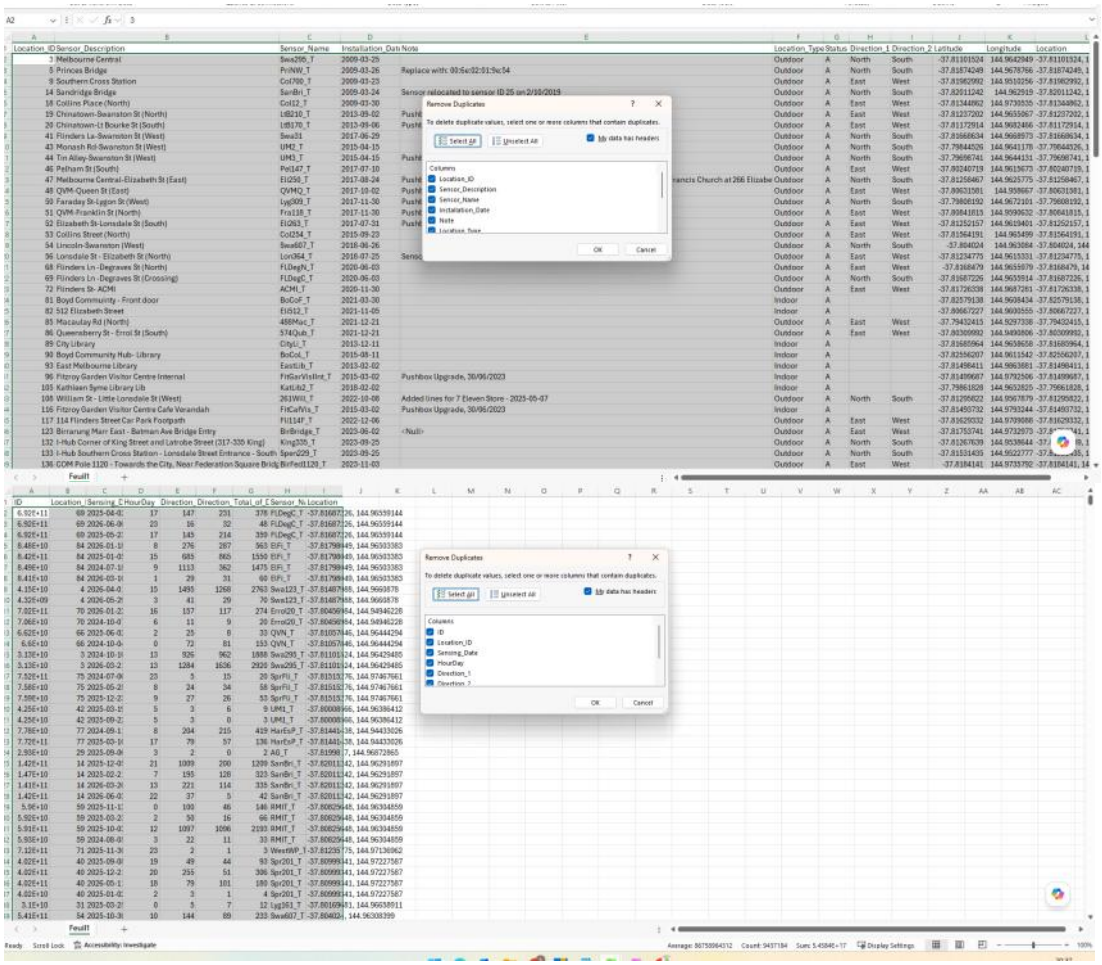
Mini Project - Pedestrian Crossing Analysis

Raw Data Details

1) pedestrian-counting-system-sensor-locations.xlsx: sensor master data (LocationID, SensorName, LocationType, Status, Latitude, Longitude, etc.).
2) pedestrian-counting-system-trimmed-2.xlsx: pedestrian counts (ID, LocationID, SensingDate, HourDay, Direction1, Direction2, TotalofDirections, etc.).

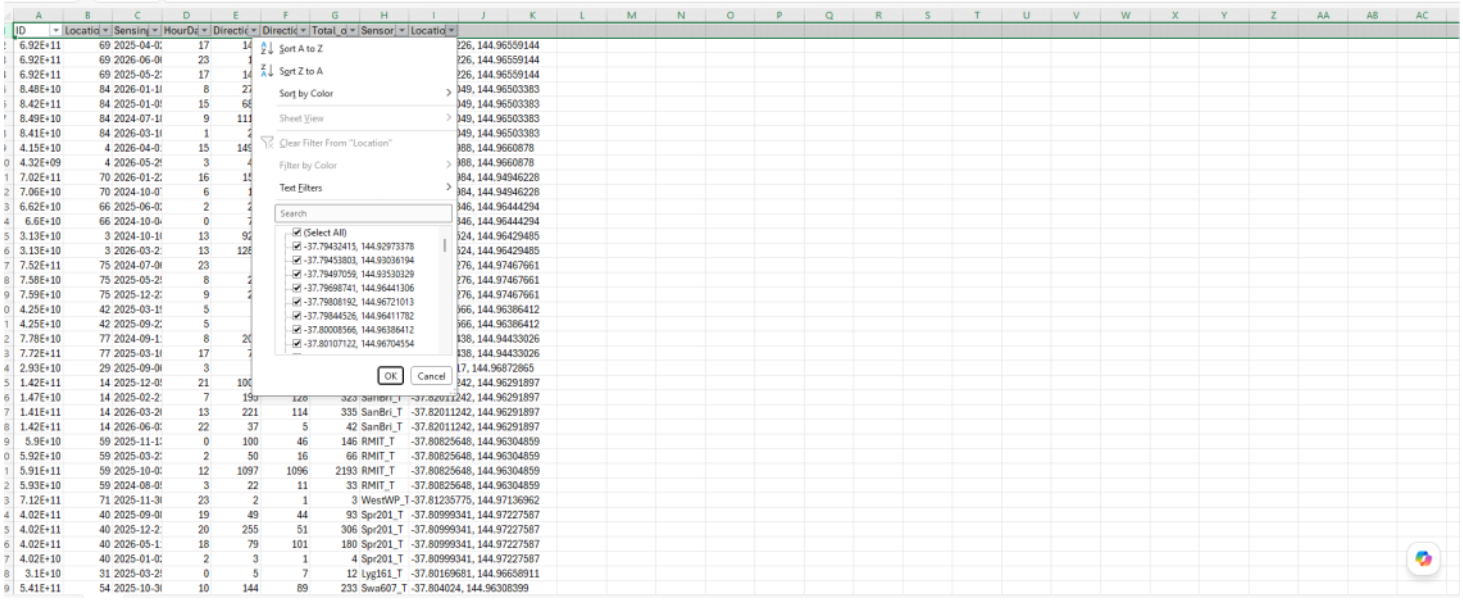
Data Pre-processing using Excel

1) Removing duplicates

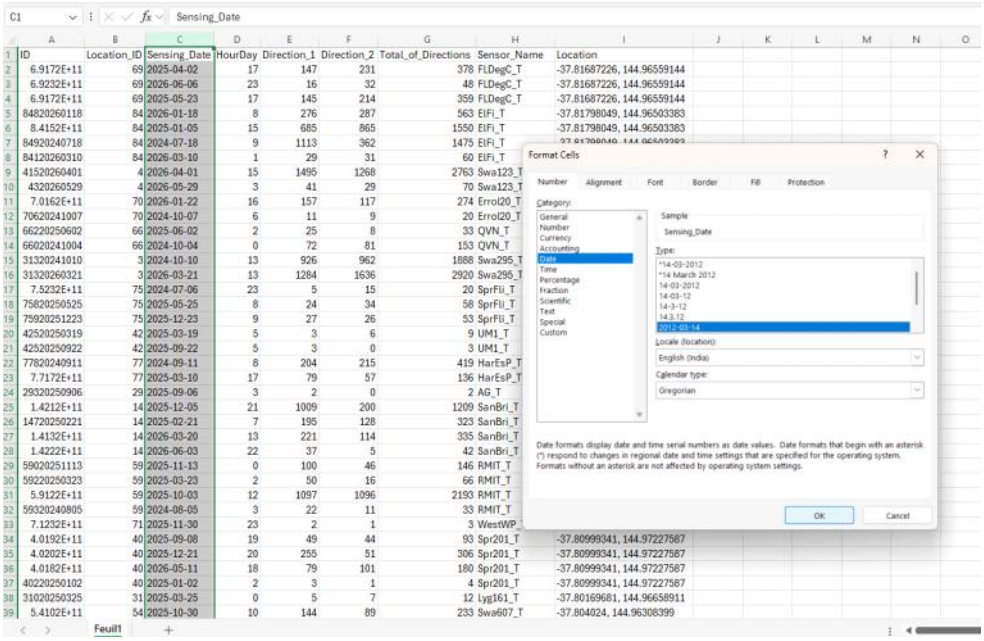


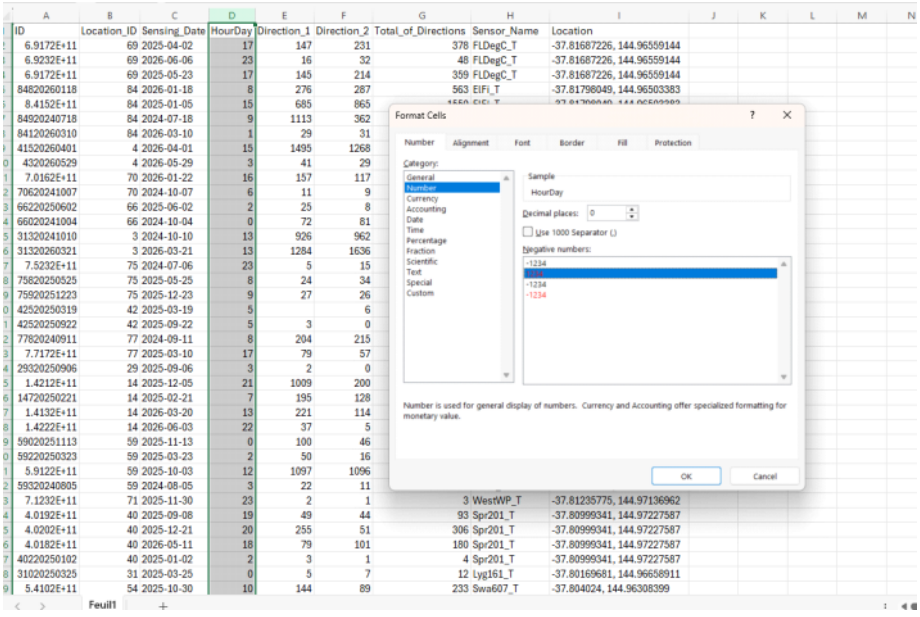
2) Handling missing values

This is done by filtering for blanks in any of the columns, if any and deleting the rows to exclude from further analysis



3) Standardize formats





4) Create calculated fields

Field: **DayOfWeek**

=TEXT([@[Sensing_Date]],"ddd")

ID	Location_ID	Sensing_Date	HourDay	Direction_1	Direction_2	Total_of_Directions	Sensor_Name	Location	DayOfWeek
6.9172E+11	69	2025-04-02	17	147	231	378	FLDegC_T	-37.81687226, 144.96559144	Wed
6.9232E+11	69	2026-06-06	23	16	32	48	FLDegC_T	-37.81687226, 144.96559144	Sat
6.9172E+11	69	2025-05-23	17	145	214	359	FLDegC_T	-37.81687226, 144.96559144	Fri
8.482E+10	84	2026-01-18	8	276	287	563	ElFi_T	-37.81798049, 144.96503383	Sun
8.4152E+11	84	2025-01-05	15	685	865	1550	ElFi_T	-37.81798049, 144.96503383	Sun
8.492E+10	84	2024-07-18	9	1113	362	1475	ElFi_T	-37.81798049, 144.96503383	Thu
8.412E+10	84	2026-03-10	1	29	31	60	ElFi_T	-37.81798049, 144.96503383	Tue
4.152E+10	4	2026-04-01	15	1495	1268	2763	Swa123_T	-37.81487988, 144.9660878	Wed
4320260529	4	2026-05-29	3	41	29	70	Swa123_T	-37.81487988, 144.9660878	Fri
7.0162E+11	70	2026-01-22	16	157	117	274	Errol20_T	-37.80456984, 144.94946228	Thu
7.062E+10	70	2024-10-07	6	11	9	20	Errol20_T	-37.80456984, 144.94946228	Mon
6.622E+10	66	2025-06-02	2	25	8	33	QVN_T	-37.81057846, 144.96444294	Mon
6.602E+10	66	2024-10-04	0	72	81	153	QVN_T	-37.81057846, 144.96444294	Fri
3.132E+10	3	2024-10-10	13	926	962	1888	Swa295_T	-37.81101524, 144.96429485	Thu
3.132E+10	3	2026-03-21	13	1284	1636	2920	Swa295_T	-37.81101524, 144.96429485	Sat
7.5232E+11	75	2024-07-06	23	5	15	20	SprFli_T	-37.81515276, 144.97467661	Sat
7.582E+10	75	2025-05-25	8	24	34	58	SprFli_T	-37.81515276, 144.97467661	Sun
7.592E+10	75	2025-12-23	9	27	26	53	SprFli_T	-37.81515276, 144.97467661	Tue
4.252E+10	42	2025-03-19	5		6	9	UM1_T	-37.80008566, 144.96386412	Wed
4.252E+10	42	2025-09-22	5	3	0	3	UM1_T	-37.80008566, 144.96386412	Mon
7.782E+10	77	2024-09-11	8	204	215	419	HarEsP_T	-37.81441438, 144.94433026	Wed
7.7172E+11	77	2025-03-10	17	79	57	136	HarEsP_T	-37.81441438, 144.94433026	Mon
2.932E+10	29	2025-09-06	3	2	0	2	AG_T	-37.8199817, 144.96872865	Sat
1.4212E+11	14	2025-12-05	21	1009	200	1209	SanBri_T	-37.82011242, 144.96291897	Fri
1.472E+10	14	2025-02-21	7	195	128	323	SanBri_T	-37.82011242, 144.96291897	Fri
1.4132E+11	14	2026-03-20	13	221	114	335	SanBri_T	-37.82011242, 144.96291897	Fri
1.4222E+11	14	2026-06-03	22	37	5	42	SanBri_T	-37.82011242, 144.96291897	Wed
5.902E+10	59	2025-11-13	0	100	46	146	RMIT_T	-37.80825648, 144.96304859	Thu
5.922E+10	59	2025-03-23	2	50	16	66	RMIT_T	-37.80825648, 144.96304859	Sun
5.9122E+11	59	2025-10-03	12	1097	1096	2193	RMIT_T	-37.80825648, 144.96304859	Fri
5.932E+10	59	2024-08-05	3	22	11	33	RMIT_T	-37.80825648, 144.96304859	Mon
7.1232E+11	71	2025-11-30	23	2	1	3	WestWP_T	-37.81235775, 144.97136962	Sun

Field: **TimeBand**

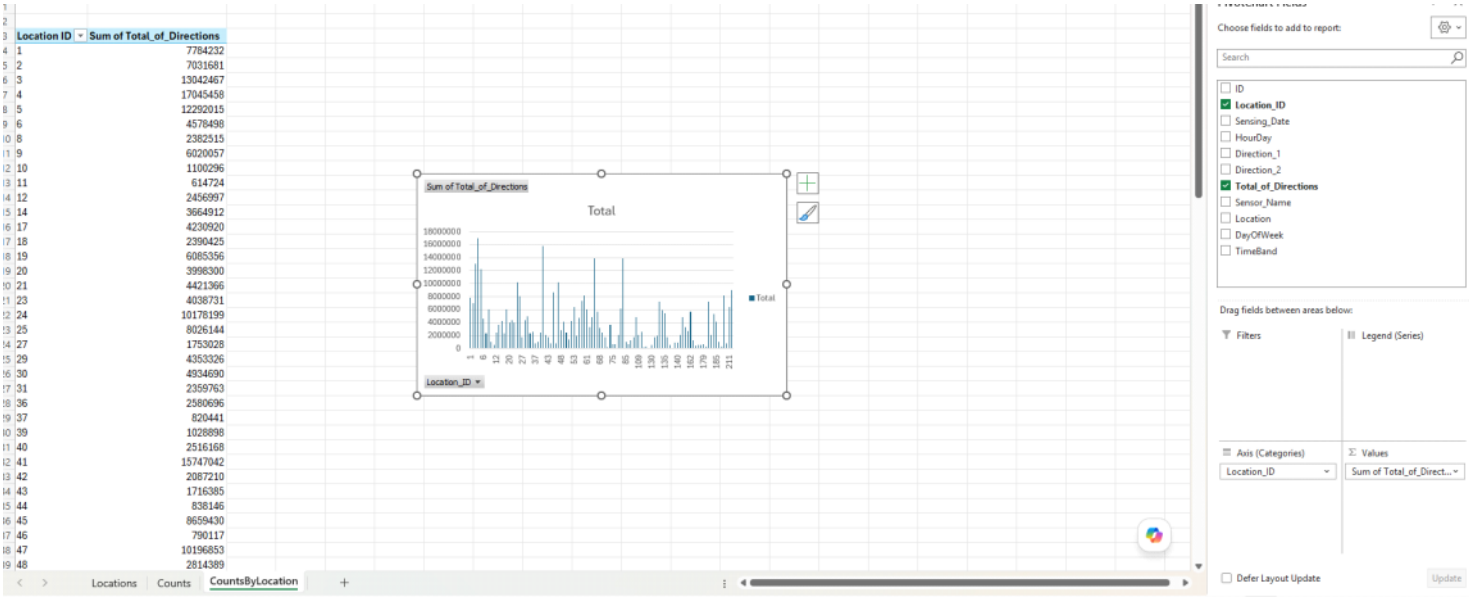
K2 =IF([@HourDay]<12,"Morning",IF([@HourDay]<18,"Afternoon","Evening"))

ID	Location_ID	Sensing_Date	HourDay	Direction_1	Direction_2	Total_of_Directions	Sensor_Name	Location	DayOfWeek	TimeBand
6.9172E+11	69	2025-04-02	17	147	231	378	FLDegC_T	-37.81687226, 144.96559144	Wed	Afternoon
6.9232E+11	69	2026-06-06	23	16	32	48	FLDegC_T	-37.81687226, 144.96559144	Sat	Evening
6.9172E+11	69	2025-05-23	17	145	214	359	FLDegC_T	-37.81687226, 144.96559144	Fri	Afternoon
8.482E+10	84	2026-01-18	8	276	287	563	ElFi_T	-37.81798049, 144.96503383	Sun	Morning
8.4152E+11	84	2025-01-05	15	685	865	1550	ElFi_T	-37.81798049, 144.96503383	Sun	Afternoon
8.492E+10	84	2024-07-18	9	1113	362	1475	ElFi_T	-37.81798049, 144.96503383	Thu	Morning
8.412E+10	84	2026-03-10	1	29	31	60	ElFi_T	-37.81798049, 144.96503383	Tue	Morning
4.152E+10	4	2026-04-01	15	1495	1268	2763	Swa123_T	-37.81487988, 144.9660878	Wed	Afternoon
4320260529	4	2026-05-29	3	41	29	70	Swa123_T	-37.81487988, 144.9660878	Fri	Morning
7.0162E+11	70	2026-01-22	16	157	117	274	Errol20_T	-37.80456984, 144.94946228	Thu	Afternoon
7.062E+10	70	2024-10-07	6	11	9	20	Errol20_T	-37.80456984, 144.94946228	Mon	Morning
6.622E+10	66	2025-06-02	2	25	8	33	QVN_T	-37.81057846, 144.96444294	Mon	Morning
6.602E+10	66	2024-10-04	0	72	81	153	QVN_T	-37.81057846, 144.96444294	Fri	Morning
3.132E+10	3	2024-10-10	13	926	962	1888	Swa295_T	-37.81101524, 144.96429485	Thu	Afternoon
3.132E+10	3	2026-03-21	13	1284	1636	2920	Swa295_T	-37.81101524, 144.96429485	Sat	Afternoon
7.5232E+11	75	2024-07-06	23	5	15	20	SprFli_T	-37.81515276, 144.97467661	Sat	Evening
7.582E+10	75	2025-05-25	8	24	34	58	SprFli_T	-37.81515276, 144.97467661	Sun	Morning
7.592E+10	75	2025-12-23	9	27	26	53	SprFli_T	-37.81515276, 144.97467661	Tue	Morning
4.252E+10	42	2025-03-19	5		6	9	UM1_T	-37.80008566, 144.96386412	Wed	Morning
4.252E+10	42	2025-09-22	5	3	0	3	UM1_T	-37.80008566, 144.96386412	Mon	Morning
7.782E+10	77	2024-09-11	8	204	215	419	HarEsP_T	-37.81441438, 144.94433026	Wed	Morning
7.7172E+11	77	2025-03-10	17	79	57	136	HarEsP_T	-37.81441438, 144.94433026	Mon	Afternoon
2.932E+10	29	2025-09-06	3	2	0	2	AG_T	-37.8199817, 144.96872865	Sat	Morning
1.4212E+11	14	2025-12-05	21	1009	200	1209	SanBri_T	-37.82011242, 144.96291897	Fri	Evening
1.472E+10	14	2025-02-21	7	195	128	323	SanBri_T	-37.82011242, 144.96291897	Fri	Morning
1.4132E+11	14	2026-03-20	13	221	114	335	SanBri_T	-37.82011242, 144.96291897	Fri	Afternoon
1.4222E+11	14	2026-06-03	22	37	5	42	SanBri_T	-37.82011242, 144.96291897	Wed	Evening
5.902E+10	59	2025-11-13	0	100	46	146	RMIT_T	-37.80825648, 144.96304859	Thu	Morning
5.922E+10	59	2025-03-23	2	50	16	66	RMIT_T	-37.80825648, 144.96304859	Sun	Morning
5.9122E+11	59	2025-10-03	12	1097	1096	2193	RMIT_T	-37.80825648, 144.96304859	Fri	Afternoon
5.932E+10	59	2024-08-05	3	22	11	33	RMIT_T	-37.80825648, 144.96304859	Mon	Morning

Field: **LocationType** from Locations sheet

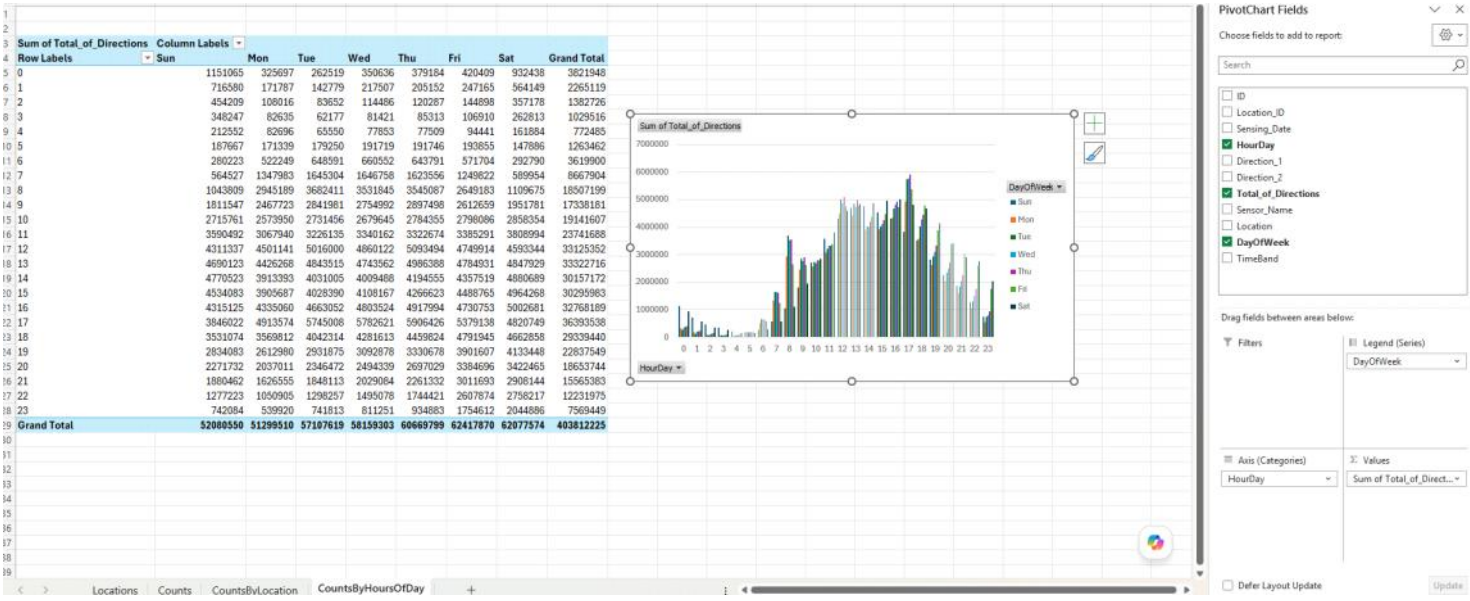
5) Create pivot tables

CountsByLocation



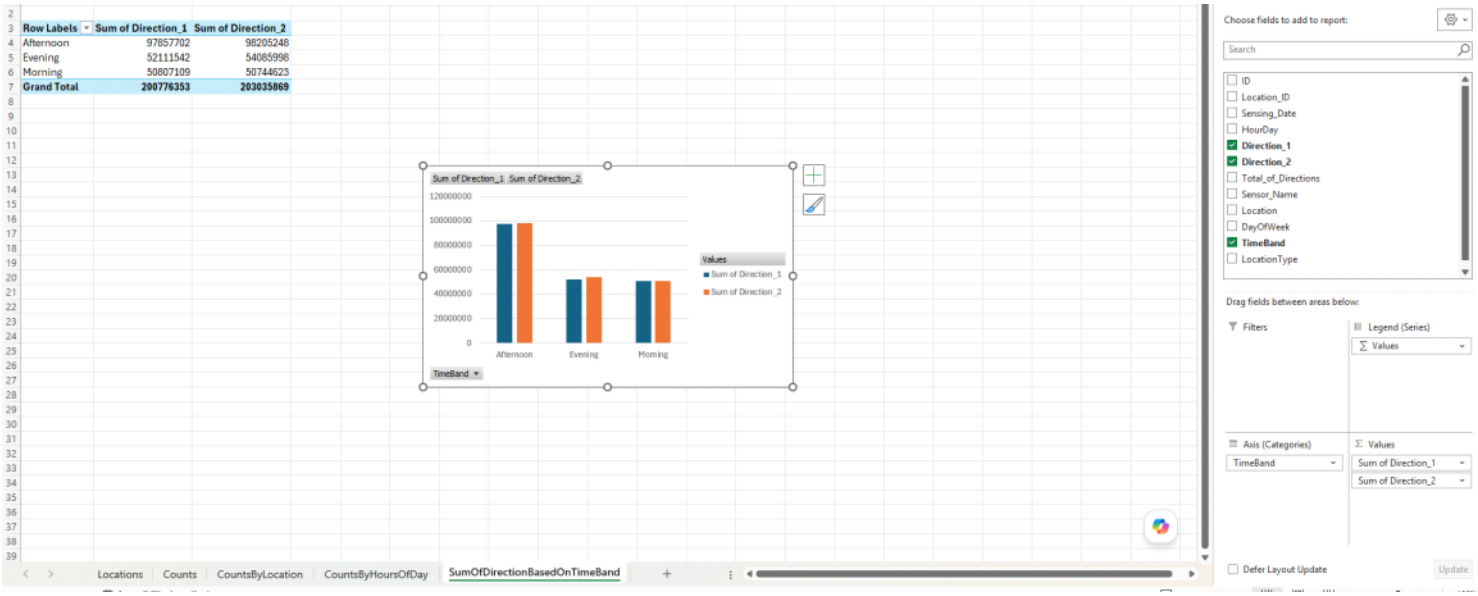
Location ID	Sum of Total_of_Directions
1	7784232
2	7031681
3	13042467
4	17045458
5	12292015
6	4578498
8	2382515
9	6020057
10	1100296
11	614724
12	2456997
14	3664912
17	4230920
18	2390425
19	6085356
20	3998300
21	4421366
23	4038731
24	10178199
25	8026144
27	1753028
29	4353326
30	4934690
31	2359763
36	2580696
37	820441
39	1028898
40	2516168
41	15747042
42	2087210
43	1716385
44	838146
45	8659430
46	790117
47	10196853
48	2814389

CountsByHoursOfDay



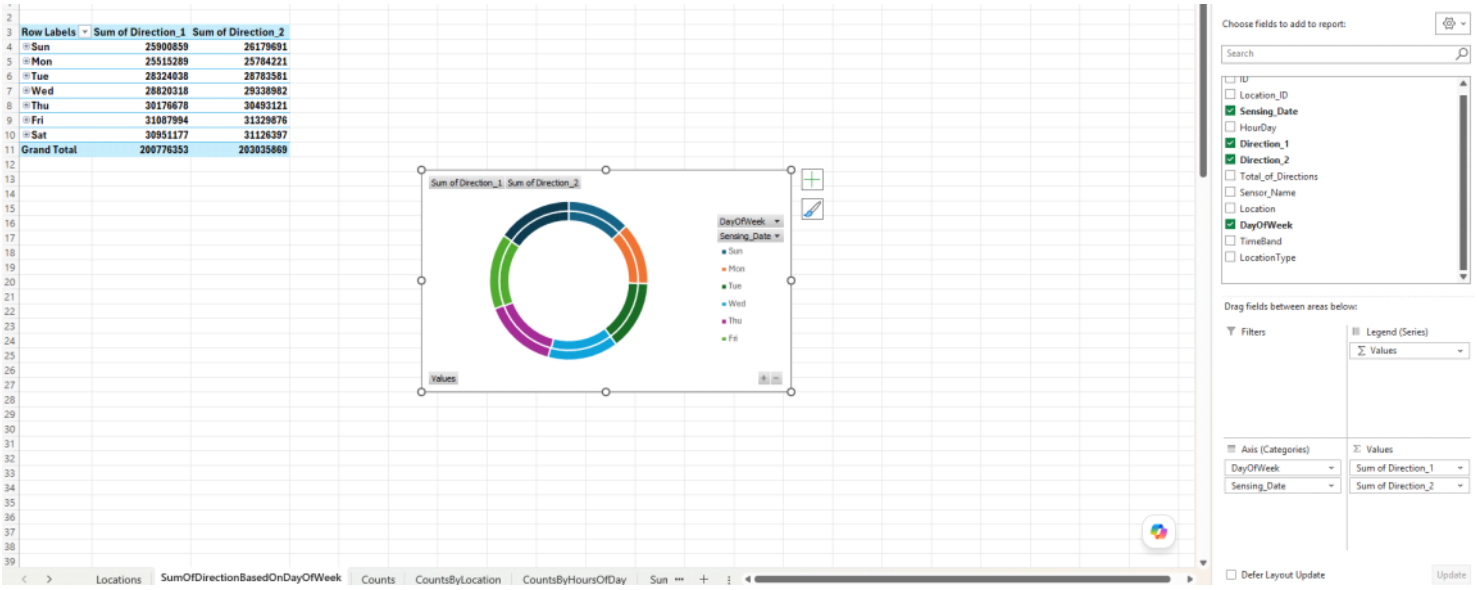
Sum of Total_of_Directions	Column Labels							
Row Labels	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Grand Total
0	1151065	325697	262519	350636	379184	420409	932438	3821948
1	716580	171787	142779	217507	205152	247165	564149	2265119
2	454209	108016	83652	114486	120287	144898	357178	1382726
3	348247	82635	62177	81421	85313	106910	262813	1029516
4	212552	82696	65550	77853	77509	94441	161884	772485
5	187667	171339	179250	191719	191746	193855	147886	1263462
6	280223	522249	648591	660552	643791	571704	292790	3619900
7	564527	1347983	1645304	1646758	1623556	1249622	589954	8667904
8	1043809	2945189	3682411	3531845	3545087	2649183	1109675	18507199
9	1811547	2467723	2841981	2754992	2897498	2612659	1951781	17338181
10	2715761	2573950	2731456	2679645	2784355	2798086	2858354	19141607
11	3590492	3067940	3226135	3340162	3322674	3385291	3808994	23741688
12	4311337	4501141	5016000	4860122	5093494	4749914	4593344	33125352
13	4690123	4426268	4843515	4743562	4986388	4784931	4847929	33322716
14	4770523	3913393	4031005	4009488	4194555	4357519	4880689	30157172
15	4534083	3905687	4028390	4108167	4266623	4488765	4964268	30295983
16	4315125	4335060	4663052	4803524	4917994	4730753	5002681	32768189
17	3846022	4913574	5745008	5782621	5906426	5379138	4820749	36393538
18	3531074	3569812	4042314	4281613	4459824	4791945	4662858	29339440
19	2834083	2612980	2931875	3092878	3330678	3901607	4133448	22837549
20	2271732	2037011	2346472	2494339	2697029	3384696	3422465	18653744
21	1880462	1626555	1848113	2029084	2261332	3011693	2908144	15565383
22	1277223	1050905	1298257	1495078	1744421	2607874	2758217	12231975
23	742084	539920	741813	811251	934883	1754612	2044886	7569449
Grand Total	**52080550**	**51299510**	**57107619**	**58159303**	**60669799**	**62417870**	**62077574**	**403812225**

SumOfDirectionBasedOnTimeBand



Row Labels	Sum of Direction_1	Sum of Direction_2
Afternoon	97857702	98205248
Evening	52111542	54085998
Morning	50807109	50744623
Grand Total	200776353	203035869

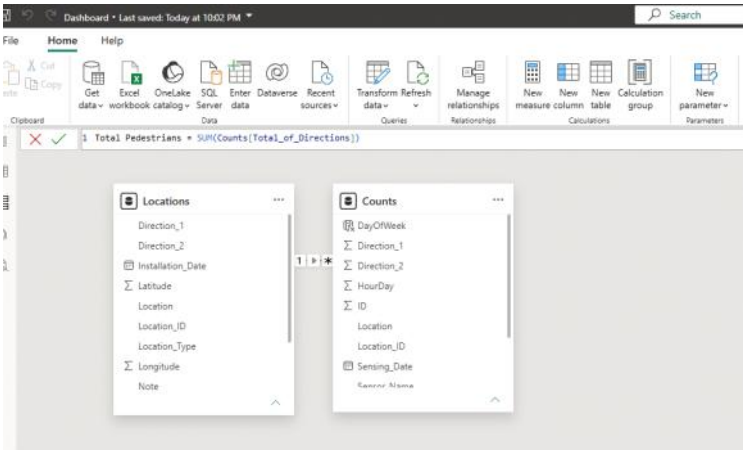
SumOfDirectionBasedOnDayOfWeek



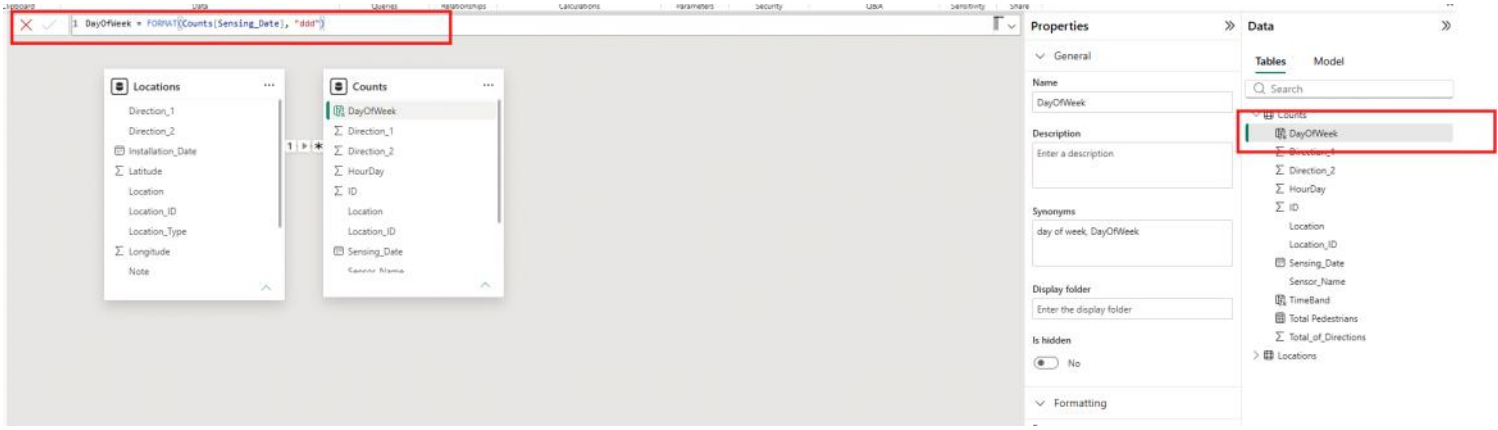
Row Labels	Sum of Direction_1	Sum of Direction_2
Sun	25900859	26179691
Mon	25515289	25784221
Tue	28324038	28783581
Wed	28820318	29338982
Thu	30176678	30493121
Fri	31087994	31329876
Sat	30951177	31126397
Grand Total	200776353	203035869

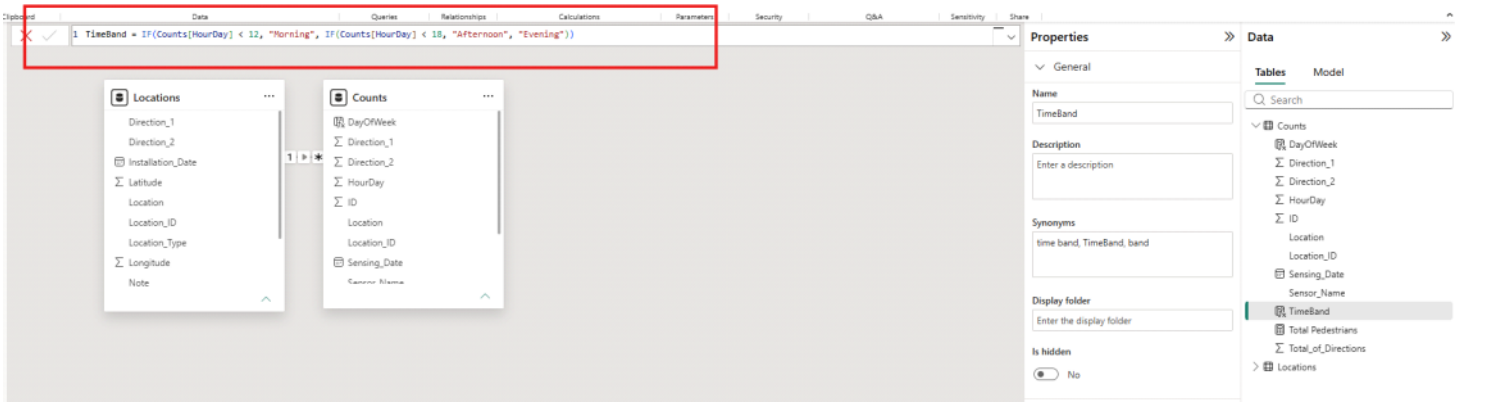
Dashboard using PowerBI

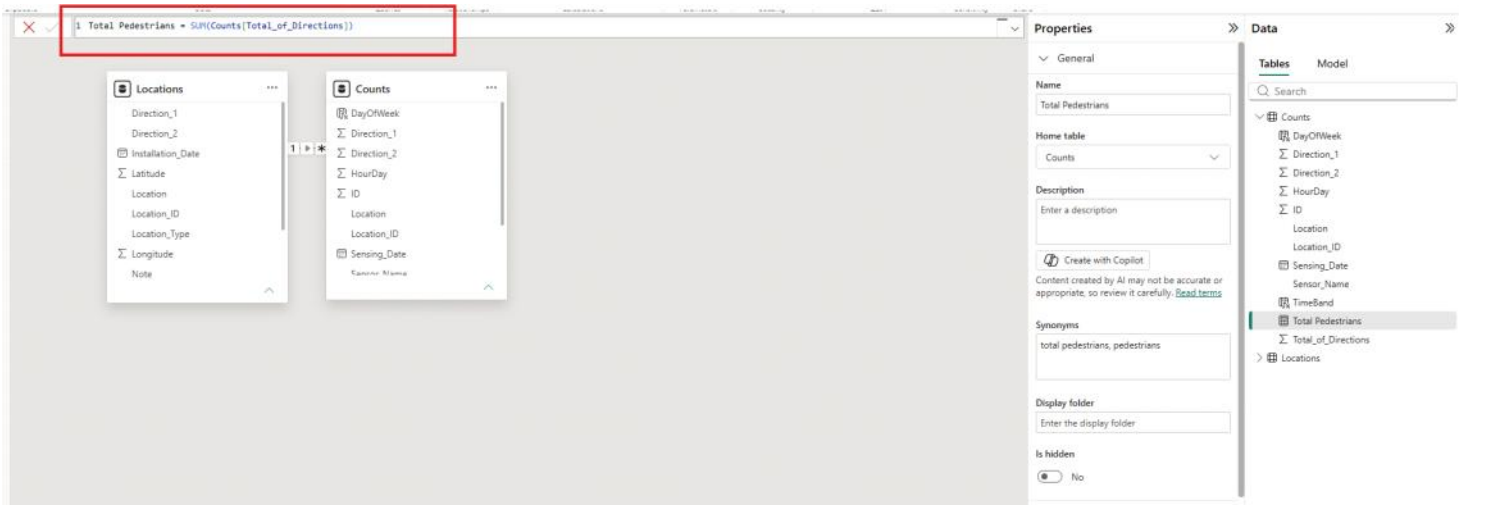
1) Import raw data from excel and ensure LocationID column relationship is established



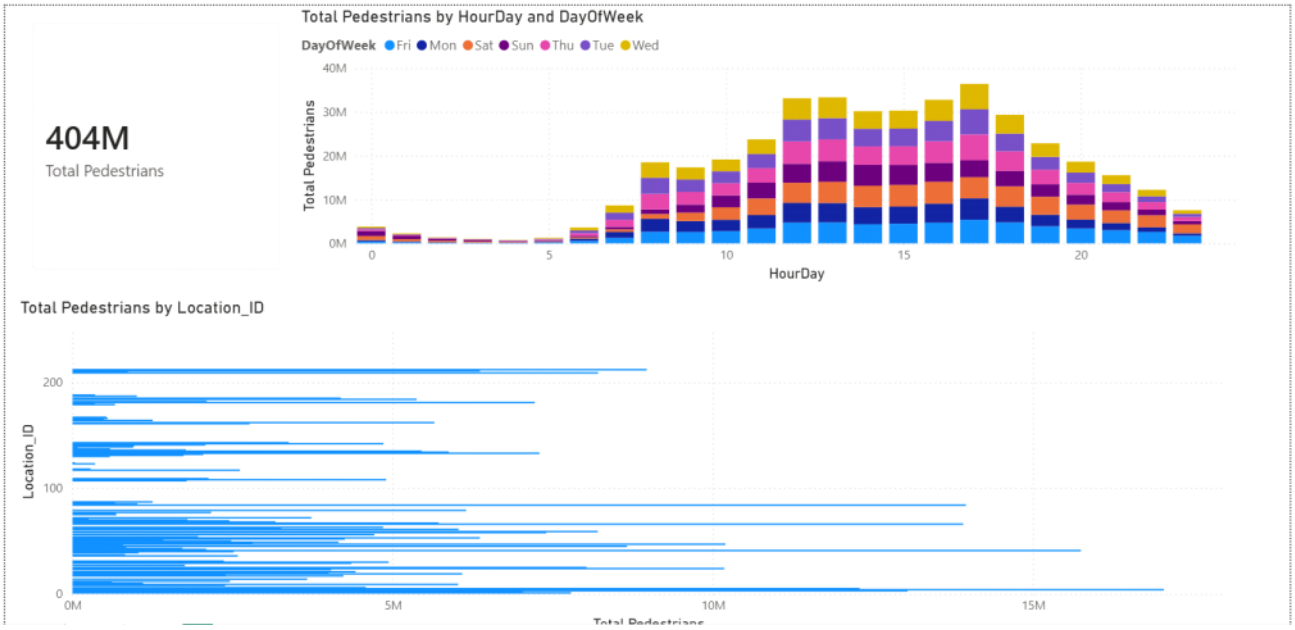
2) Add calculated and measured column

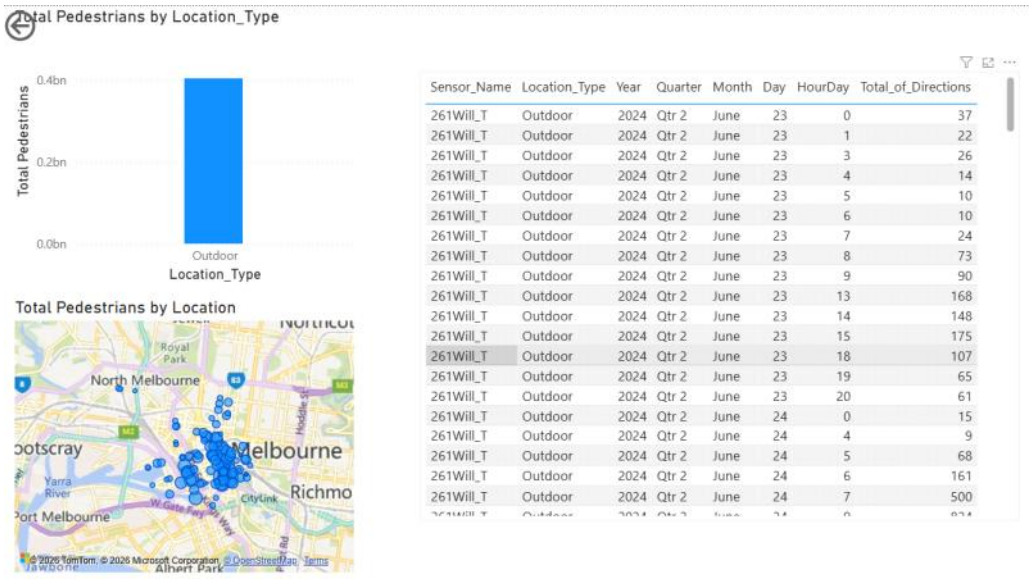




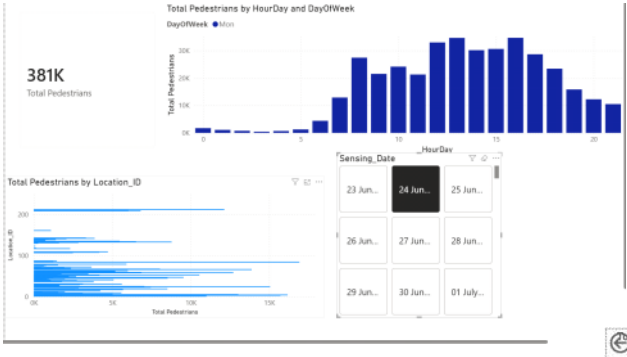


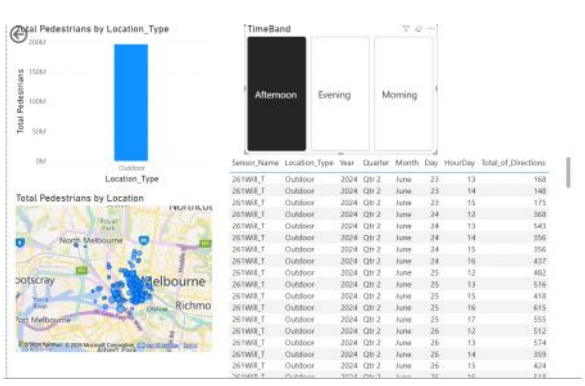
3) Build Core Visuals

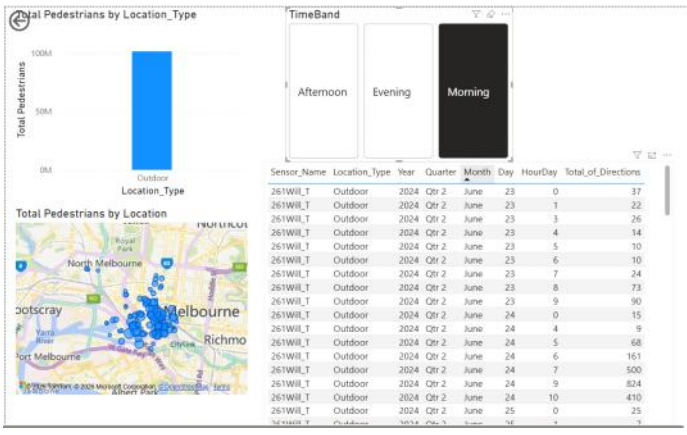




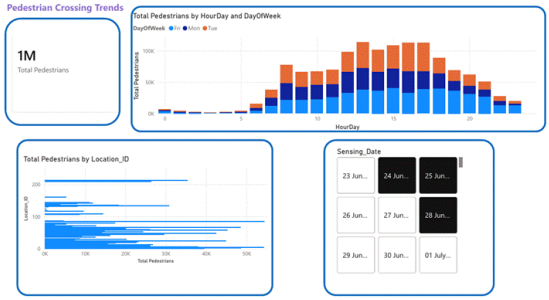
4) Interactive Slicers



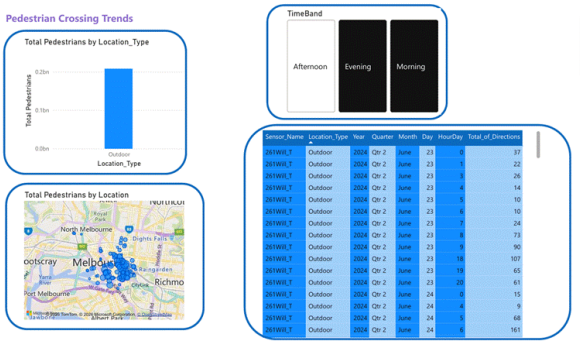




Pedestrian Crossing Trends

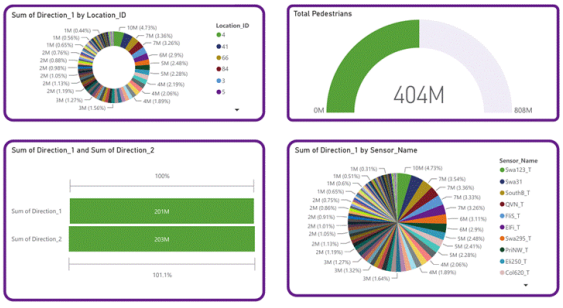


Pedestrian Crossing Trends

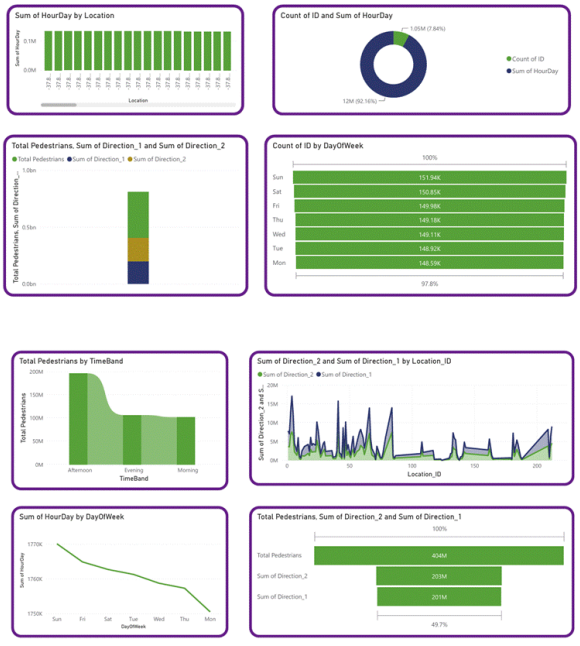


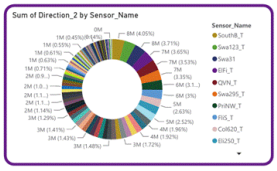
Sensor_Name	Location_Type	Year	Quarter	Month	Day	HourDay	Total_of_Directions
261Will_T	Outdoor	2024	Qtr 2	June	23	0	37
261Will_T	Outdoor	2024	Qtr 2	June	23	1	22
261Will_T	Outdoor	2024	Qtr 2	June	23	3	26
261Will_T	Outdoor	2024	Qtr 2	June	23	4	14
261Will_T	Outdoor	2024	Qtr 2	June	23	5	10
261Will_T	Outdoor	2024	Qtr 2	June	23	6	10
261Will_T	Outdoor	2024	Qtr 2	June	23	7	24
261Will_T	Outdoor	2024	Qtr 2	June	23	8	73
261Will_T	Outdoor	2024	Qtr 2	June	23	9	90
261Will_T	Outdoor	2024	Qtr 2	June	23	18	107
261Will_T	Outdoor	2024	Qtr 2	June	23	19	65
261Will_T	Outdoor	2024	Qtr 2	June	23	20	61
261Will_T	Outdoor	2024	Qtr 2	June	24	0	15
261Will_T	Outdoor	2024	Qtr 2	June	24	4	9
261Will_T	Outdoor	2024	Qtr 2	June	24	5	68
261Will_T	Outdoor	2024	Qtr 2	June	24	6	161

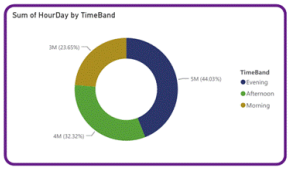
Pedestrian crossing trends

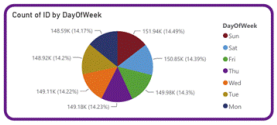


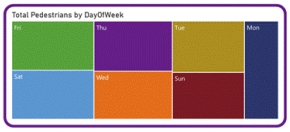
Pedestrian crossing trends




Sum of Direction_2 by Sensor_Name
Sensor_Name
SouthB_T
Swa123_T
Swa31
EIFL_T
QVN_T
Swa395_T
PnNW_T
FIG_T
Col620_T
EIJ250_T
0M
8M (4.05%)
8M (3.71%)
7M (3.65%)
7M (3.53%)
7M (3.35%)
6M (3.1...)
6M (3%)
5M (2.63%)
5M (2.52%)
4M (1.96%)
4M (1.92%)
3M (1.72%)
3M (1.48%)
3M (1.42%)
3M (1.41%)
3M (1.29%)
2M (1.14%)
2M (1.1...)
2M (1.1...)
2M (1.0...)
2M (0.9...)
1M (0.71%)
1M (0.61%)
1M (0.61%)
1M (0.55%)
1M (0.45%)


Sum of HourDay by TimeBand
TimeBand
Evening
Afternoon
Morning
5M (44.03%)
4M (32.32%)
3M (23.65%)


Count of ID by DayOfWeek
DayOfWeek
Sun
Sat
Fri
Thu
Wed
Tue
Mon
151.94K (14.49%)
150.85K (14.39%)
149.98K (14.3%)
149.18K (14.23%)
149.11K (14.22%)
148.92K (14.2%)
148.59K (14.17%)


Total Pedestrians by DayOfWeek
Fri
Thu
Tue
Mon
Sat
Wed
Sun