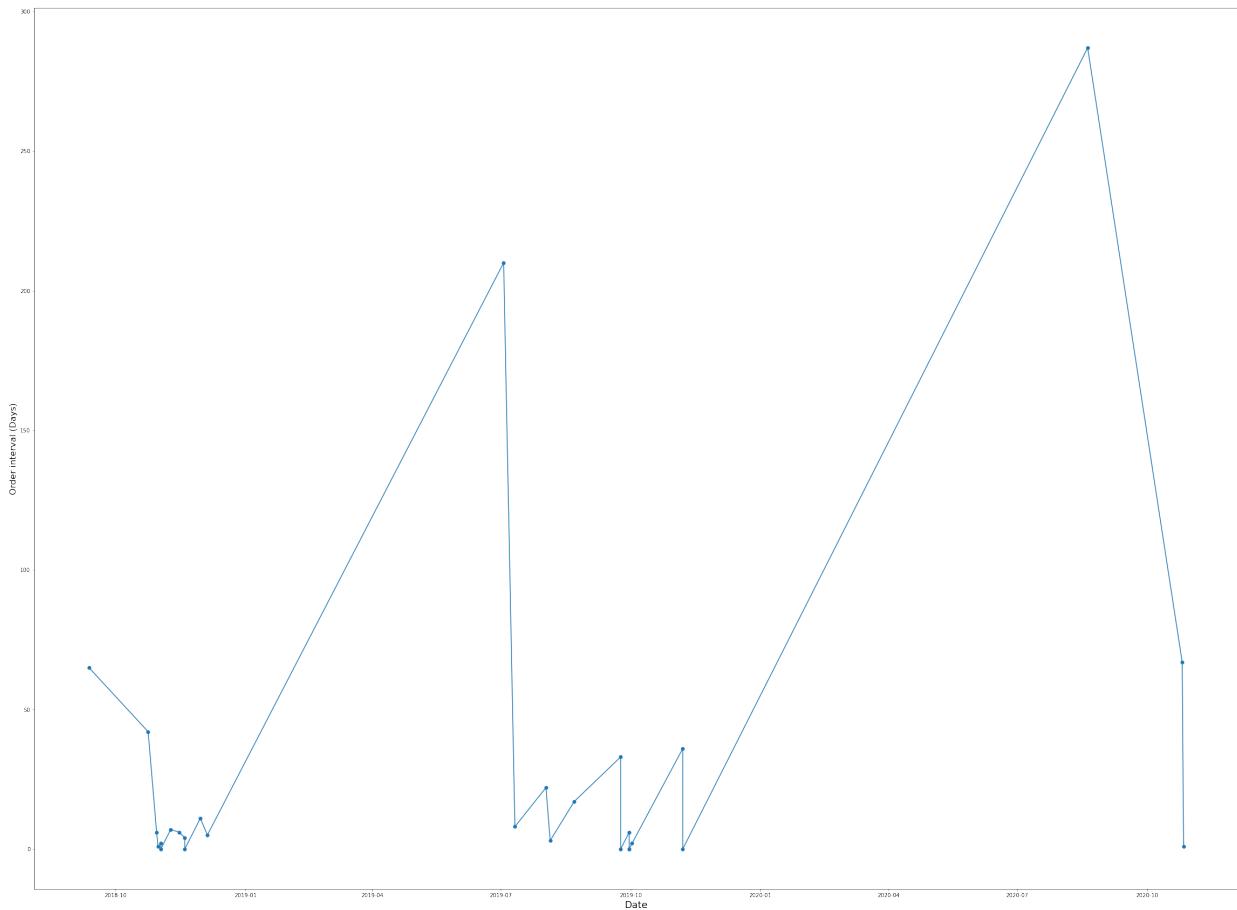
```
"Premium Color Copy Paper"  
<class 'list'>  
{0, 33, 2, 36, 68, 6, 50, 287}  
The mean is : 53.555556  
The standard div is : 85.702471
```



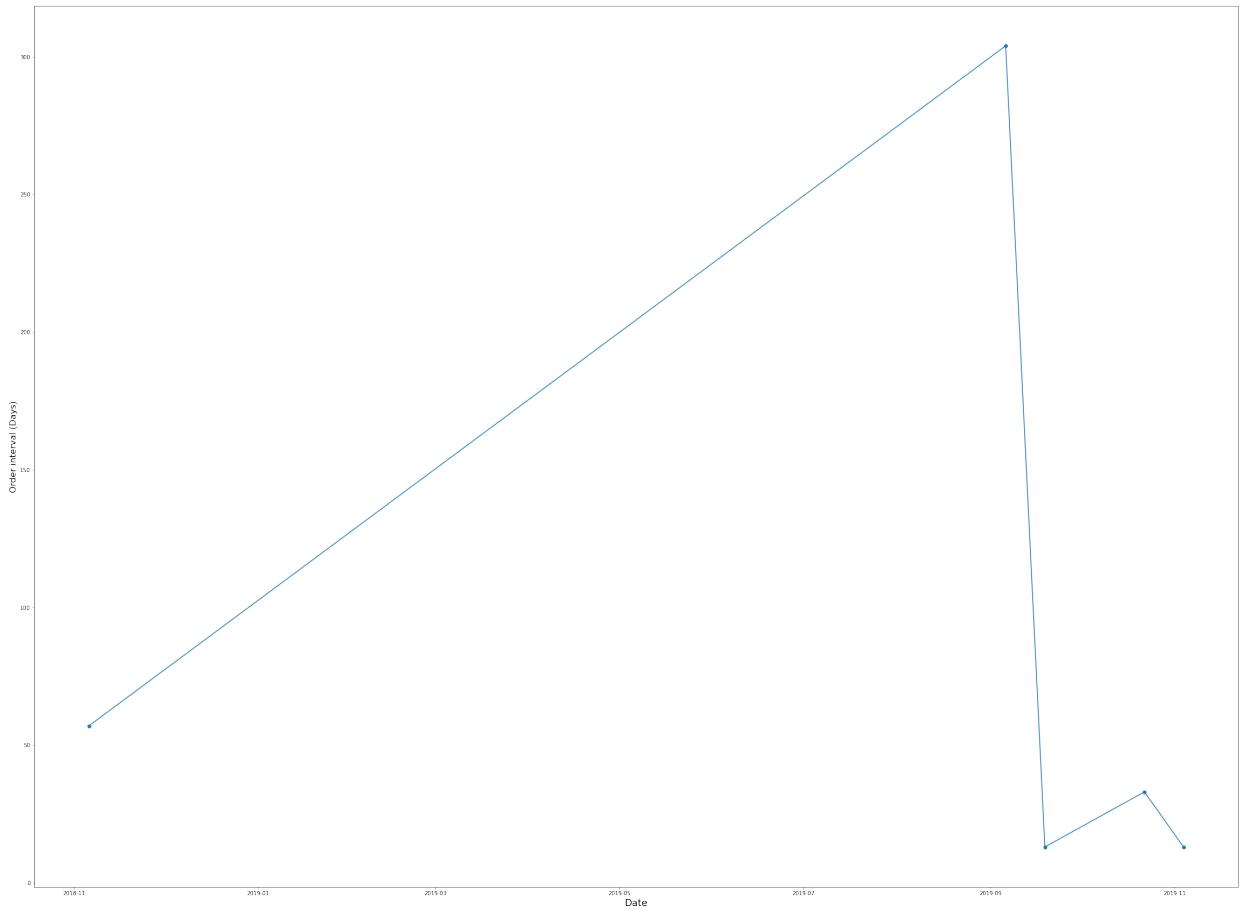
```
"BriteHue Multipurpose Colored Paper"  
<class 'list'>  
{0, 49, 1}  
The mean is : 8.333333  
The standard div is : 18.190352
```



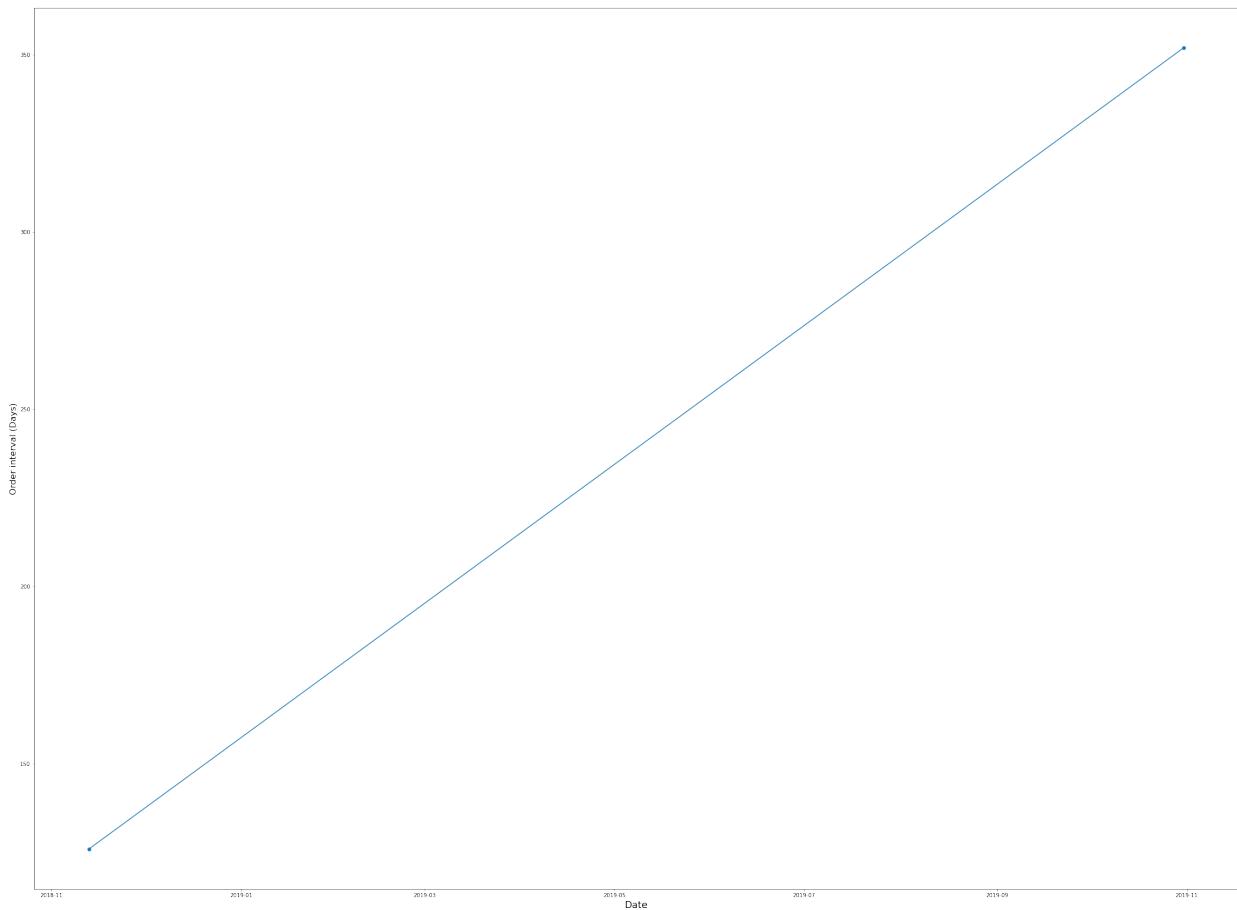
```
"Copy Paper"  
<class 'list'>  
{0, 1, 2, 3, 4, 5, 6, 7, 8, 11, 17, 22, 287, 33, 36, 42, 65, 67, 210  
}  
The mean is : 30.035714  
The standard div is : 64.155771
```



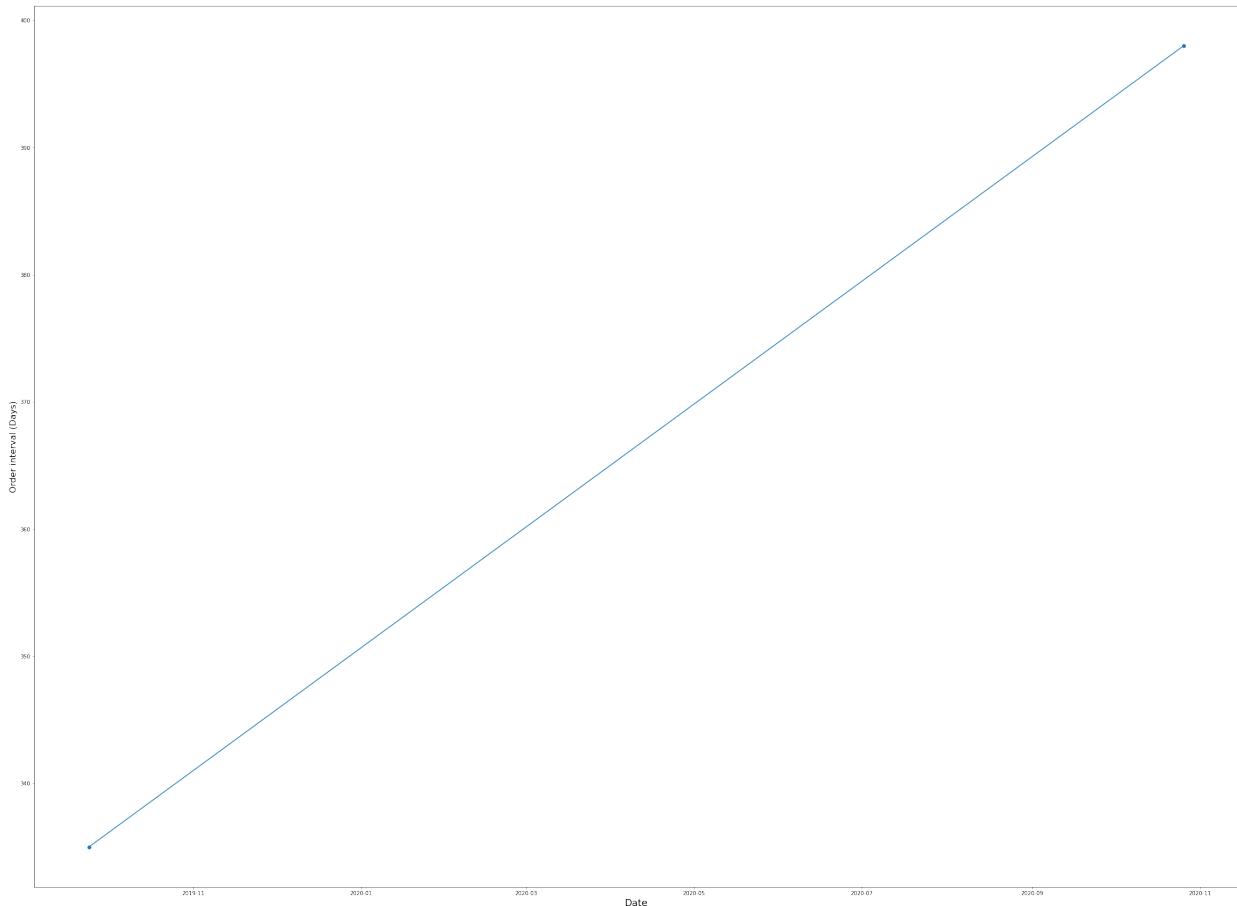
```
"Fore MP Multipurpose Paper"
<class 'list'>
{304, 57, 13, 33}
The mean is : 84.000000
The standard div is : 111.186330
```



```
"Recycled Colored Paper"  
<class 'list'>  
{352, 126}  
The mean is : 239.000000  
The standard div is : 113.000000
```



```
"Great White 30 Recycled Copy Paper"
<class 'list'>
{398, 335}
The mean is : 366.500000
The standard div is : 31.500000
```



Most consumed paper product and its order interval during 2016 - 2021, categorized by top 5 most frequent ordered department

```
In [ ]: top5fc = paper_df[paper_df['fc name'] != 'no match to bus']['fc name'].value_counts()[:5]._stat_axis.values.tolist()
top5dep = paper_df[paper_df['Unit name'] != 'no match to bus']['Unit name'].value_counts()[:5]._stat_axis.values.tolist()

mark=[ '-o', '-.', '-v', '-s', '-x']

def find_thepaper_gap2(name, dep, sub):
    for h in name:
        print('{0}'.format(h))
        for l in range(len(dep)):
            print('{0}'.format(dep[l]))
            temp = paper_df[paper_df['Unit name'] == dep[l]]
            if sub:
                temp = paper_df[paper_df['fc name'] == dep[l]]

            a1=temp[temp['Description'].str.contains(h)][['Requisitioning Date']].tolist()
            # print(type(a1))
            a1 = sorted(a1)

            a11 = []
            for i in range(len(a1)-1):
                a11.append((a1[i+1]-a1[i]).days)
            print(set(a11))

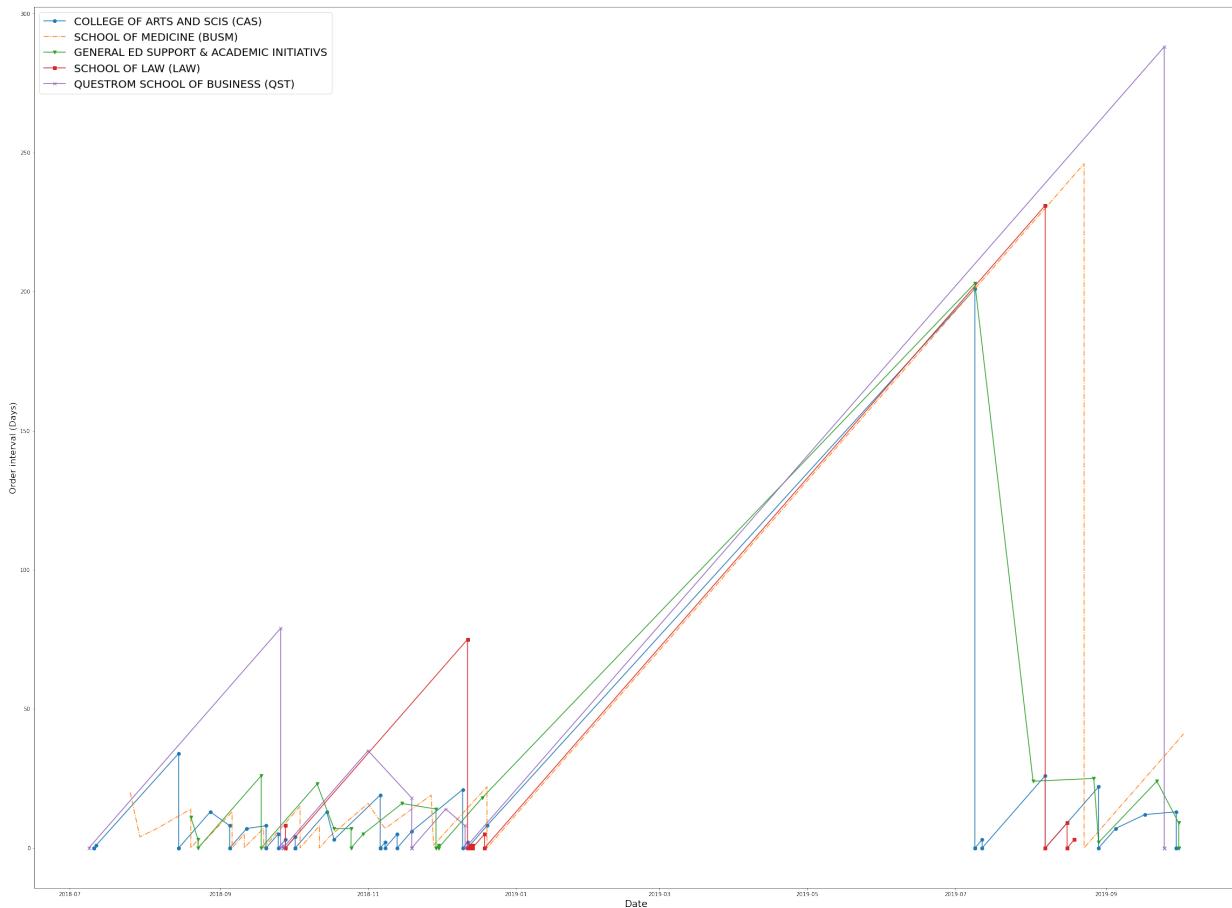
            arr_mean=(np.mean(a11))
            arr_std=(np.std(a11))

            print("The mean is : %f" % arr_mean)

            print("The standard div is : %f" % arr_std)
            plt.plot(a1[1:], a11, mark[l])
            plt.rcParams["figure.figsize"] = (40,30)
            plt.legend(dep,prop={'size': 20})
            plt.xlabel('Date', fontsize=18)
            plt.ylabel('Order interval (Days)', fontsize=16)
            plt.show()

find_thepaper_gap2(paper_name[:1], top5dep, False)
find_thepaper_gap2(paper_name[:1], top5fc, True)
```

"FIREWORK Colored Paper"
 "COLLEGE OF ARTS AND SCIS (CAS)"
 {0, 1, 34, 3, 4, 5, 2, 7, 8, 6, 201, 12, 13, 19, 21, 22, 26}
 The mean is : 5.309524
 The standard div is : 22.421809
 "SCHOOL OF MEDICINE (BUSM)"
 {0, 1, 3, 4, 5, 7, 8, 41, 13, 14, 15, 16, 19, 20, 22, 246}
 The mean is : 12.611111
 The standard div is : 40.429141
 "GENERAL ED SUPPORT & ACADEMIC INITIATIVS"
 {0, 1, 2, 3, 5, 7, 9, 11, 203, 14, 16, 18, 23, 24, 25, 26}
 The mean is : 13.062500
 The standard div is : 35.287159
 "SCHOOL OF LAW (LAW)"
 {0, 1, 3, 5, 231, 8, 9, 75}
 The mean is : 11.482759
 The standard div is : 43.685096
 "QUESTROM SCHOOL OF BUSINESS (QST)"
 {0, 1, 288, 35, 8, 14, 79, 18}
 The mean is : 17.720000
 The standard div is : 57.669763



```

"FIREFWORX Colored Paper"
"OFFICE OF THE UNIV CHAPLAIN"
{0, 5, 9, 14, 16, 49, 23, 26, 29, 222}
The mean is : 21.421053
The standard div is : 49.079223
"QST Copy Center"
{0, 288, 35, 8, 14, 80, 18}
The mean is : 19.260870
The standard div is : 59.934905
"CAS PHYSICS"
{0, 5, 8, 41, 204, 80, 29}
The mean is : 21.588235
The standard div is : 50.119925
"CAS ECONOMICS"
{0}
The mean is : 0.000000
The standard div is : 0.000000
"ATH WOMEN'S SOCCER"
{0, 27, 7}
The mean is : 2.615385
The standard div is : 7.280516

```

