SCOPE AND DIRECTION IN QUICK TABLE CALCULATIONS

Scope and **direction** are terms that describe how a table calculation is computed relative to the table.

Scope: The scope defines the boundaries within which a given table calculation can reference other values

e.g: Table, Pane, Cell

Direction: The direction defines how the table calculation moves within the scope

e.g: Across, Down

The dimensions that define how to group the calculation (the **scope** of data it is performed on) are called **partitioning fields**.
The table calculation is performed separately within each partition.

The remaining dimensions, upon which the table calculation is performed, are called **addressing fields**, and determine the direction of the calculation.

SCOPE AND DIRECTION IN QUICK TABLE CALCULATIONS

When we select any quick table calculation e.g: **Percent of Total** in Tableau
i.e., Right-click measure > **Quick Table Calculation** > **Percent of Total**
the default computation method would be **Table (Across)**

Here the **Scope** will be the **table**, and the **direction** is **across**

EXAMPLE 1 FOR SCOPE AND DIRECTION

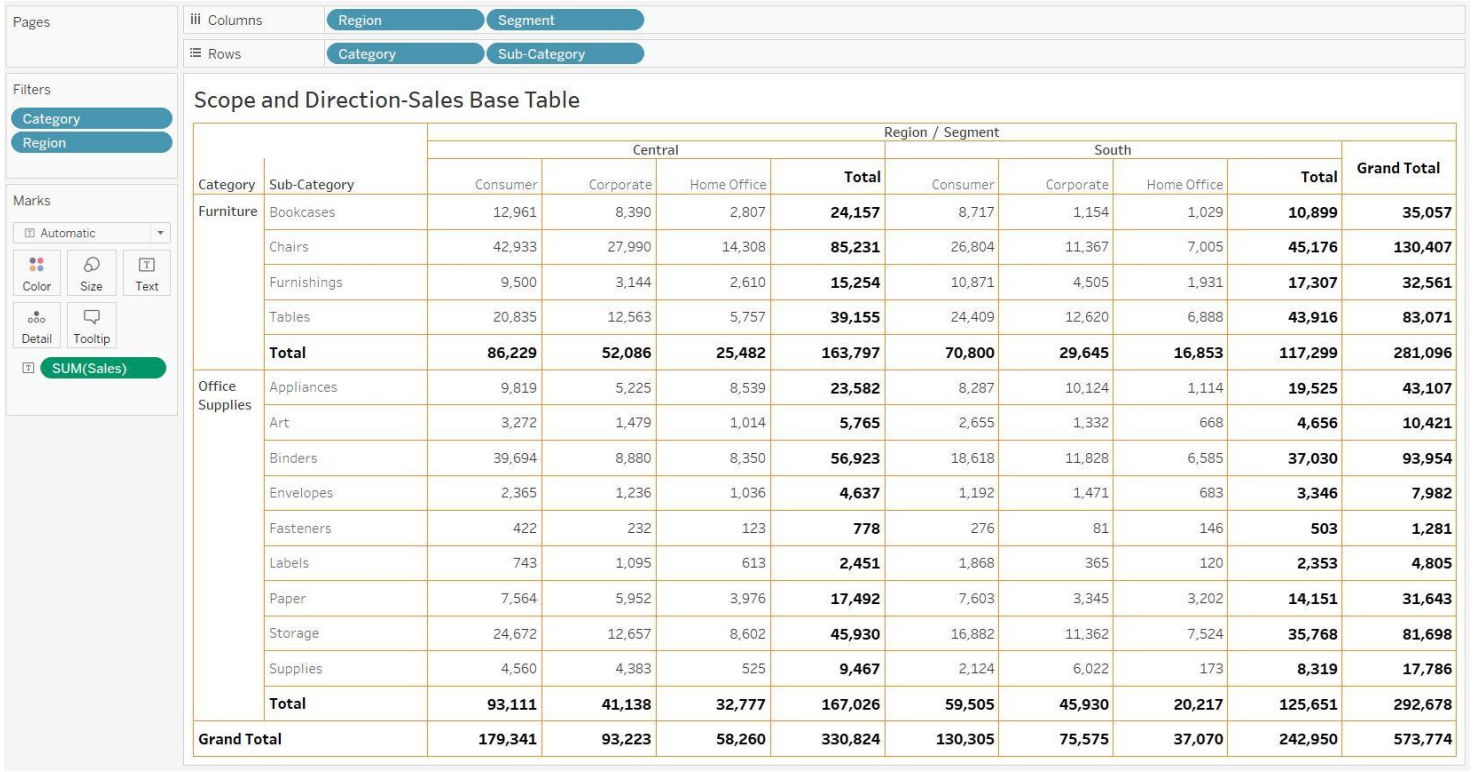
Step 1: Let us start with the below mentioned Viz

Row Shelf: Category, Sub-Category

Columns Shelf: Region, Segment

Filters Shelf: Category (with Furniture and Office Supplies selected)
Region (with Central and South selected)

Text: Sales

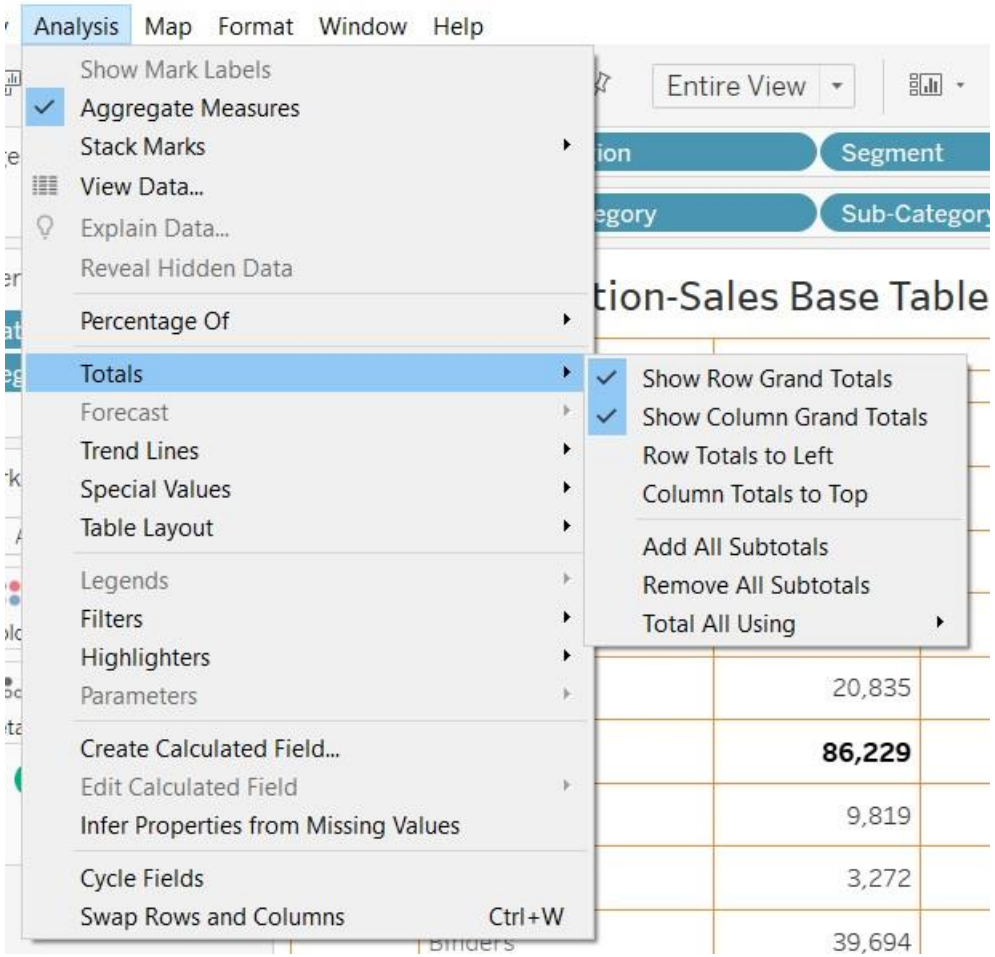


Scope and Direction-Sales Base Table

		Region / Segment								
		Central				South				
Category	Sub-Category	Consumer	Corporate	Home Office	Total	Consumer	Corporate	Home Office	Total	Grand Total
Furniture	Bookcases	12,961	8,390	2,807	**24,157**	8,717	1,154	1,029	**10,899**	**35,057**
	Chairs	42,933	27,990	14,308	**85,231**	26,804	11,367	7,005	**45,176**	**130,407**
	Furnishings	9,500	3,144	2,610	**15,254**	10,871	4,505	1,931	**17,307**	**32,561**
	Tables	20,835	12,563	5,757	**39,155**	24,409	12,620	6,888	**43,916**	**83,071**
	Total	**86,229**	**52,086**	**25,482**	**163,797**	**70,800**	**29,645**	**16,853**	**117,299**	**281,096**
Office Supplies	Appliances	9,819	5,225	8,539	**23,582**	8,287	10,124	1,114	**19,525**	**43,107**
	Art	3,272	1,479	1,014	**5,765**	2,655	1,332	668	**4,656**	**10,421**
	Binders	39,694	8,880	8,350	**56,923**	18,618	11,828	6,585	**37,030**	**93,954**
	Envelopes	2,365	1,236	1,036	**4,637**	1,192	1,471	683	**3,346**	**7,982**
	Fasteners	422	232	123	**778**	276	81	146	**503**	**1,281**
	Labels	743	1,095	613	**2,451**	1,868	365	120	**2,353**	**4,805**
	Paper	7,564	5,952	3,976	**17,492**	7,603	3,345	3,202	**14,151**	**31,643**
	Storage	24,672	12,657	8,602	**45,930**	16,882	11,362	7,524	**35,768**	**81,698**
	Supplies	4,560	4,383	525	**9,467**	2,124	6,022	173	**8,319**	**17,786**
	Total	**93,111**	**41,138**	**32,777**	**167,026**	**59,505**	**45,930**	**20,217**	**125,651**	**292,678**
Grand Total		**179,341**	**93,223**	**58,260**	**330,824**	**130,305**	**75,575**	**37,070**	**242,950**	**573,774**

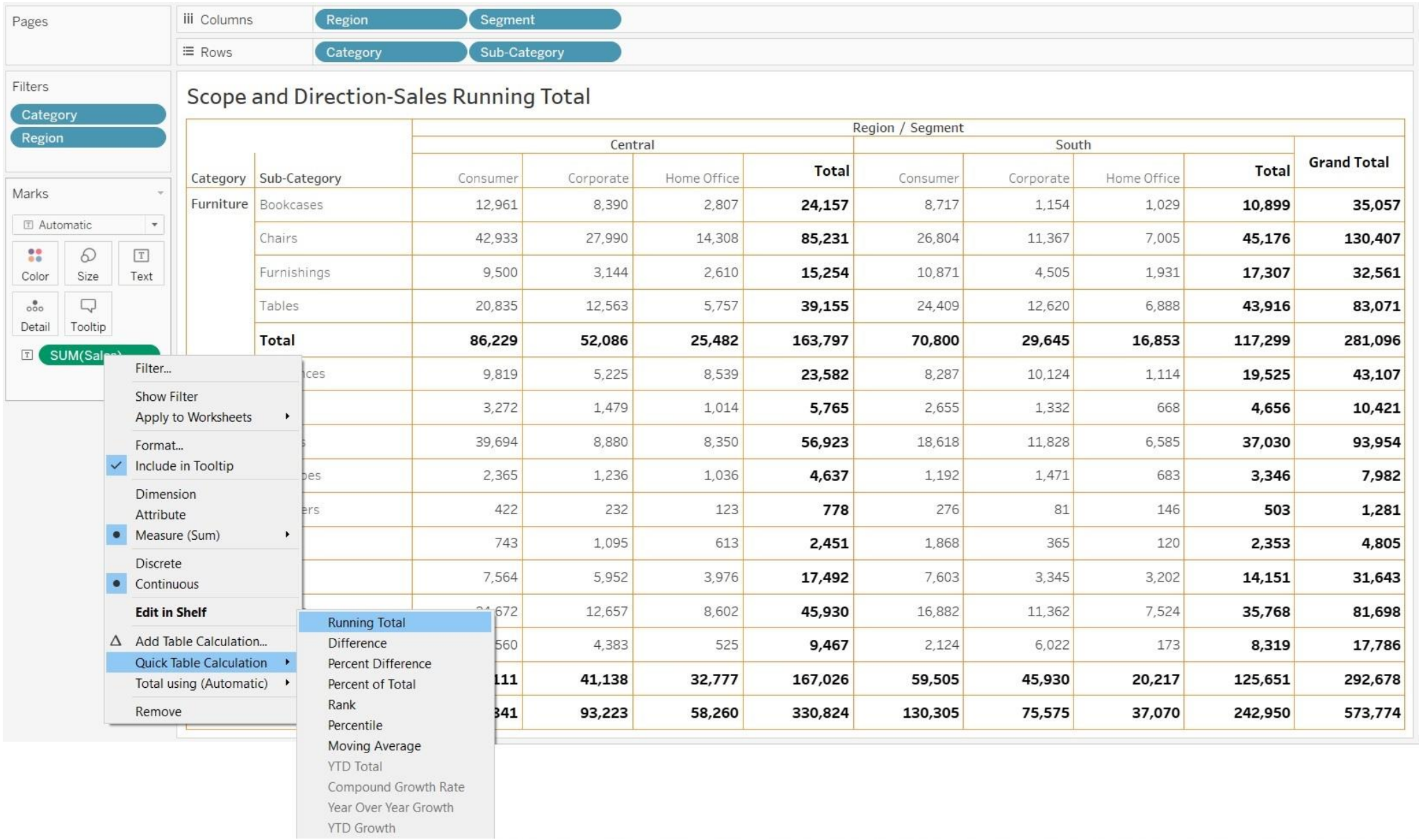
EXAMPLE 1 FOR SCOPE AND DIRECTION

Step 2: Ensure that all Totals are selected



EXAMPLE 1 FOR SCOPE AND DIRECTION

Step 3: Right-click Sales, **Quick Table Calculation** > **Running Total**

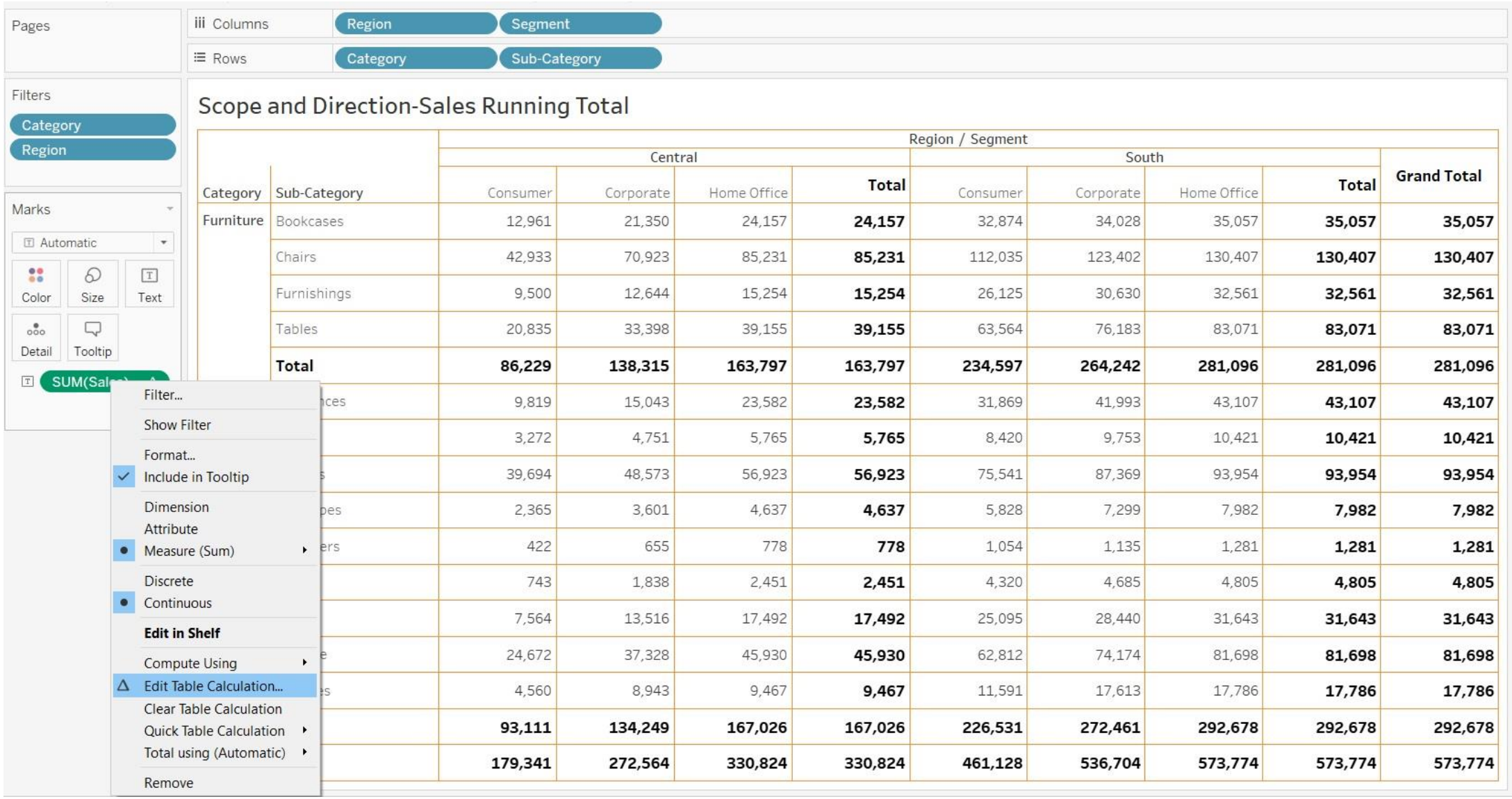


Scope and Direction-Sales Running Total

		Region / Segment								
		Central				South				Grand Total
Category	Sub-Category	Consumer	Corporate	Home Office	Total	Consumer	Corporate	Home Office	Total	
Furniture	Bookcases	12,961	8,390	2,807	**24,157**	8,717	1,154	1,029	**10,899**	**35,057**
	Chairs	42,933	27,990	14,308	**85,231**	26,804	11,367	7,005	**45,176**	**130,407**
	Furnishings	9,500	3,144	2,610	**15,254**	10,871	4,505	1,931	**17,307**	**32,561**
	Tables	20,835	12,563	5,757	**39,155**	24,409	12,620	6,888	**43,916**	**83,071**
	Total	**86,229**	**52,086**	**25,482**	**163,797**	**70,800**	**29,645**	**16,853**	**117,299**	**281,096**
	ces	9,819	5,225	8,539	**23,582**	8,287	10,124	1,114	**19,525**	**43,107**
		3,272	1,479	1,014	**5,765**	2,655	1,332	668	**4,656**	**10,421**
	s	39,694	8,880	8,350	**56,923**	18,618	11,828	6,585	**37,030**	**93,954**
	pes	2,365	1,236	1,036	**4,637**	1,192	1,471	683	**3,346**	**7,982**
	ers	422	232	123	**778**	276	81	146	**503**	**1,281**
		743	1,095	613	**2,451**	1,868	365	120	**2,353**	**4,805**
		7,564	5,952	3,976	**17,492**	7,603	3,345	3,202	**14,151**	**31,643**
		672	12,657	8,602	**45,930**	16,882	11,362	7,524	**35,768**	**81,698**
		560	4,383	525	**9,467**	2,124	6,022	173	**8,319**	**17,786**
		111	**41,138**	**32,777**	**167,026**	**59,505**	**45,930**	**20,217**	**125,651**	**292,678**
		341	**93,223**	**58,260**	**330,824**	**130,305**	**75,575**	**37,070**	**242,950**	**573,774**

EXAMPLE 1 FOR SCOPE AND DIRECTION

Step 4: Right-click Sales, **Edit Table Calculation**

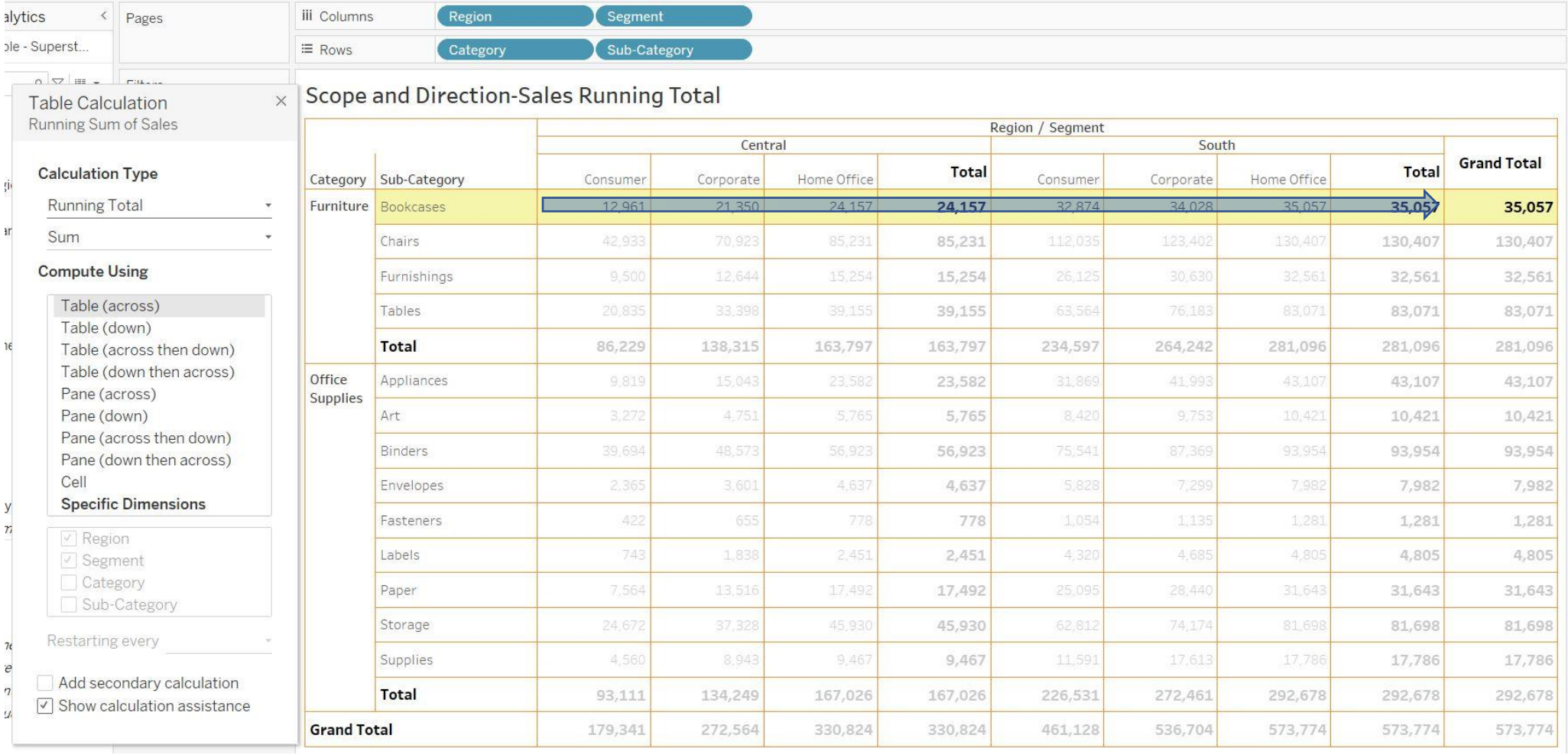


Scope and Direction-Sales Running Total

		Region / Segment								
		Central				South				
Category	Sub-Category	Consumer	Corporate	Home Office	**Total**	Consumer	Corporate	Home Office	**Total**	**Grand Total**
Furniture	Bookcases	12,961	21,350	24,157	**24,157**	32,874	34,028	35,057	**35,057**	**35,057**
	Chairs	42,933	70,923	85,231	**85,231**	112,035	123,402	130,407	**130,407**	**130,407**
	Furnishings	9,500	12,644	15,254	**15,254**	26,125	30,630	32,561	**32,561**	**32,561**
	Tables	20,835	33,398	39,155	**39,155**	63,564	76,183	83,071	**83,071**	**83,071**
	Total	**86,229**	**138,315**	**163,797**	**163,797**	**234,597**	**264,242**	**281,096**	**281,096**	**281,096**
		9,819	15,043	23,582	**23,582**	31,869	41,993	43,107	**43,107**	**43,107**
		3,272	4,751	5,765	**5,765**	8,420	9,753	10,421	**10,421**	**10,421**
		39,694	48,573	56,923	**56,923**	75,541	87,369	93,954	**93,954**	**93,954**
		2,365	3,601	4,637	**4,637**	5,828	7,299	7,982	**7,982**	**7,982**
		422	655	778	**778**	1,054	1,135	1,281	**1,281**	**1,281**
		743	1,838	2,451	**2,451**	4,320	4,685	4,805	**4,805**	**4,805**
		7,564	13,516	17,492	**17,492**	25,095	28,440	31,643	**31,643**	**31,643**
		24,672	37,328	45,930	**45,930**	62,812	74,174	81,698	**81,698**	**81,698**
		4,560	8,943	9,467	**9,467**	11,591	17,613	17,786	**17,786**	**17,786**
		93,111	**134,249**	**167,026**	**167,026**	**226,531**	**272,461**	**292,678**	**292,678**	**292,678**
		179,341	**272,564**	**330,824**	**330,824**	**461,128**	**536,704**	**573,774**	**573,774**	**573,774**

EXAMPLE 1 FOR SCOPE AND DIRECTION

Step 5: The default **Compute Using** option is **Table (across)**
Computes **across the length of the table** and **restarts after every partition**.
For example, in the following table, the calculation is computed across columns Region/Segment for every row Sub-Category.



Scope and Direction-Sales Running Total

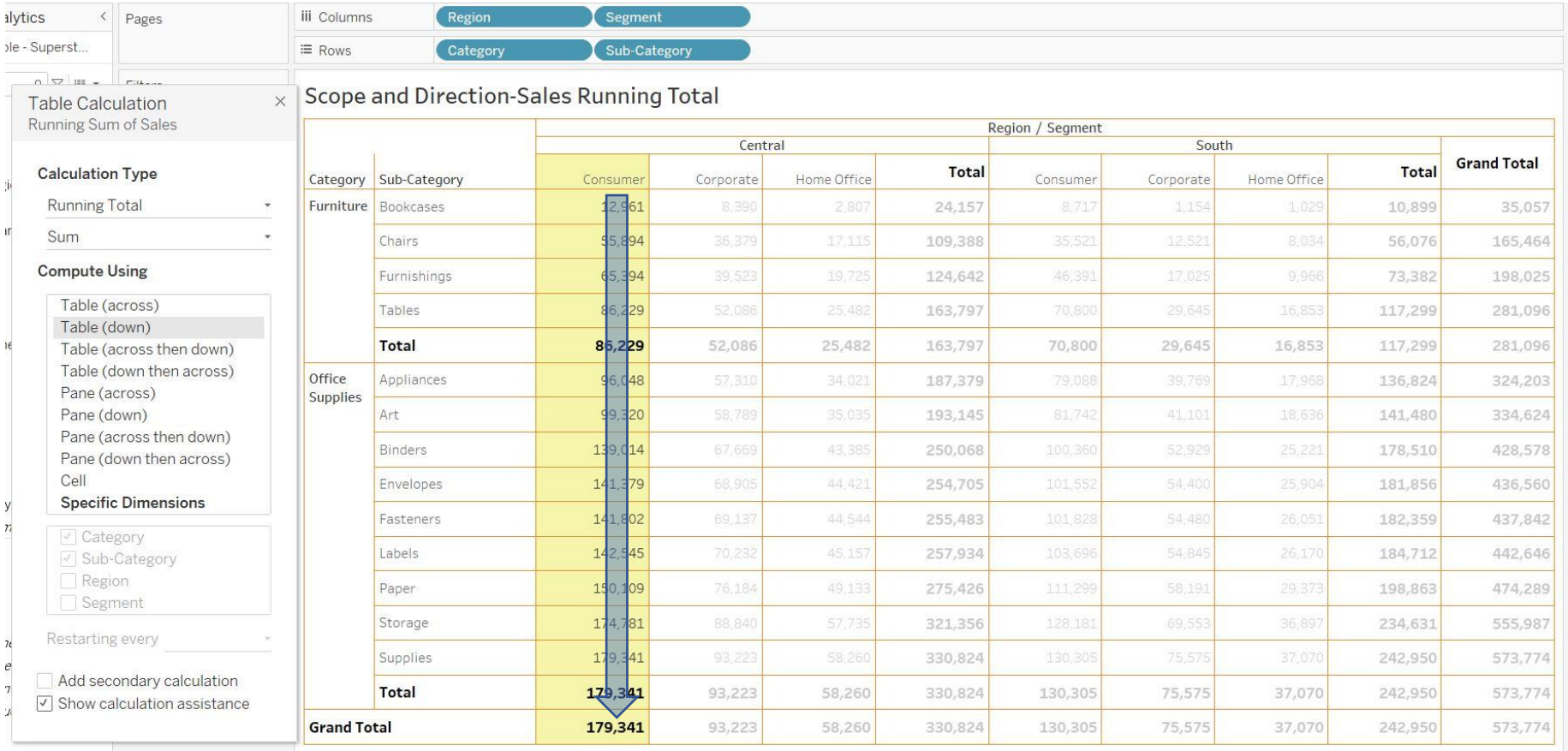
		Region / Segment								
		Central				South				
Category	Sub-Category	Consumer	Corporate	Home Office	Total	Consumer	Corporate	Home Office	Total	Grand Total
Furniture	Bookcases	12,961	21,350	24,157	**24,157**	32,874	34,028	35,057	**35,057**	**35,057**
	Chairs	42,933	70,923	85,231	**85,231**	112,035	123,402	130,407	**130,407**	**130,407**
	Furnishings	9,500	12,644	15,254	**15,254**	26,125	30,630	32,561	**32,561**	**32,561**
	Tables	20,835	33,398	39,155	**39,155**	63,564	76,183	83,071	**83,071**	**83,071**
	Total	**86,229**	**138,315**	**163,797**	**163,797**	**234,597**	**264,242**	**281,096**	**281,096**	**281,096**
Office Supplies	Appliances	9,819	15,043	23,582	**23,582**	31,869	41,993	43,107	**43,107**	**43,107**
	Art	3,272	4,751	5,765	**5,765**	8,420	9,753	10,421	**10,421**	**10,421**
	Binders	39,694	48,573	56,923	**56,923**	75,541	87,369	93,954	**93,954**	**93,954**
	Envelopes	2,365	3,601	4,637	**4,637**	5,828	7,299	7,982	**7,982**	**7,982**
	Fasteners	422	655	778	**778**	1,054	1,135	1,281	**1,281**	**1,281**
	Labels	743	1,838	2,451	**2,451**	4,320	4,685	4,805	**4,805**	**4,805**
	Paper	7,564	13,516	17,492	**17,492**	25,095	28,440	31,643	**31,643**	**31,643**
	Storage	24,672	37,328	45,930	**45,930**	62,812	74,174	81,698	**81,698**	**81,698**
	Supplies	4,560	8,943	9,467	**9,467**	11,591	17,613	17,786	**17,786**	**17,786**
	Total	**93,111**	**134,249**	**167,026**	**167,026**	**226,531**	**272,461**	**292,678**	**292,678**	**292,678**
Grand Total		**179,341**	**272,564**	**330,824**	**330,824**	**461,128**	**536,704**	**573,774**	**573,774**	**573,774**

EXAMPLE 1 FOR SCOPE AND DIRECTION

Step 6: Change the **Compute Using** option to **Table (down)**

Computes **down the length of the table** and **restarts after every partition**.

For example, in the following table, the calculation is computed down the row combination Category/Sub-Category for every column combination Region/Segment.

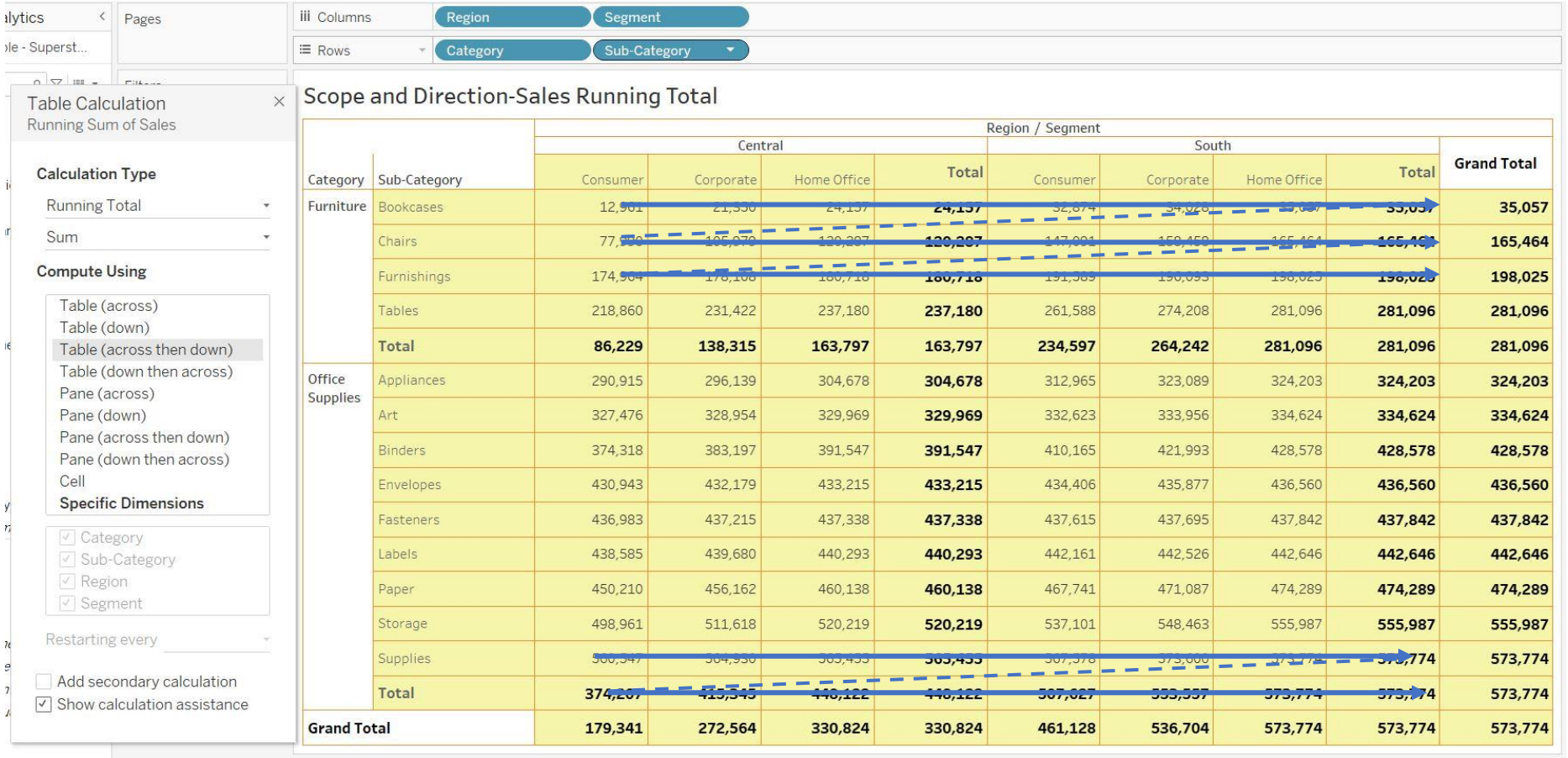


Scope and Direction-Sales Running Total

		Region / Segment								
		Central				South				
Category	Sub-Category	Consumer	Corporate	Home Office	Total	Consumer	Corporate	Home Office	Total	Grand Total
Furniture	Bookcases	12,961	8,390	2,807	24,157	8,717	1,154	1,029	10,899	35,057
	Chairs	55,894	36,379	17,115	109,388	35,521	12,521	8,034	56,076	165,464
	Furnishings	65,394	39,523	19,725	124,642	46,391	17,025	9,966	73,382	198,025
	Tables	86,229	52,086	25,482	163,797	70,800	29,645	16,853	117,299	281,096
	Total	**86,229**	52,086	25,482	163,797	70,800	29,645	16,853	117,299	281,096
Office Supplies	Appliances	96,048	57,310	34,021	187,379	79,088	39,769	17,968	136,824	324,203
	Art	99,320	58,789	35,035	193,145	81,742	41,101	18,636	141,480	334,624
	Binders	139,014	67,669	43,385	250,068	100,360	52,929	25,221	178,510	428,578
	Envelopes	141,379	68,905	44,421	254,705	101,552	54,400	25,904	181,856	436,560
	Fasteners	141,802	69,137	44,544	255,483	101,828	54,480	26,051	182,359	437,842
	Labels	142,545	70,232	45,157	257,934	103,696	54,845	26,170	184,712	442,646
	Paper	150,109	76,184	49,133	275,426	111,299	58,191	29,373	198,863	474,289
	Storage	174,781	88,840	57,735	321,356	128,181	69,553	36,897	234,631	555,987
	Supplies	179,341	93,223	58,260	330,824	130,305	75,575	37,070	242,950	573,774
	Total	**179,341**	93,223	58,260	330,824	130,305	75,575	37,070	242,950	573,774
Grand Total		**179,341**	93,223	58,260	330,824	130,305	75,575	37,070	242,950	573,774

EXAMPLE 1 FOR SCOPE AND DIRECTION

Step 7: Change the **Compute Using** option to **Table (across then down)**
Computes **across the length of the table**, and then **down the length of the table**.
In the below example the calculation is computed across Region/Segment for the length of the table, down a Sub-Category, and then across Region/Segment for the length of the table again

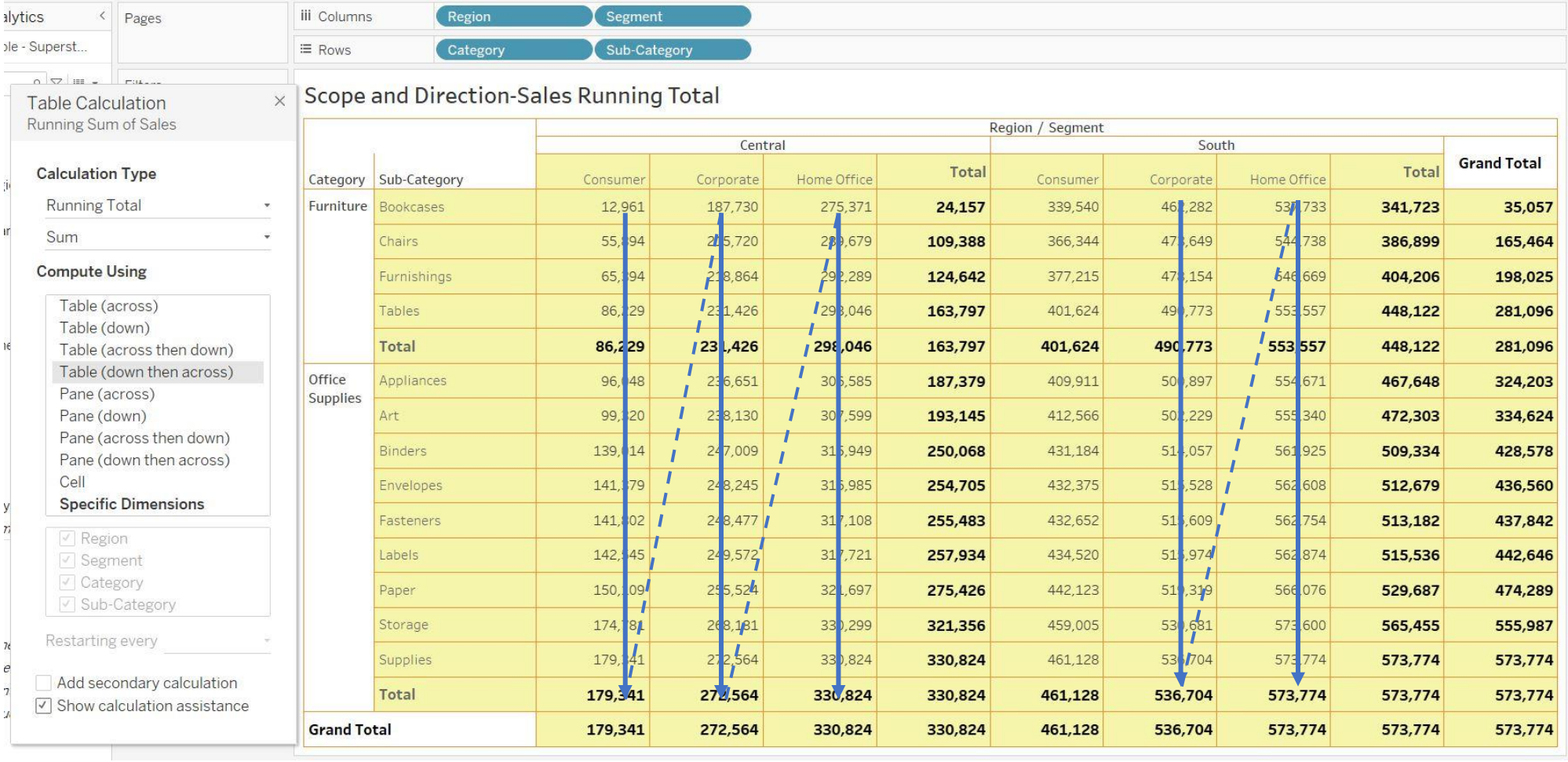


Scope and Direction-Sales Running Total

		Region / Segment								
		Central				South				
Category	Sub-Category	Consumer	Corporate	Home Office	Total	Consumer	Corporate	Home Office	Total	Grand Total
Furniture	Bookcases	12,961	21,330	24,157	**24,157**	32,874	34,828	35,057	**35,057**	**35,057**
	Chairs	77,[illegible]	105,070	120,287	**120,287**	147,001	159,459	165,464	**165,464**	**165,464**
	Furnishings	174,904	178,108	180,718	**180,718**	191,569	196,093	198,025	**198,025**	**198,025**
	Tables	218,860	231,422	237,180	**237,180**	261,588	274,208	281,096	**281,096**	**281,096**
	Total	**86,229**	**138,315**	**163,797**	**163,797**	**234,597**	**264,242**	**281,096**	**281,096**	**281,096**
Office Supplies	Appliances	290,915	296,139	304,678	**304,678**	312,965	323,089	324,203	**324,203**	**324,203**
	Art	327,476	328,954	329,969	**329,969**	332,623	333,956	334,624	**334,624**	**334,624**
	Binders	374,318	383,197	391,547	**391,547**	410,165	421,993	428,578	**428,578**	**428,578**
	Envelopes	430,943	432,179	433,215	**433,215**	434,406	435,877	436,560	**436,560**	**436,560**
	Fasteners	436,983	437,215	437,338	**437,338**	437,615	437,695	437,842	**437,842**	**437,842**
	Labels	438,585	439,680	440,293	**440,293**	442,161	442,526	442,646	**442,646**	**442,646**
	Paper	450,210	456,162	460,138	**460,138**	467,741	471,087	474,289	**474,289**	**474,289**
	Storage	498,961	511,618	520,219	**520,219**	537,101	548,463	555,987	**555,987**	**555,987**
	Supplies	560,547	564,930	565,455	**565,455**	567,578	573,600	573,774	**573,774**	**573,774**
	Total	**374,267**	**413,545**	**448,122**	**448,122**	**467,627**	**555,557**	**573,774**	**573,774**	**573,774**
Grand Total		**179,341**	**272,564**	**330,824**	**330,824**	**461,128**	**536,704**	**573,774**	**573,774**	**573,774**

EXAMPLE 1 FOR SCOPE AND DIRECTION

Step 8: Change the **Compute Using** option to **Table (down then across)**
Computes **down the length of the table**, and then **across the length of the table**.
In the below example the calculation is computed down Category/Sub-Category for the length of the table, across a Region/Segment, and then again down



Scope and Direction-Sales Running Total

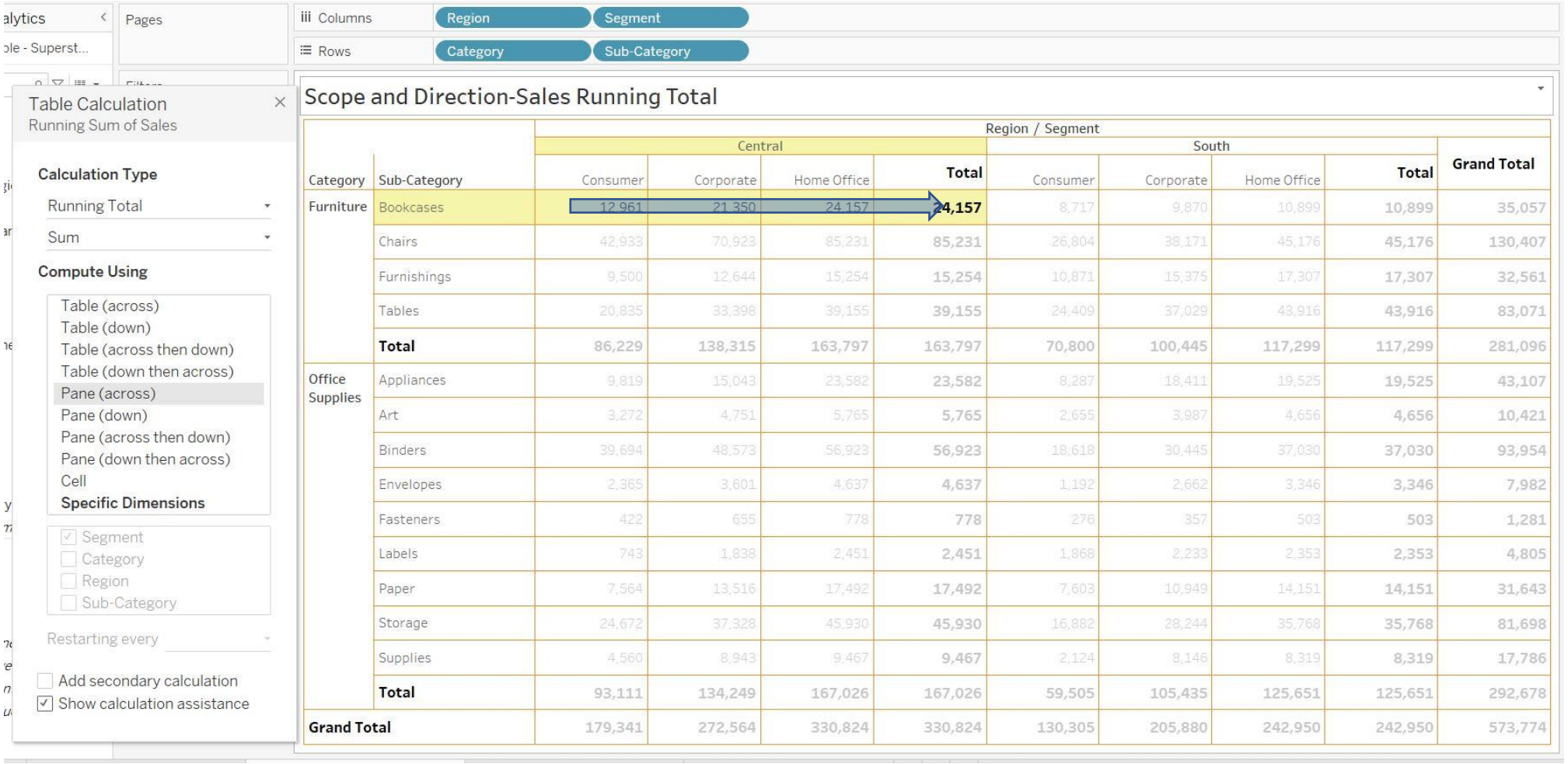
		Region / Segment								
		Central				South				
Category	Sub-Category	Consumer	Corporate	Home Office	Total	Consumer	Corporate	Home Office	Total	Grand Total
Furniture	Bookcases	12,961	187,730	275,371	**24,157**	339,540	462,282	537,733	**341,723**	**35,057**
	Chairs	55,394	215,720	289,679	**109,388**	366,344	473,649	544,738	**386,899**	**165,464**
	Furnishings	65,394	218,864	292,289	**124,642**	377,215	473,154	546,669	**404,206**	**198,025**
	Tables	86,229	231,426	298,046	**163,797**	401,624	490,773	553,557	**448,122**	**281,096**
	Total	**86,229**	**231,426**	**298,046**	**163,797**	**401,624**	**490,773**	**553,557**	**448,122**	**281,096**
Office Supplies	Appliances	96,648	236,651	306,585	**187,379**	409,911	509,897	554,671	**467,648**	**324,203**
	Art	99,120	238,130	307,599	**193,145**	412,566	508,229	555,340	**472,303**	**334,624**
	Binders	139,614	247,009	316,949	**250,068**	431,184	514,057	561,925	**509,334**	**428,578**
	Envelopes	141,179	248,245	316,985	**254,705**	432,375	513,528	562,608	**512,679**	**436,560**
	Fasteners	141,802	248,477	317,108	**255,483**	432,652	515,609	562,754	**513,182**	**437,842**
	Labels	142,345	249,572	317,721	**257,934**	434,520	515,974	562,874	**515,536**	**442,646**
	Paper	150,109	255,524	321,697	**275,426**	442,123	519,319	566,076	**529,687**	**474,289**
	Storage	174,781	268,181	330,299	**321,356**	459,005	530,681	573,600	**565,455**	**555,987**
	Supplies	179,141	272,564	330,824	**330,824**	461,128	536,704	573,774	**573,774**	**573,774**
	Total	**179,341**	**272,564**	**330,824**	**330,824**	**461,128**	**536,704**	**573,774**	**573,774**	**573,774**
Grand Total		**179,341**	**272,564**	**330,824**	**330,824**	**461,128**	**536,704**	**573,774**	**573,774**	**573,774**

EXAMPLE 1 FOR SCOPE AND DIRECTION

Step 9: Change the **Compute Using** option to **Pane (across)**

Computes **across an entire pane**.

In this example it computes across Region which forms the pane.



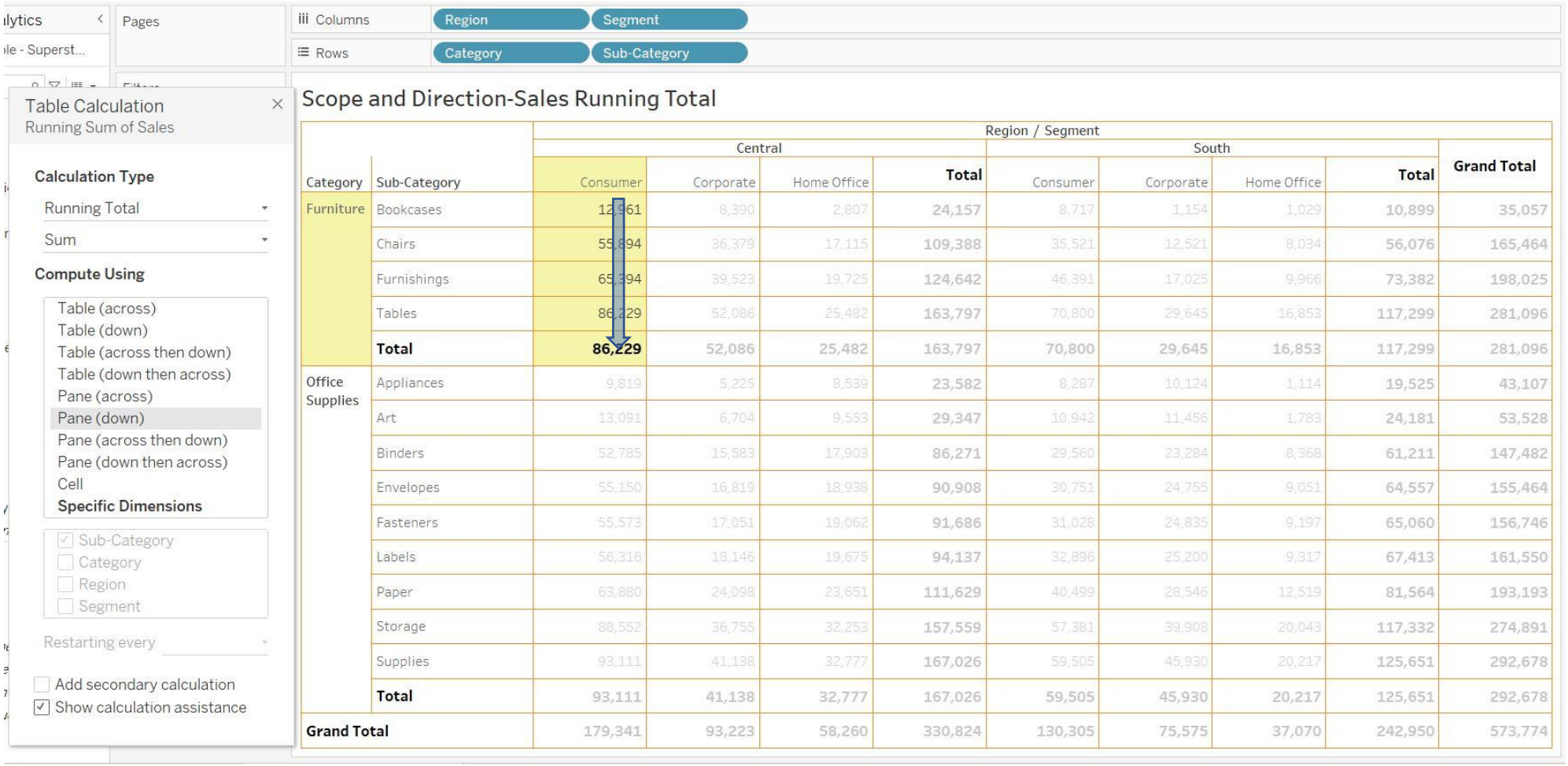
		Region / Segment								
		Central				South				
Category	Sub-Category	Consumer	Corporate	Home Office	Total	Consumer	Corporate	Home Office	Total	Grand Total
Furniture	Bookcases	12,961	21,350	24,157	24,157	8,717	9,870	10,899	10,899	35,057
	Chairs	42,933	70,923	85,231	85,231	26,804	38,171	45,176	45,176	130,407
	Furnishings	9,500	12,644	15,254	15,254	10,871	15,375	17,307	17,307	32,561
	Tables	20,835	33,398	39,155	39,155	24,409	37,029	43,916	43,916	83,071
	Total	86,229	138,315	163,797	163,797	70,800	100,445	117,299	117,299	281,096
Office Supplies	Appliances	9,819	15,043	23,582	23,582	8,287	18,411	19,525	19,525	43,107
	Art	3,272	4,751	5,765	5,765	2,655	3,987	4,656	4,656	10,421
	Binders	39,694	48,573	56,923	56,923	18,618	30,445	37,030	37,030	93,954
	Envelopes	2,365	3,601	4,637	4,637	1,192	2,662	3,346	3,346	7,982
	Fasteners	422	655	778	778	276	357	503	503	1,281
	Labels	743	1,838	2,451	2,451	1,868	2,233	2,353	2,353	4,805
	Paper	7,564	13,516	17,492	17,492	7,603	10,949	14,151	14,151	31,643
	Storage	24,672	37,328	45,930	45,930	16,882	28,244	35,768	35,768	81,698
	Supplies	4,560	8,943	9,467	9,467	2,124	8,146	8,319	8,319	17,786
	Total	93,111	134,249	167,026	167,026	59,505	105,435	125,651	125,651	292,678
Grand Total		179,341	272,564	330,824	330,824	130,305	205,880	242,950	242,950	573,774

EXAMPLE 1 FOR SCOPE AND DIRECTION

Step 10: Change the **Compute Using** option to **Pane (down)**

Computes **down an entire pane**.

In this example it computes down Category which forms the pane.



Scope and Direction-Sales Running Total

		Region / Segment								
		Central				South				
Category	Sub-Category	Consumer	Corporate	Home Office	Total	Consumer	Corporate	Home Office	Total	Grand Total
Furniture	Bookcases	12,961	8,390	2,807	24,157	8,717	1,154	1,029	10,899	35,057
	Chairs	55,894	36,379	17,115	109,388	35,521	12,521	8,034	56,076	165,464
	Furnishings	65,394	39,523	19,725	124,642	46,391	17,025	9,966	73,382	198,025
	Tables	86,229	52,086	25,482	163,797	70,800	29,645	16,853	117,299	281,096
	Total	**86,229**	52,086	25,482	163,797	70,800	29,645	16,853	117,299	281,096
Office Supplies	Appliances	9,819	5,225	8,539	23,582	8,287	10,124	1,114	19,525	43,107
	Art	13,091	6,704	9,553	29,347	10,942	11,456	1,783	24,181	53,528
	Binders	52,785	15,583	17,903	86,271	29,560	23,284	8,368	61,211	147,482
	Envelopes	55,150	16,819	18,938	90,908	30,751	24,755	9,051	64,557	155,464
	Fasteners	55,573	17,051	19,062	91,686	31,028	24,835	9,197	65,060	156,746
	Labels	56,316	18,146	19,675	94,137	32,896	25,200	9,317	67,413	161,550
	Paper	63,880	24,098	23,651	111,629	40,499	28,546	12,519	81,564	193,193
	Storage	88,552	36,755	32,253	157,559	57,381	39,908	20,043	117,332	274,891
	Supplies	93,111	41,138	32,777	167,026	59,505	45,930	20,217	125,651	292,678
	Total	93,111	41,138	32,777	167,026	59,505	45,930	20,217	125,651	292,678
Grand Total		179,341	93,223	58,260	330,824	130,305	75,575	37,070	242,950	573,774

EXAMPLE 2 FOR SCOPE AND DIRECTION

Step 1: Let us start with the below mentioned Viz

Row Shelf: Segment, Category

Columns Shelf: Region

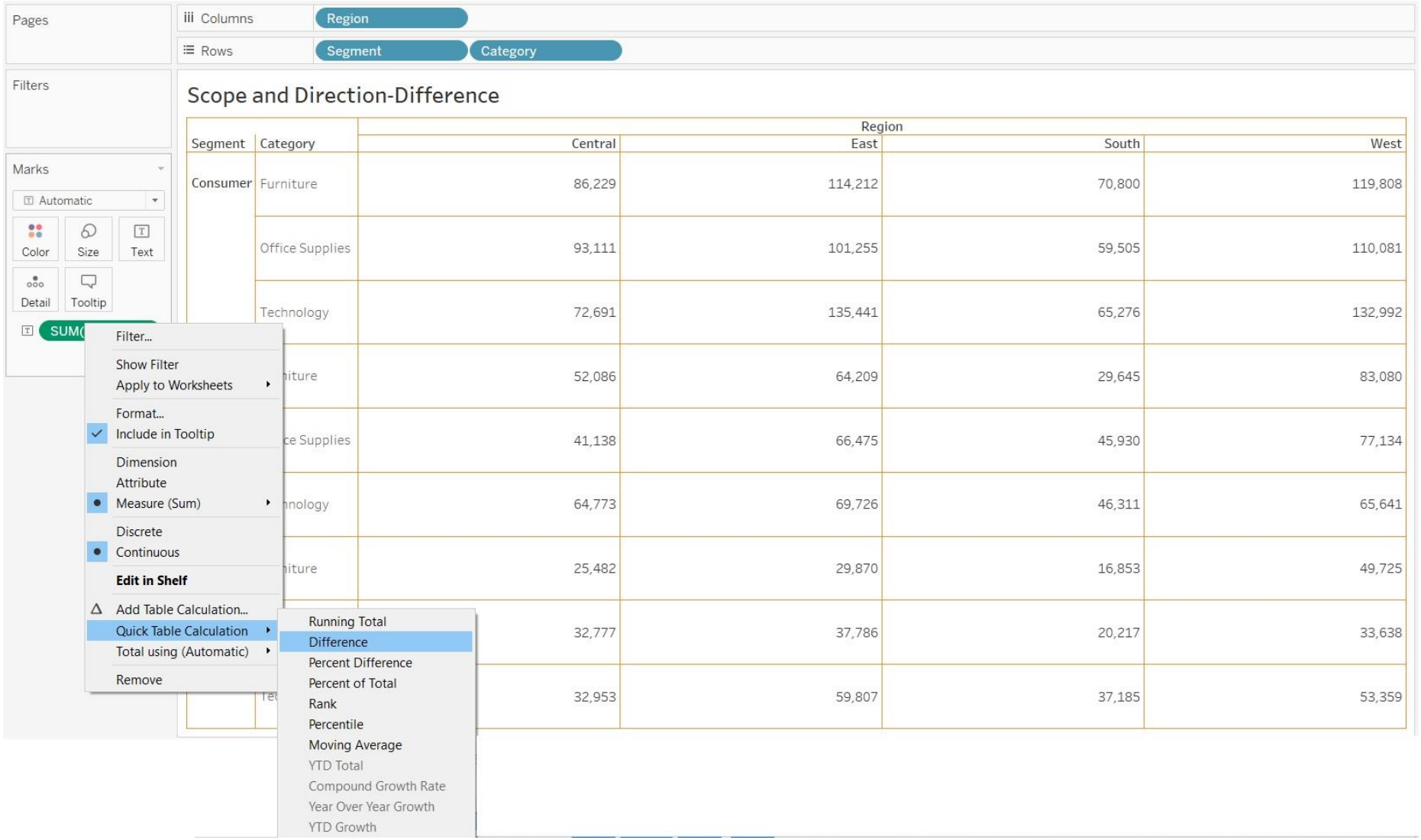
Text: Sales

Scope and Direction-Sales Region, Segment and Category Base Table

Segment	Category	Region			
		Central	East	South	West
Consumer	Furniture	86,229	114,212	70,800	119,808
	Office Supplies	93,111	101,255	59,505	110,081
	Technology	72,691	135,441	65,276	132,992
Corporate	Furniture	52,086	64,209	29,645	83,080
	Office Supplies	41,138	66,475	45,930	77,134
	Technology	64,773	69,726	46,311	65,641
Home Office	Furniture	25,482	29,870	16,853	49,725
	Office Supplies	32,777	37,786	20,217	33,638
	Technology	32,953	59,807	37,185	53,359

EXAMPLE 2 FOR SCOPE AND DIRECTION

Step 2: Right-click Sales, **Quick Table Calculation** > **Difference**

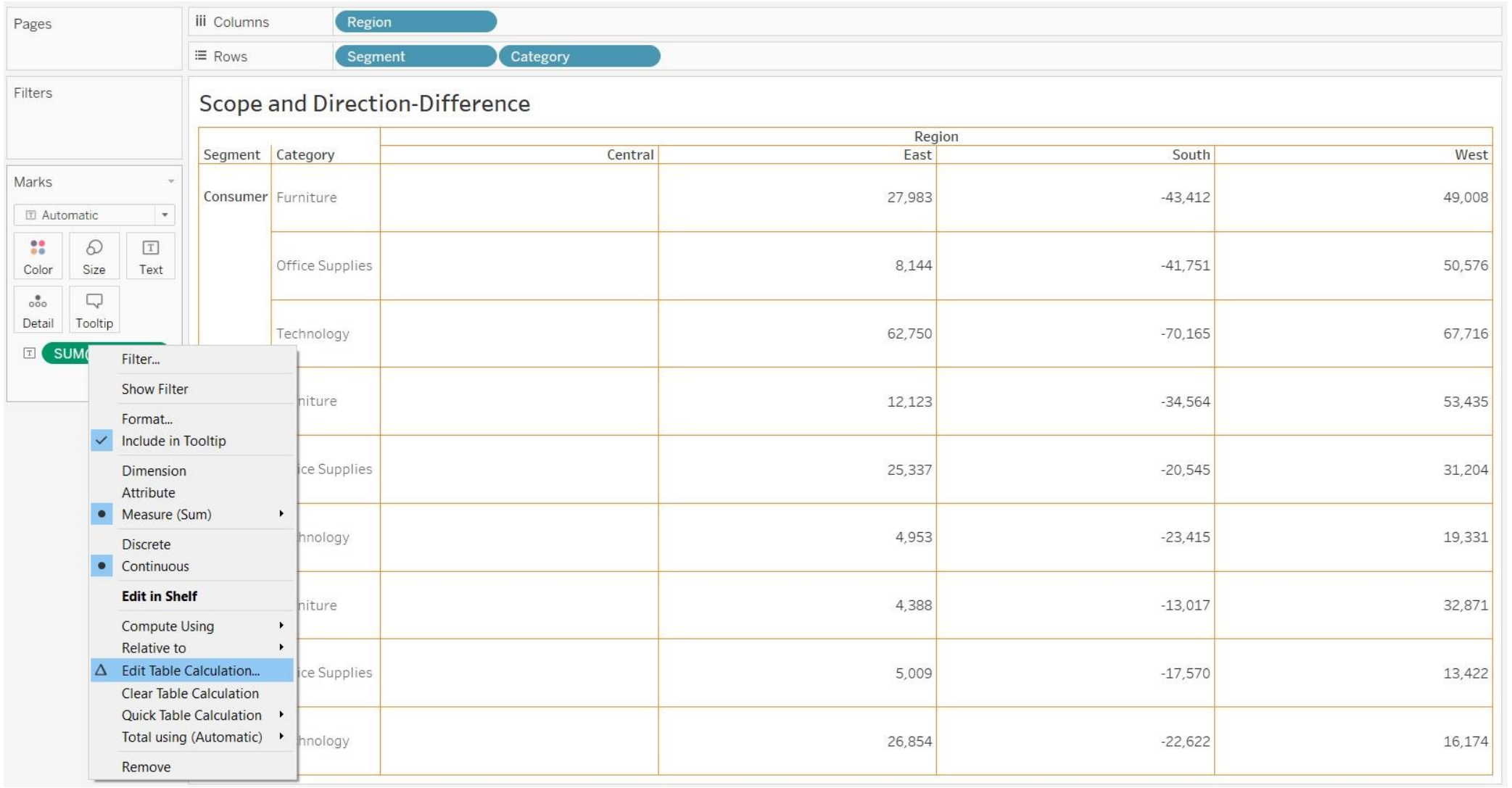


Scope and Direction-Difference

Segment	Category	Region			
		Central	East	South	West
Consumer	Furniture	86,229	114,212	70,800	119,808
	Office Supplies	93,111	101,255	59,505	110,081
	Technology	72,691	135,441	65,276	132,992
	niture	52,086	64,209	29,645	83,080
	ce Supplies	41,138	66,475	45,930	77,134
	nology	64,773	69,726	46,311	65,641
	niture	25,482	29,870	16,853	49,725
		32,777	37,786	20,217	33,638
		32,953	59,807	37,185	53,359

EXAMPLE 2 FOR SCOPE AND DIRECTION

Step 3: Right-click Sales, **Edit Table Calculation**



Scope and Direction-Difference

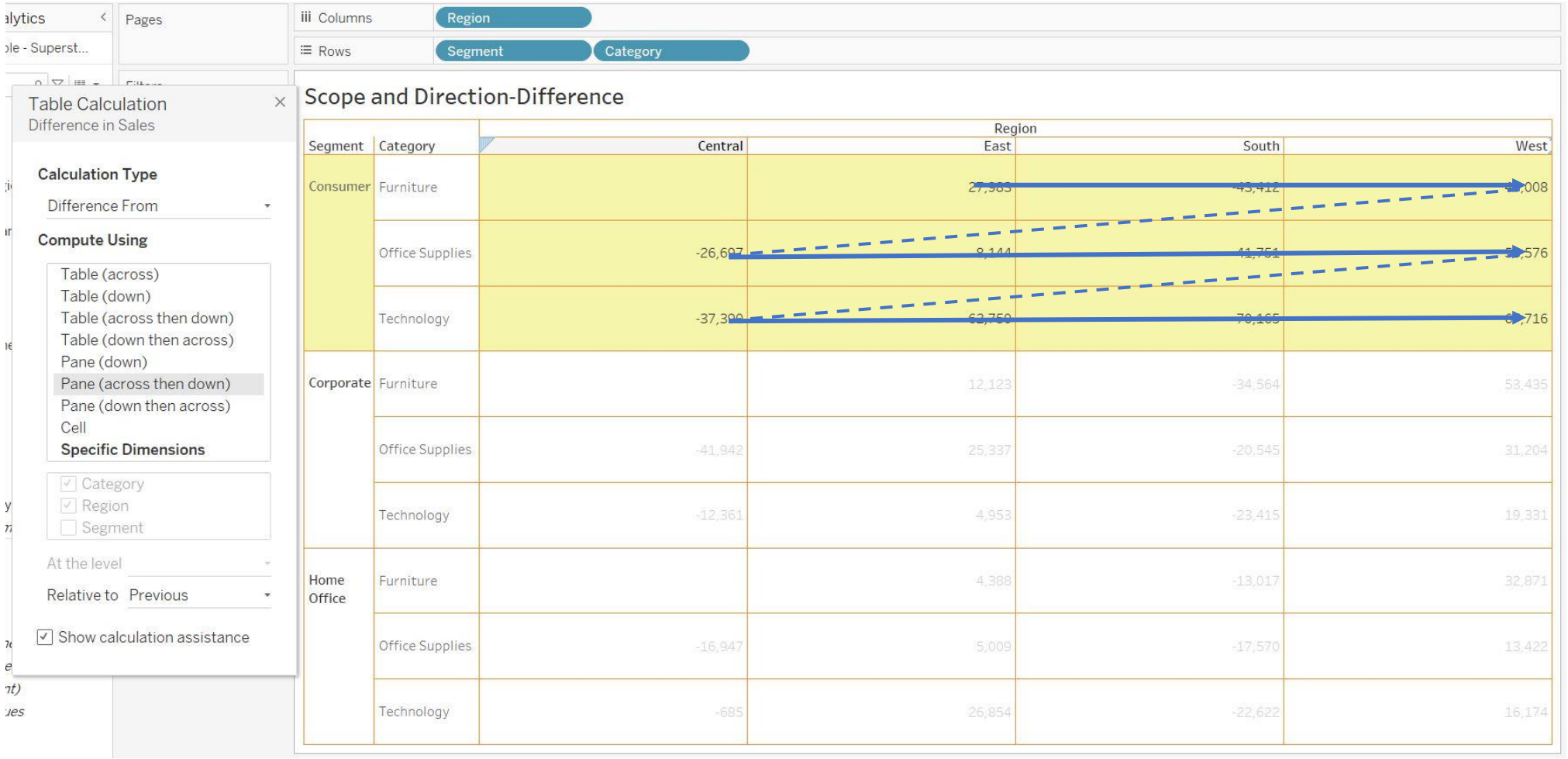
Segment	Category	Region			
		Central	East	South	West
Consumer	Furniture		27,983	-43,412	49,008
	Office Supplies		8,144	-41,751	50,576
	Technology		62,750	-70,165	67,716
	niture		12,123	-34,564	53,435
	ce Supplies		25,337	-20,545	31,204
	hnology		4,953	-23,415	19,331
	niture		4,388	-13,017	32,871
	ce Supplies		5,009	-17,570	13,422
	hnology		26,854	-22,622	16,174

EXAMPLE 2 FOR SCOPE AND DIRECTION

Step 4: Change the **Compute Using** option to **Pane (across then down)**

Computes **across an entire pane** and then **down the pane**.

In the below example the calculation is computed across Region for the length of the pane, down a category, and then across Region for the length of the pane again



EXAMPLE 2 FOR SCOPE AND DIRECTION

Step 5: Change the **Compute Using** option to **Pane (down then across)**

Computes **down an entire pane** and then **across the pane**.

In the below example the calculation is computed down Category for the length of the pane, across a Region, and then down Category for the length of the pane again