Nama: Muhammad Musa Ibrahim

Nrp: 2C2230002

Mata Kuliah : Visualisasi data

### Tugas P2 – PRAKTIKUM VISUALISASI DATA

### Tabel trend Penjualan berdasarkan data tahunan

							Order	Date					
Year of O	rd	January	February	March	April	May	June	July	August	Septem	October	Novem	Decemb
2012	% Difference in Sales fro												
	Sales	98.898	103.718	135.746	114.333	158.228	207.572	118.435	208.063	284.588	216.115	293.947	319.80
2013	% Difference in Sales fro	38,97%	-4,69%	20,13%	40,86%	31,69%	23,42%	22,63%	45,70%	1,69%	17,04%	10,06%	5,779
	Sales	137.436	98.855	163.077	161.052	208.365	256.176	145.237	303.143	289.389	252.940	323.512	338.25
2014	% Difference in Sales fro	44,93%	69,18%	21,78%	10,41%	25,02%	54,78%	58,31%	7,70%	30,14%	16,00%	15,60%	19,879
	Sales	199.186	167.240	198.594	177.821	260.499	396.520	229.929	326.489	376.619	293.407	373.989	405.45
2015	% Difference in Sales fro	21,13%	10,52%	32,48%	36,53%	10,71%	1,34%	12,52%	39,86%	27,76%	44,09%	48,47%	24,099
	Sales	241.269	184.837	263.101	242.772	288.401	401.814	258.706	456.620	481.157	422.767	555.279	503.14

### **Data Profit dari setiap category**

					Order	Date				
		203	12	201	.3	20	14	20	15	
Month of O	Category	% Diffe	Sales	% Diffe	Sales	% Diffe	Sales	% Diffe	Sales	
January	Furniture		34.464	24,08%	42.761	91,31%	81.805	-14,68%	69.799	
	Office Supplies		33.527	40,97%	47.264	37,49%	64.984	17,96%	76.654	
	Technology		30.908	53,39%	47.411	10,52%	52.398	80,95%	94.815	
February	Furniture		35.799	5,13%	37.635	57,08%	59.118	-2,39%	57.703	
	Office Supplies		26.135	-7,03%	24.297	112,17%	51.553	7,04%	55.184	
	Technology		41.784	-11,63%	36.922	53,21%	56.569	27,19%	71.951	
March	Furniture		40.277	36,76%	55.082	18,59%	65.323	37,33%	89.705	
	Office Supplies		31.579	70,12%	53.721	15,43%	62.008	25,11%	77.576	
	Technology		63.891	-15,05%	54.273	31,30%	71.263	34,46%	95.819	
April	Furniture		30.690	78,24%	54.702	-0,21%	54.587	29,24%	70.551	
	Office Supplies		45.563	-3,68%	43.886	27,07%	55.766	45,92%	81.372	
	Technology		38.081	64,03%	62.464	8,01%	67.469	34,65%	90.849	
May	Furniture		49.769	26,46%	62.939	18,16%	74.371	32,19%	98.312	
	Office Supplies		49.731	22,79%	61.063	22,42%	74.756	31,06%	97.975	
	Technology		58.728	43,65%	84.363	32,02%	111.372	-17,29%	92.114	
June	Furniture		76.585	6,39%	81.481	41,45%	115.251	18,11%	136.123	
	Office Supplies		61.793	22,74%	75.846	46,99%	111.489	7,94%	120.340	
	Technology		69.194	42,86%	98.849	71,76%	169.780	-14,39%	145.351	

				Order	Date			
		2012	20	13	20	14	20	15
Month of 0	Category	% Diffe Sales	% Diffe	Sales	% Diffe	Sales	% Diffe	Sales
July	Furniture	31.383	32,21%	41.491	73,18%	71.854	14,60%	82.344
	Office Supplies	42.807	8,27%	46.346	51,66%	70.291	9,50%	76.971
	Technology	44.245	29,73%	57.399	52,94%	87.784	13,22%	99.390
August	Furniture	68.000	24,48%	84.644	32,67%	112.296	12,46%	126.284
	Office Supplies	58.390	66,57%	97.260	-4,23%	93.150	66,86%	155.431
	Technology	81.673	48,44%	121.239	-0,16%	121.043	44,50%	174.905
September	Furniture	93.934	2,38%	96.166	32,79%	127.701	37,65%	175.777
	Office Supplies	99.987	-21,15%	78.844	40,48%	110.762	21,33%	134.387
	Technology	90.667	26,15%	114.379	20,79%	138.157	23,77%	170.994
October	Furniture	79.094	7,24%	84.824	5,30%	89.319	46,33%	130.701
	Office Supplies	55.700	6,61%	59.383	30,33%	77.393	49,59%	115.771
	Technology	81.320	33,71%	108.733	16,52%	126.695	39,15%	176.295
November	Furniture	96.558	24,57%	120.279	2,10%	122.803	37,50%	168.849
	Office Supplies	88.080	13,56%	100.020	10,71%	110.736	47,97%	163.851
	Technology	109.309	-5,58%	103.214	36,08%	140.451	58,47%	222.579
December	Furniture	119.531	-19,00%	96.817	47,91%	143.203	19,95%	171.768
	Office Supplies	82.424	30,11%	107.244	19,28%	127.926	17,47%	150.279
	Technology	117.852	13,87%	134.196	0,10%	134.325	34,82%	181.097

# Hasil dari visualisasi bahwa kolom yang berwarna Orange memiliki profit yang paling rendah

					Orde	r Date				
		201	2	201	L3	20:	14	20	15	
Month of 0	Category	% Differ	Sales	% Differ	Sales	% Differ	Sales	% Differ	Sales	
January	Furniture		34.464	24,08%	42.761	91,31%	81.805	-14,68%	69.799	^
	Office Supplies		33.527	40,97%	47.264	37,49%	64.984	17,96%	76.654	
	Technology		30.908	53,39%	47.411	10,52%	52.398	80,95%	94.815	
February	Furniture		35.799	5,13%	37.635	57,08%	59.118	-2,39%	57.703	
	Office Supplies		26.135	-7,03%	24.297	112,17%	51.553	7,04%	55.184	
	Technology		41.784	-11,63%	36.922	53,21%	56.569	27,19%	71.951	
March	Furniture		40.277	36,76%	55.082	18,59%	65.323	37,33%	89.705	
	Office Supplies		31.579	70,12%	53.721	15,43%	62.008	25,11%	77.576	
	Technology		63.891	-15,05%	54.273	31,30%	71.263	34,46%	95.819	
April	Furniture		30.690	78,24%	54.702	-0,21%	54.587	29,24%	70.551	
	Office Supplies		45.563	-3,68%	43.886	27,07%	55.766	45,92%	81.372	
	Technology		38.081	64,03%	62.464	8,01%	67.469	34,65%	90.849	
May	Furniture		49.769	26,46%	62.939	18,16%	74.371	32,19%	98.312	
	Office Supplies		49.731	22,79%	61.063	22,42%	74.756	31,06%	97.975	
	Technology		58.728	43,65%						
June	Furniture		76.585	6,39%	81.481	41,45%	115.251	18,11%	136.123	
	Office Supplies		61.793	22,74%	75.846	46,99%	111.489	7,94%		
	Technology		69.194	42,86%	98.849	71,76%	169.780	-14,39%		v

					Order	Date			
		201	2	20	13	20	14	20:	15
Month of O	Category	% Differ	Sales						
July	Furniture		31.383	32,21%	41.491	73,18%	71.854	14,60%	82.344
	Office Supplies		42.807	8,27%	46.346	51,66%	70.291	9,50%	76.971
	Technology		44.245	29,73%	57.399	52,94%	87.784	13,22%	99.390
August	Furniture		68.000	24,48%	84.644	32,67%	112.296	12,46%	126.284
	Office Supplies		58.390	66,57%		-4,23%	93.150	66,86%	155.431
	Technology		81.673	48,44%	121.239	-0,16%	121.043	44,50%	174.905
September	Furniture		93.934	2,38%	96.166	32,79%	127.701	37,65%	175.777
	Office Supplies		99.987	-21,15%	78.844	40,48%	110.762	21,33%	134.387
	Technology		90.667	26,15%	114.379	20,79%	138.157	23,77%	170.994
October	Furniture		79.094	7,24%	84.824	5,30%	89.319	46,33%	130.701
	Office Supplies		55.700	6,61%	59.383	30,33%	77.393	49,59%	115.771
	Technology		81.320	33,71%	108.733	16,52%	126.695	39,15%	176.295
November	Furniture		96.558	24,57%	120.279	2,10%	122.803	37,50%	168.849
	Office Supplies		88.080	13,56%	100.020			47,97%	163.851
	Technology		109.309	-5,58%	103.214	36,08%	140.451	58,47%	222.579
December	Furniture		119.531	-19,00%	96.817	47,91%	143.203	19,95%	171.768
	Office Supplies		82.424	30,11%	107.244	19,28%	127.926	17,47%	150.279
	Technology		117.852	13,87%	134.196	0,10%	134.325	34,82%	181.097

## Highlight berdasarkan kategori "Furniture "

#### Trend Penjualan (2)

					Orde	Date			
		201	.2	201	.3	20:	14	20:	15
$Month\ of\ O$	Category	Differ	Sales	% Differ	Sales	% Differ	Sales	% Differ	Sales
January	Furniture		34.464	24,08%	42.761	91,31%	81.805	-14,68%	69.799
	Office Supplies								
	Technology								
February	Furniture		35.799	5,13%	37.635	57,08%	59.118	-2,39%	57.703
	Office Supplies								
	Technology								
March	Furniture		40.277	36,76%	55.082	18,59%	65.323	37,33%	89.705
	Office Supplies								
	Technology								
April	Furniture		30.690	78,24%	54.702	-0,21%	54.587	29,24%	70.551
	Office Supplies								
	Technology								
May	Furniture		49.769	26,46%	62.939	18,16%	74.371	32,19%	98.312
	Office Supplies								
	Technology								
June	Furniture		76.585	6,39%	81.481	41,45%	115.251	18,11%	136.123
	Office Supplies								
	Technology								

					Orde	r Date			
		201	L2	20:	13	20:	14	20	15
Month of 0	Category	% Differ	Sales						
July	Furniture		31.383	32,21%	41.491	73,18%	71.854	14,60%	82.344
	Office Supplies								
	Technology								
August	Furniture		68.000	24,48%	84.644	32,67%	112.296	12,46%	126.284
	Office Supplies								
	Technology								
September	Furniture		93.934	2,38%	96.166	32,79%	127.701	37,65%	175.777
	Office Supplies								
	Technology								
October	Furniture		79.094	7,24%	84.824	5,30%	89.319	46,33%	130.701
	Office Supplies								
	Technology								
November	Furniture		96.558	24,57%	120.279	2,10%	122.803	37,50%	168.849
	Office Supplies								
	Technology								
December	Furniture		119.531	-19,00%	96.817	47,91%	143.203	19,95%	171.768
	Office Supplies								
	Technology								

### Highlight berdasarkan kategori " Office Supplies "

### Trend Penjualan (2)

					Orde	r Date			
		201	.2	201	.3	20:	14	20:	15
Month of 0	Category	% Differ	Sales	% Differ	Sales	% Differ	Sales	% Differ	Sales
January	Furniture								
	Office Supplies		33.527	40,97%	47.264	37,49%	64.984	17,96%	76.654
	Technology								
February	Furniture								
	Office Supplies		26.135	-7,03%	24.297	112,17%	51.553	7,04%	55.184
	Technology								
March	Furniture								
	Office Supplies		31.579	70,12%	53.721	15,43%	62.008	25,11%	77.576
	Technology								
April	Furniture								
	Office Supplies		45.563	-3,68%	43.886	27,07%	55.766	45,92%	81.372
	Technology								
May	Furniture								
	Office Supplies		49.731	22,79%	61.063	22,42%	74.756	31,06%	97.975
	Technology								
June	Furniture								
	Office Supplies		61.793	22,74%	75.846	46,99%	111.489	7,94%	120.340
	Technology			42,86%	98.849	71,76%	169.780	-14,39%	145.351

					Orde	r Date				
		201	2	20:	13	20	14	20	15	
Month of 0	Category	% Differ	Sales	% Differ	Sales	% Differ	Sales	% Differ	Sales	
July	Furniture									^
	Office Supplies		42.807	8,27%	46.346	51,66%	70.291	9,50%	76.971	
	Technology									
August	Furniture									
	Office Supplies		58.390	66,57%		-4,23%	93.150	66,86%	155.431	
	Technology									
September	Furniture									
	Office Supplies		99.987	-21,15%	78.844	40,48%	110.762	21,33%	134.387	
	Technology									
October	Furniture									
	Office Supplies		55.700	6,61%	59.383	30,33%	77.393	49,59%	115.771	
	Technology									
November	Furniture									
	Office Supplies		88.080	13,56%	100.020	10,71%	110.736	47,97%	163.851	
	Technology							58,47%	222.579	
December	Furniture									
	Office Supplies		82.424	30,11%	107.244	19,28%	127.926	17,47%	150.279	
	Technology			13,87%	134.196	0,10%	134.325	34,82%		

### Highlight berdasarkan kategori "Thechnology"

Trend Penjualan (2) Order Date 2012 2013 2014 2015 Month of O.. Category % Differ.. Sales % Differ.. Sales % Differ.. Sales % Differ.. January Furniture Office Supplies Technology 30.908 53,39% 47.411 10,52% 52.398 80,95% February Furniture Office Supplies Technology 41.784 -11,63% 36.922 53,21% 56.569 27,19% 71.951 March Furniture Office Supplies Technology 63.891 -15,05% 54.273 31,30% 71.263 34,46% April Office Supplies 38.081 64,03% 62.464 8,01% 67.469 34,65% 90.849 Technology Furniture Office Supplies 58.728 43,65% 84.363 32,02% 111.372 -17,29% 92.114 Technology Furniture Office Supplies 69.194 42,86% 98.849 71,76% 169.780 -14,39% 145.351

					Orde	r Date				
		201	2	20:	13	20	14	20:	15	
Month of O	Category	% Differ	Sales							
July	Furniture									^
	Office Supplies									
	Technology		44.245	29,73%	57.399	52,94%	87.784	13,22%	99.390	
August	Furniture									
	Office Supplies									
	Technology		81.673	48,44%	121.239		121.043	44,50%	174.905	
September	Furniture									
	Office Supplies									
	Technology		90.667	26,15%	114.379	20,79%	138.157	23,77%	170.994	L
October	Furniture									
	Office Supplies									
	Technology		81.320	33,71%		16,52%	126.695	39,15%	176.295	
November	Furniture									
	Office Supplies									
	Technology		109.309	-5,58%	103.214	36,08%	140.451	58,47%	222.579	
December	Furniture									
	Office Supplies									
	Technology		117.852	13,87%	134.196	0,10%	134.325	34,82%	181.097	~



Berdasarkan data yang ditampilkan ,bahwa profit keseluruhan memiliki rentang dari -1.811 sampai dengan 31.298,dengan distribusi warna yang menunjukan tingkat profitabilitas.Warna kuning menunjukan profit yang paling rendah,sementara warna merah menunjukan profit yang paling tinggi.Menariknya,terdapat nilai negatif yang menunjukan baha terdapat periode atau kategori tertentu yang mengalami kerugian,yang dapat menjadi perhatian untuk analisis lebih lanjut terkait faktor-faktor penyebabnya.

					Order	r Date				
		201	2	201	.3	20	14	20	15	
Month of 0	Category	% Differ	Sales	% Differ	Sales	% Differ	Sales	% Differ	Sales	
January	Furniture		34.464	24,08%	42.761	91,31%	81.805	-14,68%	69.799	_
	Office Supplies		33.527	40,97%	47.264	37,49%	64.984	17,96%	76.654	
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February	Furniture		35.799	5,13%	37.635	57,08%	59.118	-2,39%	57.703	
	Office Supplies		26.135	-7,03%	24.297	112,17%	51.553	7,04%	55.184	
	Technology		41.784	-11,63%	36.922	53,21%	56.569	27,19%	71.951	
March	Furniture		40.277	36,76%	55.082	18,59%	65.323	37,33%	89.705	
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	Technology		63.891	-15,05%	54.273	31,30%	71.263	34,46%	95.819	
April	Furniture		30.690	78,24%	54.702	-0,21%	54.587	29,24%	70.551	
	Office Supplies		45.563	-3,68%	43.886	27,07%	55.766	45,92%	81.372	
	Technology		38.081	64,03%	62.464	8,01%	67.469	34,65%	90.849	
May	Furniture		49.769	26,46%	62.939	18,16%	74.371	32,19%	98.312	
	Office Supplies		49.731	22,79%	61.063	22,42%	74.756	31,06%	97.975	
	Technology		58.728	43,65%	84.363	32,02%	111.372	-17,29%	92.114	
June	Furniture		76.585	6,39%	81.481	41,45%	115.251	18,11%	136.123	
	Office Supplies		61.793	22,74%	75.846	46,99%	111.489	7,94%	120.340	
	Technology		69.194	42,86%	98.849	71,76%	169.780	-14,39%	145.351	V

					Orde	r Date				
		201	.2	20:	13	20:	14	20:	15	
Month of 0	Category	% Differ	Sales							
July	Furniture		31.383	32,21%	41.491	73,18%	71.854	14,60%	82.344	^
	Office Supplies		42.807	8,27%	46.346	51,66%	70.291	9,50%	76.971	
	Technology		44.245	29,73%	57.399	52,94%	87.784	13,22%	99.390	
August	Furniture		68.000	24,48%	84.644	32,67%	112.296	12,46%	126.284	
	Office Supplies		58.390	66,57%	97.260	-4,23%	93.150	66,86%	155.431	
	Technology		81.673	48,44%	121.239	-0,16%	121.043	44,50%	174.905	
September	Furniture		93.934	2,38%	96.166	32,79%	127.701	37,65%	175.777	
	Office Supplies		99.987	-21,15%	78.844	40,48%	110.762	21,33%	134.387	
	Technology		90.667	26,15%	114.379	20,79%	138.157	23,77%	170.994	
October	Furniture		79.094	7,24%	84.824	5,30%	89.319	46,33%	130.701	
	Office Supplies		55.700	6,61%	59.383	30,33%	77.393	49,59%	115.771	
	Technology		81.320	33,71%	108.733	16,52%	126.695	39,15%	176.295	
November	Furniture		96.558	24,57%	120.279	2,10%	122.803	37,50%	168.849	
	Office Supplies		88.080	13,56%	100.020	10,71%	110.736	47,97%	163.851	
	Technology		109.309	-5,58%	103.214	36,08%	140.451	58,47%	222.579	
December	Furniture		119.531	-19,00%	96.817	47,91%	143.203	19,95%	171.768	
	Office Supplies		82.424	30,11%	107.244	19,28%	127.926	17,47%	150.279	

Pada tren penjualan berdasarkan kategori (Furniture, Office Supplies, Technology) dari tahun 2012 hingga 2015, terlihat pola pertumbuhan yang fluktuatif.

13,87% 134.196

117.852

Technology

Secara umum, kategori Technology memiliki nilai penjualan yang lebih tinggi dibandingkan kategori lainnya, namun terdapat adanya perbedaan yang signifikan dalam persentase pertumbuhan tahunan. Beberapa bulan menunjukkan tren penurunan, seperti di bulan Januari 2015, di mana penjualan kategori Furniture mengalami penurunan sebesar -14,68% dibandingkan tahun sebelumnya. Sebaliknya, di bulan Desember cenderung mengalami lonjakan penjualan yang signifikan, kemungkinan besar akibat momen liburan yang meningkatkan permintaan pasar.

Secara keseluruhan, data ini menunjukkan bahwa meskipun terjadi peningkatan penjualan setiap tahunnya, terdapat beberapa bulan yang mengalami perlambatan atau penurunan. Adanya fluktuasi ini menandakan bahwa faktor eksternal yang perlu ditelaah lagi karena dapat berpengaruh signifikan terhadap performa penjualan

Selain itu, keberadaan profit negatif dalam beberapa periode menunjukkan adanya tantangan dalam mencapai keseimbangan antara pendapatan dan biaya operasional. Terutama pada kategori Furniture ternyata banyak yang profitnya minus. Ini menunjukkan performa yang buruk. Untuk meningkatkan profitabilitas di masa mendatang, diperlukan analisis lebih lanjut mengenai pola permintaan, efektivitas strategi harga, serta optimasi biaya yang dapat meningkatkan margin keuntungan secara berkelanjutan.

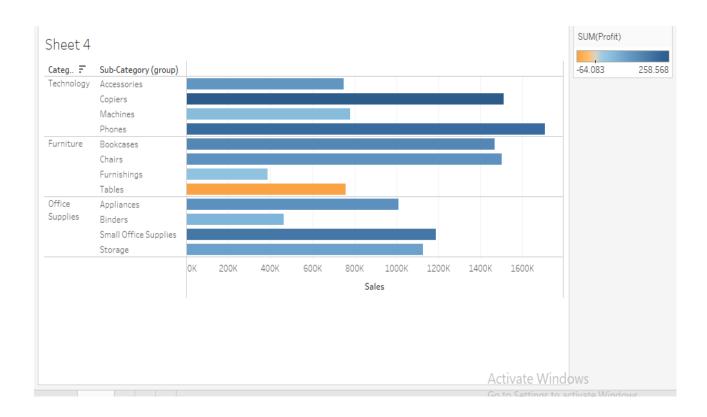


Gambar ini menunjukkan distribusi penjualan dan profit di berbagai lokasi di dunia. Ukuran gelembung mewakili total penjualan dimana semakin besar, semakin tinggi sales-nya. Sementara itu, warna menunjukkan profit: biru berarti untung, oranye berarti rugi.

Dari gambar peta di atas ini, kita bisa lihat bahwa beberapa wilayah seperti Eropa Barat (Jerman, Prancis, Inggris), Amerika Serikat (California & New York), dan Australia punya gelembung besar dengan warna biru tua. Artinya, di daerah-daerah ini sales sangat tinggi dan bisnisnya cuan.

Di sisi lain, terdapat beberapa titik oranye, terutama di Amerika Selatan, Afrika, dan beberapa bagian Asia Selatan (kayak India & Pakistan). Warna tersebut menunjukan bahwa di wilayah-wilayah ini profitnya negatif atau rugi. Bisa jadi disebabkan karena biaya operasional yang tinggi, kompetisi pasar ketat, atau strategi harga yang kurang pas.

Dari data ini, bisa diambil insight bahwa beberapa daerah lebih potensial buat bisnis, sementara yang lain butuh strategi khusus agar tidak terus-terusan boncos. Bisa jadi, perusahaan harus lebih adaptif dalam menetapkan harga, menyesuaikan strategi pemasaran, atau bahkan mempertimbangkan ulang ekspansi ke wilayah yang kurang menguntungkan.



Dari data grafik "Penjualan Sub Kategori", dapat dianalisis bahwa kategori Technology dan Furniture mendominasi total penjualan dibandingkan kategori Office Supplies. Sub-kategori dengan angka penjualan tertinggi, seperti Phones dan Chairs, menunjukan bahwa produk-produk ini mempunyai demand yang sangat besar di pasar. Maka, hal ini mengindikasikan adanya preferensi konsumen ke teknologi dan perabotan yang ngedukung aktivitas kerja atau produktivitas sehari-hari.

Namun, jika dilihat dari segi profitabilitas yang diwakili skala warna, tidak semua produk yang mempunyai angka penjualan yang tinggi memberi keuntungan yang optimal. Contohnya, sub-kategori Tables dalam kategori Furniture mengalami profit negatif (ditandai warna oranye), yang bisa jadi disebabkan oleh berbagai hal. Jadi, meskipun suatu produk laku di pasar, tetapi dari sisi bisnis, ada potensi inefisiensi yang perlu dievaluasi lebih lanjut.

Sebaliknya, sub-kategori seperti Phones dan Copiers tidak hanya mempunyai angka penjualan yang tinggi, tetapi juga mempunyai profitabilitas yang lebih baik (warna biru yang lebih pekat). Ini bisa mengindikasikan kalau produkproduk ini mempunyai margin keuntungan yang lebih besar, baik karena harga jualnya yang tinggi maupun biaya operasionalnya yang lebih terkendali.

Jika diliat dari perspektif bisnis, visualisasi ini menunjukan pentingnya buat analisis menyeluruh sebelum menentukan strategi penjualan. Produk yang punya volume tinggi tapi profit rendah atau negatif perlu mendapat perhatian khusus, baik dalam hal penentuan harga, efisiensi operasional, maupun strategi pemasaran agar dapat meningkatkan keuntungan secara keseluruhan. Pentingnya hal ini menjadi bahan pertimbangan dalam manajemen bisnis agar dapat memaksimalkan profitabilitas di berbagai kategori produk.