

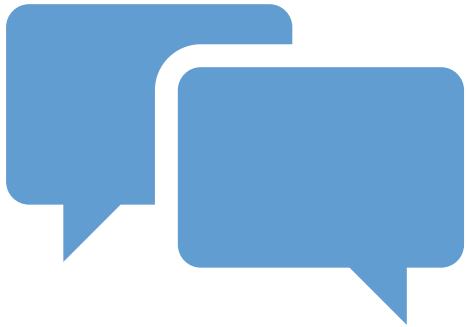


MILOSPORT

MGMT- 582 Management of Organizational Data

Session 2 - Group 2

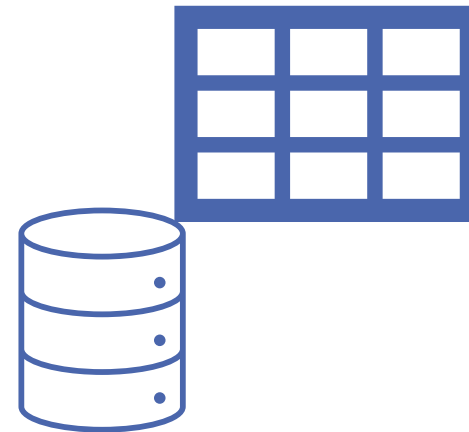
PROCESS FLOW



**BUSINESS
REQUIREMENT**



DATABASE DESIGN



**DATABASE
IMPLEMENTATION**



**INSIGHTS AND
RECOMMENDATIONS**

BACKGROUND

Milosport is Utah's premier speciality retailer for skateboard, snowboard, and lifestyle products.

Milosport operates from three physical locations as well as an online shopping platform and phone ordering service.





PROBLEM STATEMENT

Due to the nature of running an omnichannel retail store, good inventory management is key to reducing unnecessary costs and improving inventory turnaround.

Our goal is to create an efficient inventory management database system to maximize profit.

DATA REQUIREMENT



Product

The product dataset contains information on SKUID, title, price, cost of purchase of each product as well as inventory quantities available in stock.



Order

The orders dataset contains information of the order ID, basket value and date of each order.



Customer

The customer dataset contains information on each customer including the Customer ID, Name, as well as the contact information.



Promotion

The promotion dataset contains information on the promotion ID as well as the corresponding Start and End date for each promotion type.



Supplier

The supplier dataset contains information on the supplier ID, supplier name, manufacturing location and contact information.



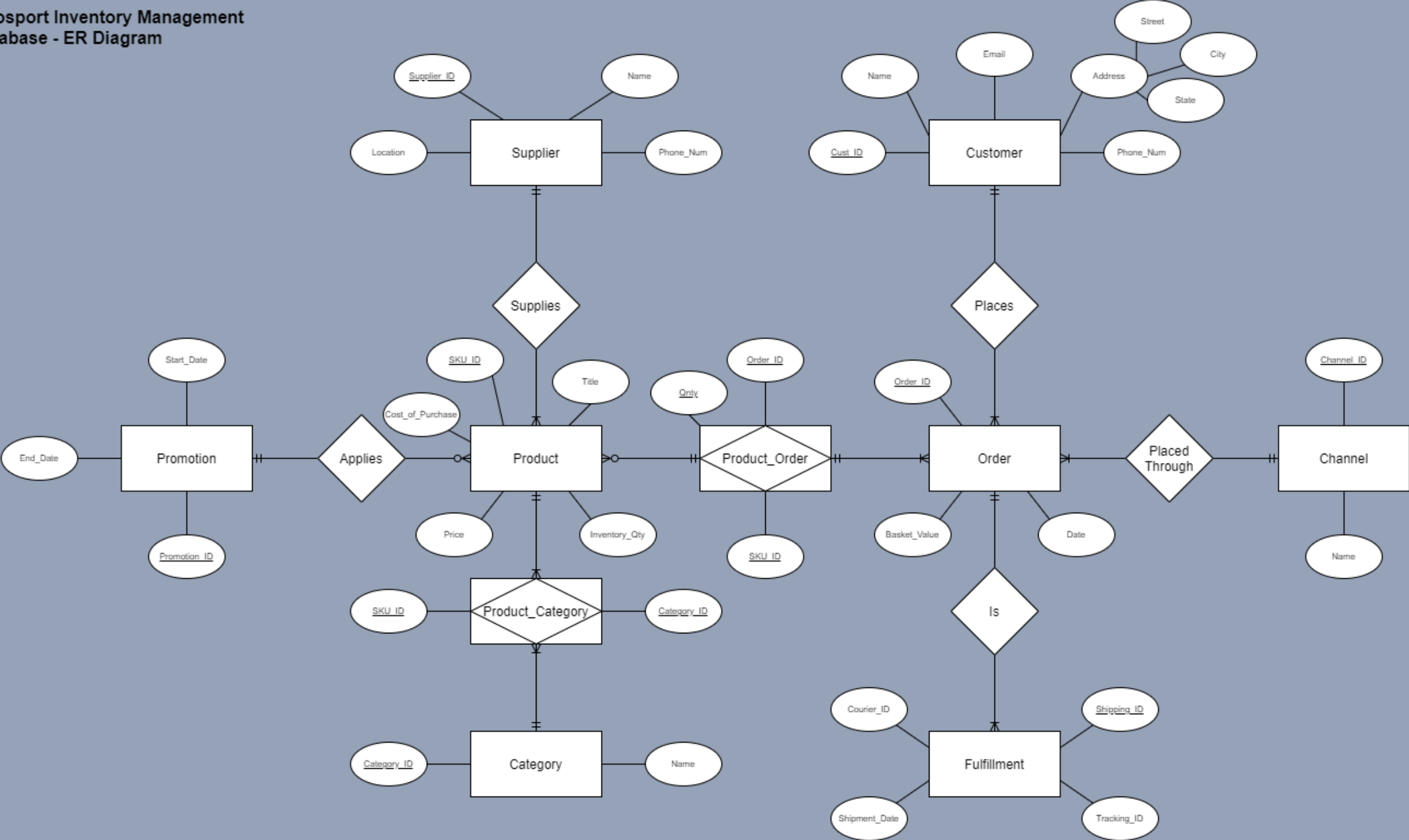
Fulfilment

The fulfillment dataset contains information on the shipping ID for each order, as well as the tracking ID, shipping date and courier information



ENTITY RELATIONSHIP DIAGRAM

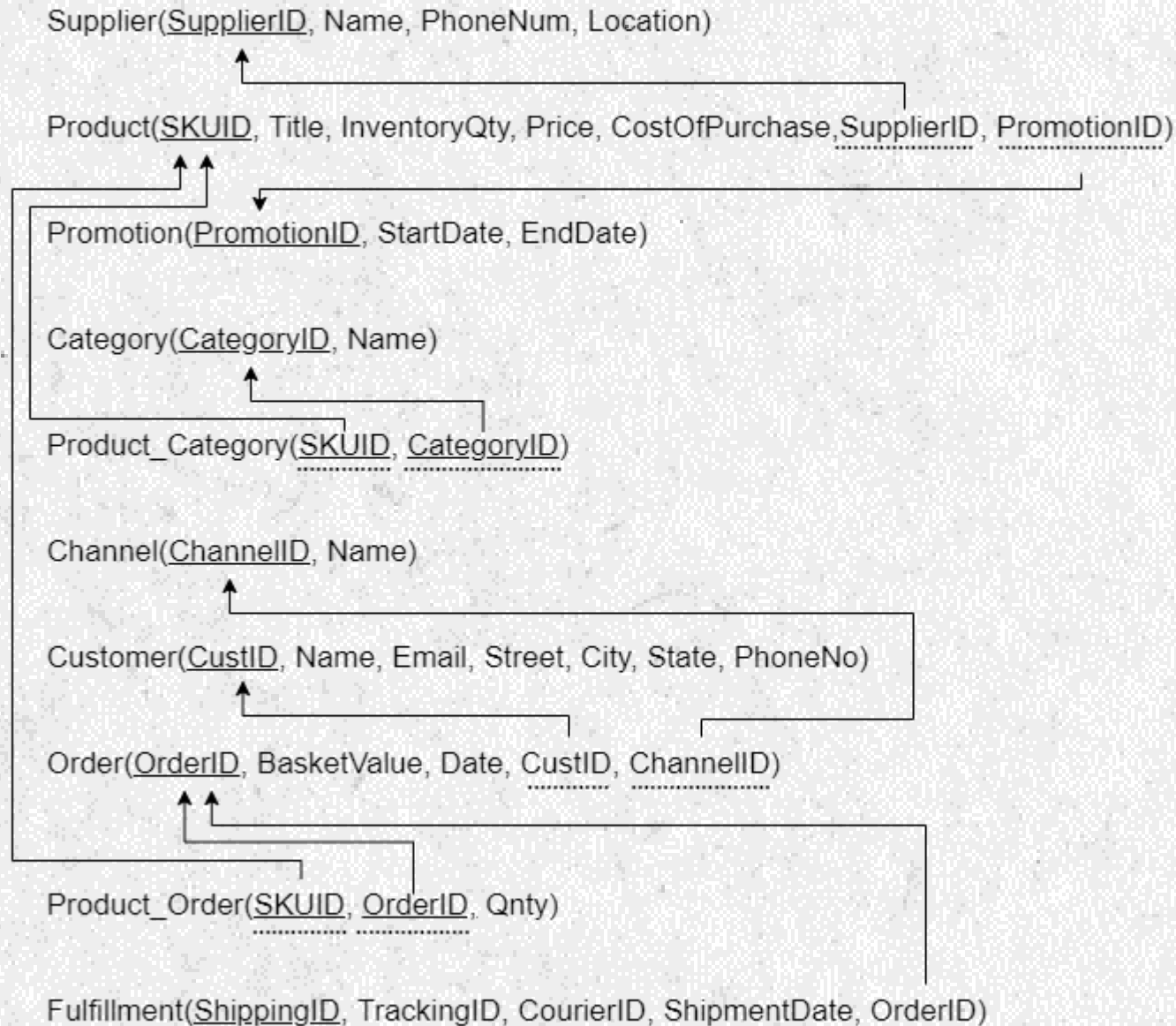
Milosport Inventory Management
Database - ER Diagram



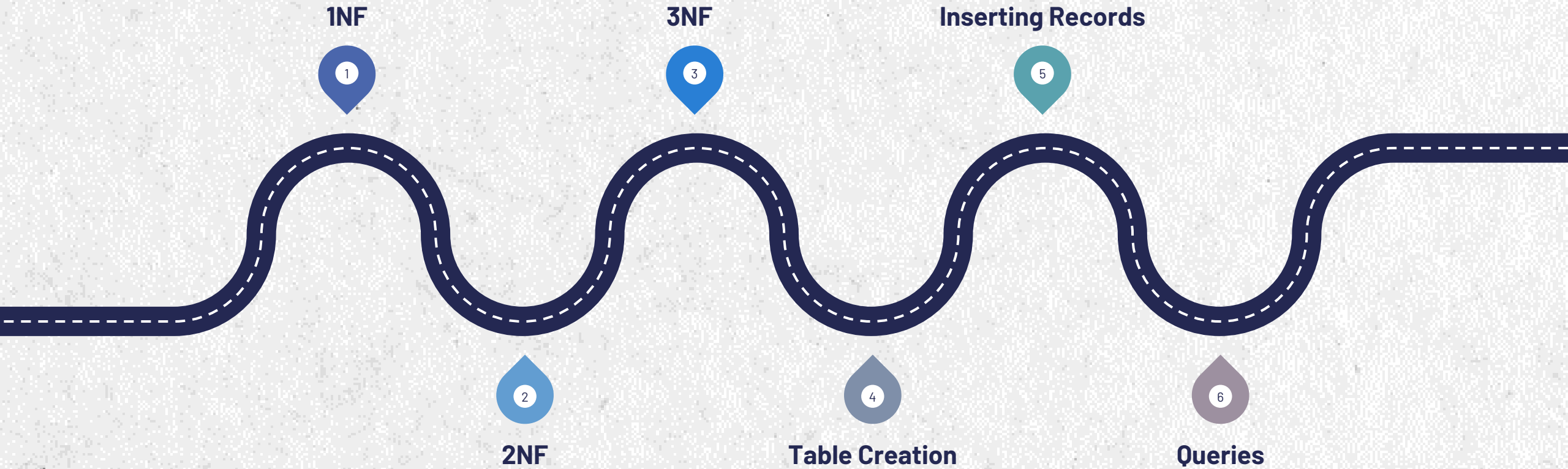


RELATIONAL SCHEMA

RELATIONAL SCHEMA



NORMALIZATION



BEFORE NORMALIZATION

	A	B	D	E	F	G	H	I	J	K
1	Handle	Title	Vendor	Standard Product Type	Custom Product Type	Tags	Published	Option1 N	Option1 V	Option1 O
2	2022-vans-womens-be-good-t-shirt-in-sandshell	2022 Vans Womens Be Good T Shirt in Sandshell	Vans		Womens	2022, apparel, be good, s	FALSE	Size	XXS	
3	2022-vans-womens-be-good-t-shirt-in-sandshell								XS	
4	2022-vans-womens-be-good-t-shirt-in-sandshell								S	
5	2022-vans-womens-be-good-t-shirt-in-sandshell								M	
6	2022-vans-womens-be-good-t-shirt-in-sandshell								L	
7	2022-vans-womens-be-good-t-shirt-in-sandshell								XL	
8	2022-vans-womens-be-good-t-shirt-in-sandshell								XXL	
9	2022-vans-womens-midland-zip-sherpa-in-black	2022 Vans Womens Midland Zip Sherpa in Black	Vans		Womens	2022, apparel, midland, s	FALSE	Size	XXS	
10	2022-vans-womens-midland-zip-sherpa-in-black								XS	
11	2022-vans-womens-midland-zip-sherpa-in-black								S	
12	2022-vans-womens-midland-zip-sherpa-in-black								M	
13	2022-vans-womens-midland-zip-sherpa-in-black								L	
14	2022-vans-womens-midland-zip-sherpa-in-black								XL	
15	2022-vans-womens-midland-zip-sherpa-in-black								XXL	
16	2022-vans-womens-emma-sherpa-jacket-in-natu	2022 Vans Womens Emma Sherpa Jacket in Natur	Vans		Womens	2022, apparel, emma, snc	FALSE	Size	XXS	
17	2022-vans-womens-emma-sherpa-jacket-in-natural								XS	
18	2022-vans-womens-emma-sherpa-jacket-in-natural								S	
19	2022-vans-womens-emma-sherpa-jacket-in-natural								M	
20	2022-vans-womens-emma-sherpa-jacket-in-natural								L	

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
1	Name	Email	Financial S	Paid at	Fulfillment	Fulfilled at	Accepts M	Currency	Subtotal	Shipping	Taxes	Total	Discount C	Discount A	Shipping N	Created at	Lineitem c	Lineitem n	Lineitem g	Lineitem c	Lineitem s	Lineitem r	Lineitem t	Lineitem f
2	MILO32325		paid	#####	fulfilled	#####	no	USD	24.99	0	1.81	26.8			0	#####	1 2022 Stan	24.99				TRUE	TRUE	fulfilled
3	MILO32324		paid	#####	fulfilled	#####	no	USD	70	0	5.08	75.08			0	#####	1 2022 Volce	70				TRUE	TRUE	fulfilled
4	MILO32323		paid	#####	fulfilled	#####	no	USD	339.95	0	24.65	364.6			0	#####	1 2022 Nitro	339.95				TRUE	TRUE	fulfilled
5	MILO32322		paid	#####	fulfilled	#####	no	USD	13.99	0	1.01	15			0	#####	1 2022 Beav	13.99				TRUE	TRUE	fulfilled
6	MILO32321		paid	#####	fulfilled	#####	no	USD	175.95	0	12.76	188.71			7	#####	1 Milosport	44.99				TRUE	TRUE	fulfilled
7	MILO32321															#####	1 Independe	49.99			20193177	TRUE	TRUE	fulfilled
8	MILO32321															#####	1 Bones Sup	29.99			20191286	TRUE	TRUE	fulfilled
9	MILO32321															#####	1 Slime Balls	39.99				TRUE	TRUE	fulfilled
10	MILO32321															#####	1 Shake Junt	13.99				TRUE	TRUE	fulfilled
11	MILO32321															#####	1 Milosport	4				TRUE	TRUE	fulfilled
12	MILO32323	olynn.ellic	paid	#####	fulfilled	#####	no	USD	150	0	0	150			0	#####	1 Gift Card f	150			20193192	FALSE	FALSE	fulfilled
13	MILO32319		paid	#####	fulfilled	#####	no	USD	260	0	18.85	278.85			0	#####	2 Milosport	130				FALSE	TRUE	fulfilled

AFTER NORMALIZATION

Product

	B	C	D	E	F	G	H
1	skuld	title	inventoryQty	price	costPurchase	supplierId	promotionId
2	m2019036800	21/22 Consignment Salomon Hologram Size Medium- Vincas	1	220		100001	HOMESALE
3	m912840048	Thrasher Mag December Issue	9	4.99	2.5	100001	HOMESALE
4	m2019036797	Dang Shades Plz Logo Beanie - Green	2	22	11	100002	STAYWARM
5	m2019036798	Dang Shades Plz Logo Beanie - Black	2	22	11	100002	STAYWARM
6	m2019036799	Dang Shades Plz Logo Beanie - Orange	2	22	11	100002	STAYWARM
7	m2019036793	Converse Short Sleeve Tee in Black - S	0	24.99		100003	
8	m2019036794	Converse Short Sleeve Tee in Black - M	0	24.99		100003	
9	m2019036795	Converse Short Sleeve Tee in Black - L	0	24.99		100003	
10	m2019036796	Converse Short Sleeve Tee in Black - XL	0	24.99		100003	

Promotion

	A	B	C	D	E
1	promotionID	startDate	endDate	discount	Description
2	SHOEVOW	10/1/2021	1/1/2022	40	shoe sale
3	NEWSEASON	10/1/2021	10/31/2021	10	
4	STAYWARM	10/1/2021	10/15/2021	15	on clothing
5	STOCKOUT	10/1/2021	11/15/2021	25	
6	PINK	10/1/2021	10/31/2021	5	all items that are pink
7	HOMESALE	10/1/2021	10/31/2021	5	MILOSPORT products

Supplier

	A	B	C	D	E	F	G
1	SupplierID	SupplierName	PhoneNum	Street	City	State	Zip Code
2	100001	MILOSPORT	+1 216-331-6958	2 North Bellevue Road	Bensalem	PA	19020
3	100002	Dang Shades	+1 505-619-3133	999 Ramblewood Lane	Gloucester	MA	1930
4	100003	Converse	+1 203-602-9124	7195 Constitution Rd.	Griffin	GA	30223
5	100004	The Bomb Hole	+1 240-608-0892	34 East Clark Drive	Fremont	OH	43420
6	100005	Vans	+1 239-592-2529	889 N. Tallwood Ave.	Huntington	NY	11743
7	100006	Consignment	+1 582-302-8293	8963 S. Cherry Hill Court	Upper Marlboro	MD	20772
8	100007	Korua	+1 205-267-8085	919 Cleveland Lane	New Rochelle	NY	10801
9	100008	Salmon Arms	+1 570-227-0111	7010 SW. Pearl St.	Palm City	FL	34990
10	100009	Dickies	+1 505-644-3895	9177 Carriage St.	Highland	IN	46322

Fulfillment

	A	B	C	D	E
1	OrderID	ShippingID	TrackingID	CourierID	ShipmentDate
2	o4099965419654	96541038600395	103860039520256	USPS_01	10/31/2021 18:12
3	o4099959455878	5878906266665	90626666596353	UPS_02	10/31/2021 18:07
4	o4099920330886	8865333924941	533392494192645	USPS_01	10/31/2021 17:39
5	o4099852664966	49663017642907	301764290797575	USPS_01	10/31/2021 16:41
6	o4099835953286	32867593048911	759304891136010	USPS_01	10/31/2021 16:28
7	o4099814981766	17665557343785	555734378555403	USPS_01	10/31/2021 16:11
8	o4099811704966	49661538516242	153851624275980	USPS_01	10/31/2021 16:09
9	o4099806986374	63748722631475	872263147511822	USPS_01	10/31/2021 16:05
10	o4099776053382	33821479691003	147969100320783	USPS_01	10/31/2021 15:39

Category

	A	B
1	Category_ID	Category Name
2	001AC	Accessories
3	001BA	Bags and Luggage
4	001BN	Beanie
5	001BE	Bearings
6	001CO	Consignment
7	001CU	Custom Bundle
8	001GI	Gift Card
9	001JA	Jackets

Channel

	A	B
1	ChannelID	Name
2	100	Web
3	200	Store
4	300	Phone

INSIGHTS

Profit

- ▶ Most profitable categories
- ▶ Most profitable business partners
- ▶ Basket value analysis
- ▶ Most important states/cities

Cost

- ▶ Promoting old items
- ▶ High end products
- ▶ Channels preferred by customers

Opportunities

- ▶ Out of stock items
- ▶ Possible expansion of business
- ▶ Most used fulfillment channel

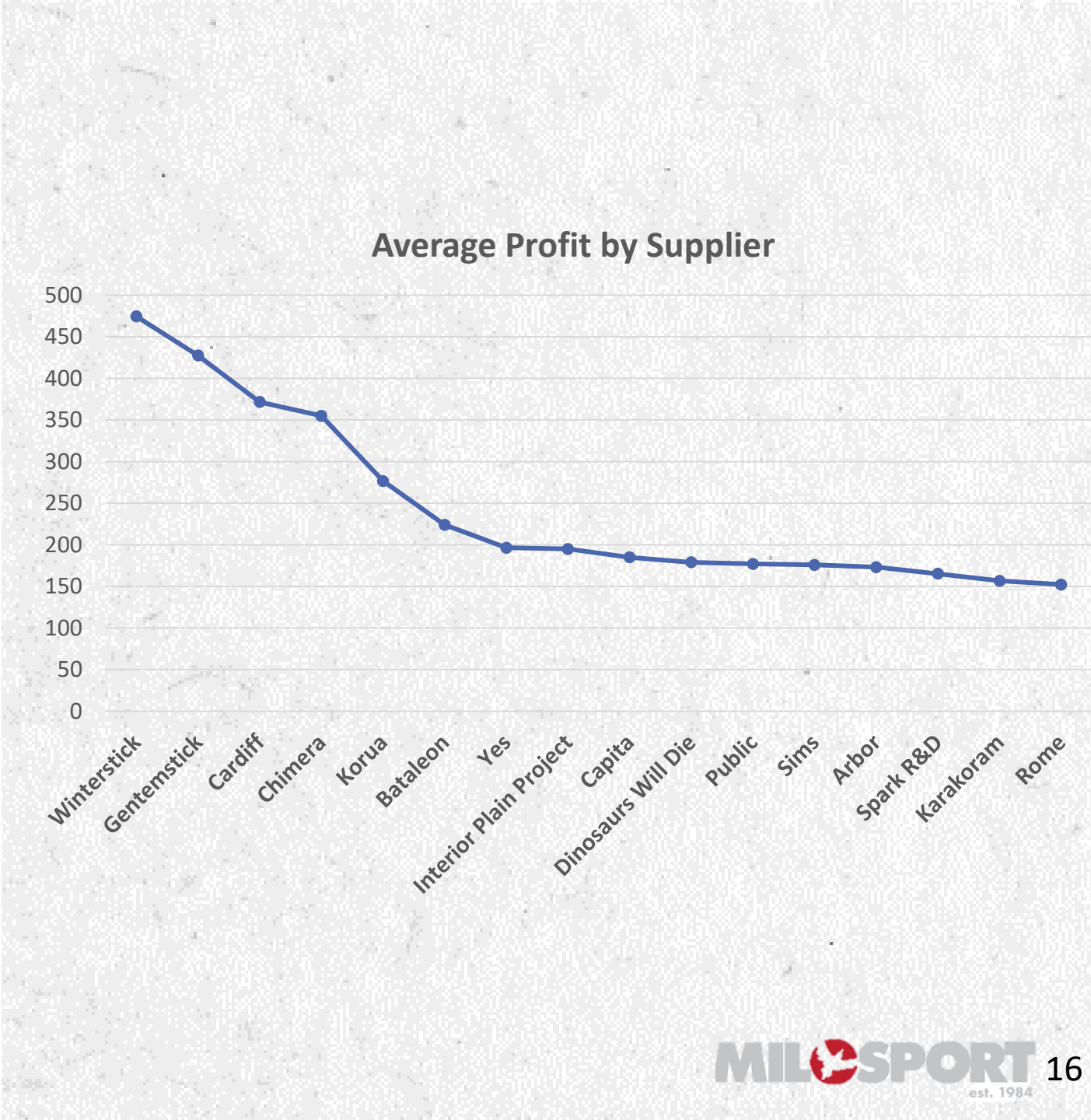


AGING STOCK

SKU	Title	Inventory Qty	Price
m2019031485	2020 Brighton Weekday Only No Holiday Day Pass	18	84
m2019031486	2020 Brighton Weekend/Holiday Day Pass	16	89
m2120000092468	2020 Mountain Cleats Plastic Splitboard Skeats	9	35
m2019031487	2020 Brighton Adult Night Pass	8	37
m610934187809	2020 Dakine Pyramid Studs in Black	6	11.99
m2019031336	2020 Hand Out Sport Mittens Black/Grey - L	5	75
m793661338659	2020 Black Diamond Spark Mitts in Smoke - XL	5	79.99
m2100000156849	2019 Volcom Woolcott Beanie in Black	5	20

AVERAGE PROFIT BY SUPPLIER

This query calculates the average profit per supplier by subtracting the cost of purchase for each product from the selling price. This helps in identifying the company's most profitable partners to target possible expansion of business with these suppliers.



MOST PROFITABLE CATEGORIES (TOP 5)

Profitable categories help provide insights into product selection that are more likely to generate higher profits.

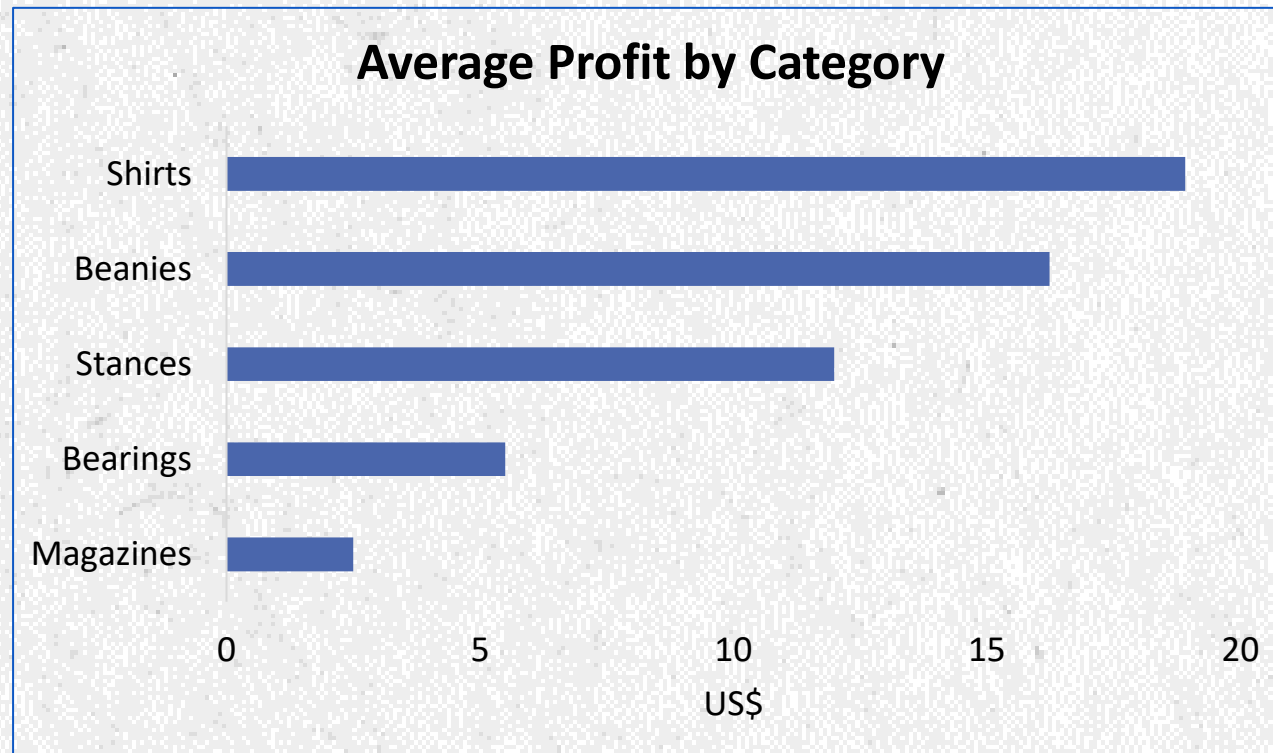
The company can put in more marketing effort to increase turnover in those categories.



Product Type	Category Name	Average Profit by Category
001GI	Gift_Card	378.75
001CO	Consignment	180.63
001CU	Custom Bundle	84.48
001JA	Jackets	82.25
001WO	Women	81.79

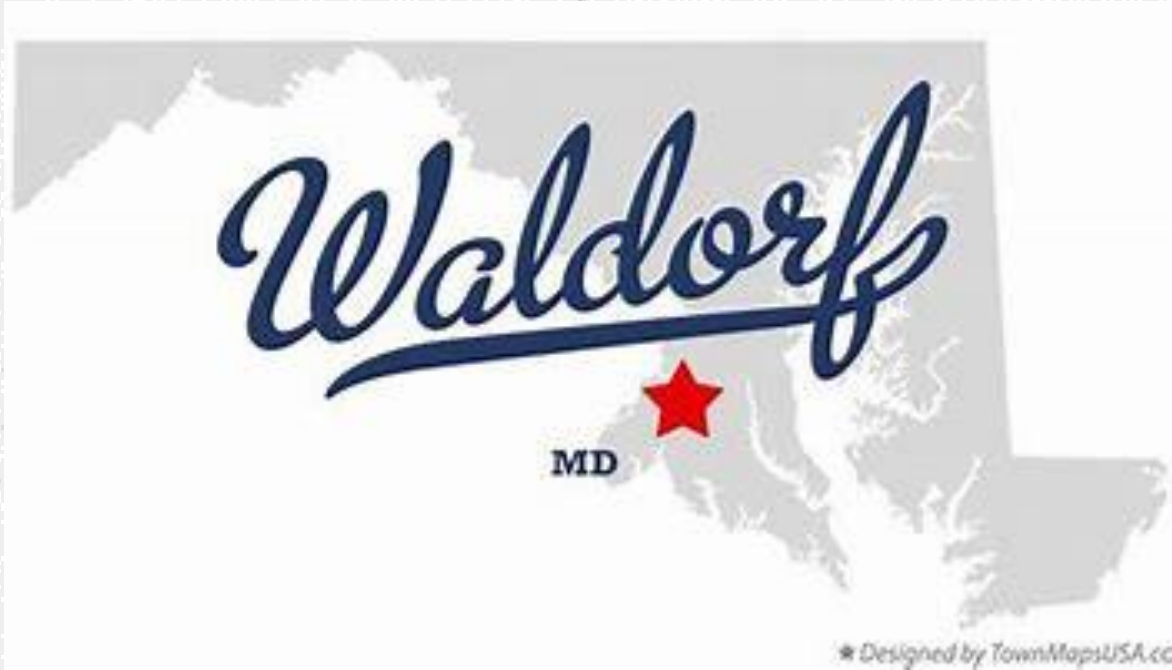
LEAST PROFITABLE CATEGORIES (BOTTOM 5)

The result of the query helps identify the least profitable product categories. For these categories, Milosport needs to increase their demand to generate more profits in dollars. Bundling products from other categories is one way to drive sales.



CITY WITH HIGHEST ORDERS

The results show that Waldorf, Maryland will be the best city for possible expansion as it contains the highest number of orders compared to other cities.



State	City	OrderperCity
MD	Waldorf	157
NC	New Bern	11
NY	Middle Village	8

MOST USED FULFILLMENT CHANNEL

The result shows that USPS is the most used courier service and therefore we recommend it as a good candidate for a prolonged contract as well as negotiation for reduced delivery rates.



Courier ID	Total orders
USPS_01	599
UPS_02	328

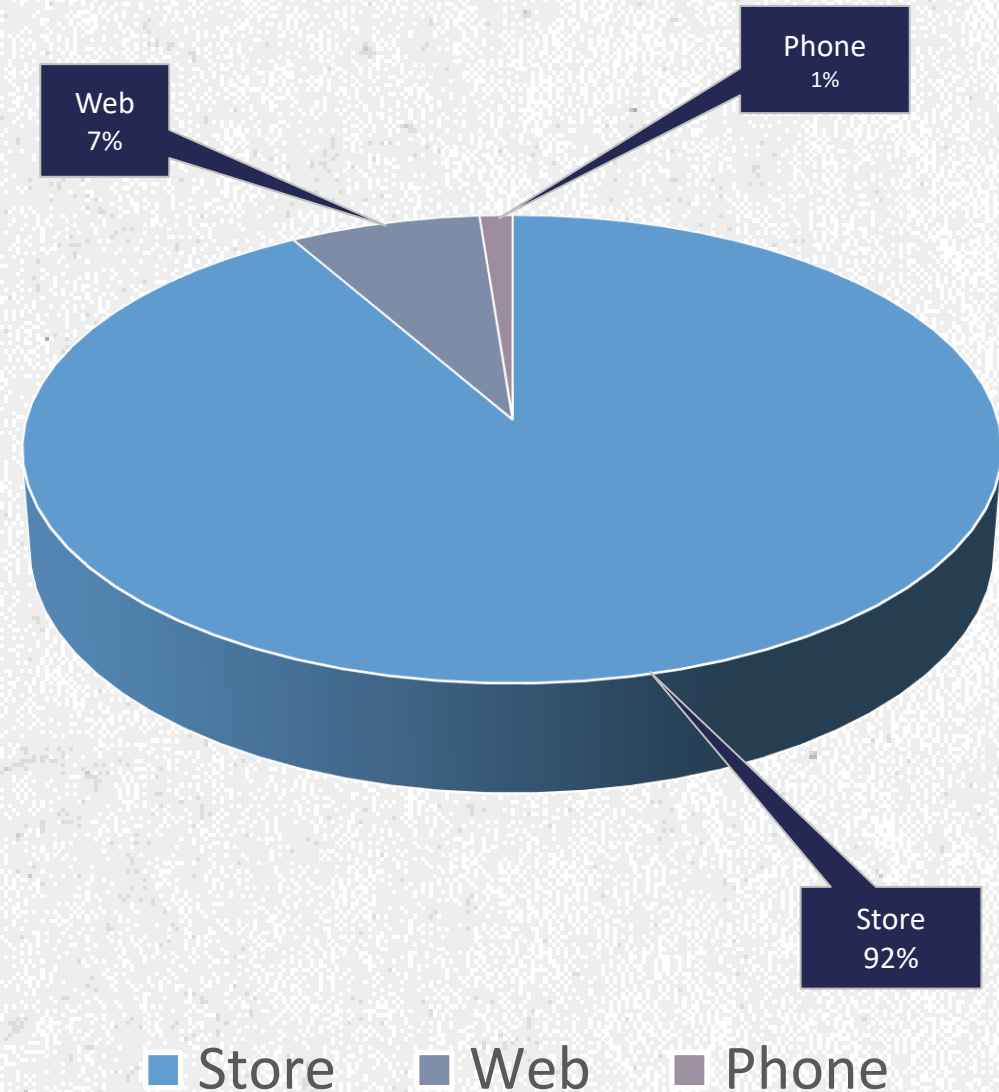
TOP SELLING PRODUCTS

SKUID	Title	Quantity
m195436427214	Vans Sycamore Flannel Shirt in Black and Pomegranate - L	4
m806810984017	Arcade Jessup Suspenders in Black	4
m2019036526	Milosport Screen Printed Kicks Skateboard Deck in Black/Assorted Veneers - 8.5"	3
m2019036545	Lakai Evo 2.0 Skate Shoe in Navy and Cream Suede - Mens 12	3
m816235020740	2022 Crab Grab Binding Bag in Red	2
m8720246014105	2022 Rome Crux Snowboard Binding in Black - LXL	2
m2019034903	Jessup Grip 9x33 Sheet in red	2
m195438328663	Vans Skate Half Cab '92 Reynolds - Mens 11	2
m2019036758	Vans Skate Kyle Walker in Navy and Gold - 9	2
m195437425912	Vans Tyson Peterson Dog Off Tee in Antique White - Medium	2

VOLUME PER CHANNEL

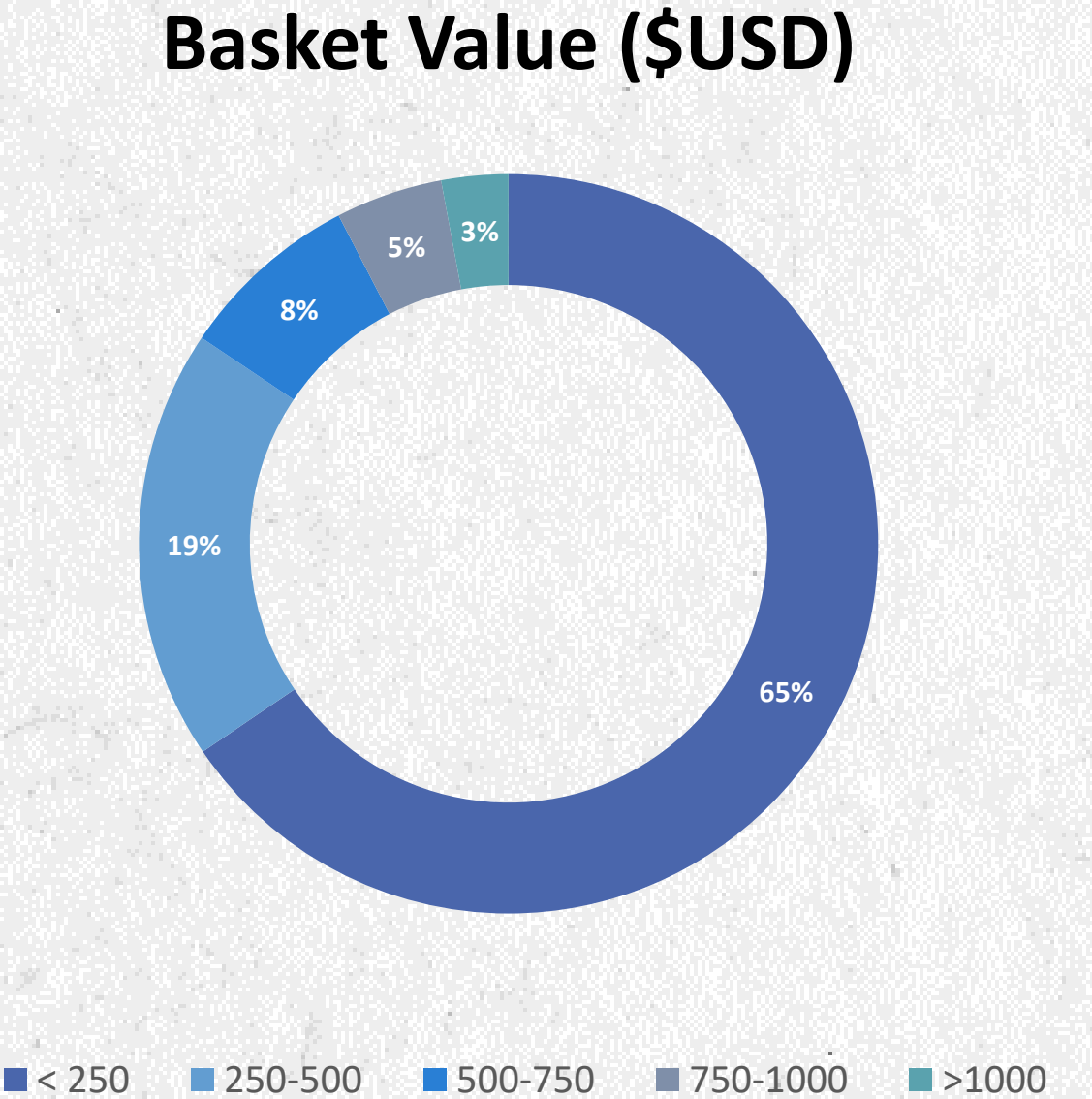
The result of this query shows that the in-store channel is the most frequented channel.

We understand that in spite of having a website, it is under-utilized and we can run a few promotional programs to drive more traffic online.



BASKET VALUE ANALYSIS

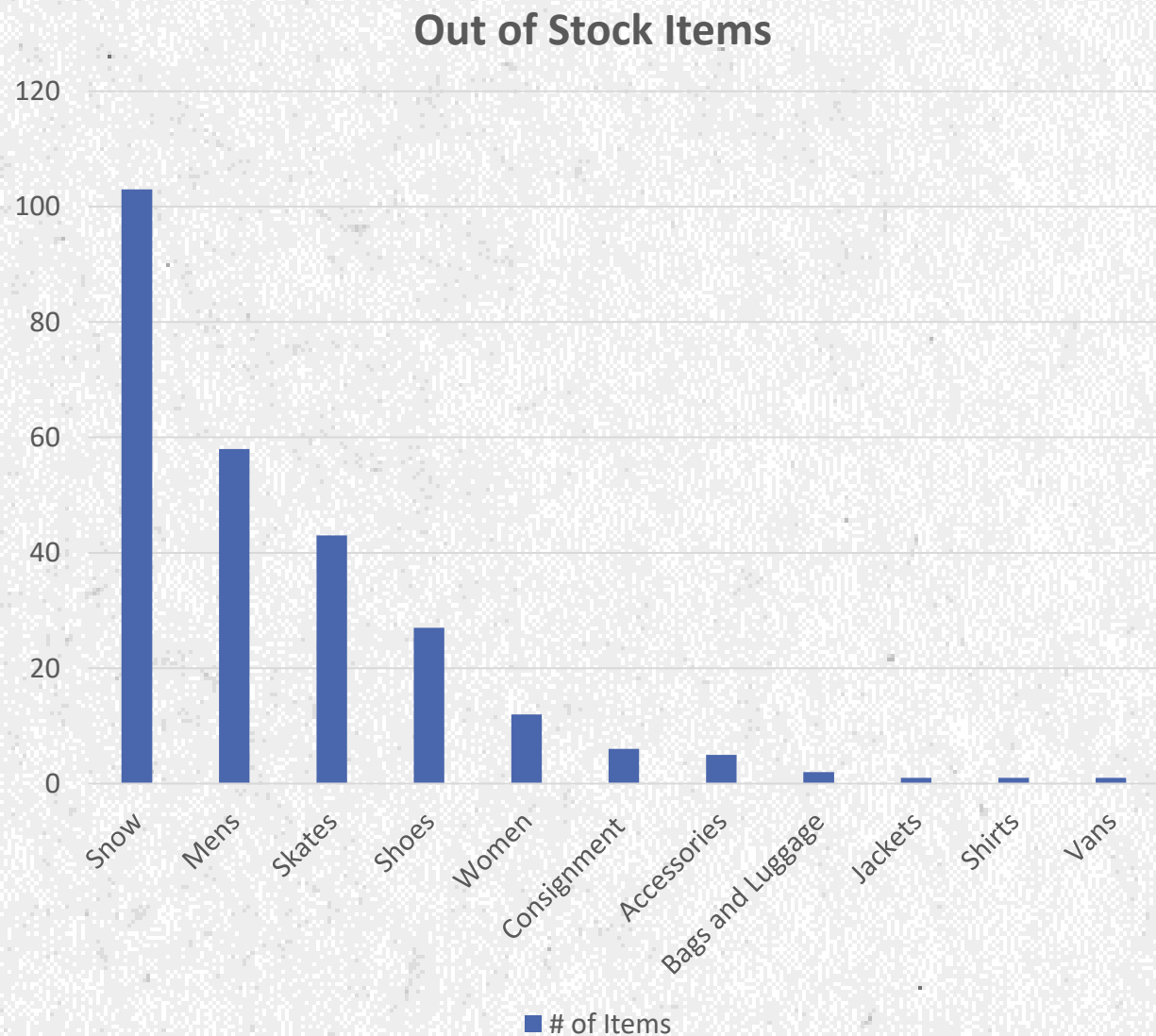
This query resulted in placing the basket values for the orders in 5 different buckets. Because a vast majority of the orders are less than \$250, there is an opportunity for MILOSPORT to increase the value of sales by offering promotions on large orders (i.e. greater than \$250).



OUT OF STOCK ITEMS BY CATEGORY

The results highlight the number of products on the website that have zero inventory. It is evident from the data that 'snow' and 'skates' items are seasonal in nature and thus they have low stocks currently.

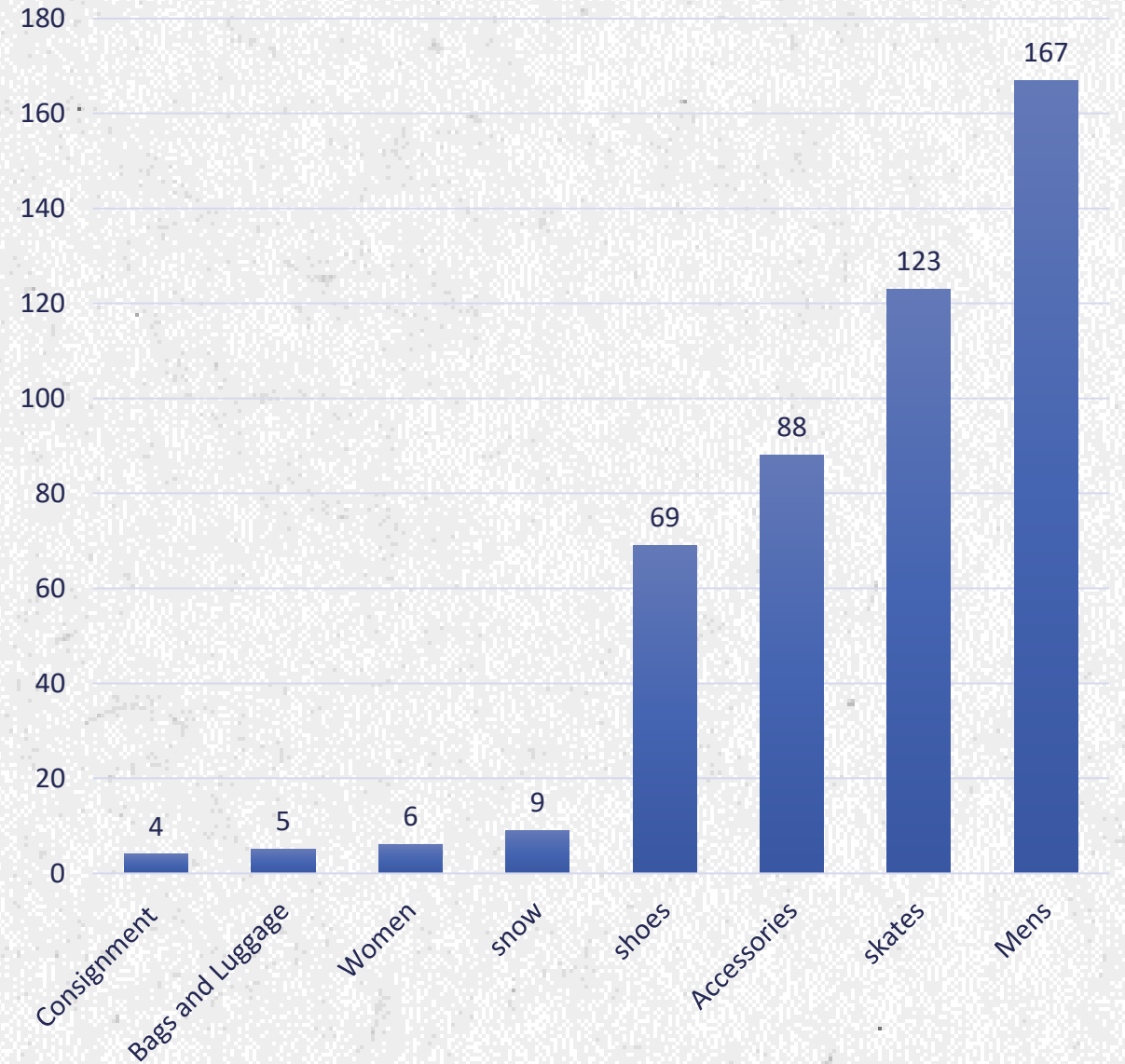
Based on that, we recommend that Milosport watch the 'mens' and 'shoes' categories to ensure that there are no shortages for high selling items.



LOW INVENTORY FOR ITEMS UNDER PROMOTION

This view helps us to identify the categories that need immediate replenishment.

By tracking the rate of inventory change, we can understand the velocity and throughput for different categories, allowing better planning.





**BUSINESS
RECOMMENDATIONS**

BUSINESS RECOMMENDATIONS

Recommendation 1

With the information for top selling products, it is recommended that the inventory for these products should be planned ahead both seasonally and annually to avoid stockouts.

Recommendation 3

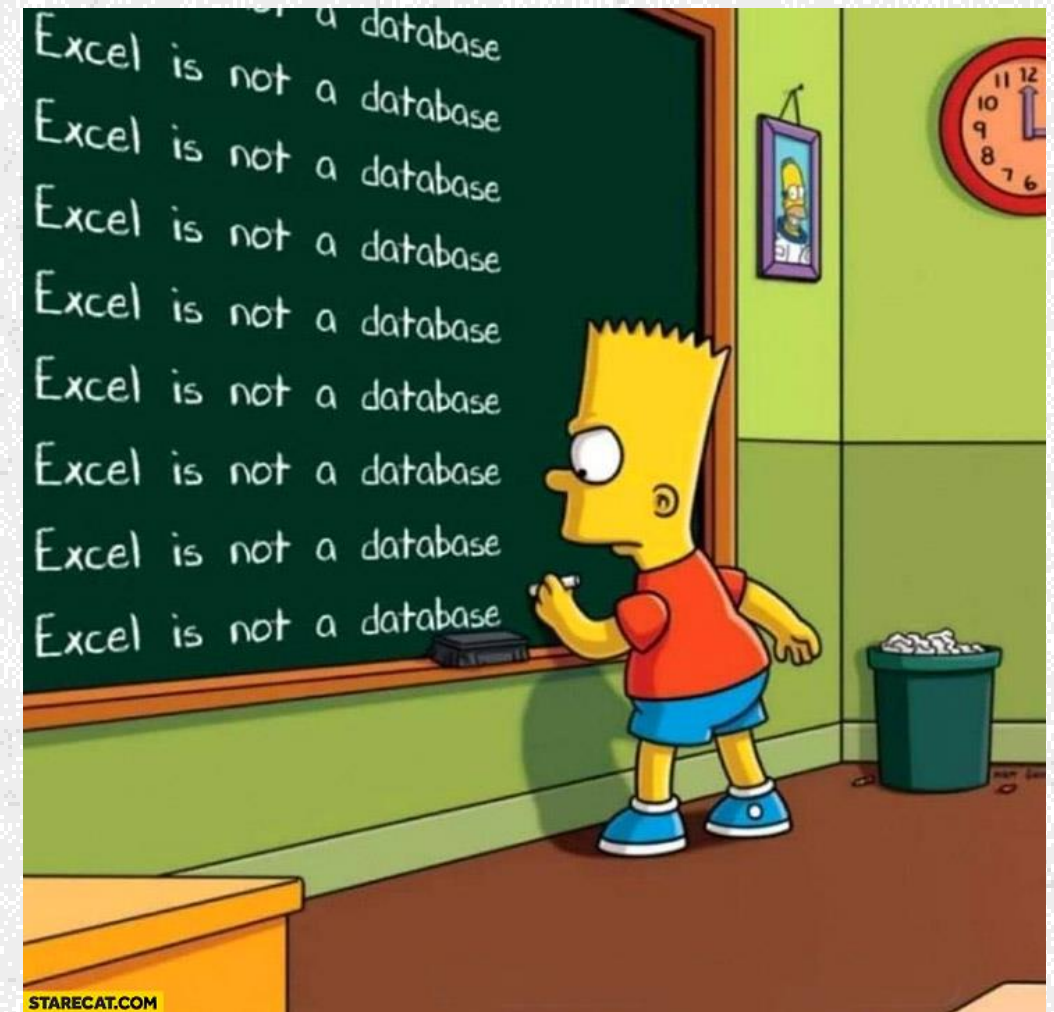
The city Waldorf in Maryland contains the highest number of orders. Therefore, we suggest possible expansion of the business in this city in terms of an outlet center or a new branch of the store.

Recommendation 2

Optimization of the website is highly recommended to drive more traffic and create an omni-channel experience. Milosport can run promotions on its website and provide differential discounts on total basket value. This will help bring in new customers and will help increase basket value.

Recommendation 4

Currently, most of the orders are fulfilled through USPS. With that, it is recommended to negotiate reduced delivery rates with USPS as a preferred fulfillment service provider.



<https://www.milosport.com/>