



# Temporal Heat Map TUTORIAL

By Alejandro Giménez-Santana

1. Open your crime data spreadsheet in Microsoft Excel. Work with the “Date” and “Hour” column to create a heat map for hourly and daily incidents over a specific time period (e.g. a calendar year).

ID	City	State	Address	Date	Hour	Day	Month	Year	Notes
1	Newark	New Jersey	XXXXX XXXXX XXXXX	01/01/2012	00:00		1	1	2012
2	Newark	New Jersey	XXXXX XXXXX XXXXX	01/01/2012	00:00		1	1	2012
3	Newark	New Jersey	XXXXX XXXXX XXXXX	01/01/2012	00:00		1	1	2012
4	Newark	New Jersey	XXXXX XXXXX XXXXX	01/01/2012	00:00		1	1	2012
5	Newark	New Jersey	XXXXX XXXXX XXXXX	01/01/2012	00:00		1	1	2012
6	Newark	New Jersey	XXXXX XXXXX XXXXX	01/01/2012	00:00		1	1	2012
7	Newark	New Jersey	XXXXX XXXXX XXXXX	01/01/2012	00:10		1	1	2012
8	Newark	New Jersey	XXXXX XXXXX XXXXX	01/01/2012	00:10		1	1	2012

2. Create a new column (e.g., “Day Format”). Then use the Excel function `{=DATEVALUE(Cell)}` to convert the “Date” column to a day of the week (e.g., Sunday, Monday...). Convert all cells in the new column to this value format.

ID	City	State	Address	Date	Day Format	Hour	Day	Month	Year	
1	Newark	New Jersey	XXXXX XXXXX XXXXX	01/01/2012	=DATEVALUE(E2)			1	1	2012
2	Newark	New Jersey	XXXXX XXXXX XXXXX	01/01/2012	Sunday	00:00		1	1	2012
3	Newark	New Jersey	XXXXX XXXXX XXXXX	01/01/2012	Sunday	00:00		1	1	2012
4	Newark	New Jersey	XXXXX XXXXX XXXXX	01/01/2012	Sunday	00:00		1	1	2012
5	Newark	New Jersey	XXXXX XXXXX XXXXX	01/01/2012	Sunday	00:00		1	1	2012
6	Newark	New Jersey	XXXXX XXXXX XXXXX	01/01/2012	Sunday	00:00		1	1	2012
7	Newark	New Jersey	XXXXX XXXXX XXXXX	01/01/2012	Sunday	00:00		1	1	2012
8	Newark	New Jersey	XXXXX XXXXX XXXXX	01/01/2012	Sunday	00:10		1	1	2012
9	Newark	New Jersey	XXXXX XXXXX XXXXX	01/01/2012	Sunday	00:10		1	1	2012
10	Newark	New Jersey	XXXXX XXXXX XXXXX	01/01/2012	Sunday	00:15		1	1	2012
11	Newark	New Jersey	XXXXX XXXXX XXXXX	01/01/2012	Sunday	00:30		1	1	2012
12	Newark	New Jersey	XXXXX XXXXX XXXXX	01/01/2012	Sunday	00:30		1	1	2012
13	Newark	New Jersey	XXXXX XXXXX XXXXX	01/01/2012	Sunday	00:30		1	1	2012
14	Newark	New Jersey	XXXXX XXXXX XXXXX	01/01/2012	Sunday	00:40		1	1	2012
15	Newark	New Jersey	XXXXX XXXXX XXXXX	01/01/2012	Sunday	00:45		1	1	2012
16	Newark	New Jersey	XXXXX XXXXX XXXXX	01/01/2012	Sunday	01:00		1	1	2012
17	Newark	New Jersey	XXXXX XXXXX XXXXX	01/01/2012	Sunday	01:00		1	1	2012
18	Newark	New Jersey	XXXXX XXXXX XXXXX	01/01/2012	Sunday	01:00		1	1	2012



3. Convert all numeric "Day Format" cell values (created in Step #2) to text format via the Excel function `{=TEXT(WEEKDAY(Cell),"ddd")}`.

The screenshot shows an Excel spreadsheet with the following data:

ID	City	State	Address	Date	Day Format	Day of the week (Text)	Hour	Day
1	Newark	New Jersey	XXXXX XXXXX XXXXX	01/01/2012	Sunday	=TEXT(WEEKDAY(F2),"ddd")	00:00	
2	Newark	New Jersey	XXXXX XXXXX XXXXX	01/01/2012	Sunday	Sun	00:00	
3	Newark	New Jersey	XXXXX XXXXX XXXXX	01/01/2012	Sunday	Sun	00:00	
4	Newark	New Jersey	XXXXX XXXXX XXXXX	01/01/2012	Sunday	Sun	00:00	
5	Newark	New Jersey	XXXXX XXXXX XXXXX	01/01/2012	Sunday	Sun	00:00	
6	Newark	New Jersey	XXXXX XXXXX XXXXX	01/01/2012	Sunday	Sun	00:00	
7	Newark	New Jersey	XXXXX XXXXX XXXXX	01/01/2012	Sunday	Sun	00:10	
8	Newark	New Jersey	XXXXX XXXXX XXXXX	01/01/2012	Sunday	Sun	00:10	
9	Newark	New Jersey	XXXXX XXXXX XXXXX	01/01/2012	Sunday	Sun	00:15	
10	Newark	New Jersey	XXXXX XXXXX XXXXX	01/01/2012	Sunday	Sun	00:30	
11	Newark	New Jersey	XXXXX XXXXX XXXXX	01/01/2012	Sunday	Sun	00:30	
12	Newark	New Jersey	XXXXX XXXXX XXXXX	01/01/2012	Sunday	Sun	00:30	
13	Newark	New Jersey	XXXXX XXXXX XXXXX	01/01/2012	Sunday	Sun	00:30	
14	Newark	New Jersey	XXXXX XXXXX XXXXX	01/01/2012	Sunday	Sun	00:40	
15	Newark	New Jersey	XXXXX XXXXX XXXXX	01/01/2012	Sunday	Sun	00:45	
16	Newark	New Jersey	XXXXX XXXXX XXXXX	01/01/2012	Sunday	Sun	01:00	
17	Newark	New Jersey	XXXXX XXXXX XXXXX	01/01/2012	Sunday	Sun	01:00	
18	Newark	New Jersey	XXXXX XXXXX XXXXX	01/01/2012	Sunday	Sun	01:00	

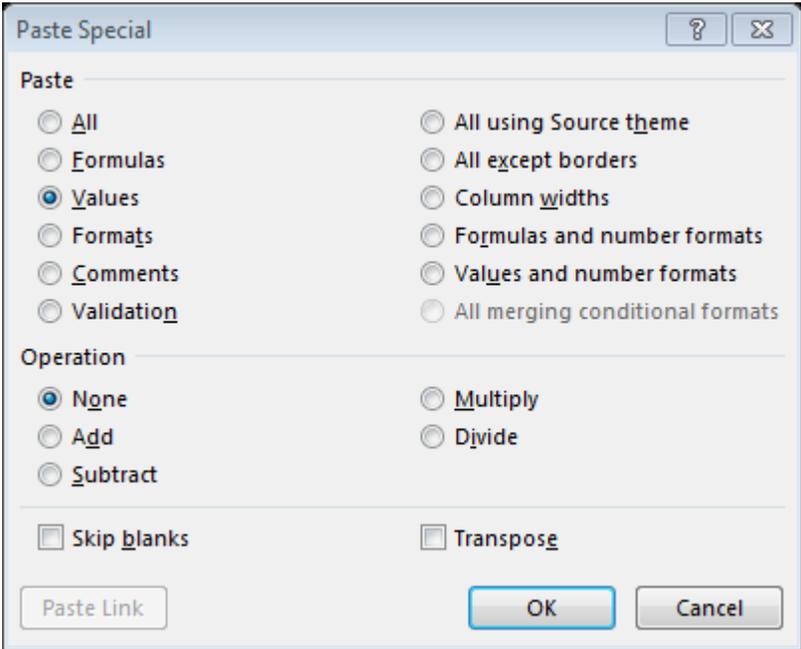
4. Create a new column (e.g., "Hour Format"). Use the Excel function `{=HOUR(Cell)}` to convert all 12-hour values (HH:MM) in each cell of the column to 24-hour format (HH).

The screenshot shows the same Excel spreadsheet with an additional column for "Hour Format":

ID	City	State	Address	Date	Day Format	Day of the Hour	Hour Format	Day	Mo
1	Newark	New Jersey	XXXXX XXXXX XXXXX	01/01/2012	Sunday	Sun	00:00	=HOUR(H2)	1
2	Newark	New Jersey	XXXXX XXXXX XXXXX	01/01/2012	Sunday	Sun	00:00	0	1
3	Newark	New Jersey	XXXXX XXXXX XXXXX	01/01/2012	Sunday	Sun	00:00	0	1
4	Newark	New Jersey	XXXXX XXXXX XXXXX	01/01/2012	Sunday	Sun	00:00	0	1
5	Newark	New Jersey	XXXXX XXXXX XXXXX	01/01/2012	Sunday	Sun	00:00	0	1
6	Newark	New Jersey	XXXXX XXXXX XXXXX	01/01/2012	Sunday	Sun	00:00	0	1
7	Newark	New Jersey	XXXXX XXXXX XXXXX	01/01/2012	Sunday	Sun	00:10	0	1
8	Newark	New Jersey	XXXXX XXXXX XXXXX	01/01/2012	Sunday	Sun	00:10	0	1
9	Newark	New Jersey	XXXXX XXXXX XXXXX	01/01/2012	Sunday	Sun	00:15	0	1
10	Newark	New Jersey	XXXXX XXXXX XXXXX	01/01/2012	Sunday	Sun	00:30	0	1
11	Newark	New Jersey	XXXXX XXXXX XXXXX	01/01/2012	Sunday	Sun	00:30	0	1
12	Newark	New Jersey	XXXXX XXXXX XXXXX	01/01/2012	Sunday	Sun	00:30	0	1
13	Newark	New Jersey	XXXXX XXXXX XXXXX	01/01/2012	Sunday	Sun	00:30	0	1
14	Newark	New Jersey	XXXXX XXXXX XXXXX	01/01/2012	Sunday	Sun	00:40	0	1
15	Newark	New Jersey	XXXXX XXXXX XXXXX	01/01/2012	Sunday	Sun	00:45	0	1
16	Newark	New Jersey	XXXXX XXXXX XXXXX	01/01/2012	Sunday	Sun	01:00	1	1
17	Newark	New Jersey	XXXXX XXXXX XXXXX	01/01/2012	Sunday	Sun	01:00	1	1
18	Newark	New Jersey	XXXXX XXXXX XXXXX	01/01/2012	Sunday	Sun	01:00	1	1

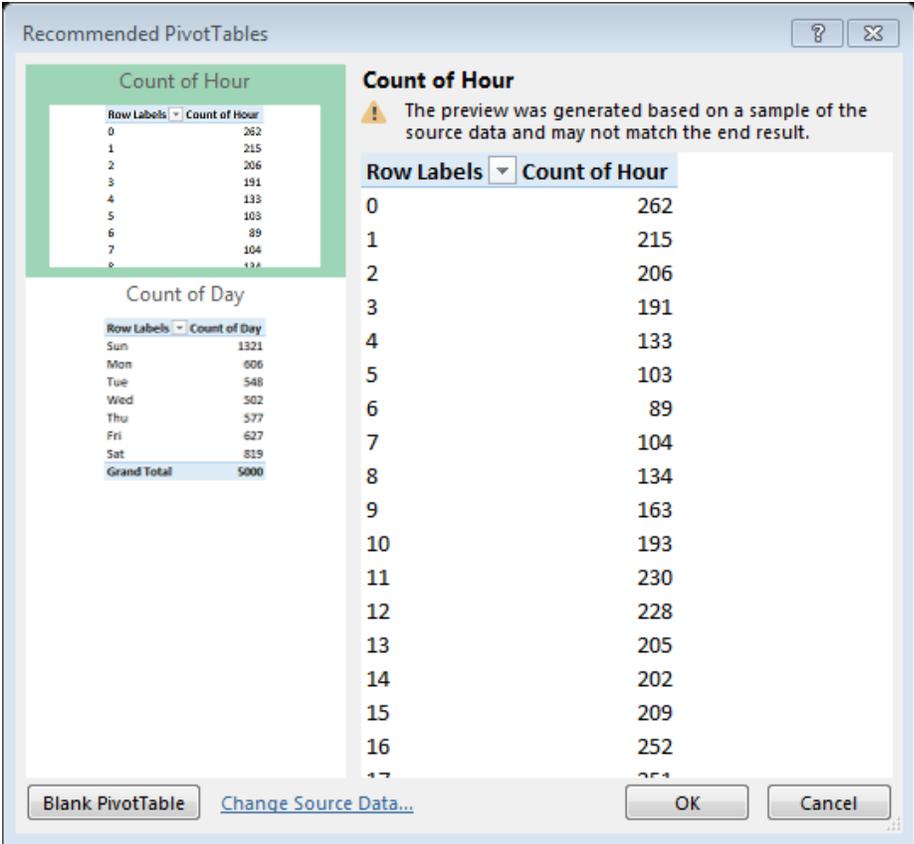


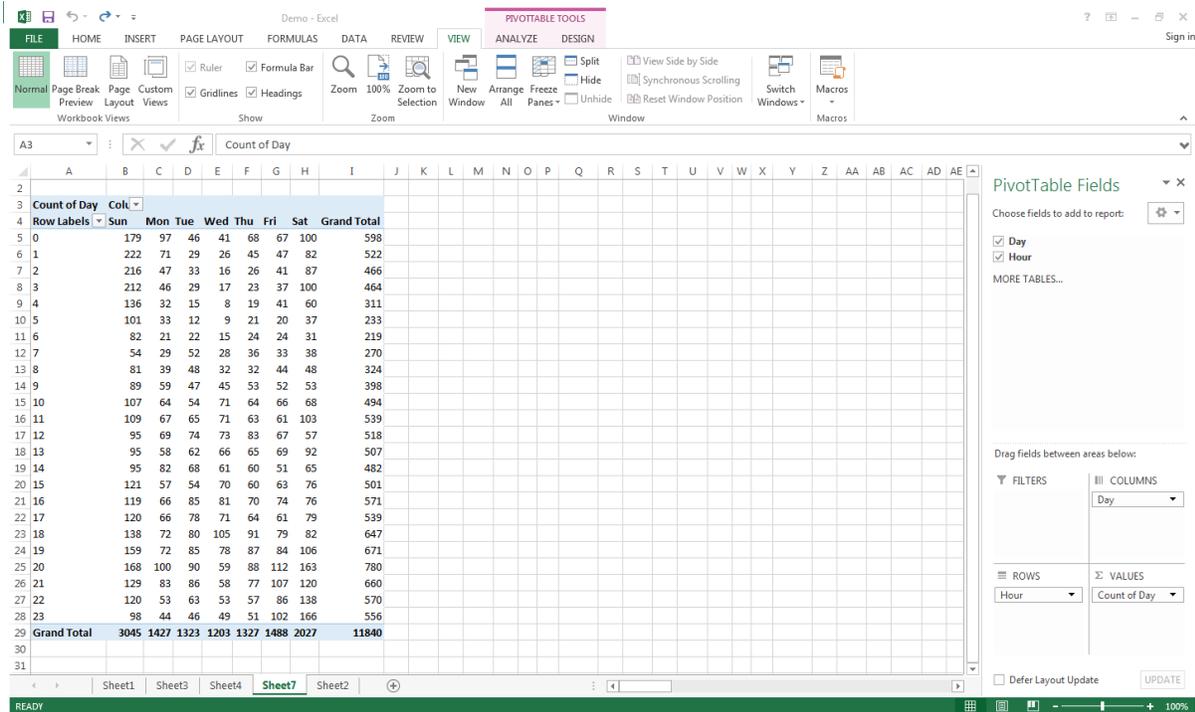
- 5. Using a new sheet, Copy the “Day of the week” and “Hour” columns you created in the previous steps and then use the Paste Special function to paste them in the new sheet; keep only the “Values”. IMPORTANT: Change the “Cell Format” in the new sheet to “Text”.



	A	B	C
1	Day	Hour	
2	Sun	0	
3	Sun	0	
4	Sun	0	
5	Sun	0	
6	Sun	0	
7	Sun	0	
8	Sun	0	
9	Sun	0	
10	Sun	0	
11	Sun	0	
12	Sun	0	
13	Sun	0	
14	Sun	0	
15	Sun	0	
16	Sun	0	
17	Sun	1	
18	Sun	1	
19	Sun	1	

- 6. Use the “Recommended Pivot Tables” function in Excel (Insert > Recommended PivotTables) to create a Pivot table with the data of the two columns (e.g. “Day” and “Hour”).





7. Using the “Conditional Formatting” function (Home > Conditional Formatting > Color Scales), symbolize the summary pivot table you created in Step #6 to produce a Heat Map.

