

Sample: Retail, Manchester: report

Project: Sample: Retail, Manchester

Goal: Describe the project Sample: Retail, Manchester: run the analyses that tell the most about its data, draw every result, and write a cited report.

Run: fc8e4ab3-4293-4a39-95aa-e6a952c9b855 (running, 11 agent run(s))

Generated: 2026-10-18T05:14:40Z, version 1

Model cost: USD 0.0000 over 0 model call(s)

Data used

Data	Kind	Rows	Time span	Summary	Source
Neighborhoods	vector, Polygon	32		32 polygon (area) features; 'population' 3,781 to 26,441 (mean 9305); 'households' 1,591 to 11,295 (mean 3926); named by 'name' (e.g. Northgate, Southgate, Eastfield); total area 42.03 km2; extent -2.2952,53.4527 to -2.1888,53.5073. Areas (Neighborhoods) with population to compare and map.	[86]
Stores	vector, Point	14		14 point features; 'format' has 3 values (top: express 8, superstore 3, metro 3); 'sales_gbp_week' 51,784 to 524,305 (mean 1.759e+05); 'floor_area_m2' 445 to 4,768 (mean 1625); 'opened_year' 1,996 to 2,024 (mean 2009); named by 'name' (e.g. Eastfield Superstore, Millbrook Superstore, Station Quarter Express); extent -2.2796,53.4607 to -2.2011,53.5019. Point locations of Stores by format.	[87]
Competitor stores	vector, Point	70		70 point features; 'brand' has 5 values (top: Brand A 16, Brand E 15, Brand D 14); 'format' has 3 values (top: convenience 40, discount 21, supermarket 9); 'est_sales_gbp_week' 33,094 to 394,645 (mean 1.278e+05); extent -2.2910,53.4547 to -2.1909,53.5016. Point locations of Competitor stores by brand.	[88]
Trade areas	vector, Polygon	14		14 polygon (area) features; 'households' 3,766 to 11,828 (mean 7821); 'spend_potential_gbp_week' 194,055 to 511,896 (mean 3.537e+05); named by 'name' (e.g. Eastfield Superstore trade area, Millbrook Superstore trade area, Station Quarter Express trade area); total area 42.03 km2; extent -2.2952,53.4527 to -2.1888,53.5073. Areas (Trade areas) with households to compare and map.	[89]
Loyalty transactions	vector, Point	2,200	2026-04-01 to 2026-09-30	2,200 point features; dated by 'purchased_at' from 2026-04-01 to 2026-09-30; 'segment' has 4 values (top: family 786, professional 532, student 464); 'channel' has 3 values (top: in store 1531, click and collect 443, delivery 226); 'basket_gbp' 4.02 to 224.7 (mean 33.82); extent -2.2938,53.4534 to -2.1901,53.5066. Dated point events by segment: where and when Loyalty transactions happen.	[2]
Footfall counts by week	vector, Point	780	2026-04-06 to 2026-09-28	780 point features; dated by 'date' from 2026-04-06 to 2026-09-28; 'visitors' 2,579 to 23,787 (mean 8873); extent -2.2893,53.4537 to -2.1929,53.5030. Dated point events: where and when Footfall counts by week happen.	[3]
Parking lots	vector, Point	25		25 point features; 'type' has 2 values (top: multi-story 13, surface 12); 'spaces' 64 to 858 (mean 463.1); 'tariff_gbp_hour' 1.35 to 4.23 (mean 2.639); extent -2.2858,53.4557 to -2.1915,53.5046. Point locations of Parking lots by type.	[90]

Data	Kind	Rows	Time span	Summary	Source
Main roads	vector, LineString	18		18 line features; 'class' has 1 values (top: A road 18); 'aadt' 13,250 to 31,246 (mean 1.988e+04); named by 'name' (e.g. Bury Road, Hyde Road, Bridge Street); total length 98.34 km; extent -2.2939,53.4535 to -2.1904,53.5064. Lines (Main roads) such as routes or networks.	[91]
Neighborhood demographics	table	32		Table of 32 rows and 6 columns without geometry; 'median_income_gbp' 20,009 to 46,150 (mean 3.21e+04); 'pct_age_65_plus' 8.1 to 23.4 (mean 16); 'pct_students' 2.1 to 36.8 (mean 20.3). A table of Neighborhood demographics without locations.	[92]
Weekly store sales	table	364	2026-04-06 to 2026-09-28	Table of 364 rows and 5 columns without geometry; dated by 'week_start' from 2026-04-06 to 2026-09-28; 'sales_gbp' 47,580 to 616,246 (mean 1.887e+05); 'transactions' 1,412 to 23,295 (mean 6598); 'avg_basket_gbp' 24.07 to 34 (mean 28.99). A table of Weekly store sales without locations.	[4]
Store network expansion memo	document			1-page md document 'Store network expansion memo'; language en; mentions 5 place(s): Eastfield Superstore (1), Millbrook Superstore (1), Orchard Park (1), 53.46088, -2.20544 (1), Oakwood Superstore trade area (1). A document about Eastfield Superstore, Millbrook Superstore, Orchard Park.	[93]
Sample: Retail, Manchester	record				[94]
Hot spot analysis: Competitor stores	layer, Polygon	43			[95]
Hot spot analysis: Footfall counts by week	layer, Polygon	130			[96]
Emerging hot spots: Footfall counts by week	layer, Polygon	25			[97]
Emerging hot spots: Loyalty transactions	layer, Polygon	395			[98]
Calculate density: Competitor stores	layer, Polygon	322			[99]
Calculate density: Footfall counts by week	layer, Polygon	428			[100]
Calculate density: Loyalty transactions	layer, Polygon	3,864			[101]
Summarize within: Trade areas	layer, Polygon	14			[102]
Summarize within: Trade areas	layer, Polygon	14			[103]
Summarize within: Trade areas	layer, Polygon	14			[104]
Find point clusters: Stores	layer, Point	14			[105]
Find point clusters: cluster hulls	layer, Polygon	1			[106]
Find point clusters: Competitor stores	layer, Point	70			[107]
Find point clusters: cluster hulls	layer, Polygon	2			[108]

Data	Kind	Rows	Time span	Summary	Source
Find point clusters: Footfall counts by week	layer, Point	780			[109]
Find point clusters: cluster hulls	layer, Polygon	30			[110]
Hot spot analysis: Loyalty transactions	layer, Polygon	1,071			[111]
Repeat and near repeat classification: Footfall counts by week	layer, Point	780			[112]

Timeline

Timeline: events per week by dataset

Per week: 27 weeks from 2026-03-30 to 2026-09-28; trend +1.27 per week; first half 1,484, second half 1,741 (+17.3%)

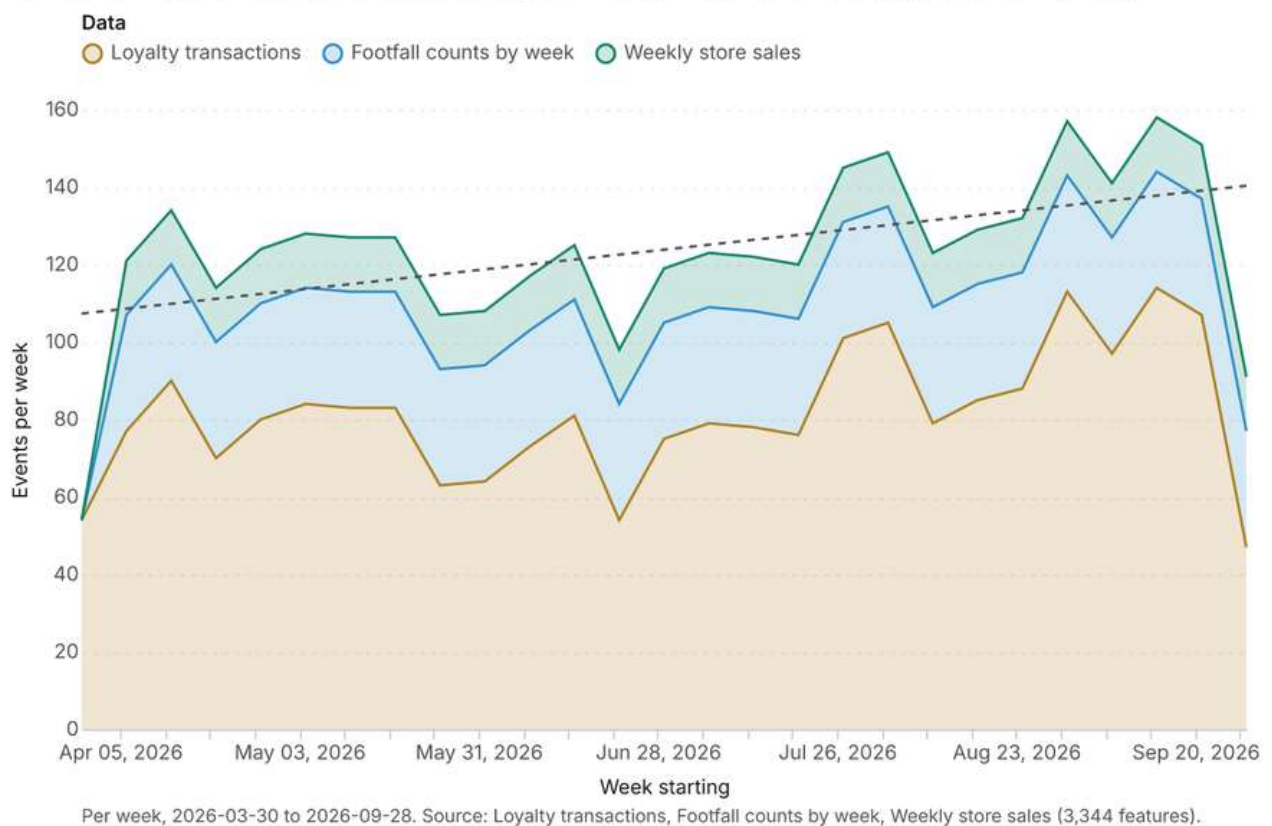


Figure 1. Timeline: events per week by dataset [1]. Per week, 2026-03-30 to 2026-09-28. Source: Loyalty transactions, Footfall counts by week, Weekly store sales (3,344 features). The data is in the appendix.

The timeline counts 3,344 dated events in Loyalty transactions, Footfall counts by week, Weekly store sales per week, from week of 2026-03-30 to week of 2026-09-28 [1][2][3][4]. By dataset: Loyalty transactions 2,200; Footfall counts by week 780; Weekly store sales 364 [1]. The trend is +1.27 events per week; the second half of the weeks has 1,741 against 1,484 in the first (+17.3%) [1].

Busiest weeks

- week of 2026-09-14: 158 events [1]
- week of 2026-08-31: 157 events [1]
- week of 2026-09-21: 151 events [1]

Quietest weeks

- week of 2026-03-30: 54 events [1]
- week of 2026-09-28: 91 events [1]
- week of 2026-06-22: 98 events [1]

Hot spots

What this analysis is. Hot spot analysis: Getis-Ord Gi* hot and cold spots with z-scores, p-values and confidence bins [5]. In ArcGIS it is Find Hot Spots or Hot Spot Analysis (Getis-Ord Gi*); in QGIS, qgis:hotspot (plugin) [5].

Why it was run on this data. 70 points: Getis-Ord Gi* tests whether the concentrations in Competitor stores are statistically significant [6].

What it found. Hot spot analysis was conducted using the Competitor stores layer [8]. The resulting dataset contained 43 features and 43 counts [7].

Result	Value
result, bins	43
result, count	43
result, elapsed ms	5
result, cell size m	1,000
result, incidents used	70
result, distance band m	2,000
billing, cost	0.0514
billing, list price	0.0514
billing, upstream cost	0

Findings

Evidenced: Hot spots on Competitor stores: Hot spot analysis: 1 layer saved: Hot spot analysis: Competitor stores (43 features) [7][8].

Evidenced: It reported result, bins 43; result, count 43; result, elapsed ms 5; result, cell size m 1,000; result, incidents used 70; result, distance band m 2,000 [7].

Tool gp_hot_spots; parameters {"project": "e415669e-4f91-46e1-8afb-4604f1d21ffb", "features": {"layer": "Competitor stores (4c436f86)"}, "aggregation": "hexagon", "cell_size_m": 1000.0, "distance_band_m": 2000.0}

Hot spots

What this analysis is. Hot spot analysis: Getis-Ord Gi* hot and cold spots with z-scores, p-values and confidence bins [5]. In ArcGIS it is Find Hot Spots or Hot Spot Analysis (Getis-Ord Gi*); in QGIS, qgis:hotspot (plugin) [5].

Why it was run on this data. 780 points: Getis-Ord Gi* tests whether the concentrations in Footfall counts by week are statistically significant [9].

What it found. Hot spots on Footfall counts by week: Hot spot analysis: 1 layer saved: Hot spot analysis: Footfall counts by week (130 features) [10][11]. It reported result, bins 130; result, count 130; result, elapsed ms 14; result, cell size m 500; result, incidents used 780; result, distance band m 500 [10].

Result	Value
result, bins	130
result, count	130
result, elapsed ms	14
result, cell size m	500
result, incidents used	780
result, distance band m	500

Result	Value
billing, cost	0.0656
billing, list price	0.0656
billing, upstream cost	0

Findings

Evidenced: Hot spots on Footfall counts by week: Hot spot analysis: 1 layer saved: Hot spot analysis: Footfall counts by week (130 features) [10][11].

Evidenced: It reported result, bins 130; result, count 130; result, elapsed ms 14; result, cell size m 500; result, incidents used 780; result, distance band m 500 [10].

Tool gp_hot_spots; parameters {"project": "e415669e-4f91-46e1-8afb-4604f1d21ffb", "features": {"layer": "Footfall counts by week (f2397865)"}, "aggregation": "hexagon", "cell_size_m": 500.0, "distance_band_m": 500.0}

Space time hot spots

What this analysis is. Emerging hot spots: Where hot spots are new, consecutive, intensifying, persistent, diminishing, sporadic, oscillating or historical over time [12]. In ArcGIS it is Emerging Hot Spot Analysis or Create Space Time Cube [12].

Why it was run on this data. Footfall counts by week carry dates in 'date': emerging hot spot analysis finds new, intensifying and fading hot spots per week [13].

What it found. Space time hot spots on Footfall counts by week: Emerging hot spots: 1 layer saved: Emerging hot spots: Footfall counts by week (25 features) [11][14]. It reported result, count 25; result, elapsed ms 11; result, resolution 8; result, features used 780; result, time neighbors 0; billing, cost 0.139 [14].

Result	Value
result, count	25
result, elapsed ms	11
result, resolution	8
result, features used	780
result, time neighbors	0
billing, cost	0.139
billing, list price	0.139
billing, upstream cost	0

Findings

Evidenced: Space time hot spots on Footfall counts by week: Emerging hot spots: 1 layer saved: Emerging hot spots: Footfall counts by week (25 features) [11][14].

Evidenced: It reported result, count 25; result, elapsed ms 11; result, resolution 8; result, features used 780; result, time neighbors 0; billing, cost 0.139 [14].

Tool gp_space_time_hot_spots; parameters {"project": "e415669e-4f91-46e1-8afb-4604f1d21ffb", "features": {"layer": "Footfall counts by week (f2397865)"}, "interval": "week", "bin_shape": "h3", "resolution": 8, "time_field": "date"}

Space time hot spots

What this analysis is. Emerging hot spots: Where hot spots are new, consecutive, intensifying, persistent, diminishing, sporadic, oscillating or historical over time [12]. In ArcGIS it is Emerging Hot Spot Analysis or Create Space Time Cube [12].

Why it was run on this data. Loyalty transactions carry dates in 'purchased_at': emerging hot spot analysis finds new, intensifying and fading hot spots per week [15].

What it found. The analysis utilized the Loyalty transactions data [17] to identify emerging hot spots [16].

Result	Value
result, count	395
result, elapsed ms	66
result, resolution	9
result, features used	2,200
result, time neighbors	0
billing, cost	0.21
billing, list price	0.21
billing, upstream cost	0

Findings

Evidenced: Space time hot spots on Loyalty transactions: Emerging hot spots: 1 layer saved: Emerging hot spots: Loyalty transactions (395 features) [16][17].

Evidenced: It reported result, count 395; result, elapsed ms 66; result, resolution 9; result, features used 2,200; result, time neighbors 0; billing, cost 0.21 [16].

Tool gp_space_time_hot_spots; parameters {"project": "e415669e-4f91-46e1-8afb-4604f1d21ffb", "features": {"layer": "Loyalty transactions (aa524a0b)"}, "interval": "week", "bin_shape": "h3", "resolution": 9, "time_field": "purchased_at"}

Calculate density

What this analysis is. Calculate density: Kernel density per square kilometer on a grid [18]. In ArcGIS it is Calculate Density or Kernel Density; in QGIS, native:heatmapkerneldensityestimation [18].

Why it was run on this data. 70 points in Competitor stores: a density surface shows where they concentrate [19].

What it found. Calculate density on Competitor stores: Calculate density: 1 layer saved: Calculate density: Competitor stores (322 features) [8][20]. It reported result, count 322; result, elapsed ms 15; result, bandwidth m 2,000; result, cell size m 500; result, excluded null 0; result, max density per km2 2.995 [20].

Result	Value
result, count	322
result, elapsed ms	15
result, bandwidth m	2,000
result, cell size m	500
result, excluded null	0
result, max density per km2	2.995
billing, cost	0.0514
billing, list price	0.0514
billing, upstream cost	0

Findings

Evidenced: Calculate density on Competitor stores: Calculate density: 1 layer saved: Calculate density: Competitor stores (322 features) [8][20].

Evidenced: It reported result, count 322; result, elapsed ms 15; result, bandwidth m 2,000; result, cell size m 500; result, excluded null 0; result, max density per km2 2.995 [20].

A model draft was discarded because a sentence did not cite a source of this section.

Tool gp_calculate_density; parameters {"kernel": "quartic", "project": "e415669e-4f91-46e1-8afb-4604f1d21ffb", "features": {"layer": "Competitor stores (4c436f86)"}, "bandwidth_m": 2000.0, "cell_size_m": 500.0}

Calculate density

What this analysis is. Calculate density: Kernel density per square kilometer on a grid [18]. In ArcGIS it is Calculate Density or Kernel Density; in QGIS, native:heatmapkerneldensityestimation [18].

Why it was run on this data. 780 points in Footfall counts by week: a density surface shows where they concentrate [21].

What it found. Calculate density on Footfall counts by week: Calculate density: 1 layer saved: Calculate density: Footfall counts by week (428 features) [11][22]. It reported result, count 428; result, elapsed ms 19; result, bandwidth m 500; result, cell size m 200; result, excluded null 0; result, max density per km2 195.5 [22].

Result	Value
result, count	428
result, elapsed ms	19
result, bandwidth m	500
result, cell size m	200
result, excluded null	0
result, max density per km2	195.5
billing, cost	0.0656
billing, list price	0.0656
billing, upstream cost	0

Findings

Evidenced: Calculate density on Footfall counts by week: Calculate density: 1 layer saved: Calculate density: Footfall counts by week (428 features) [11][22].

Evidenced: It reported result, count 428; result, elapsed ms 19; result, bandwidth m 500; result, cell size m 200; result, excluded null 0; result, max density per km2 195.5 [22].

A model draft was discarded because a sentence did not cite a source of this section.

Tool gp_calculate_density; parameters {"kernel": "quartic", "project": "e415669e-4f91-46e1-8afb-4604f1d21ffb", "features": {"layer": "Footfall counts by week (f2397865)"}, "bandwidth_m": 500.0, "cell_size_m": 200.0}

Calculate density

What this analysis is. Calculate density: Kernel density per square kilometer on a grid [18]. In ArcGIS it is Calculate Density or Kernel Density; in QGIS, native:heatmapkerneldensityestimation [18].

Why it was run on this data. 2200 points in Loyalty transactions: a density surface shows where they concentrate [23].

What it found. Calculate density on Loyalty transactions: Calculate density: 1 layer saved: Calculate density: Loyalty transactions (3864 features) [17][24]. It reported result, count 3,864; result, elapsed ms 134; result, bandwidth m 200; result, cell size m 100; result, excluded null 0; result, max density per km2 386.8 [24].

Result	Value
result, count	3,864
result, elapsed ms	134
result, bandwidth m	200
result, cell size m	100
result, excluded null	0
result, max density per km2	386.8
billing, cost	0.094
billing, list price	0.094

Result	Value
billing, upstream cost	0

Findings

Evidenced: Calculate density on Loyalty transactions: Calculate density: 1 layer saved: Calculate density: Loyalty transactions (3864 features) [17][24].

Evidenced: It reported result, count 3,864; result, elapsed ms 134; result, bandwidth m 200; result, cell size m 100; result, excluded null 0; result, max density per km2 386.8 [24].

Tool gp_calculate_density; parameters {"kernel": "quartic", "project": "e415669e-4f91-46e1-8afb-4604f1d21ffb", "features": {"layer": "Loyalty transactions (aa524a0b)"}, "bandwidth_m": 200.0, "cell_size_m": 100.0}

Summarize within

What this analysis is. Summarize within: Count and aggregate the features inside each polygon (or bin), proportionally for lines and polygons [25]. In ArcGIS it is Summarize Within or Aggregate Points; in QGIS, native:countpointsinpolygon or native:sumlinelengths [25].

Why it was run on this data. Count Stores inside each feature of Trade areas by format; the counts map as a choropleth (natural breaks, sequential colors) [26].

What it found. Summarize within on Stores, Trade areas: Summarize within: 1 layer saved: Summarize within: Trade areas (14 features) [27][28][29]. It reported result, count 14; result, elapsed ms 1; billing, cost 0.01058; billing, list price 0.01058; billing, upstream cost 0 [27].

Result	Value
result, count	14
result, elapsed ms	1
billing, cost	0.01058
billing, list price	0.01058
billing, upstream cost	0

Findings

Evidenced: Summarize within on Stores, Trade areas: Summarize within: 1 layer saved: Summarize within: Trade areas (14 features) [27][28][29].

Evidenced: It reported result, count 14; result, elapsed ms 1; billing, cost 0.01058; billing, list price 0.01058; billing, upstream cost 0 [27].

Tool gp_summarize_within; parameters {"stats": [{"stat": "sum", "field": "sales_gbp_week"}], "project": "e415669e-4f91-46e1-8afb-4604f1d21ffb", "features": {"layer": "Stores (18363c3a)"}, "group_by": "format", "polygons": {"layer": "Trade areas (e712834d)"}}

Summarize within

What this analysis is. Summarize within: Count and aggregate the features inside each polygon (or bin), proportionally for lines and polygons [25]. In ArcGIS it is Summarize Within or Aggregate Points; in QGIS, native:countpointsinpolygon or native:sumlinelengths [25].

Why it was run on this data. Count Stores inside each feature of Trade areas by format; the counts map as a choropleth (natural breaks, sequential colors) [26].

What it found. Summarize within on Competitor stores, Trade areas: Summarize within: 1 layer saved: Summarize within: Trade areas (14 features) [8][29][30]. It reported result, count 14; result, elapsed ms 0; billing, cost 0.0117; billing, list price 0.0117; billing, upstream cost 0 [30].

Result	Value
result, count	14

Result	Value
result, elapsed ms	0
billing, cost	0.0117
billing, list price	0.0117
billing, upstream cost	0

Findings

Evidenced: Summarize within on Competitor stores, Trade areas: Summarize within: 1 layer saved: Summarize within: Trade areas (14 features) [8][29][30].

Evidenced: It reported result, count 14; result, elapsed ms 0; billing, cost 0.0117; billing, list price 0.0117; billing, upstream cost 0 [30].

Tool gp_summarize_within; parameters {"stats": [{"stat": "sum", "field": "est_sales_gbp_week"}], "project": "e415669e-4f91-46e1-8afb-4604f1d21ffb", "features": {"layer": "Competitor stores (4c436f86)", "group_by": "brand", "polygons": {"layer": "Trade areas (e712834d)"}}

Summarize within

What this analysis is. Summarize within: Count and aggregate the features inside each polygon (or bin), proportionally for lines and polygons [25]. In ArcGIS it is Summarize Within or Aggregate Points; in QGIS, native:countpointsinpolygon or native:sumlinelengths [25].

Why it was run on this data. Count Stores inside each feature of Trade areas by format; the counts map as a choropleth (natural breaks, sequential colors) [26].

What it found. Summarize within on Footfall counts by week, Trade areas: Summarize within: 1 layer saved: Summarize within: Trade areas (14 features) [11][29][31]. It reported result, count 14; result, elapsed ms 2; billing, cost 0.0259; billing, list price 0.0259; billing, upstream cost 0 [31].

Result	Value
result, count	14
result, elapsed ms	2
billing, cost	0.0259
billing, list price	0.0259
billing, upstream cost	0

Findings

Evidenced: Summarize within on Footfall counts by week, Trade areas: Summarize within: 1 layer saved: Summarize within: Trade areas (14 features) [11][29][31].

Evidenced: It reported result, count 14; result, elapsed ms 2; billing, cost 0.0259; billing, list price 0.0259; billing, upstream cost 0 [31].

Tool gp_summarize_within; parameters {"stats": [{"stat": "sum", "field": "visitors"}], "project": "e415669e-4f91-46e1-8afb-4604f1d21ffb", "features": {"layer": "Footfall counts by week (f2397865)", "polygons": {"layer": "Trade areas (e712834d)"}}

Find point clusters

What this analysis is. Find point clusters: Density-based clusters (DBSCAN, HDBSCAN or OPTICS, optionally space-time) with hulls and noise [32]. In ArcGIS it is Find Point Clusters or Density-based Clustering; in QGIS, native:dbscanclustering or native:stdbscanclustering [32].

Why it was run on this data. DBSCAN finds dense groups of Stores and separates noise [33].

What it found. Find point clusters on Stores: Find point clusters: 2 layers saved: Find point clusters: Stores (14 features); Find point clusters: cluster hulls (1 feature) [28][34]. It reported result, count 14; result, noise 0; result, distance m 2,000; result, elapsed ms 5; result, min points 3; billing, cost 0.05028 [34].

Result	Value
result, count	14
result, noise	0
result, distance m	2,000
result, elapsed ms	5
result, min points	3
billing, cost	0.05028
billing, list price	0.05028
billing, upstream cost	0

Findings

Evidenced: Find point clusters on Stores: Find point clusters: 2 layers saved: Find point clusters: Stores (14 features); Find point clusters: cluster hulls (1 feature) [28][34].

Evidenced: It reported result, count 14; result, noise 0; result, distance m 2,000; result, elapsed ms 5; result, min points 3; billing, cost 0.05028 [34].

Tool gp_find_point_clusters; parameters {"method": "dbscan", "project": "e415669e-4f91-46e1-8afb-4604f1d21ffb", "features": {"layer": "Stores (18363c3a)", "distance_m": 2000.0, "min_points": 3}}

Find point clusters

What this analysis is. Find point clusters: Density-based clusters (DBSCAN, HDBSCAN or OPTICS, optionally space-time) with hulls and noise [32]. In ArcGIS it is Find Point Clusters or Density-based Clustering; in QGIS, native:dbscanclustering or native:stdbcanclustering [32].

Why it was run on this data. DBSCAN finds dense groups of Competitor stores and separates noise [35].

What it found. The `gp\_find\_point\_clusters` tool was executed using the Competitor stores dataset [8]. This analysis saved two layers, including Competitor stores with 70 features and cluster hulls with 2 features [36]. The tool returned 70 results and 2 noise points [36]. The entire process completed with an elapsed time of 3 milliseconds [36], and the associated billing cost was 0.0514 [36].

Result	Value
result, count	70
result, noise	2
result, distance m	1,000
result, elapsed ms	3
result, min points	3
billing, cost	0.0514
billing, list price	0.0514
billing, upstream cost	0

Findings

Evidenced: Find point clusters on Competitor stores: Find point clusters: 2 layers saved: Find point clusters: Competitor stores (70 features); Find point clusters: cluster hulls (2 features) [8][36].

Evidenced: It reported result, count 70; result, noise 2; result, distance m 1,000; result, elapsed ms 3; result, min points 3; billing, cost 0.0514 [36].

Tool gp_find_point_clusters; parameters {"method": "dbscan", "project": "e415669e-4f91-46e1-8afb-4604f1d21ffb", "features": {"layer": "Competitor stores (4c436f86)", "distance_m": 1000.0, "min_points": 3}}

Find point clusters

What this analysis is. Find point clusters: Density-based clusters (DBSCAN, HDBSCAN or OPTICS, optionally space-time) with hulls and noise [32]. In ArcGIS it is Find Point Clusters or Density-based Clustering; in QGIS, native:dbscanclustering or native:stdbscanclustering [32].

Why it was run on this data. DBSCAN finds dense groups of Footfall counts by week and separates noise [37].

What it found. Find point clusters on Footfall counts by week: Find point clusters: 2 layers saved: Find point clusters: Footfall counts by week (780 features); Find point clusters: cluster hulls (30 features) [11][38]. It reported result, count 780; result, noise 0; result, distance m 200; result, elapsed ms 29; result, min points 20; billing, cost 0.0656 [38].

Result	Value
result, count	780
result, noise	0
result, distance m	200
result, elapsed ms	29
result, min points	20
billing, cost	0.0656
billing, list price	0.0656
billing, upstream cost	0

Findings

Evidenced: Find point clusters on Footfall counts by week: Find point clusters: 2 layers saved: Find point clusters: Footfall counts by week (780 features); Find point clusters: cluster hulls (30 features) [11][38].

Evidenced: It reported result, count 780; result, noise 0; result, distance m 200; result, elapsed ms 29; result, min points 20; billing, cost 0.0656 [38].

Tool gp_find_point_clusters; parameters {"method": "dbscan", "project": "e415669e-4f91-46e1-8afb-4604f1d21ffb", "features": {"layer": "Footfall counts by week (f2397865)"}, "distance_m": 200.0, "min_points": 20}

Hot spots

What this analysis is. Hot spot analysis: Getis-Ord Gi* hot and cold spots with z-scores, p-values and confidence bins [5]. In ArcGIS it is Find Hot Spots or Hot Spot Analysis (Getis-Ord Gi*); in QGIS, qgis:hotspot (plugin) [5].

Why it was run on this data. 2200 points: Getis-Ord Gi* tests whether the concentrations in Loyalty transactions are statistically significant [39].

What it found. Hot spots on Loyalty transactions: Hot spot analysis: 1 layer saved: Hot spot analysis: Loyalty transactions (1071 features) [17][40]. It reported result, bins 1,071; result, count 1,071; result, elapsed ms 59; result, cell size m 200; result, incidents used 2,200; result, distance band m 200 [40].

Result	Value
result, bins	1,071
result, count	1,071
result, elapsed ms	59
result, cell size m	200
result, incidents used	2,200
result, distance band m	200
billing, cost	0.094
billing, list price	0.094
billing, upstream cost	0

Findings

Evidenced: Hot spots on Loyalty transactions: Hot spot analysis: 1 layer saved: Hot spot analysis: Loyalty transactions (1071 features) [17][40].

Evidenced: It reported result, bins 1,071; result, count 1,071; result, elapsed ms 59; result, cell size m 200; result, incidents used 2,200; result, distance band m 200 [40].

Tool gp_hot_spots; parameters {"project": "e415669e-4f91-46e1-8afb-4604f1d21ffb", "features": {"layer": "Loyalty transactions (aa524a0b)"}, "aggregation": "hexagon", "cell_size_m": 200.0, "distance_band_m": 200.0}

Near repeat

What this analysis is. Repeat and near repeat classification: Classify incidents as originators, repeats (same place) or near repeats within a distance and time window, with a Knox test table [41]. In ArcGIS it is Repeat and Near Repeat Classification or Near Repeat Calculator [41].

Why it was run on this data. Near repeat analysis tests whether Footfall counts by week close in space also follow each other within 18 days [42].

What it found. Near repeat on Footfall counts by week: Repeat and near repeat classification: 1 layer saved: Repeat and near repeat classification: Footfall counts by week (780 features) [11][43]. It reported result, days 18; result, count 780; result, chains 30; result, distance m 200; result, elapsed ms 40; result, pairs linked 1,470 [43].

Result	Value
result, days	18
result, count	780
result, chains	30
result, distance m	200
result, elapsed ms	40
result, pairs linked	1,470
billing, cost	0.0734
billing, list price	0.0734
billing, upstream cost	0

Findings

Evidenced: Near repeat on Footfall counts by week: Repeat and near repeat classification: 1 layer saved: Repeat and near repeat classification: Footfall counts by week (780 features) [11][43].

Evidenced: It reported result, days 18; result, count 780; result, chains 30; result, distance m 200; result, elapsed ms 40; result, pairs linked 1,470 [43].

Tool gp_near_repeat; parameters {"days": 18, "project": "e415669e-4f91-46e1-8afb-4604f1d21ffb", "features": {"layer": "Footfall counts by week (f2397865)"}, "distance_m": 200.0, "time_field": "date"}

Maps and charts

The run also made 20 map image(s) [44][45][46][47][48][49][50][51][52][53][54][55][56][57][58][59][60][61][62][63] and 22 chart(s) [64][65][66][67][68][69][70][71][72][73][74][75][76][77][78][79][80][81][82][83][84][85].

Hot spot analysis: Competitor stores

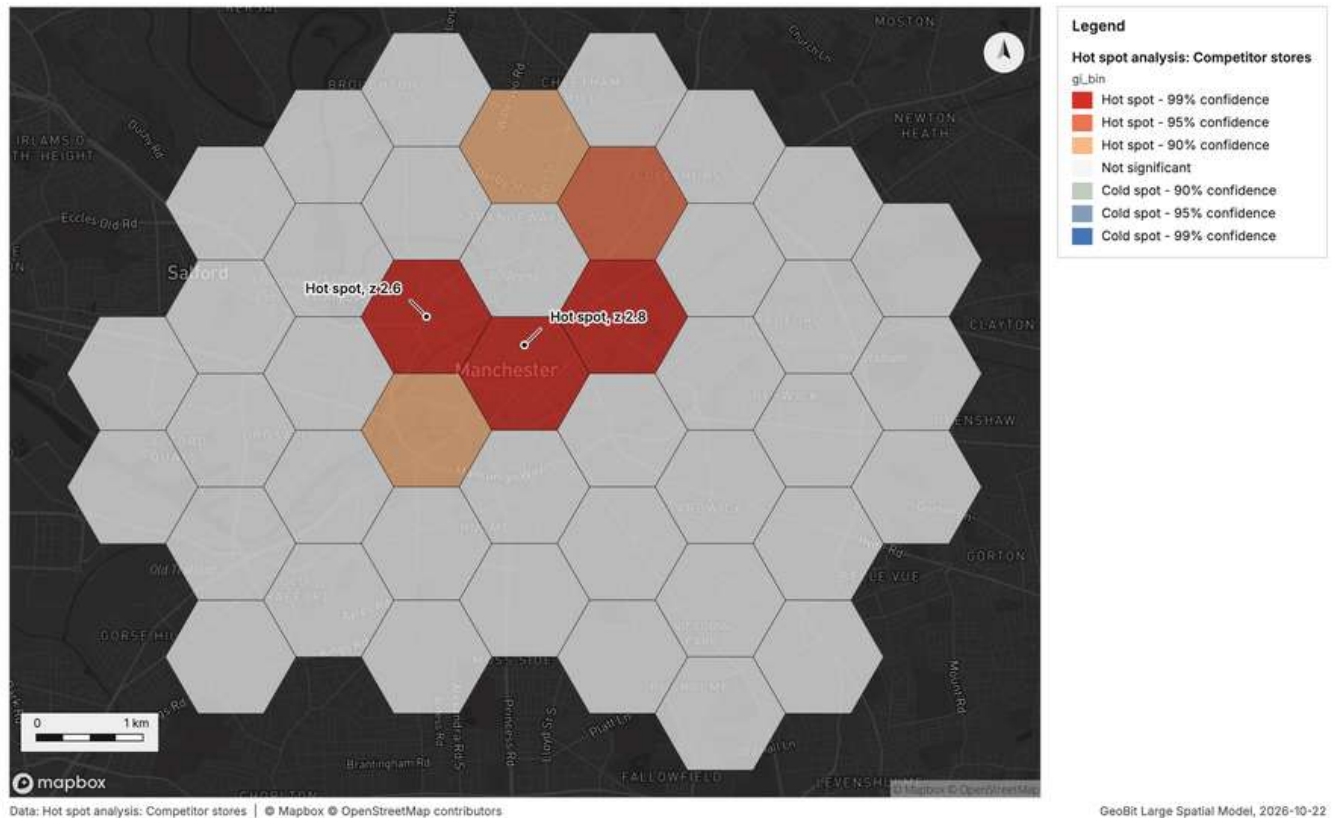


Figure 2. Hot spot analysis: Competitor stores [44]

Hot spot analysis: Footfall counts by week

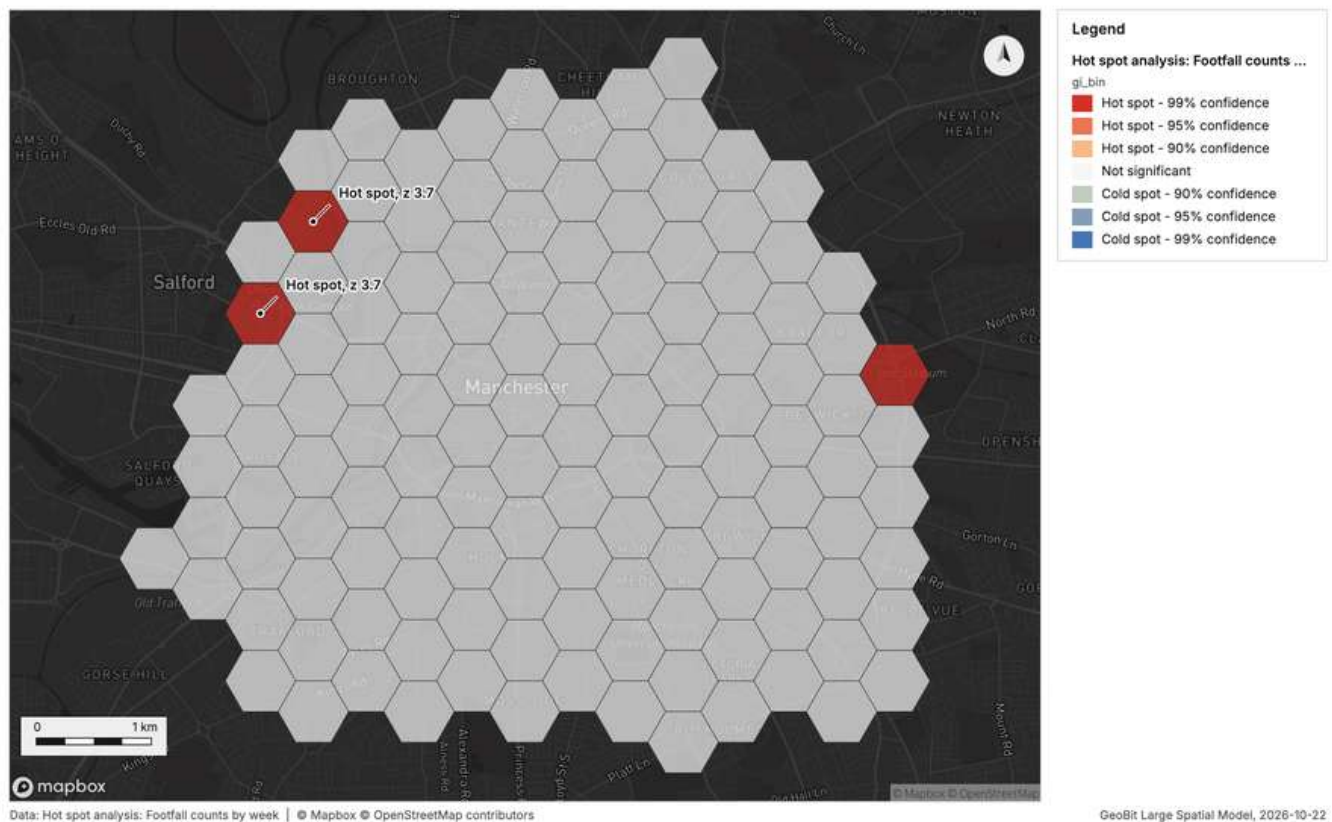


Figure 3. Hot spot analysis: Footfall counts by week [45]

Emerging hot spots: Footfall counts by week



Figure 4. Emerging hot spots: Footfall counts by week [46]

Emerging hot spots: Loyalty transactions

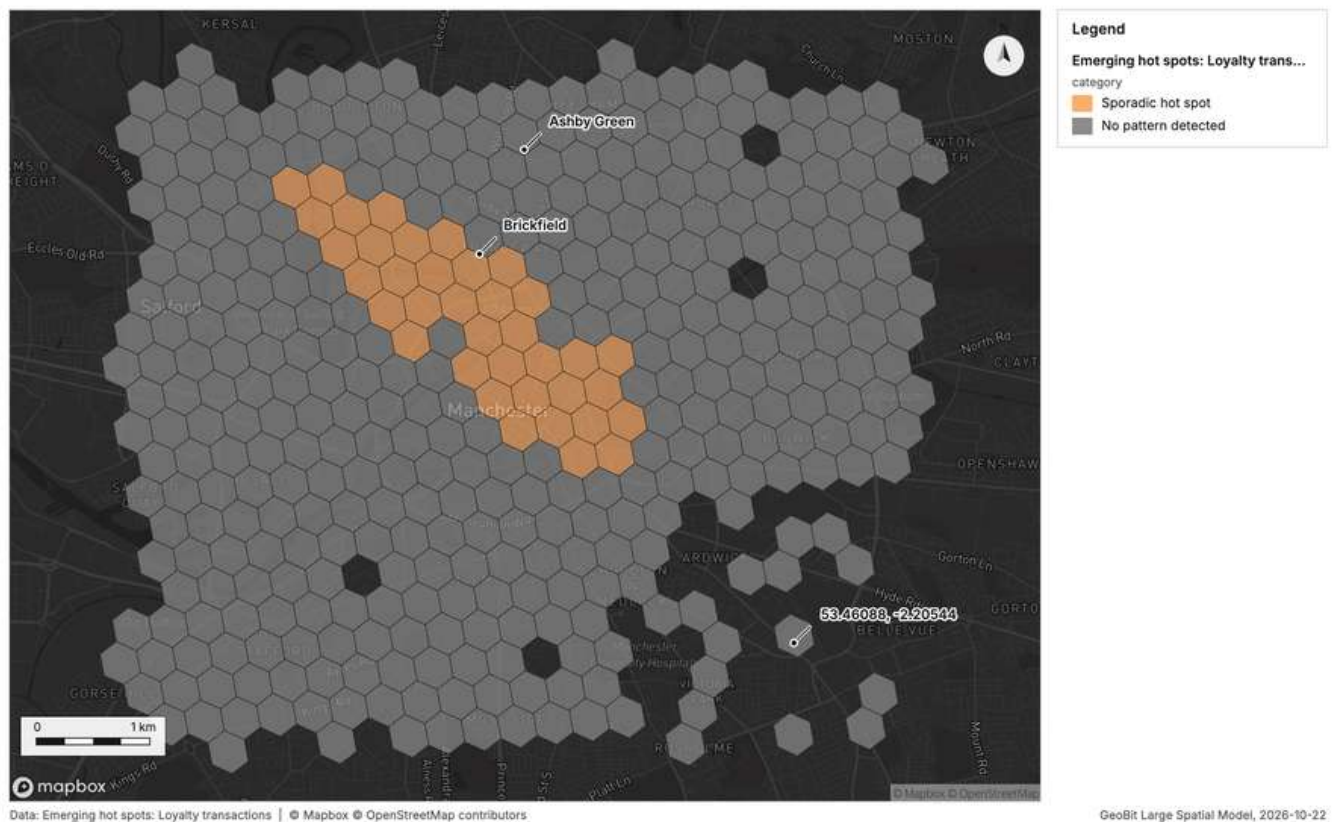


Figure 5. Emerging hot spots: Loyalty transactions [47]

Calculate density: Competitor stores

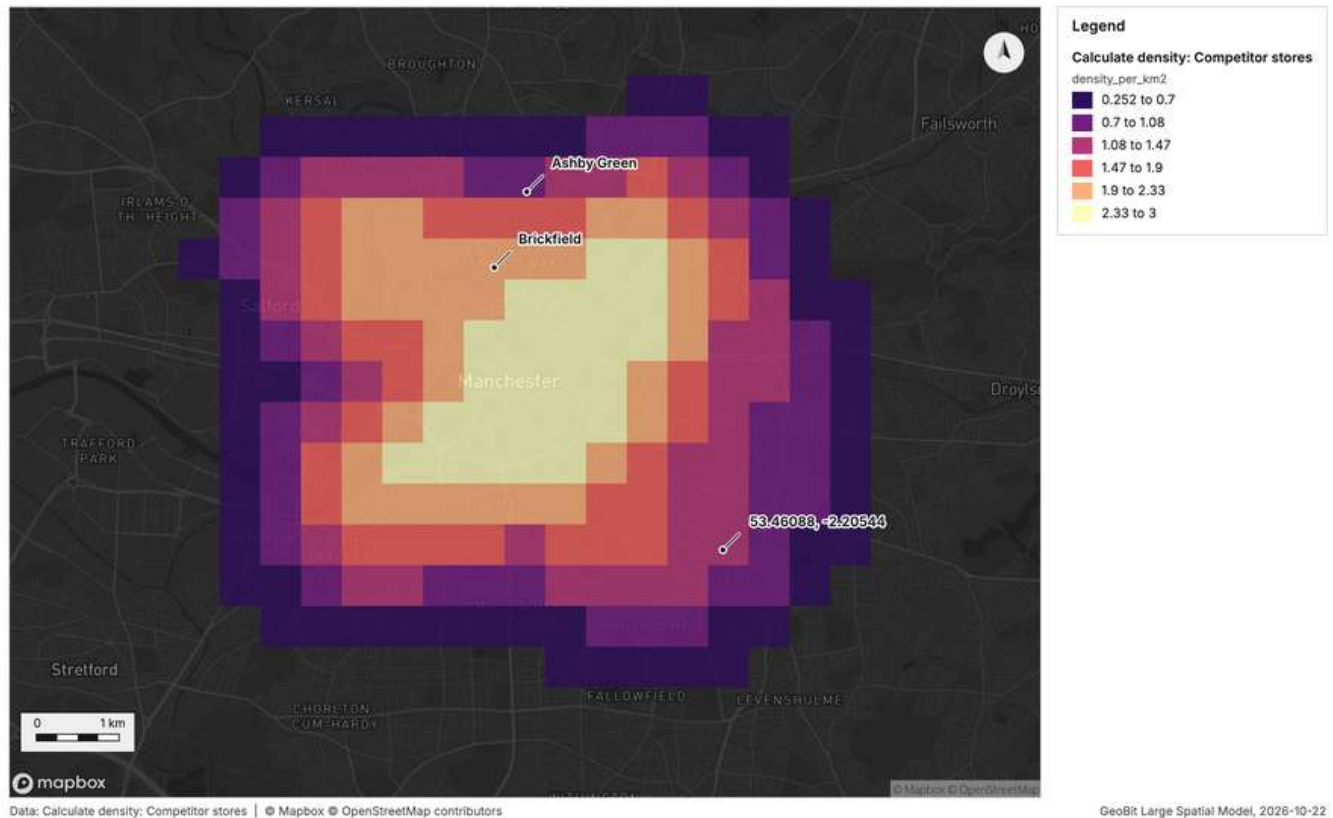


Figure 6. Calculate density: Competitor stores [48]

Calculate density: Footfall counts by week

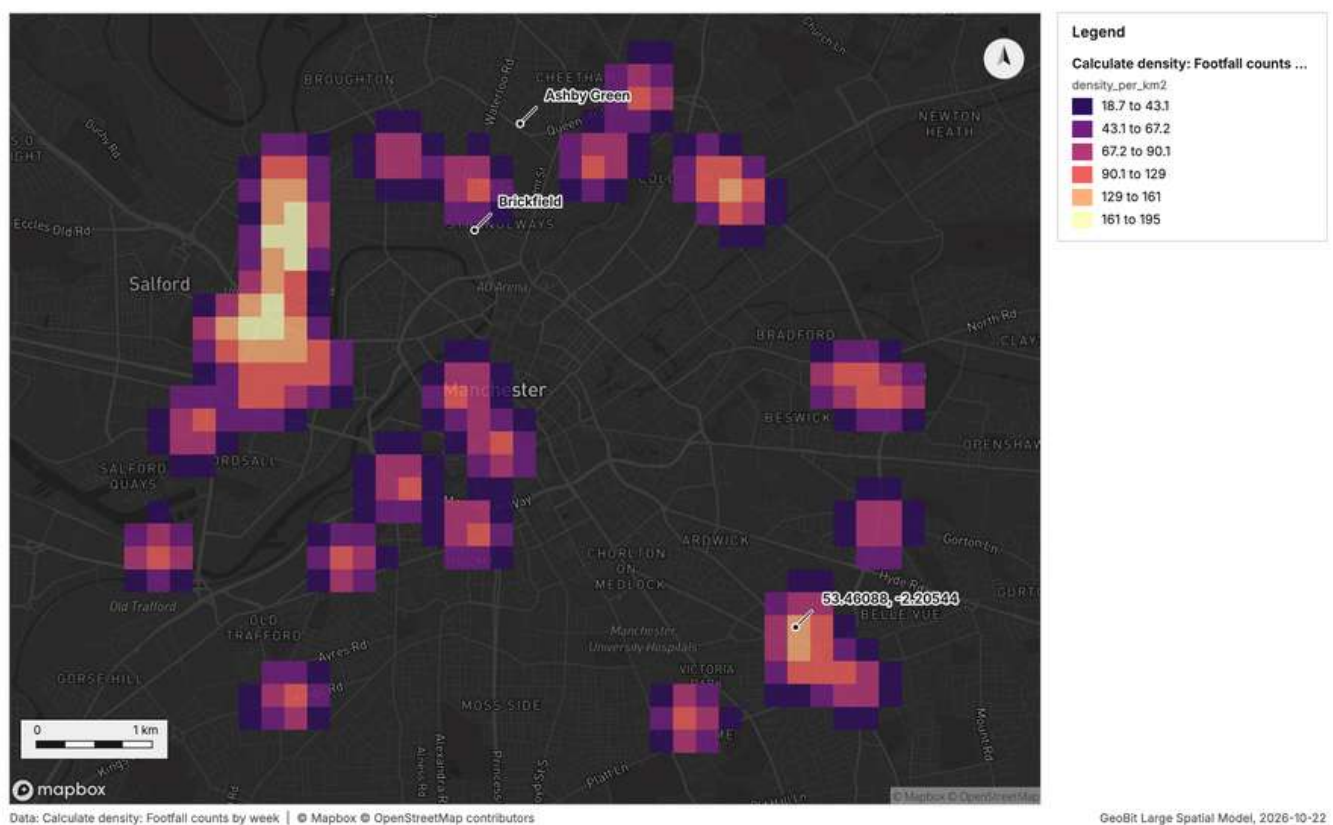


Figure 7. Calculate density: Footfall counts by week [49]

Calculate density: Loyalty transactions

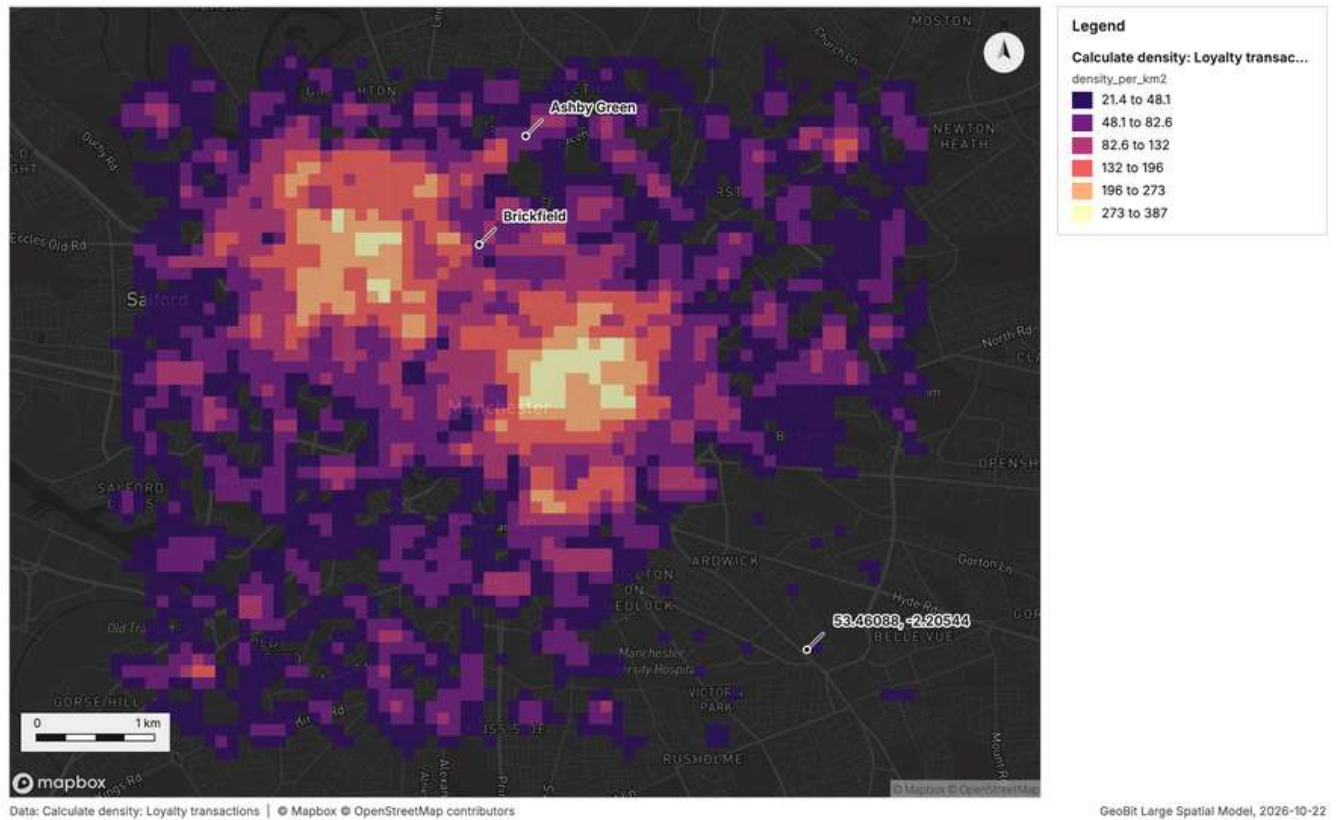


Figure 8. Calculate density: Loyalty transactions [50]

Summarize within: Trade areas

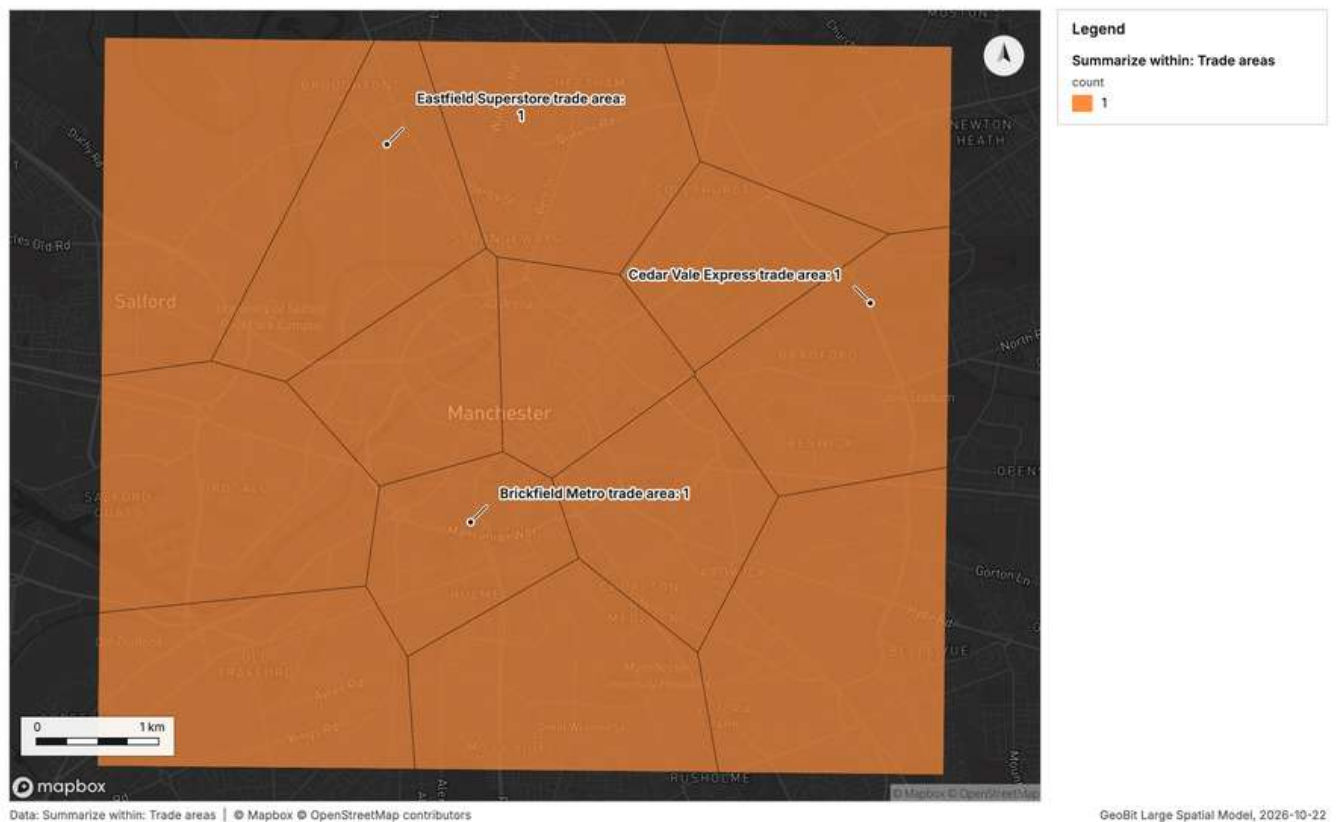


Figure 9. Summarize within: Trade areas [51]

Summarize within: Trade areas

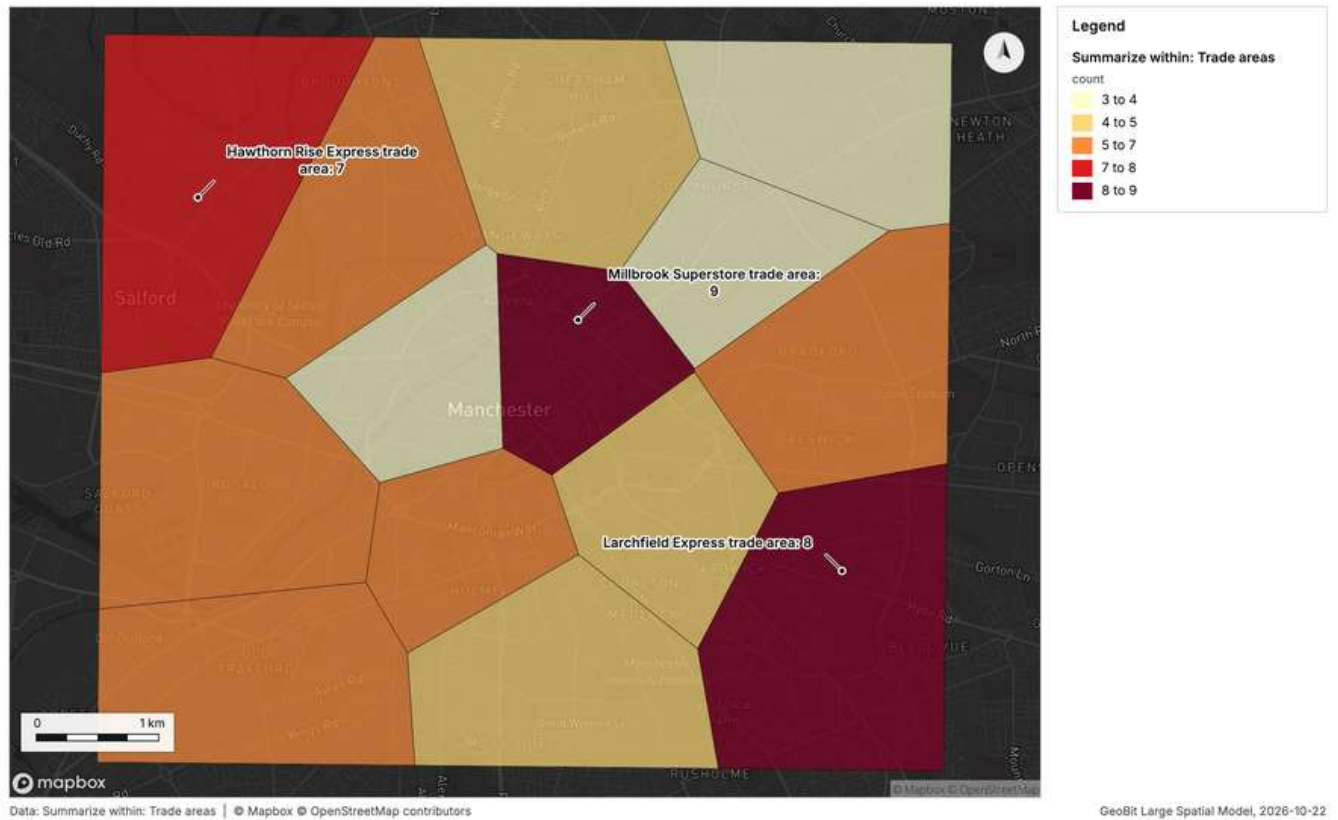


Figure 10. Summarize within: Trade areas [52]

Summarize within: Trade areas

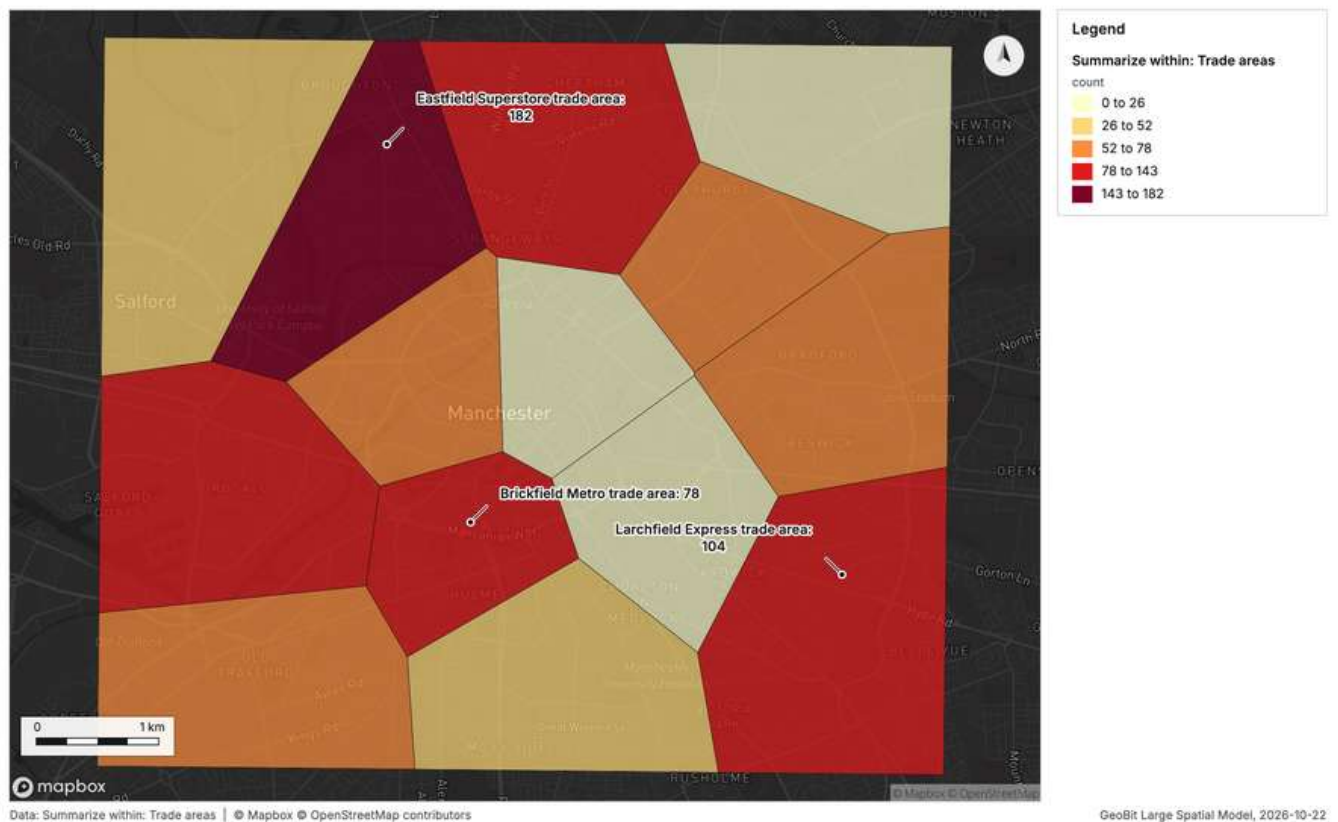


Figure 11. Summarize within: Trade areas [53]

Find point clusters: Stores

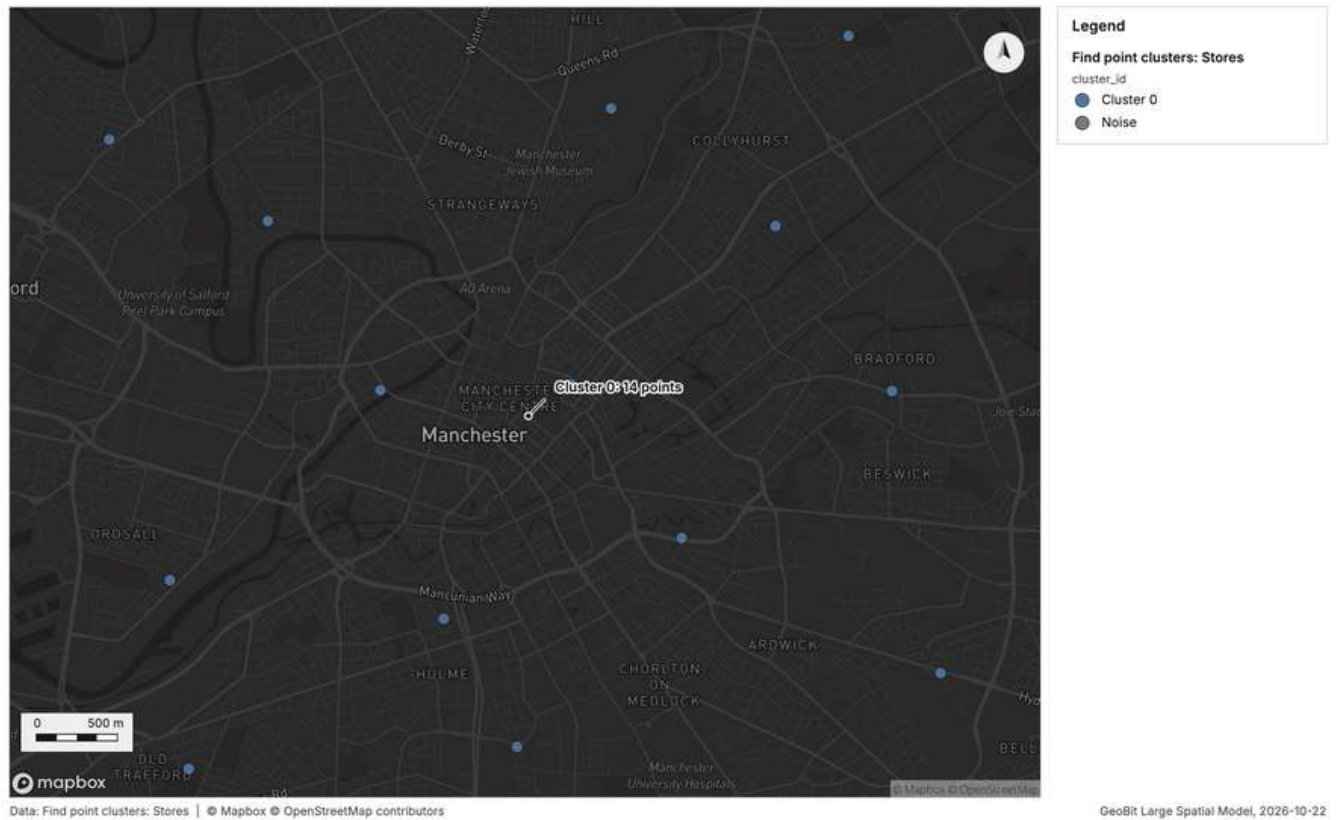


Figure 12. Find point clusters: Stores [54]

Find point clusters: cluster hulls

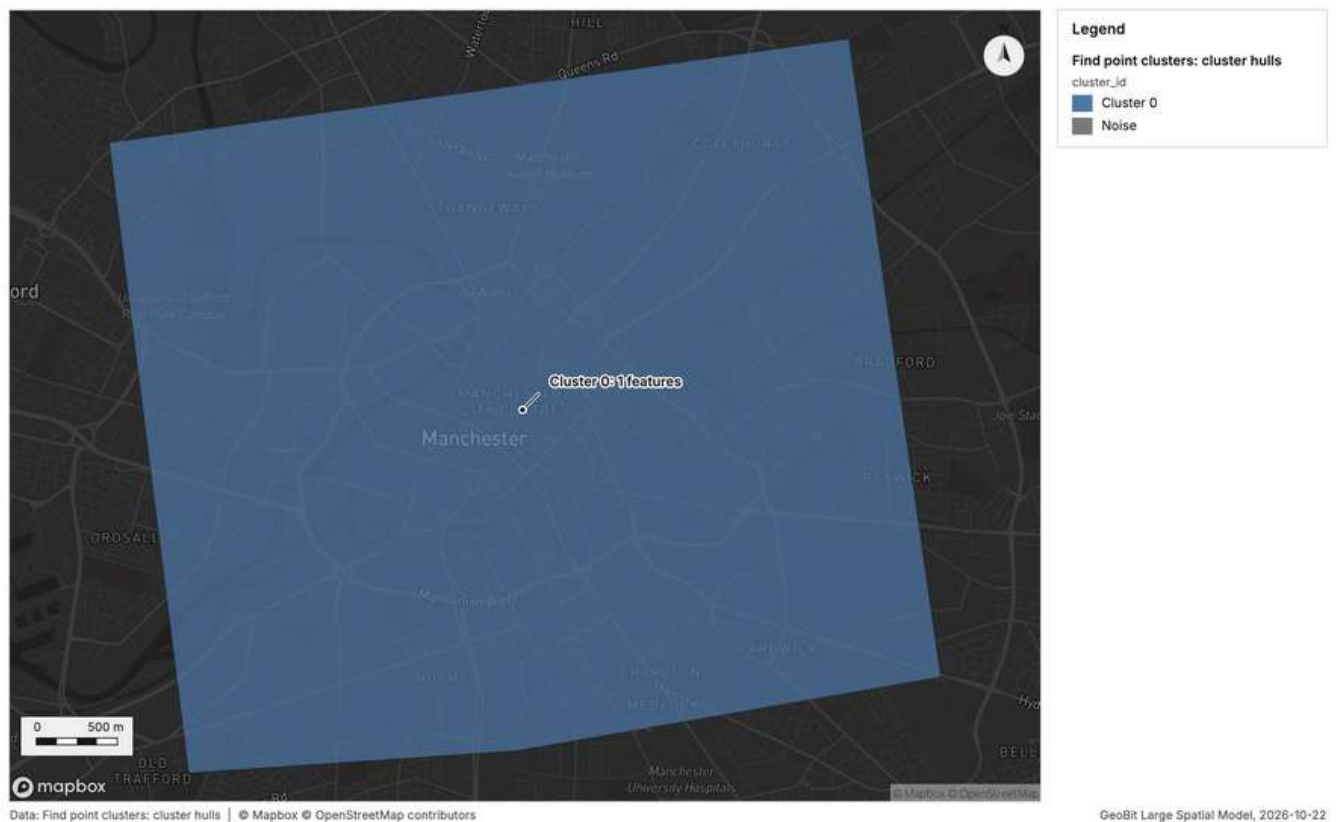


Figure 13. Find point clusters: cluster hulls [55]

Find point clusters: Competitor stores

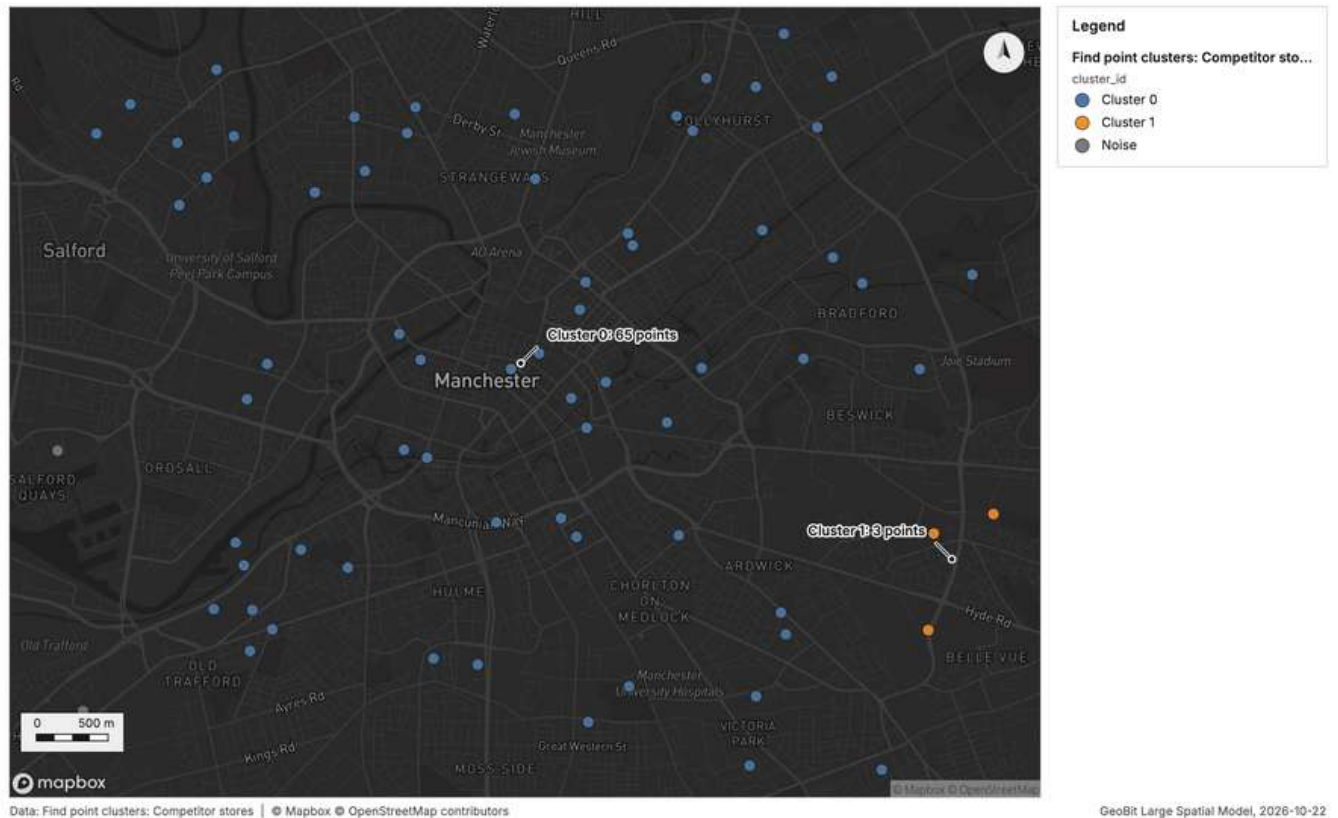


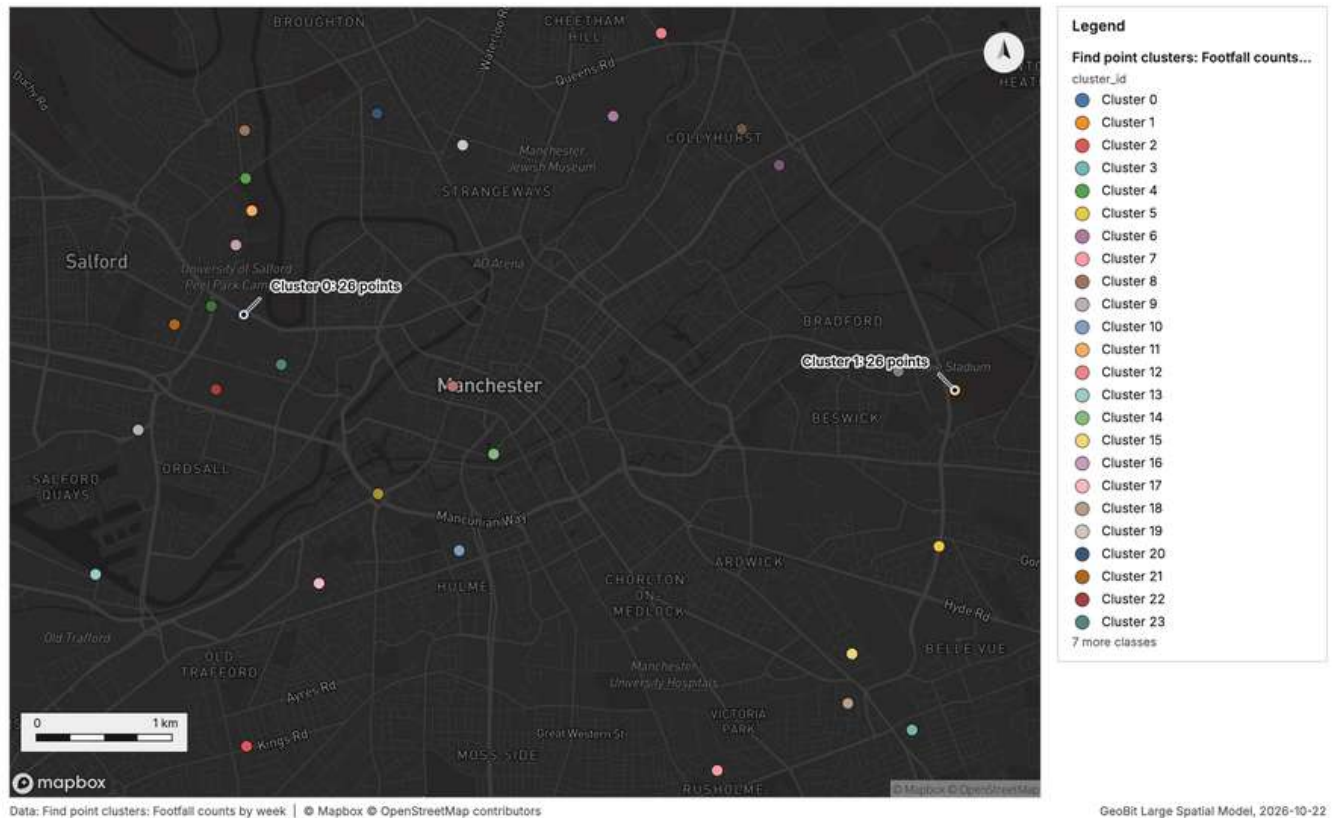
Figure 14. Find point clusters: Competitor stores [56]

Find point clusters: cluster hulls



Figure 15. Find point clusters: cluster hulls [57]

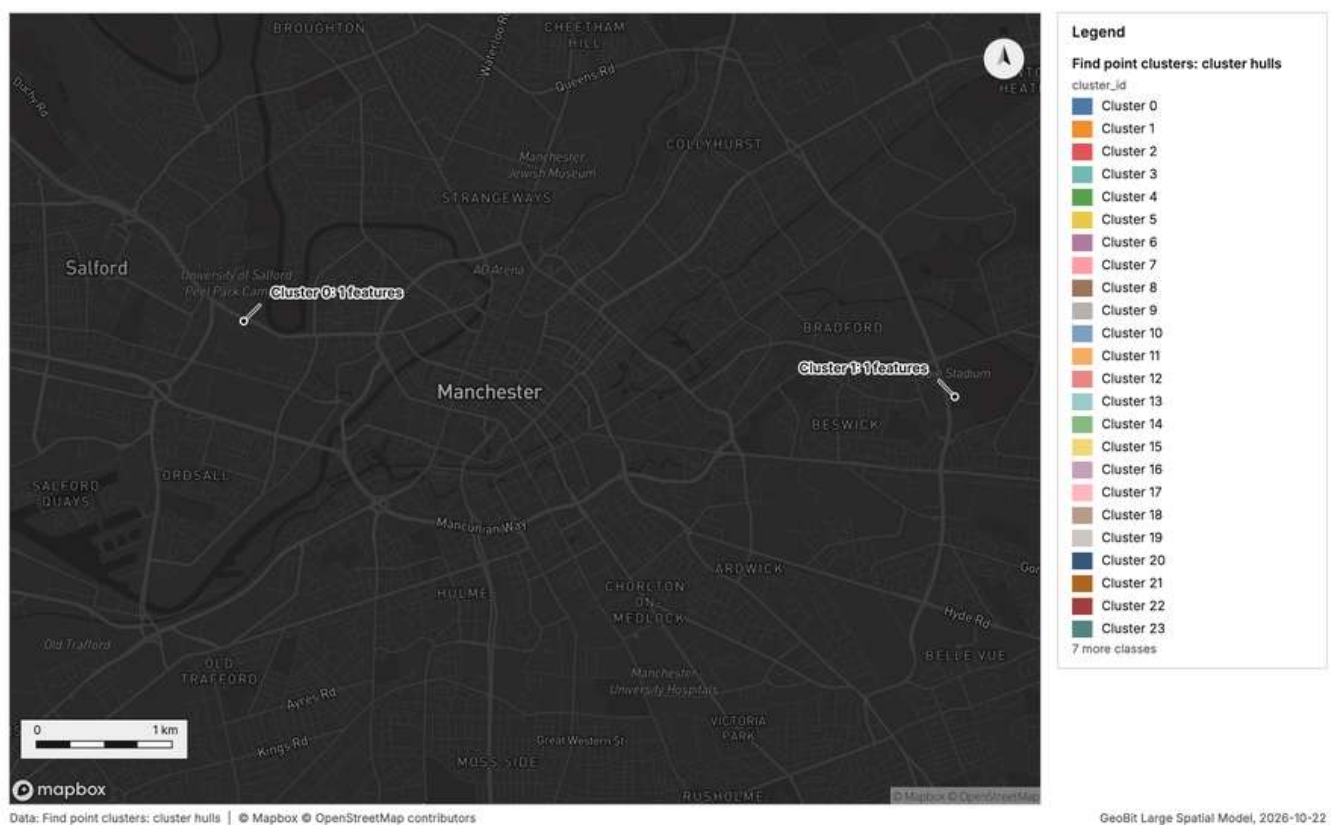
Find point clusters: Footfall counts by week



GeoBit Large Spatial Model, 2026-10-22

Figure 16. Find point clusters: Footfall counts by week [58]

Find point clusters: cluster hulls



GeoBit Large Spatial Model, 2026-10-22

Figure 17. Find point clusters: cluster hulls [59]

Trade areas by households

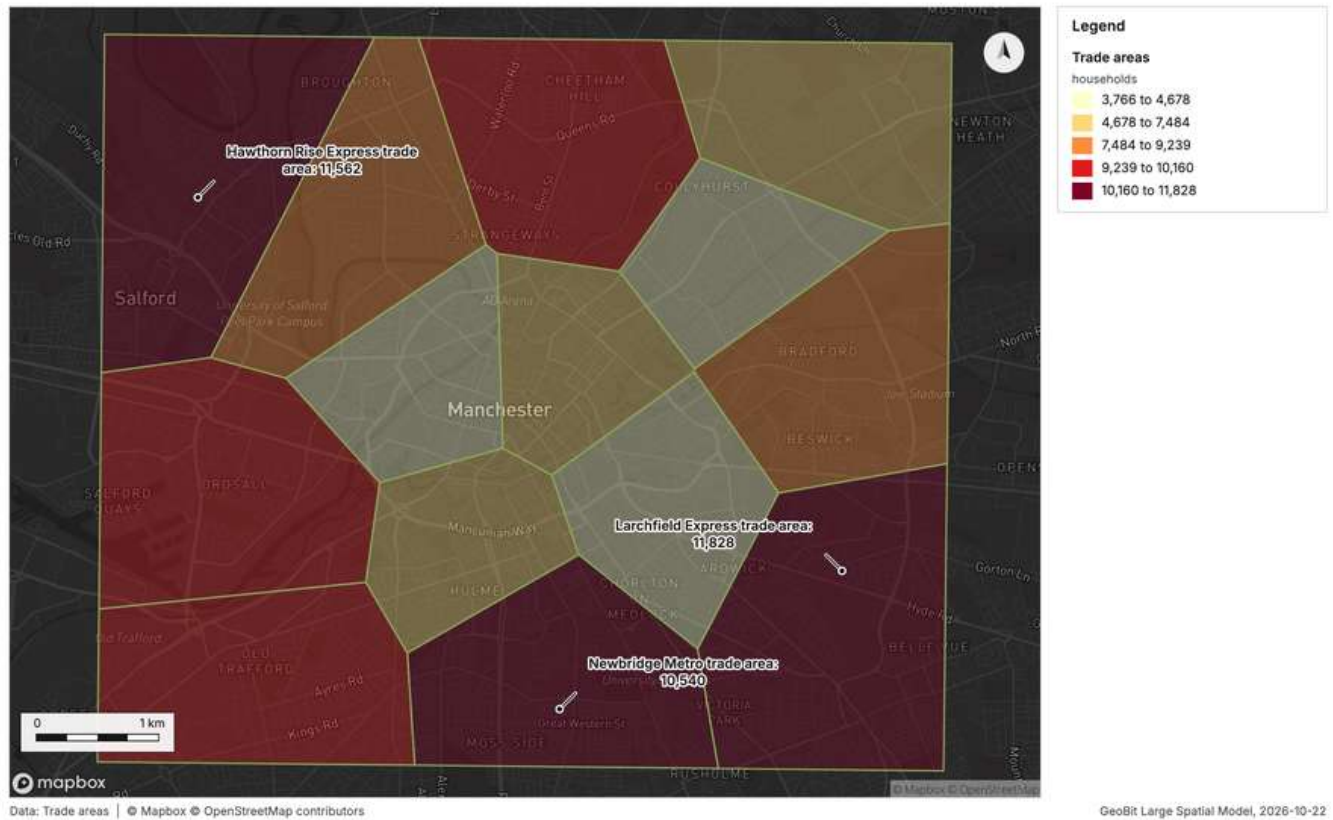


Figure 18. Trade areas by households [60]

Neighborhoods by population



Figure 19. Neighborhoods by population [61]

Hot spot analysis: Loyalty transactions

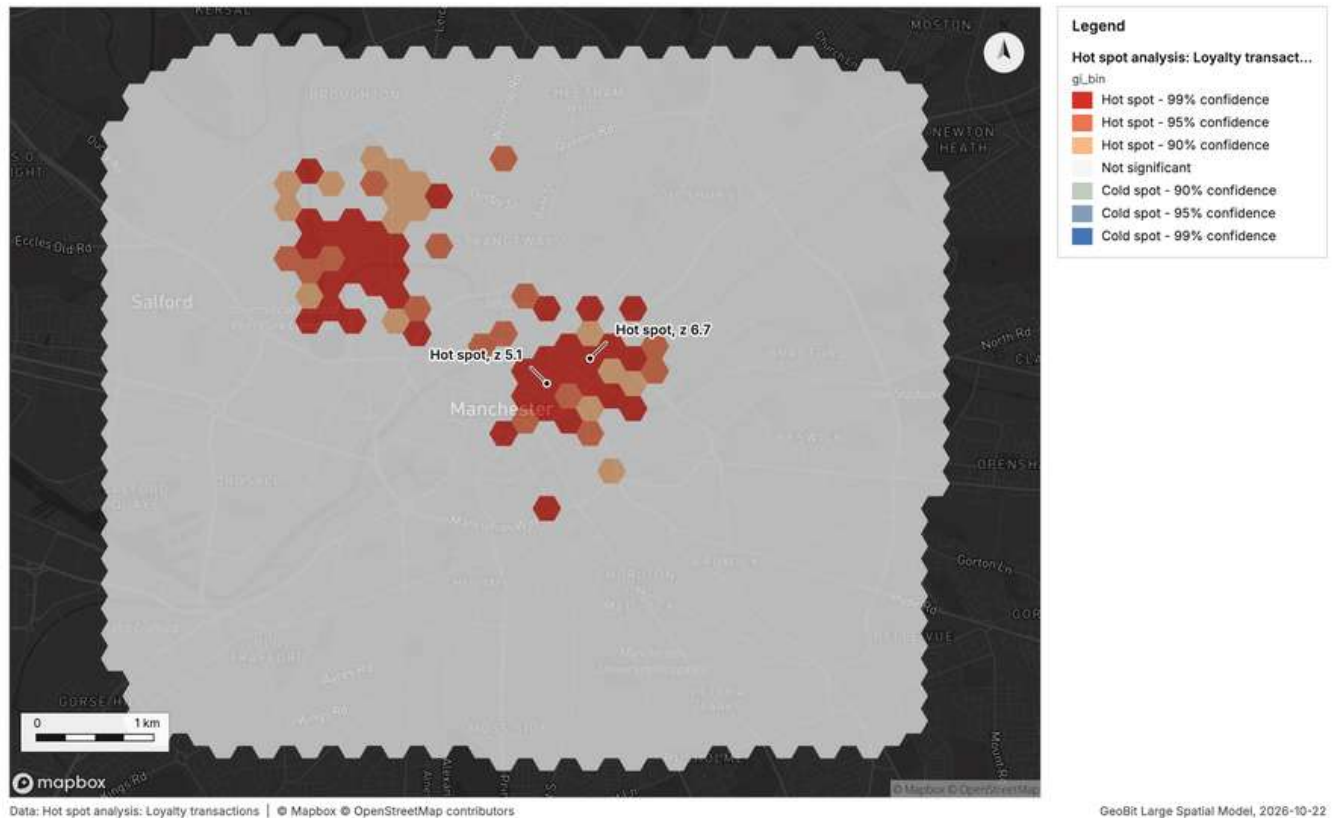


Figure 20. Hot spot analysis: Loyalty transactions [62]

Repeat and near repeat classification: Footfall counts by week

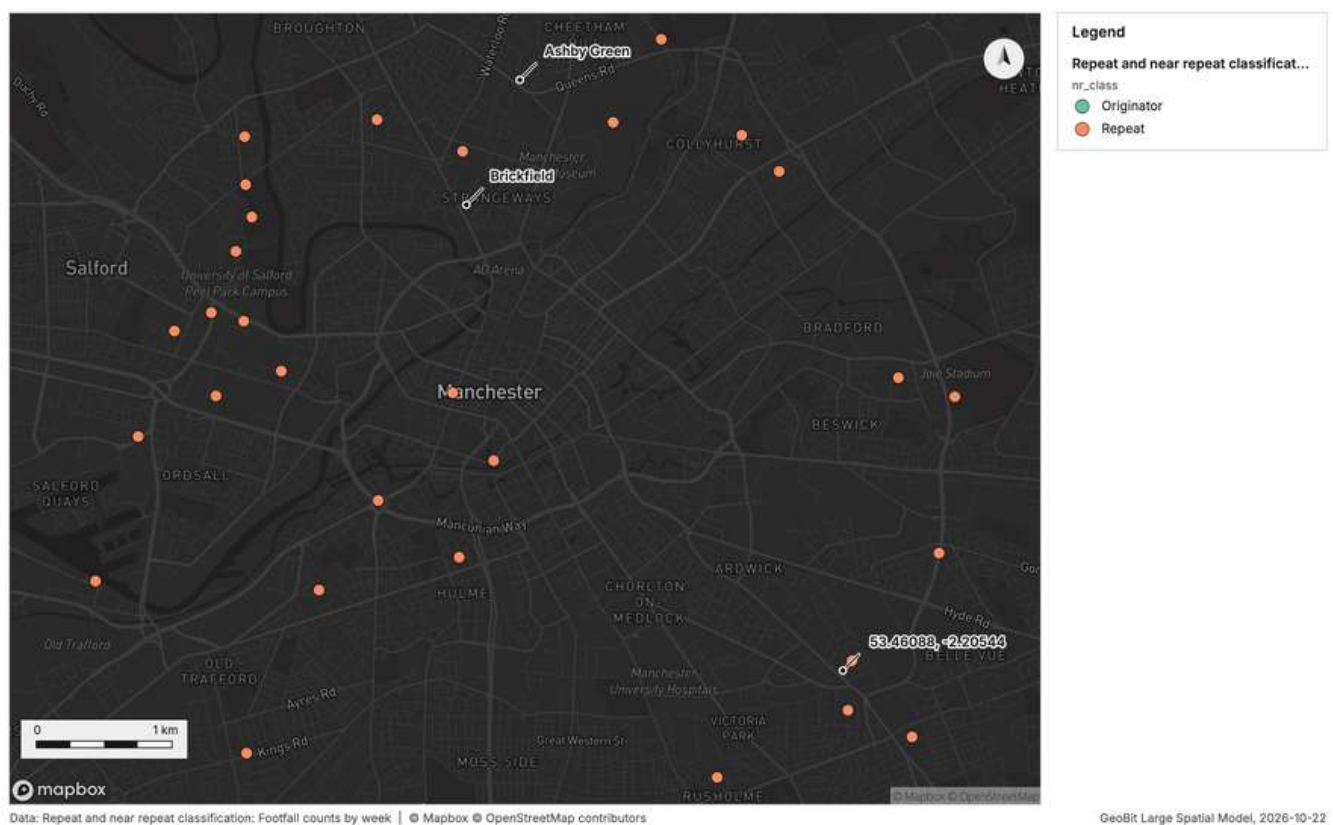


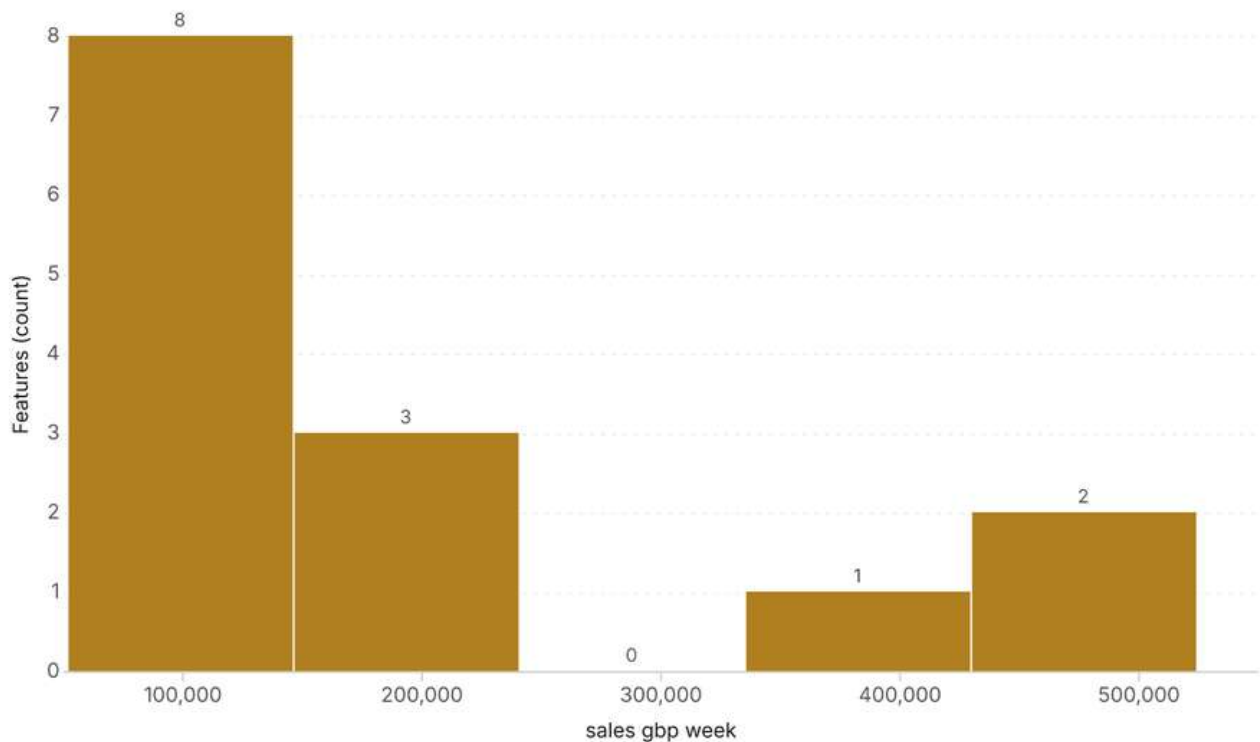
Figure 21. Repeat and near repeat classification: Footfall counts by week [63]

What the map shows. The "Hot spot analysis: Competitor stores" shows a noticeable cluster of high activity located in the [44]

Inferred: read from the image by gemma4:e4b, not evidence.

Distribution of sales_gbp_week

14 values in 5 bins

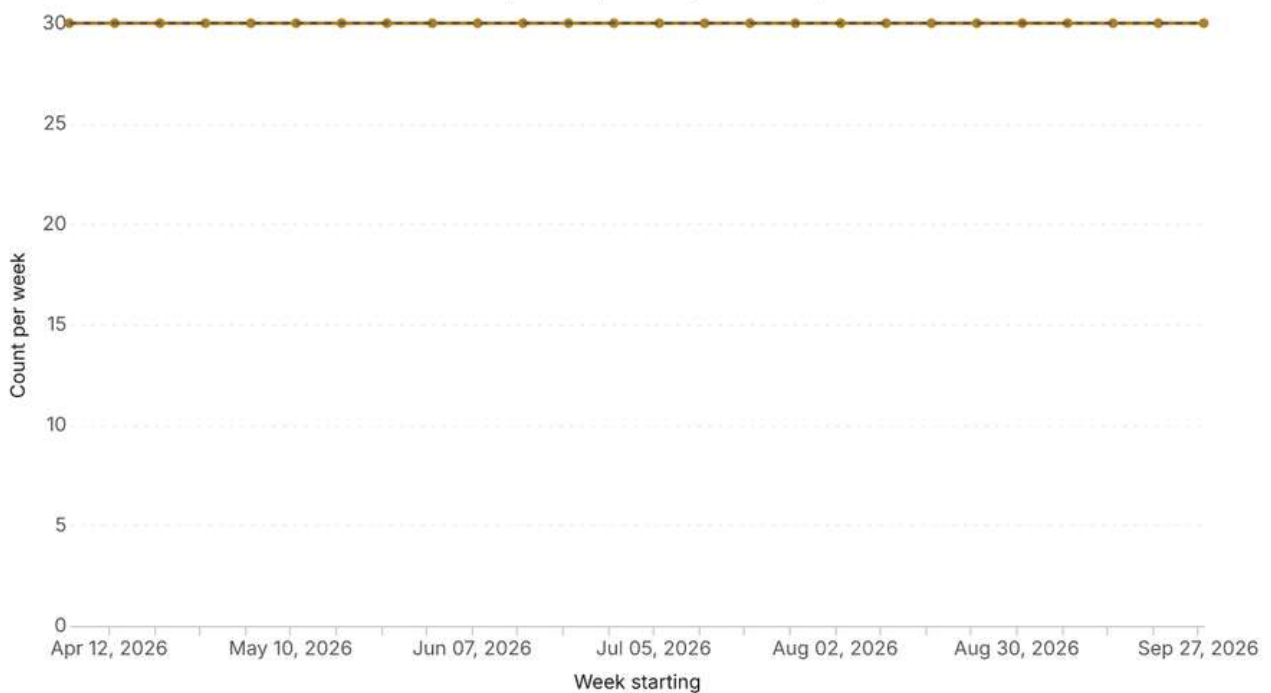


Source: Stores (14 features).

Figure 22. Stores over time (opened_year) [64]. Source: Stores (14 features). The data is in the appendix.

Count per week by date

Per week: 26 weeks from 2026-04-06 to 2026-09-28; trend +0 per week; first half 390, second half 390 (+0.0%)



Per week, 2026-04-06 to 2026-09-28. Source: Footfall counts by week (780 features).

Figure 23. Footfall counts by week over time (date) [65]. Per week, 2026-04-06 to 2026-09-28. Source: Footfall counts by week (780 features). The data is in the appendix.

Gi* z-score distribution

43 features: 6 hot and 0 cold at 90% confidence or more

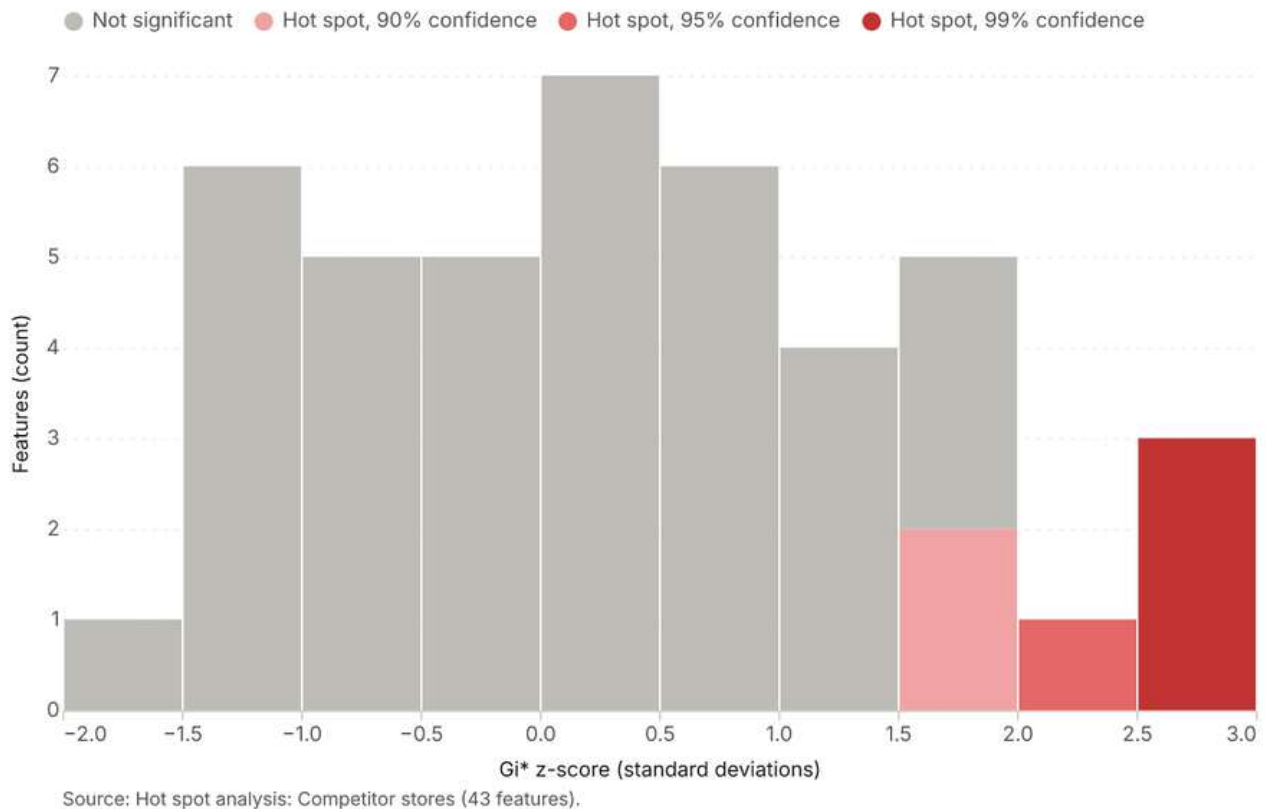


Figure 24. Hot spot analysis: Competitor stores [66]. Source: Hot spot analysis: Competitor stores (43 features). The data is in the appendix.

Gi* z-score distribution

130 features: 3 hot and 0 cold at 90% confidence or more

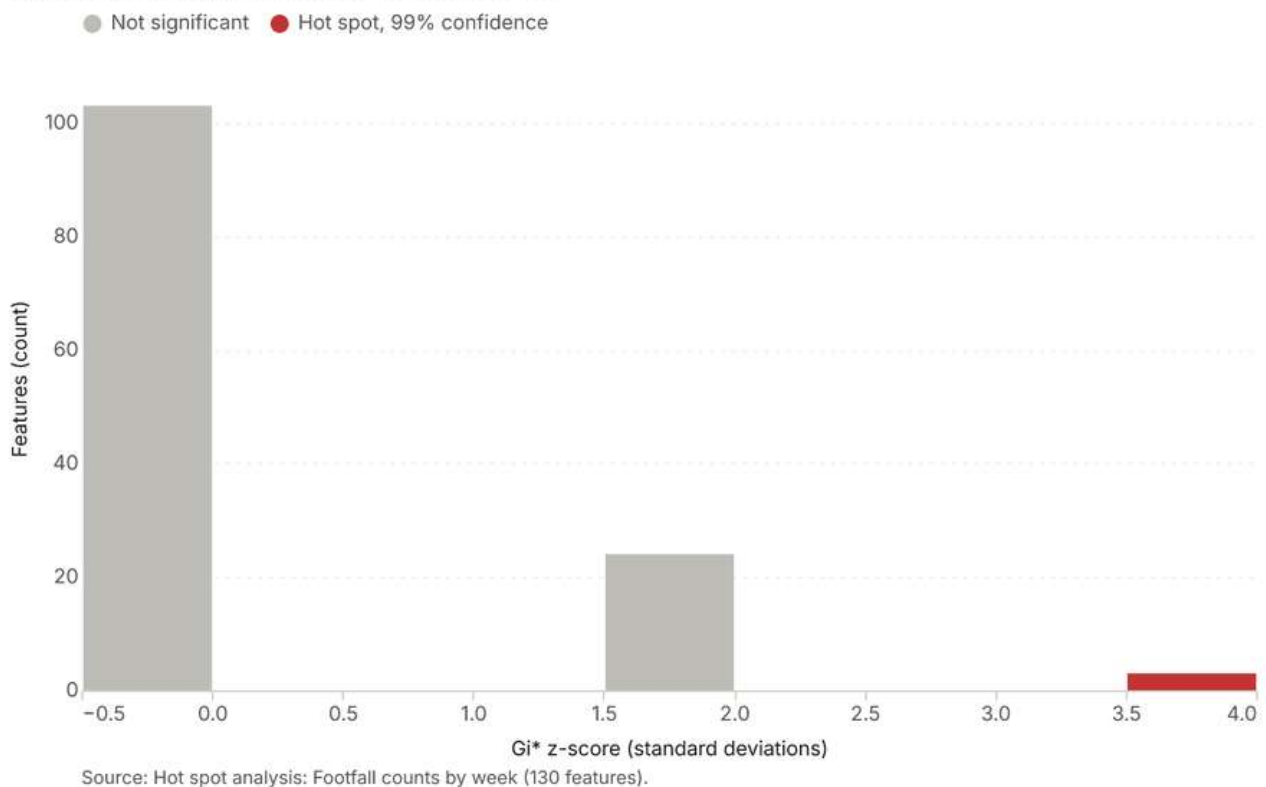
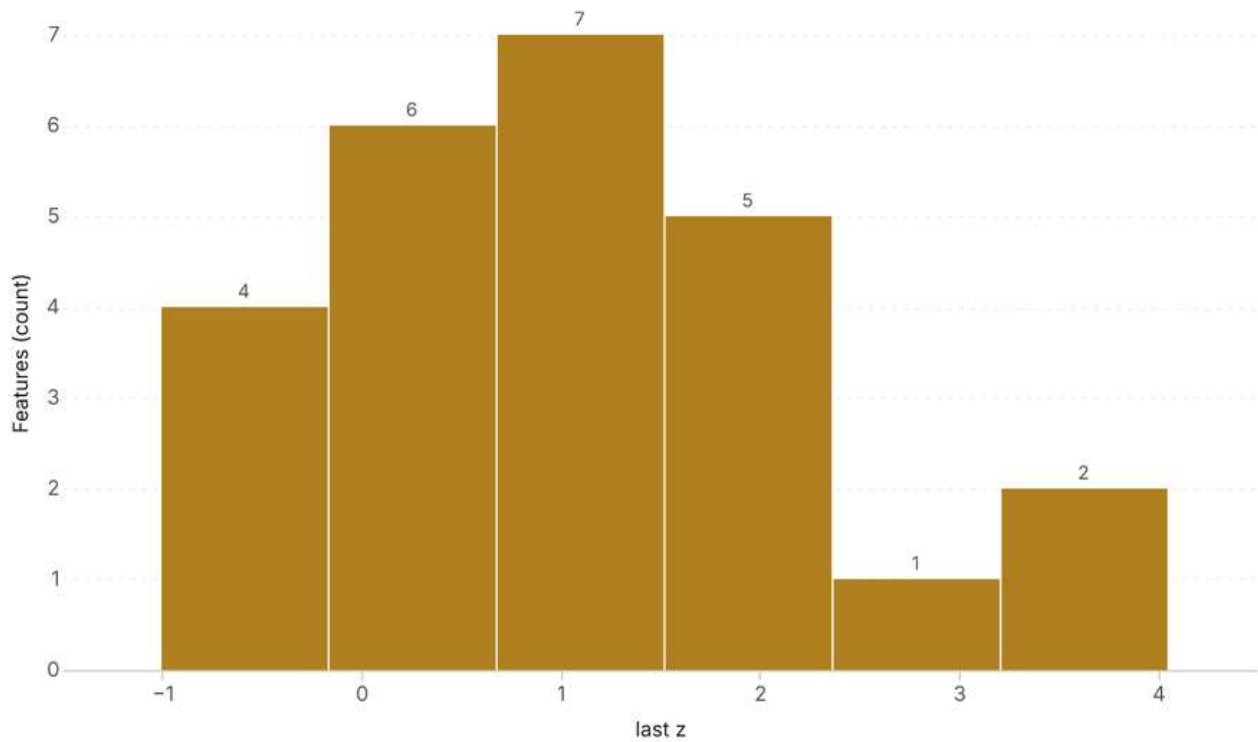


Figure 25. Hot spot analysis: Footfall counts by week [67]. Source: Hot spot analysis: Footfall counts by week (130 features). The data is in the appendix.

Distribution of last_z

25 values in 6 bins

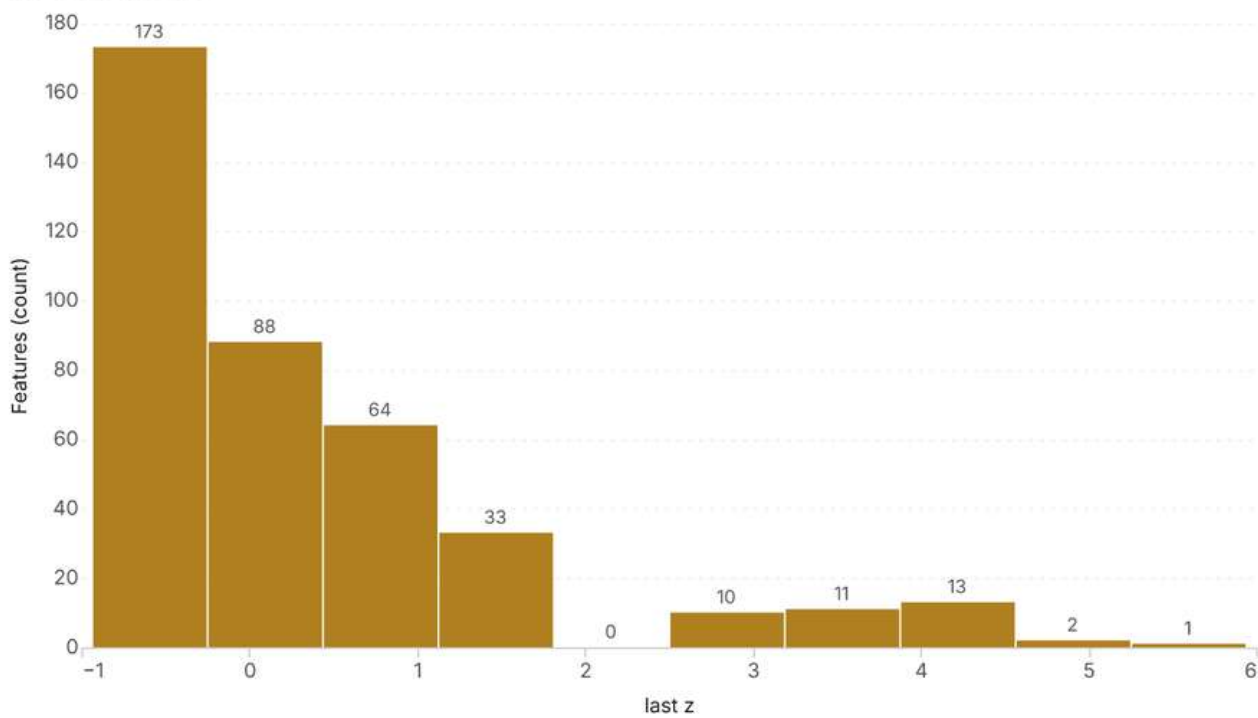


Source: Emerging hot spots: Footfall counts by week (25 features).

Figure 26. Emerging hot spots: Footfall counts by week [68]. Source: Emerging hot spots: Footfall counts by week (25 features). The data is in the appendix.

Distribution of last_z

395 values in 10 bins

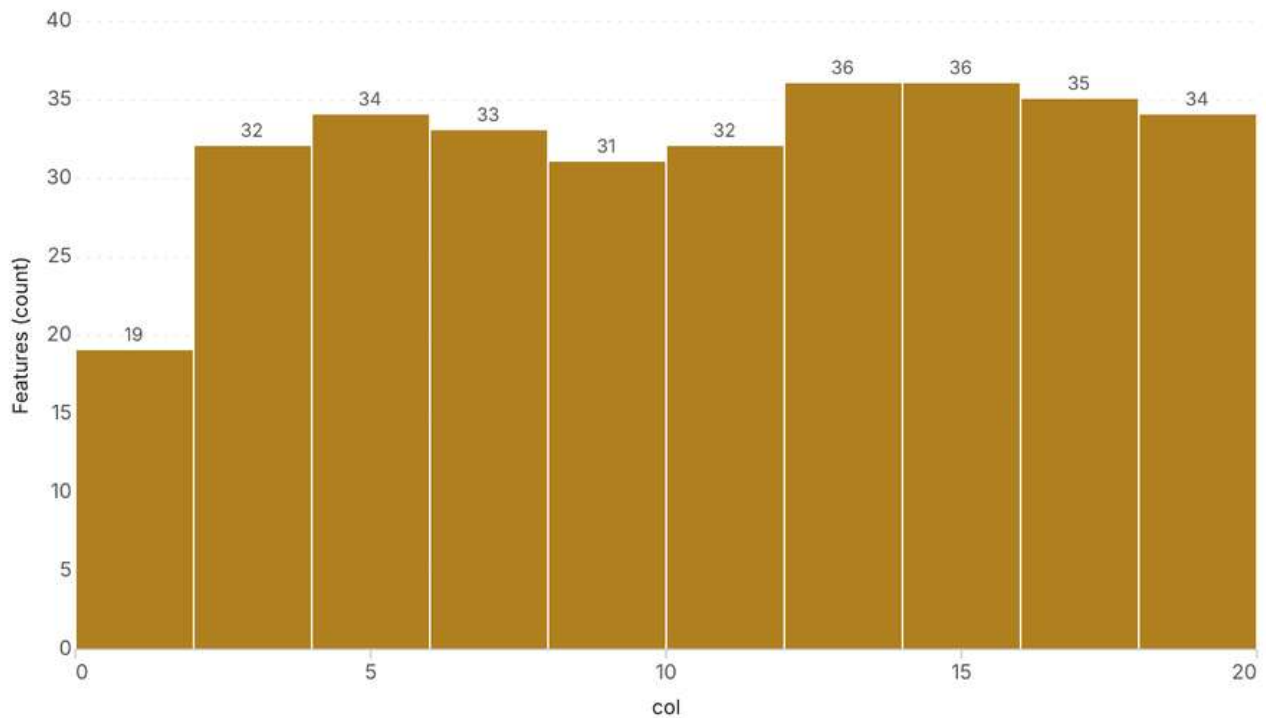


Source: Emerging hot spots: Loyalty transactions (395 features).

Figure 27. Emerging hot spots: Loyalty transactions [69]. Source: Emerging hot spots: Loyalty transactions (395 features). The data is in the appendix.

Distribution of col

322 values in 10 bins

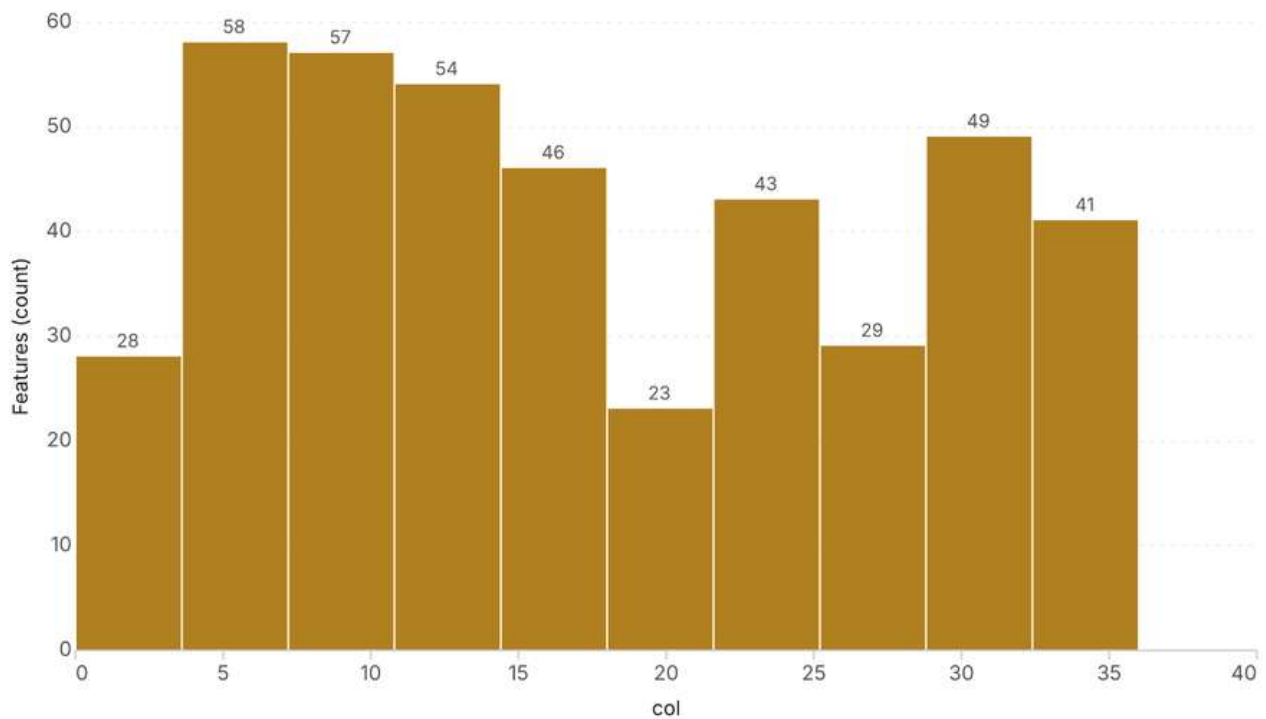


Source: Calculate density: Competitor stores (322 features).

Figure 28. Calculate density: Competitor stores [70]. Source: Calculate density: Competitor stores (322 features). The data is in the appendix.

Distribution of col

428 values in 10 bins

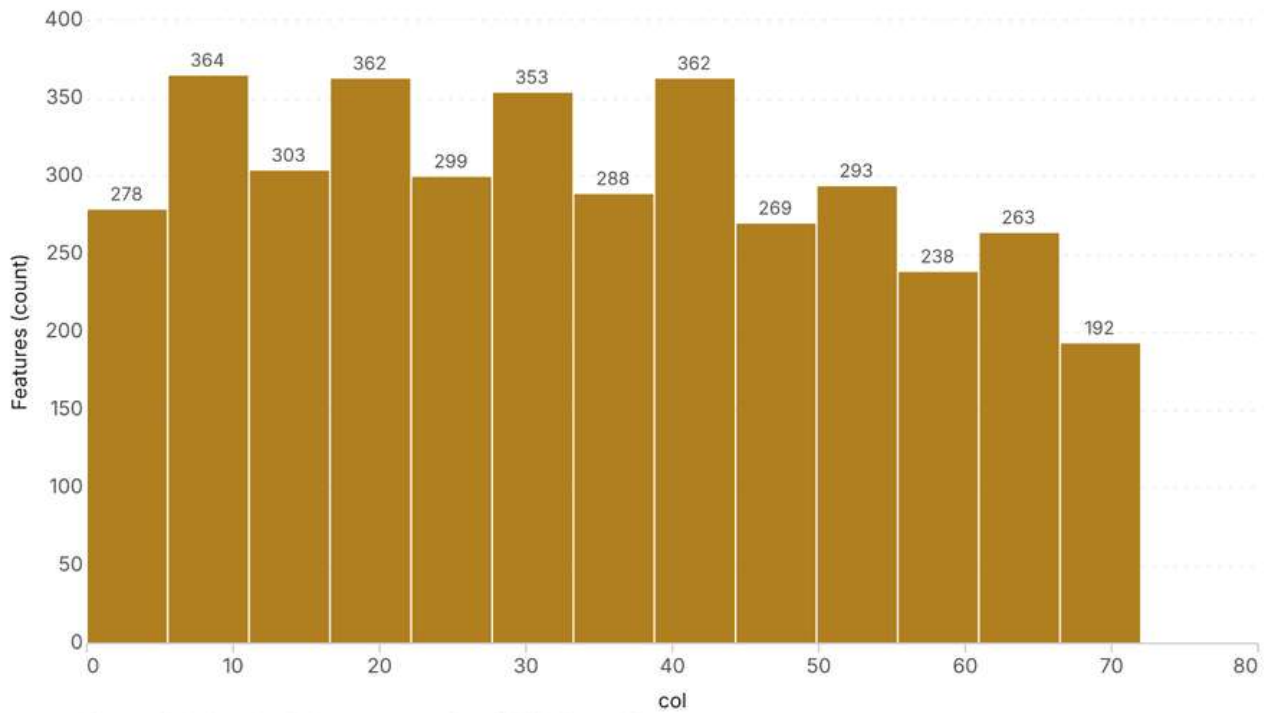


Source: Calculate density: Footfall counts by week (428 features).

Figure 29. Calculate density: Footfall counts by week [71]. Source: Calculate density: Footfall counts by week (428 features). The data is in the appendix.

Distribution of col

3,864 values in 13 bins

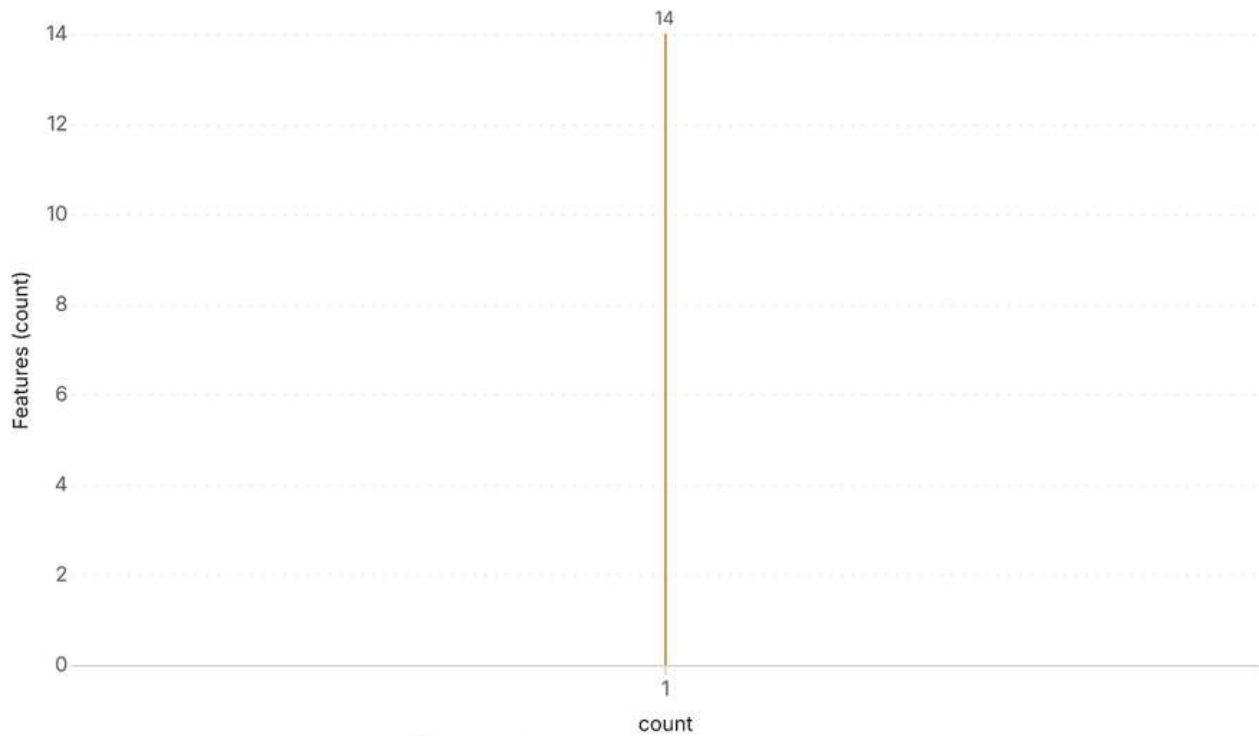


Source: Calculate density: Loyalty transactions (3,864 features).

Figure 30. Calculate density: Loyalty transactions [72]. Source: Calculate density: Loyalty transactions (3,864 features). The data is in the appendix.

Distribution of count

14 values in 1 bins



Source: Summarize within: Trade areas (14 features).

Figure 31. Summarize within: Trade areas [73]. Source: Summarize within: Trade areas (14 features). The data is in the appendix.

Distribution of count

14 values in 5 bins

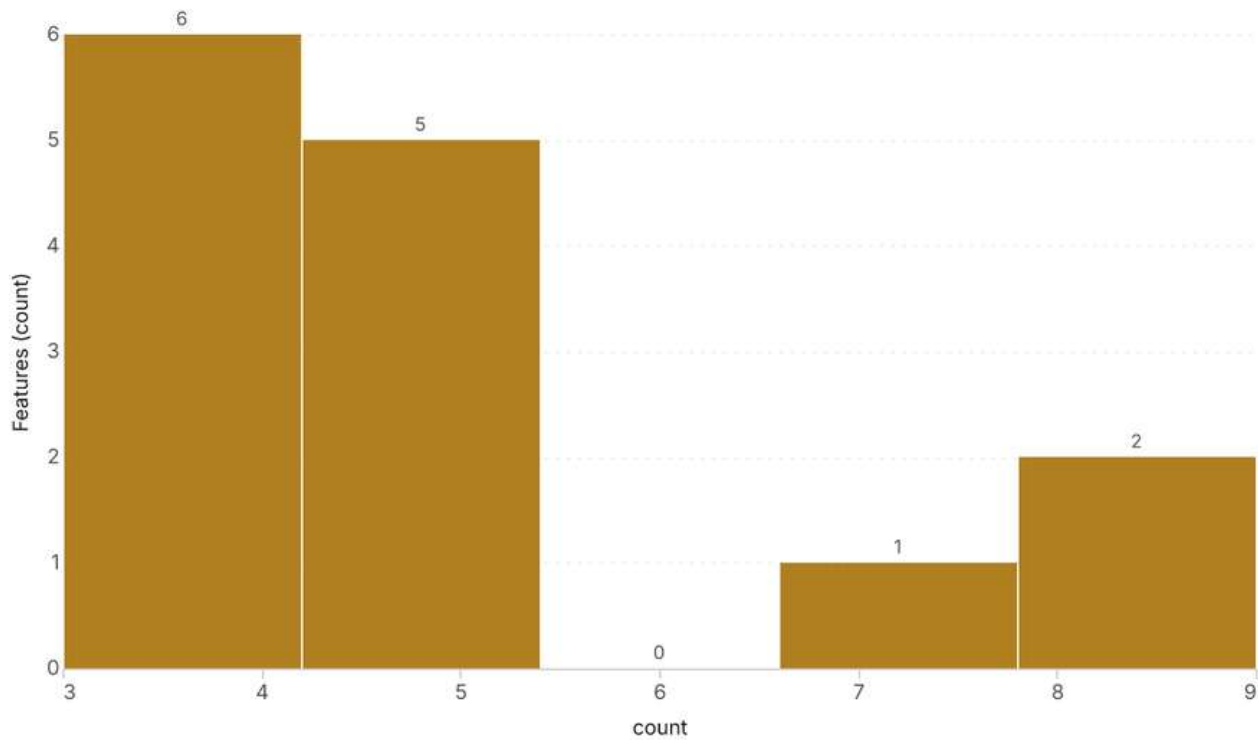


Figure 32. Summarize within: Trade areas [74]. Source: Summarize within: Trade areas (14 features). The data is in the appendix.

Distribution of count

14 values in 5 bins

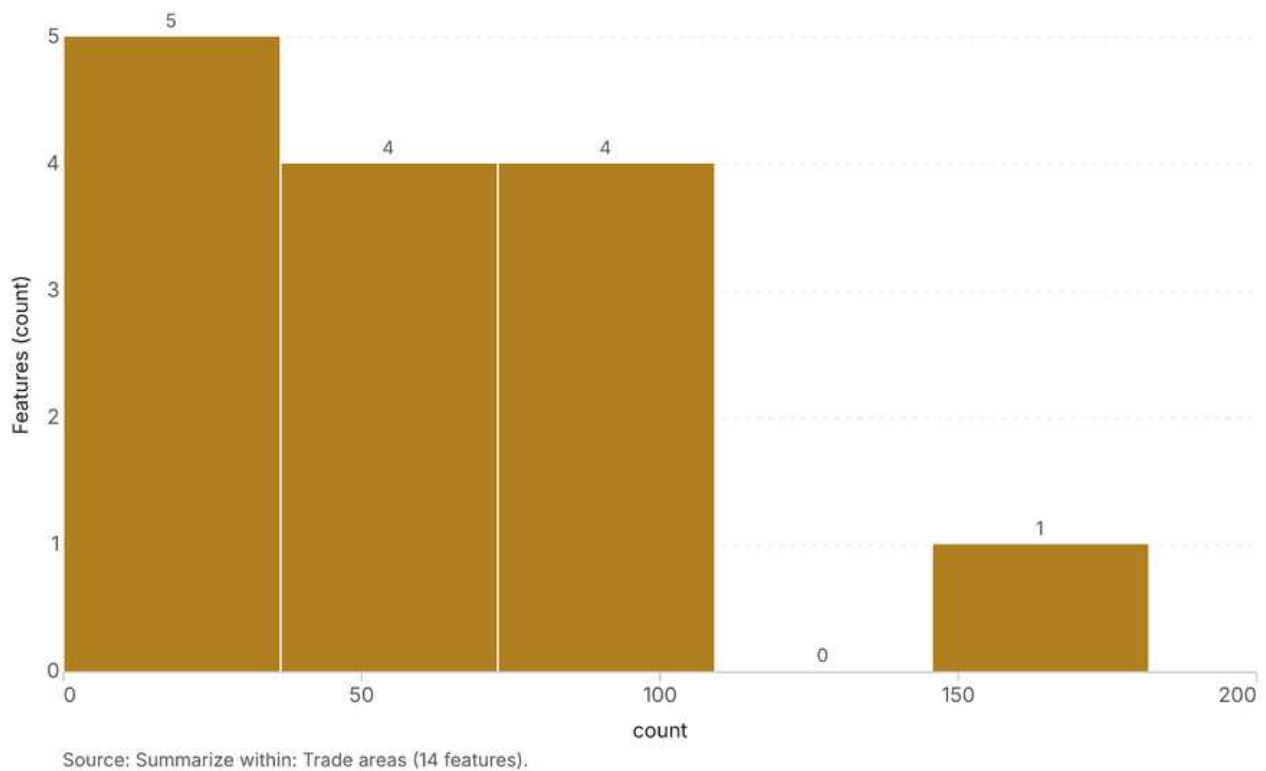


Figure 33. Summarize within: Trade areas [75]. Source: Summarize within: Trade areas (14 features). The data is in the appendix.

Cluster sizes

1 clusters over 14 features

cluster	features	share
0	14	100.0%

Source: Find point clusters: Stores (14 features).

Figure 34. Find point clusters: Stores [76]. Source: Find point clusters: Stores (14 features). The data is in the appendix.

Cluster sizes

1 clusters over 1 features

cluster	features	share
0	1	100.0%

Source: Find point clusters: cluster hulls (1 features).

Figure 35. Find point clusters: cluster hulls [77]. Source: Find point clusters: cluster hulls (1 features). The data is in the appendix.

Cluster sizes

2 clusters over 70 features

cluster	features	share
0	65	92.9%
1	3	4.3%
Noise	2	2.9%

Source: Find point clusters: Competitor stores (70 features).

Figure 36. Find point clusters: Competitor stores [78]. Source: Find point clusters: Competitor stores (70 features). The data is in the appendix.

Cluster sizes

2 clusters over 2 features

cluster	features	share
0	1	50.0%
1	1	50.0%

Source: Find point clusters: cluster hulls (2 features).

Figure 37. Find point clusters: cluster hulls [79]. Source: Find point clusters: cluster hulls (2 features). The data is in the appendix.

Cluster sizes

30 clusters over 780 features

cluster	features	share
0	26	3.3%
1	26	3.3%
10	26	3.3%
11	26	3.3%
12	26	3.3%
13	26	3.3%
14	26	3.3%
15	26	3.3%
16	26	3.3%
17	26	3.3%
18	26	3.3%
19	26	3.3%
2	26	3.3%
20	26	3.3%
21	26	3.3%
22	26	3.3%
23	26	3.3%
24	26	3.3%
25	26	3.3%
26	26	3.3%
27	26	3.3%
28	26	3.3%
29	26	3.3%
3	26	3.3%
4	26	3.3%

Period: 2026-04-06 to 2026-09-28 (date). Source: Find point clusters: Footfall counts by we...

Figure 38. Find point clusters: Footfall counts by week [80]. Period: 2026-04-06 to 2026-09-28 (date). Source: Find point clusters: Footfall counts by week (780 features). The data is in the appendix.

Cluster sizes

30 clusters over 30 features

cluster	features	share
0	1	3.3%
1	1	3.3%
10	1	3.3%
11	1	3.3%
12	1	3.3%
13	1	3.3%
14	1	3.3%
15	1	3.3%
16	1	3.3%
17	1	3.3%
18	1	3.3%
19	1	3.3%
2	1	3.3%
20	1	3.3%
21	1	3.3%
22	1	3.3%
23	1	3.3%
24	1	3.3%
25	1	3.3%
26	1	3.3%
27	1	3.3%
28	1	3.3%
29	1	3.3%
3	1	3.3%
4	1	3.3%

Source: Find point clusters: cluster hulls (30 features).

Figure 39. Find point clusters: cluster hulls [81]. Source: Find point clusters: cluster hulls (30 features). The data is in the appendix.

Gi* z-score distribution

1,071 features: 69 hot and 0 cold at 90% confidence or more

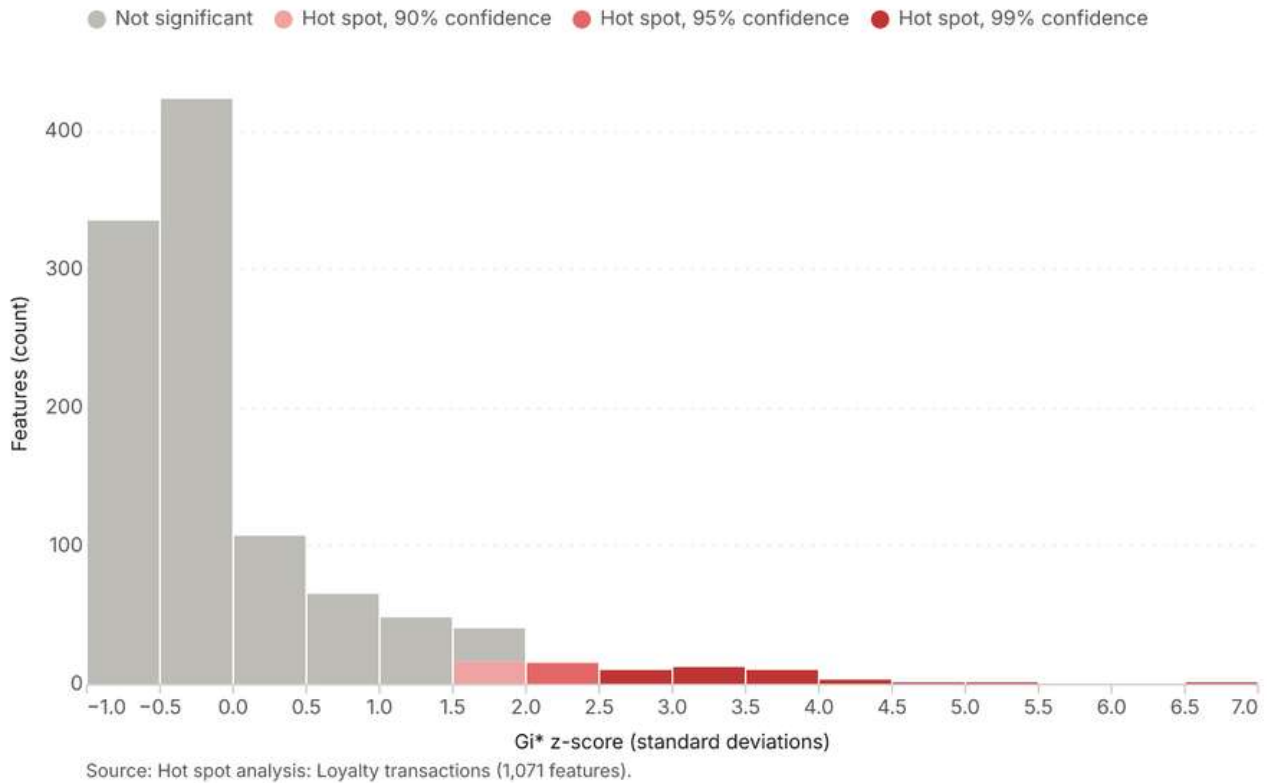


Figure 40. Hot spot analysis: Loyalty transactions [82]. Source: Hot spot analysis: Loyalty transactions (1,071 features). The data is in the appendix.

Count per week by date and nr_class

Per week: 26 weeks from 2026-04-06 to 2026-09-28; trend +0 per week; first half 390, second half 390 (+0.0%)

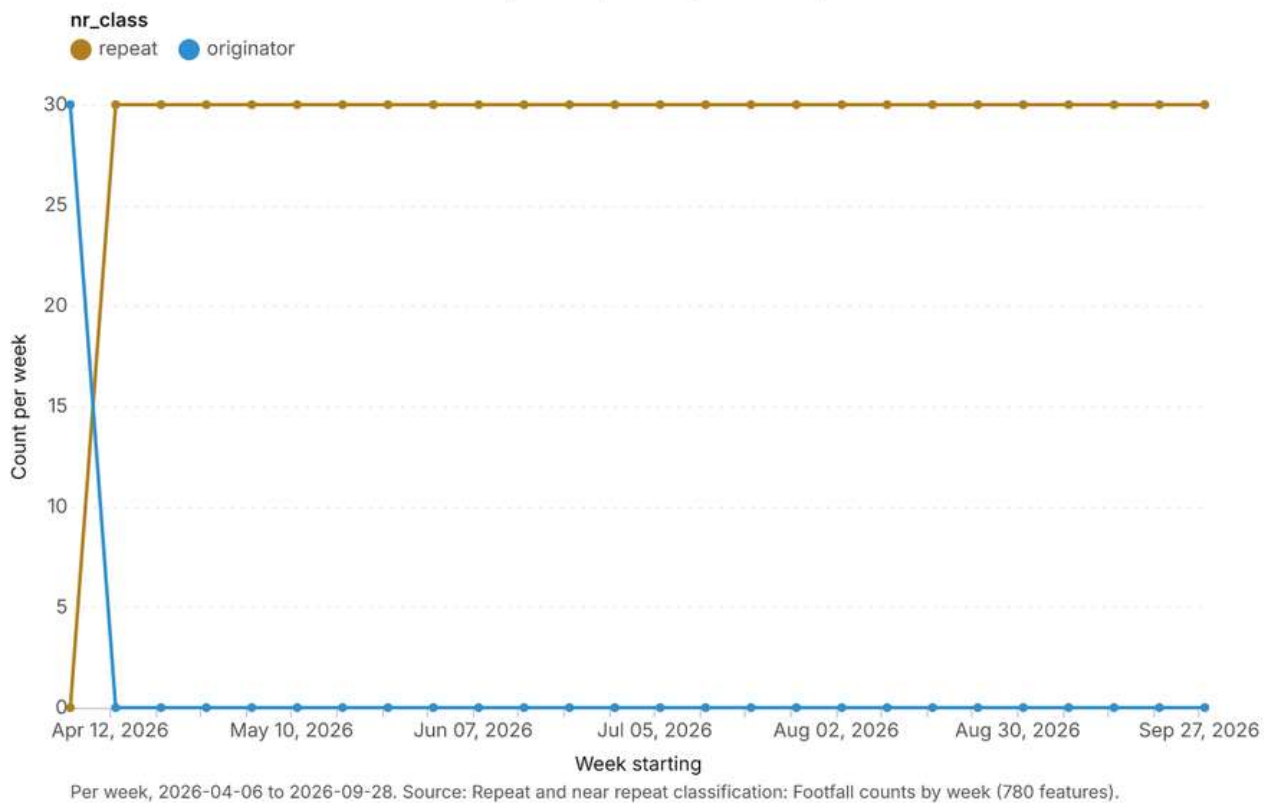
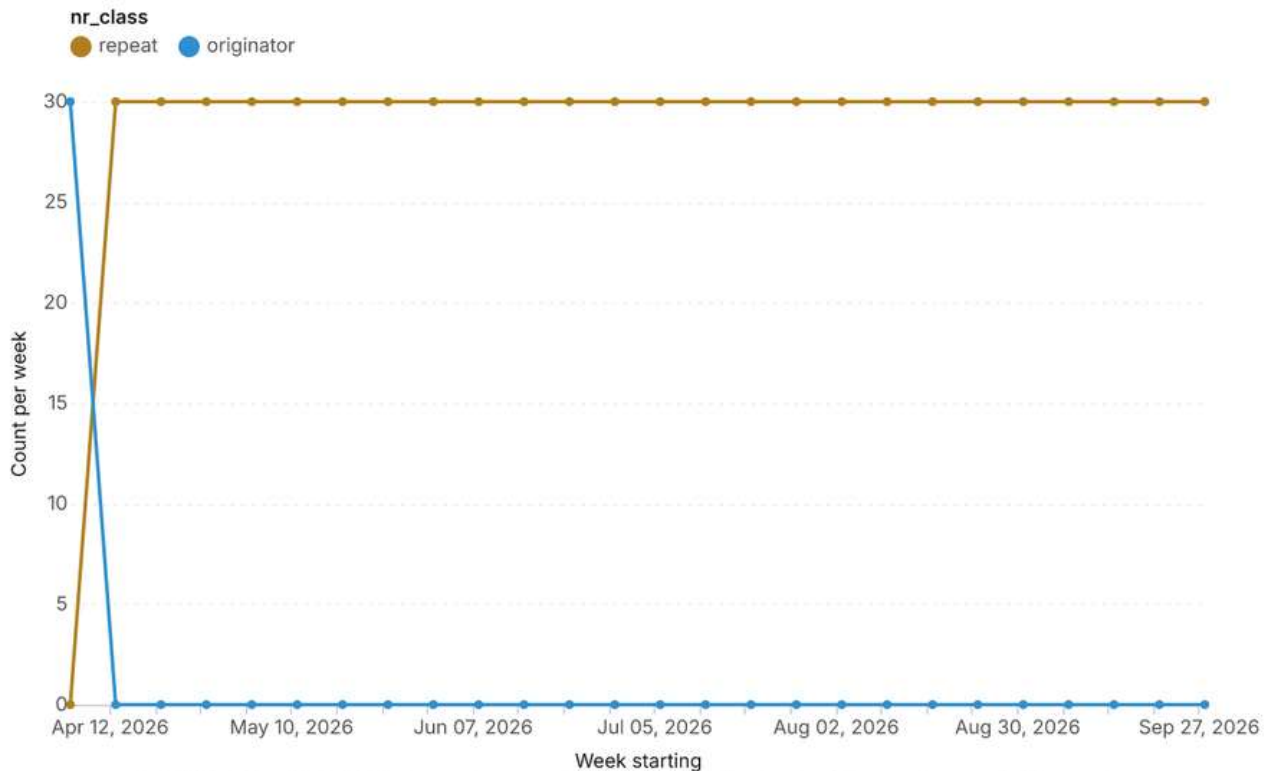


Figure 41. Repeat and near repeat classification: Footfall counts by week [83]. Per week, 2026-04-06 to 2026-09-28. Source: Repeat and near repeat classification: Footfall counts by week (780 features). The data is in the appendix.

Count per week by date and nr_class

Per week: 26 weeks from 2026-04-06 to 2026-09-28; trend +0 per week; first half 390, second half 390 (+0.0%)

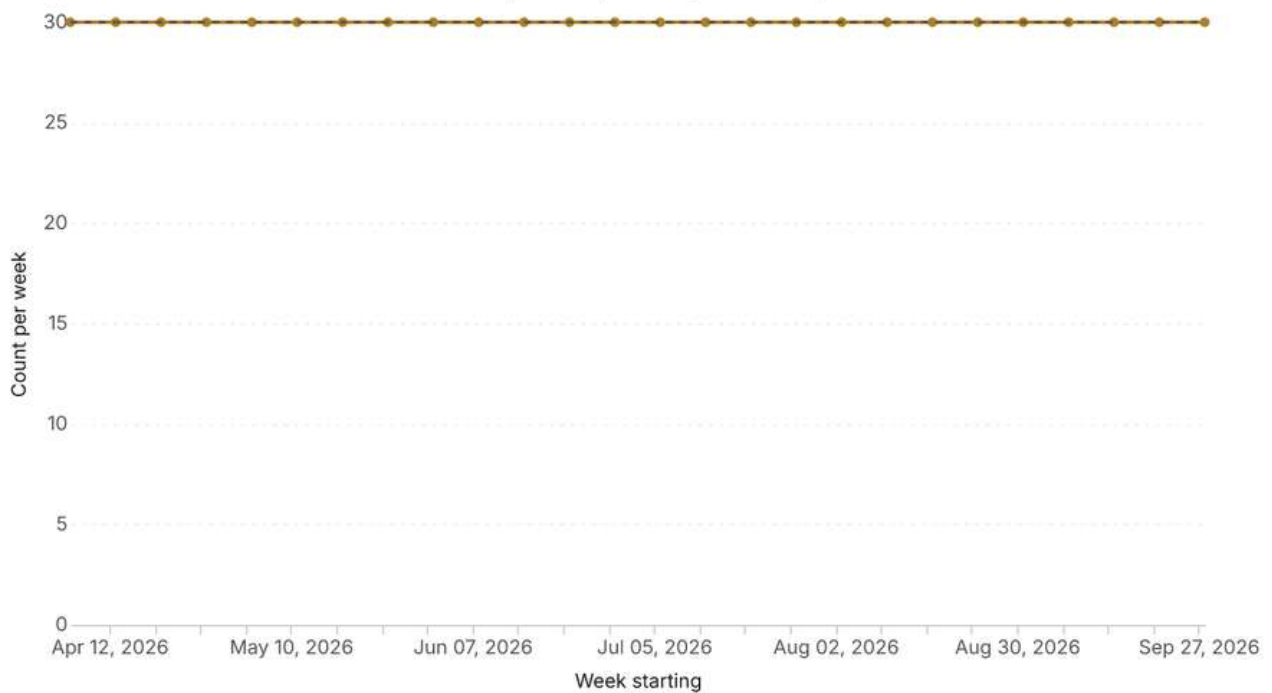


Per week, 2026-04-06 to 2026-09-28. Source: Repeat and near repeat classification: Footfall counts by week (780 features).

Figure 42. Repeat and near repeat classification: Footfall counts by week over time [84]. Per week, 2026-04-06 to 2026-09-28. Source: Repeat and near repeat classification: Footfall counts by week (780 features). The data is in the appendix.

Count per week by date

Per week: 26 weeks from 2026-04-06 to 2026-09-28; trend +0 per week; first half 390, second half 390 (+0.0%)



Per week, 2026-04-06 to 2026-09-28. Source: Find point clusters: Footfall counts by week (780 features).

Figure 43. Find point clusters: Footfall counts by week over time [85]. Per week, 2026-04-06 to 2026-09-28. Source: Find point clusters: Footfall counts by week (780 features). The data is in the appendix.

Changes since the last run

This is the first report of this project.

Sources

- [1] Rendering: Chart: Timeline: events per week by dataset. 81 rows (id b6ec7ced-8908-403a-82e8-b707067abf11)
- [2] Dataset: Loyalty transactions. vector, 2200 rows (id c92f0326-813e-48e4-b969-2af33dd6f105)
- [3] Dataset: Footfall counts by week. vector, 780 rows (id b8b278cf-9521-499e-b4b7-e6f243cb9269)
- [4] Dataset: Weekly store sales. table, 364 rows (id 0fd06209-c790-4dc2-9c7b-6ef4117b8bf2)
- [5] Catalog: Hot spot analysis (operation catalog, gp_hot_spots). Getis-Ord Gi* hot and cold spots with z-scores, p-values and confidence bins. ArcGIS: Find Hot Spots, Hot Spot Analysis (Getis-Ord Gi*). QGIS: qgis:hotspot (plugin). (id gp_hot_spots)
- [6] Plan: Hot spots of Competitor stores (the Start plan's candidate c_768477a30749). 70 points: Getis-Ord Gi* tests whether the concentrations in Competitor stores are statistically significant. (id 0b0bb769-454c-448a-a67b-f44e5a60fefc:c_768477a30749)
- [7] Tool result: gp_hot_spots, step 0. Hot spot analysis: 1 layer saved: Hot spot analysis: Competitor stores (43 features). (id b507865e-e41b-4810-90c3-5f92db83053c:0)
- [8] Layer: Competitor stores. 70 features (id 4c436f86-a921-4bc7-ab04-ec1160edd973)
- [9] Plan: Hot spots of Footfall counts by week (the Start plan's candidate c_e591398dec9c). 780 points: Getis-Ord Gi* tests whether the concentrations in Footfall counts by week are statistically significant. (id 0b0bb769-454c-448a-a67b-f44e5a60fefc:c_e591398dec9c)
- [10] Tool result: gp_hot_spots, step 1. Hot spot analysis: 1 layer saved: Hot spot analysis: Footfall counts by week (130 features). (id b507865e-e41b-4810-90c3-5f92db83053c:1)
- [11] Layer: Footfall counts by week. 780 features (id f2397865-1eae-4be9-8276-1cefdc53f340)
- [12] Catalog: Emerging hot spots (operation catalog, gp_space_time_hot_spots). Where hot spots are new, consecutive, intensifying, persistent, diminishing, sporadic, oscillating or historical over time. ArcGIS: Emerging Hot Spot Analysis, Create Space Time Cube. (id gp_space_time_hot_spots)
- [13] Plan: Space time hot spots of Footfall counts by week (the Start plan's candidate c_1fdb05aba998). Footfall counts by week carry dates in 'date': emerging hot spot analysis finds new, intensifying and fading hot spots per week. (id 0b0bb769-454c-448a-a67b-f44e5a60fefc:c_1fdb05aba998)
- [14] Tool result: gp_space_time_hot_spots, step 0. Emerging hot spots: 1 layer saved: Emerging hot spots: Footfall counts by week (25 features). (id 21998efd-79ff-497c-8ea5-61d8a01f2b62:0)
- [15] Plan: Space time hot spots of Loyalty transactions (the Start plan's candidate c_a7d38c7e2909). Loyalty transactions carry dates in 'purchased_at': emerging hot spot analysis finds new, intensifying and fading hot spots per week. (id 0b0bb769-454c-448a-a67b-f44e5a60fefc:c_a7d38c7e2909)
- [16] Tool result: gp_space_time_hot_spots, step 1. Emerging hot spots: 1 layer saved: Emerging hot spots: Loyalty transactions (395 features). (id 21998efd-79ff-497c-8ea5-61d8a01f2b62:1)
- [17] Layer: Loyalty transactions. 2,200 features (id aa524a0b-a973-4a26-9744-54d5e4cfc549)
- [18] Catalog: Calculate density (operation catalog, gp_calculate_density). Kernel density per square kilometer on a grid. ArcGIS: Calculate Density, Kernel Density. QGIS: native:heatmapkerneldensityestimation. (id gp_calculate_density)
- [19] Plan: Kernel density of Competitor stores (the Start plan's candidate c_395aeab7e765). 70 points in Competitor stores: a density surface shows where they concentrate. (id 0b0bb769-454c-448a-a67b-f44e5a60fefc:c_395aeab7e765)
- [20] Tool result: gp_calculate_density, step 0. Calculate density: 1 layer saved: Calculate density: Competitor stores (322 features). (id 430ebe02-9fb6-4905-a3f4-d3f833474337:0)
- [21] Plan: Kernel density of Footfall counts by week (the Start plan's candidate c_af8a7417d64e). 780 points in Footfall counts by week: a density surface shows where they concentrate. (id 0b0bb769-454c-448a-a67b-f44e5a60fefc:c_af8a7417d64e)
- [22] Tool result: gp_calculate_density, step 1. Calculate density: 1 layer saved: Calculate density: Footfall counts by week (428 features). (id 430ebe02-9fb6-4905-a3f4-d3f833474337:1)
- [23] Plan: Kernel density of Loyalty transactions (the Start plan's candidate c_17cb4893e203). 2200 points in Loyalty transactions: a density surface shows where they concentrate. (id 0b0bb769-454c-448a-a67b-f44e5a60fefc:c_17cb4893e203)
- [24] Tool result: gp_calculate_density, step 2. Calculate density: 1 layer saved: Calculate density: Loyalty transactions (3864 features). (id 430ebe02-9fb6-4905-a3f4-d3f833474337:2)
- [25] Catalog: Summarize within (operation catalog, gp_summarize_within). Count and aggregate the features inside each polygon (or bin), proportionally for lines and polygons. ArcGIS: Summarize Within, Aggregate Points. QGIS: native:countpointsinpolygon, native:sumlinelengths. (id gp_summarize_within)
- [26] Plan: Stores per feature of Trade areas (the Start plan's candidate c_2c5b6056dd2b). Count Stores inside each feature of Trade areas by format; the counts map as a choropleth (natural breaks, sequential colors). (id 0b0bb769-454c-448a-a67b-f44e5a60fefc:c_2c5b6056dd2b)

- [27] Tool result: gp_summarize_within, step 0. Summarize within: 1 layer saved: Summarize within: Trade areas (14 features). (id 19ff26ef-a2c9-471b-a599-9000ca42c12a:0)
- [28] Layer: Stores. 14 features (id 18363c3a-9918-4ce0-ab48-033ac000c916)
- [29] Layer: Trade areas. 14 features (id e712834d-448e-41b7-b460-06c5bedc46af)
- [30] Tool result: gp_summarize_within, step 1. Summarize within: 1 layer saved: Summarize within: Trade areas (14 features). (id 19ff26ef-a2c9-471b-a599-9000ca42c12a:1)
- [31] Tool result: gp_summarize_within, step 2. Summarize within: 1 layer saved: Summarize within: Trade areas (14 features). (id 19ff26ef-a2c9-471b-a599-9000ca42c12a:2)
- [32] Catalog: Find point clusters (operation catalog, gp_find_point_clusters). Density-based clusters (DBSCAN, HDBSCAN or OPTICS, optionally space-time) with hulls and noise. ArcGIS: Find Point Clusters, Density-based Clustering. QGIS: native:dbscanclustering, native:stdbscanclustering. (id gp_find_point_clusters)
- [33] Plan: Cluster points of Stores (the Start plan's candidate c_6507de56c2a3). DBSCAN finds dense groups of Stores and separates noise. (id 0b0bb769-454c-448a-a67b-f44e5a60fecf:c_6507de56c2a3)
- [34] Tool result: gp_find_point_clusters, step 0. Find point clusters: 2 layers saved: Find point clusters: Stores (14 features); Find point clusters: cluster hulls (1 feature). (id ca920f5a-83d3-4ecf-82d9-45a80921c7b9:0)
- [35] Plan: Cluster points of Competitor stores (the Start plan's candidate c_53b613e74a4d). DBSCAN finds dense groups of Competitor stores and separates noise. (id 0b0bb769-454c-448a-a67b-f44e5a60fecf:c_53b613e74a4d)
- [36] Tool result: gp_find_point_clusters, step 1. Find point clusters: 2 layers saved: Find point clusters: Competitor stores (70 features); Find point clusters: cluster hulls (2 features). (id ca920f5a-83d3-4ecf-82d9-45a80921c7b9:1)
- [37] Plan: Cluster points of Footfall counts by week (the Start plan's candidate c_d5d62e4a81d6). DBSCAN finds dense groups of Footfall counts by week and separates noise. (id 0b0bb769-454c-448a-a67b-f44e5a60fecf:c_d5d62e4a81d6)
- [38] Tool result: gp_find_point_clusters, step 2. Find point clusters: 2 layers saved: Find point clusters: Footfall counts by week (780 features); Find point clusters: cluster hulls (30 features). (id ca920f5a-83d3-4ecf-82d9-45a80921c7b9:2)
- [39] Plan: Hot spots of Loyalty transactions (the Start plan's candidate c_47bf1f0a2ecf). 2200 points: Getis-Ord Gi* tests whether the concentrations in Loyalty transactions are statistically significant. (id 0b0bb769-454c-448a-a67b-f44e5a60fecf:c_47bf1f0a2ecf)
- [40] Tool result: gp_hot_spots, step 0. Hot spot analysis: 1 layer saved: Hot spot analysis: Loyalty transactions (1071 features). (id 5a6f1c3e-75be-4e48-a441-9e9439c69a91:0)
- [41] Catalog: Repeat and near repeat classification (operation catalog, gp_near_repeat). Classify incidents as originators, repeats (same place) or near repeats within a distance and time window, with a Knox test table. ArcGIS: Repeat and Near Repeat Classification, Near Repeat Calculator. (id gp_near_repeat)
- [42] Plan: Near repeat of Footfall counts by week (the Start plan's candidate c_73acbbcef86d). Near repeat analysis tests whether Footfall counts by week close in space also follow each other within 18 days. (id 0b0bb769-454c-448a-a67b-f44e5a60fecf:c_73acbbcef86d)
- [43] Tool result: gp_near_repeat, step 0. Repeat and near repeat classification: 1 layer saved: Repeat and near repeat classification: Footfall counts by week (780 features). (id 1f9ce8d2-9c80-423d-af47-a65148d65bf2:0)
- [44] Rendering: Map: Hot spot analysis: Competitor stores (id 41888450-f89e-4987-b1c8-dd5bf46def36)
- [45] Rendering: Map: Hot spot analysis: Footfall counts by week (id f93b9c24-c668-48a3-bbb7-19c453deff48)
- [46] Rendering: Map: Emerging hot spots: Footfall counts by week (id cb7f1de8-6f92-4f7b-851f-d1e165a7b7cc)
- [47] Rendering: Map: Emerging hot spots: Loyalty transactions (id 4b865cd2-b745-4c5f-8633-9afed6258161)
- [48] Rendering: Map: Calculate density: Competitor stores (id e400313e-2c8f-4e48-a9f7-25769b8d11a0)
- [49] Rendering: Map: Calculate density: Footfall counts by week (id f2d8ba2d-fb20-4c4c-a479-297dc0b8b234)
- [50] Rendering: Map: Calculate density: Loyalty transactions (id 3e01b21f-9a4f-4179-9e11-68a06635b4a7)
- [51] Rendering: Map: Summarize within: Trade areas (id d11fb076-b43e-46f5-90e6-45ae509035e4)
- [52] Rendering: Map: Summarize within: Trade areas (id 73cc3108-93e2-4779-b12c-3b92ec9c25a2)
- [53] Rendering: Map: Summarize within: Trade areas (id 924e39d5-2308-4dff-b4e4-f47f5728463f)
- [54] Rendering: Map: Find point clusters: Stores (id 78c40d3d-dee7-49cb-be7d-ef0ed8325367)
- [55] Rendering: Map: Find point clusters: cluster hulls (id e9a1e8eb-0435-4209-9bd4-f5dbf7b51be9)
- [56] Rendering: Map: Find point clusters: Competitor stores (id d3819598-0281-437f-992f-f0f54e12724e)
- [57] Rendering: Map: Find point clusters: cluster hulls (id 70d2c2da-7629-473a-9f6f-106e6d23bab1)
- [58] Rendering: Map: Find point clusters: Footfall counts by week (id 7112a329-ab18-44fb-a596-e82e1bee032d)
- [59] Rendering: Map: Find point clusters: cluster hulls (id bf8ff644-7688-4db7-8bb6-f3cc36fe7901)
- [60] Rendering: Map: Trade areas by households (id 33981aa9-656c-4956-b45f-c22bca1b6eeb)

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- [61] Rendering: Map: Neighborhoods by population (id a8598722-b6b3-4fc1-93e3-d3453c8c18d7)
- [62] Rendering: Map: Hot spot analysis: Loyalty transactions (id fce9171a-60ec-4705-a035-aaccbcaba8e8)
- [63] Rendering: Map: Repeat and near repeat classification: Footfall counts by week (id e70b2db0-fea4-47cf-8ec3-7183fee9e834)
- [64] Rendering: Chart: Stores over time (opened_year). 5 rows (id 88a4e6a1-e252-4fad-bb98-135337862108)
- [65] Rendering: Chart: Footfall counts by week over time (date). 26 rows (id 6e13d856-d944-439a-8903-ae33a8ab0da3)
- [66] Rendering: Chart: Hot spot analysis: Competitor stores. 11 rows (id 9c3ad16e-b912-4594-a05a-87cded10ab78)
- [67] Rendering: Chart: Hot spot analysis: Footfall counts by week. 3 rows (id 0b831a4b-dee4-45be-b7d7-e986b73d50bc)
- [68] Rendering: Chart: Emerging hot spots: Footfall counts by week. 6 rows (id 789e8923-f0a6-4857-9ab7-b66bc1cd1c3f)
- [69] Rendering: Chart: Emerging hot spots: Loyalty transactions. 10 rows (id 813722a9-1e8c-4450-aec2-7394e0775dba)
- [70] Rendering: Chart: Calculate density: Competitor stores. 10 rows (id 7d20b087-1407-433c-8dc8-d356ce1f082e)
- [71] Rendering: Chart: Calculate density: Footfall counts by week. 10 rows (id 17d4ba42-821c-40ae-b3d1-7b35ca038652)
- [72] Rendering: Chart: Calculate density: Loyalty transactions. 13 rows (id f692141a-e0e4-42c1-ac87-80825e412def)
- [73] Rendering: Chart: Summarize within: Trade areas. 1 rows (id 8f97ef4e-3866-4c95-a751-112dfd457eef)
- [74] Rendering: Chart: Summarize within: Trade areas. 5 rows (id 35a513b9-93bb-465d-b882-5d348e39b6dc)
- [75] Rendering: Chart: Summarize within: Trade areas. 5 rows (id 8e3c214d-56fd-4e64-929e-30c9c09c29f5)
- [76] Rendering: Chart: Find point clusters: Stores. 1 rows (id b9c77e7c-1f5c-400c-bf75-b3aca56b70e7)
- [77] Rendering: Chart: Find point clusters: cluster hulls. 1 rows (id 467acba3-533e-407d-9fbd-23f5820d4419)
- [78] Rendering: Chart: Find point clusters: Competitor stores. 3 rows (id 6d7a778d-7a18-45e4-adf0-4bd41485ad7e)
- [79] Rendering: Chart: Find point clusters: cluster hulls. 2 rows (id eb67f5bb-ba8e-4094-b82d-ec0756a3a23a)
- [80] Rendering: Chart: Find point clusters: Footfall counts by week. 30 rows (id 45f91f53-c509-412f-a771-62cba1d96b4f)
- [81] Rendering: Chart: Find point clusters: cluster hulls. 30 rows (id 7541ae38-9abb-4836-9e35-aa37edae4d9e)
- [82] Rendering: Chart: Hot spot analysis: Loyalty transactions. 15 rows (id b9623d33-4a1f-466f-887c-2aecc180a640)
- [83] Rendering: Chart: Repeat and near repeat classification: Footfall counts by week. 52 rows (id 693cb1b3-8254-4cfb-8525-f6aab230d985)
- [84] Rendering: Chart: Repeat and near repeat classification: Footfall counts by week over time. 52 rows (id da2c2ad8-5c02-46ad-be96-5afb7abf90a7)
- [85] Rendering: Chart: Find point clusters: Footfall counts by week over time. 26 rows (id 43bccbb2-c646-4616-8780-2bd48f81912e)
- [86] Dataset: Neighborhoods. vector, 32 rows (id fa0b8017-5ddc-4e1f-a444-31fd07e52b97)
- [87] Dataset: Stores. vector, 14 rows (id 82660798-29d0-4c66-a9c0-444823fa0479)
- [88] Dataset: Competitor stores. vector, 70 rows (id 9c4d2224-f1d8-4fc0-8667-d94268e2460a)
- [89] Dataset: Trade areas. vector, 14 rows (id 5172e6d7-515f-4a32-89d2-408d49039a96)
- [90] Dataset: Parking lots. vector, 25 rows (id ef40dd81-eb91-41ff-a8ce-d61b98dfa2bc)
- [91] Dataset: Main roads. vector, 18 rows (id 1d4e054d-0664-4e98-9a81-0645bcbb69a7)
- [92] Dataset: Neighborhood demographics. table, 32 rows (id e76e880f-2f9b-4745-8cb1-c1977effb3ab)
- [93] Dataset: Store network expansion memo. document, ? rows (id 8f7f2a26-905f-48fc-8056-46e9aaa7cd21)
- [94] Record: Sample: Retail, Manchester (id e415669e-4f91-46e1-8afb-4604f1d21ffb)
- [95] Layer: Hot spot analysis: Competitor stores. 43 features (id b80aa42a-d8ea-4e32-8d49-6e5773e54e39)
- [96] Layer: Hot spot analysis: Footfall counts by week. 130 features (id f0b07952-61d1-4329-8f15-30737eeffd7b)
- [97] Layer: Emerging hot spots: Footfall counts by week. 25 features (id 0e4e31f2-68f4-4616-9467-013b9d001713)
- [98] Layer: Emerging hot spots: Loyalty transactions. 395 features (id a138b441-1405-4566-b2be-a105c298c8bc)
- [99] Layer: Calculate density: Competitor stores. 322 features (id 66cc8107-cef3-4817-88bc-3d844fef8c5d)
- [100] Layer: Calculate density: Footfall counts by week. 428 features (id 127e81c4-1813-4a14-bf8a-e02c15922197)
- [101] Layer: Calculate density: Loyalty transactions. 3,864 features (id c60805b0-dabf-417a-9c74-56991faf551d)
- [102] Layer: Summarize within: Trade areas. 14 features (id 7c9a641f-d6ec-4516-94be-bf77837866f9)
- [103] Layer: Summarize within: Trade areas. 14 features (id 18fcae7b-5cd3-43b0-8df8-db89ccdf1ce1)
- [104] Layer: Summarize within: Trade areas. 14 features (id aa777707-952c-4358-950b-2b0b19102664)

- [105] Layer: Find point clusters: Stores. 14 features (id 99f04d61-5c35-4915-81c3-07e1c20e77a9)
- [106] Layer: Find point clusters: cluster hulls. 1 features (id 307f2beb-8d40-4d28-80e7-f41546cea1f1)
- [107] Layer: Find point clusters: Competitor stores. 70 features (id b588c0ef-eaf1-43aa-9e46-eb574ee308cd)
- [108] Layer: Find point clusters: cluster hulls. 2 features (id 937090ee-0478-421a-b9ea-436ec735517e)
- [109] Layer: Find point clusters: Footfall counts by week. 780 features (id 9185731c-b554-4959-be37-e8b614083c36)
- [110] Layer: Find point clusters: cluster hulls. 30 features (id 589e2574-90d1-40c4-9a13-7a72b83fb52f)
- [111] Layer: Hot spot analysis: Loyalty transactions. 1,071 features (id e5715bae-7cde-4109-98c9-68e36ec45e14)
- [112] Layer: Repeat and near repeat classification: Footfall counts by week. 780 features (id e233d1b4-20ea-4a50-8578-dd34d19532fc)

Appendix: the data behind the charts

Figure 1. Timeline: events per week by dataset [1]

period	series	value
2026-03-30	Loyalty transactions	54
2026-03-30	Footfall counts by week	0
2026-03-30	Weekly store sales	0
2026-04-06	Loyalty transactions	77
2026-04-06	Footfall counts by week	30
2026-04-06	Weekly store sales	14
2026-04-13	Loyalty transactions	90
2026-04-13	Footfall counts by week	30
2026-04-13	Weekly store sales	14
2026-04-20	Loyalty transactions	70
2026-04-20	Footfall counts by week	30
2026-04-20	Weekly store sales	14
2026-04-27	Loyalty transactions	80
2026-04-27	Footfall counts by week	30
2026-04-27	Weekly store sales	14
2026-05-04	Loyalty transactions	84
2026-05-04	Footfall counts by week	30
2026-05-04	Weekly store sales	14
2026-05-11	Loyalty transactions	83
2026-05-11	Footfall counts by week	30
2026-05-11	Weekly store sales	14
2026-05-18	Loyalty transactions	83
2026-05-18	Footfall counts by week	30
2026-05-18	Weekly store sales	14
2026-05-25	Loyalty transactions	63
2026-05-25	Footfall counts by week	30
2026-05-25	Weekly store sales	14
2026-06-01	Loyalty transactions	64
2026-06-01	Footfall counts by week	30
2026-06-01	Weekly store sales	14
2026-06-08	Loyalty transactions	73
2026-06-08	Footfall counts by week	30
2026-06-08	Weekly store sales	14

period	series	value
2026-06-15	Loyalty transactions	81
2026-06-15	Footfall counts by week	30
2026-06-15	Weekly store sales	14
2026-06-22	Loyalty transactions	54
2026-06-22	Footfall counts by week	30
2026-06-22	Weekly store sales	14
2026-06-29	Loyalty transactions	75
2026-06-29	Footfall counts by week	30
2026-06-29	Weekly store sales	14
2026-07-06	Loyalty transactions	79
2026-07-06	Footfall counts by week	30
2026-07-06	Weekly store sales	14
2026-07-13	Loyalty transactions	78
2026-07-13	Footfall counts by week	30
2026-07-13	Weekly store sales	14
2026-07-20	Loyalty transactions	76
2026-07-20	Footfall counts by week	30
2026-07-20	Weekly store sales	14
2026-07-27	Loyalty transactions	101
2026-07-27	Footfall counts by week	30
2026-07-27	Weekly store sales	14
2026-08-03	Loyalty transactions	105
2026-08-03	Footfall counts by week	30
2026-08-03	Weekly store sales	14
2026-08-10	Loyalty transactions	79
2026-08-10	Footfall counts by week	30
2026-08-10	Weekly store sales	14
2026-08-17	Loyalty transactions	85
2026-08-17	Footfall counts by week	30
2026-08-17	Weekly store sales	14
2026-08-24	Loyalty transactions	88
2026-08-24	Footfall counts by week	30
2026-08-24	Weekly store sales	14
2026-08-31	Loyalty transactions	113
2026-08-31	Footfall counts by week	30
2026-08-31	Weekly store sales	14
2026-09-07	Loyalty transactions	97
2026-09-07	Footfall counts by week	30
2026-09-07	Weekly store sales	14
2026-09-14	Loyalty transactions	114
2026-09-14	Footfall counts by week	30
2026-09-14	Weekly store sales	14
2026-09-21	Loyalty transactions	107

period	series	value
2026-09-21	Footfall counts by week	30
2026-09-21	Weekly store sales	14
2026-09-28	Loyalty transactions	47
2026-09-28	Footfall counts by week	30
2026-09-28	Weekly store sales	14

Figure 22. Stores over time (opened_year) [64]

bin_start	bin_end	count
5.178e+04	1.463e+05	8
1.463e+05	2.408e+05	3
2.408e+05	3.353e+05	0
3.353e+05	4.298e+05	1
4.298e+05	5.243e+05	2

Figure 23. Footfall counts by week over time (date) [65]

period	value
2026-04-06	30
2026-04-13	30
2026-04-20	30
2026-04-27	30
2026-05-04	30
2026-05-11	30
2026-05-18	30
2026-05-25	30
2026-06-01	30
2026-06-08	30
2026-06-15	30
2026-06-22	30
2026-06-29	30
2026-07-06	30
2026-07-13	30
2026-07-20	30
2026-07-27	30
2026-08-03	30
2026-08-10	30
2026-08-17	30
2026-08-24	30
2026-08-31	30
2026-09-07	30
2026-09-14	30
2026-09-21	30
2026-09-28	30

Figure 24. Hot spot analysis: Competitor stores [66]

bin_start	bin_end	band	band_label	count
-2	-1.5	not_significant	Not significant	1
-1.5	-1	not_significant	Not significant	6
-1	-0.5	not_significant	Not significant	5
-0.5	0	not_significant	Not significant	5
0	0.5	not_significant	Not significant	7
0.5	1	not_significant	Not significant	6
1	1.5	not_significant	Not significant	4
1.5	2	hot_90	Hot spot, 90% confidence	2
1.5	2	not_significant	Not significant	3
2	2.5	hot_95	Hot spot, 95% confidence	1
2.5	3	hot_99	Hot spot, 99% confidence	3

Figure 25. Hot spot analysis: Footfall counts by week [67]

bin_start	bin_end	band	band_label	count
-0.5	0	not_significant	Not significant	103
1.5	2	not_significant	Not significant	24
3.5	4	hot_99	Hot spot, 99% confidence	3

Figure 26. Emerging hot spots: Footfall counts by week [68]

bin_start	bin_end	count
-1.012	-0.1687	4
-0.1687	0.6747	6
0.6747	1.518	7
1.518	2.361	5
2.361	3.205	1
3.205	4.048	2

Figure 27. Emerging hot spots: Loyalty transactions [69]

bin_start	bin_end	count
-0.941	-0.2532	173
-0.2532	0.4346	88
0.4346	1.122	64
1.122	1.81	33
1.81	2.498	0
2.498	3.186	10
3.186	3.874	11
3.874	4.561	13
4.561	5.249	2
5.249	5.937	1

Figure 28. Calculate density: Competitor stores [70]

bin_start	bin_end	count
0	2	19

bin_start	bin_end	count
2	4	32
4	6	34
6	8	33
8	10	31
10	12	32
12	14	36
14	16	36
16	18	35
18	20	34

Figure 29. Calculate density: Footfall counts by week [71]

bin_start	bin_end	count
0	3.6	28
3.6	7.2	58
7.2	10.8	57
10.8	14.4	54
14.4	18	46
18	21.6	23
21.6	25.2	43
25.2	28.8	29
28.8	32.4	49
32.4	36	41

Figure 30. Calculate density: Loyalty transactions [72]

bin_start	bin_end	count
0	5.538	278
5.538	11.08	364
11.08	16.62	303
16.62	22.15	362
22.15	27.69	299
27.69	33.23	353
33.23	38.77	288
38.77	44.31	362
44.31	49.85	269
49.85	55.38	293
55.38	60.92	238
60.92	66.46	263
66.46	72	192

Figure 31. Summarize within: Trade areas [73]

bin_start	bin_end	count
1	1	14

Figure 32. Summarize within: Trade areas [74]

bin_start	bin_end	count
3	4.2	6
4.2	5.4	5
5.4	6.6	0
6.6	7.8	1
7.8	9	2

Figure 33. Summarize within: Trade areas [75]

bin_start	bin_end	count
0	36.4	5
36.4	72.8	4
72.8	109.2	4
109.2	145.6	0
145.6	182	1

Figure 34. Find point clusters: Stores [76]

cluster	features	fraction	share
0	14	1	100.0%

Figure 35. Find point clusters: cluster hulls [77]

cluster	features	fraction	share
0	1	1	100.0%

Figure 36. Find point clusters: Competitor stores [78]

cluster	features	fraction	share
0	65	0.9286	92.9%
1	3	0.04286	4.3%
Noise	2	0.02857	2.9%

Figure 37. Find point clusters: cluster hulls [79]

cluster	features	fraction	share
0	1	0.5	50.0%
1	1	0.5	50.0%

Figure 38. Find point clusters: Footfall counts by week [80]

cluster	features	fraction	share
0	26	0.03333	3.3%
1	26	0.03333	3.3%
10	26	0.03333	3.3%
11	26	0.03333	3.3%
12	26	0.03333	3.3%
13	26	0.03333	3.3%
14	26	0.03333	3.3%
15	26	0.03333	3.3%
16	26	0.03333	3.3%
17	26	0.03333	3.3%
18	26	0.03333	3.3%

cluster	features	fraction	share
19	26	0.03333	3.3%
2	26	0.03333	3.3%
20	26	0.03333	3.3%
21	26	0.03333	3.3%
22	26	0.03333	3.3%
23	26	0.03333	3.3%
24	26	0.03333	3.3%
25	26	0.03333	3.3%
26	26	0.03333	3.3%
27	26	0.03333	3.3%
28	26	0.03333	3.3%
29	26	0.03333	3.3%
3	26	0.03333	3.3%
4	26	0.03333	3.3%
5	26	0.03333	3.3%
6	26	0.03333	3.3%
7	26	0.03333	3.3%
8	26	0.03333	3.3%
9	26	0.03333	3.3%

Figure 39. Find point clusters: cluster hulls [81]

cluster	features	fraction	share
0	1	0.03333	3.3%
1	1	0.03333	3.3%
10	1	0.03333	3.3%
11	1	0.03333	3.3%
12	1	0.03333	3.3%
13	1	0.03333	3.3%
14	1	0.03333	3.3%
15	1	0.03333	3.3%
16	1	0.03333	3.3%
17	1	0.03333	3.3%
18	1	0.03333	3.3%
19	1	0.03333	3.3%
2	1	0.03333	3.3%
20	1	0.03333	3.3%
21	1	0.03333	3.3%
22	1	0.03333	3.3%
23	1	0.03333	3.3%
24	1	0.03333	3.3%
25	1	0.03333	3.3%
26	1	0.03333	3.3%
27	1	0.03333	3.3%
28	1	0.03333	3.3%

cluster	features	fraction	share
29	1	0.03333	3.3%
3	1	0.03333	3.3%
4	1	0.03333	3.3%
5	1	0.03333	3.3%
6	1	0.03333	3.3%
7	1	0.03333	3.3%
8	1	0.03333	3.3%
9	1	0.03333	3.3%

Figure 40. Hot spot analysis: Loyalty transactions [82]

bin_start	bin_end	band	band_label	count
-1	-0.5	not_significant	Not significant	335
-0.5	0	not_significant	Not significant	423
0	0.5	not_significant	Not significant	107
0.5	1	not_significant	Not significant	65
1	1.5	not_significant	Not significant	48
1.5	2	hot_90	Hot spot, 90% confidence	16
1.5	2	not_significant	Not significant	24
2	2.5	hot_95	Hot spot, 95% confidence	15
2.5	3	hot_99	Hot spot, 99% confidence	10
3	3.5	hot_99	Hot spot, 99% confidence	12
3.5	4	hot_99	Hot spot, 99% confidence	10
4	4.5	hot_99	Hot spot, 99% confidence	3
4.5	5	hot_99	Hot spot, 99% confidence	1
5	5.5	hot_99	Hot spot, 99% confidence	1
6.5	7	hot_99	Hot spot, 99% confidence	1

Figure 41. Repeat and near repeat classification: Footfall counts by week [83]

period	series	value
2026-04-06	repeat	0
2026-04-06	originator	30
2026-04-13	repeat	30
2026-04-13	originator	0
2026-04-20	repeat	30
2026-04-20	originator	0
2026-04-27	repeat	30
2026-04-27	originator	0
2026-05-04	repeat	30
2026-05-04	originator	0

period	series	value
2026-05-11	repeat	30
2026-05-11	originator	0
2026-05-18	repeat	30
2026-05-18	originator	0
2026-05-25	repeat	30
2026-05-25	originator	0
2026-06-01	repeat	30
2026-06-01	originator	0
2026-06-08	repeat	30
2026-06-08	originator	0
2026-06-15	repeat	30
2026-06-15	originator	0
2026-06-22	repeat	30
2026-06-22	originator	0
2026-06-29	repeat	30
2026-06-29	originator	0
2026-07-06	repeat	30
2026-07-06	originator	0
2026-07-13	repeat	30
2026-07-13	originator	0
2026-07-20	repeat	30
2026-07-20	originator	0
2026-07-27	repeat	30
2026-07-27	originator	0
2026-08-03	repeat	30
2026-08-03	originator	0
2026-08-10	repeat	30
2026-08-10	originator	0
2026-08-17	repeat	30
2026-08-17	originator	0
2026-08-24	repeat	30
2026-08-24	originator	0
2026-08-31	repeat	30
2026-08-31	originator	0
2026-09-07	repeat	30
2026-09-07	originator	0
2026-09-14	repeat	30
2026-09-14	originator	0
2026-09-21	repeat	30
2026-09-21	originator	0
2026-09-28	repeat	30
2026-09-28	originator	0

Figure 42. Repeat and near repeat classification: Footfall counts by week over time [84]

period	series	value
2026-04-06	repeat	0
2026-04-06	originator	30
2026-04-13	repeat	30
2026-04-13	originator	0
2026-04-20	repeat	30
2026-04-20	originator	0
2026-04-27	repeat	30
2026-04-27	originator	0
2026-05-04	repeat	30
2026-05-04	originator	0
2026-05-11	repeat	30
2026-05-11	originator	0
2026-05-18	repeat	30
2026-05-18	originator	0
2026-05-25	repeat	30
2026-05-25	originator	0
2026-06-01	repeat	30
2026-06-01	originator	0
2026-06-08	repeat	30
2026-06-08	originator	0
2026-06-15	repeat	30
2026-06-15	originator	0
2026-06-22	repeat	30
2026-06-22	originator	0
2026-06-29	repeat	30
2026-06-29	originator	0
2026-07-06	repeat	30
2026-07-06	originator	0
2026-07-13	repeat	30
2026-07-13	originator	0
2026-07-20	repeat	30
2026-07-20	originator	0
2026-07-27	repeat	30
2026-07-27	originator	0
2026-08-03	repeat	30
2026-08-03	originator	0
2026-08-10	repeat	30
2026-08-10	originator	0
2026-08-17	repeat	30
2026-08-17	originator	0
2026-08-24	repeat	30
2026-08-24	originator	0
2026-08-31	repeat	30

period	series	value
2026-08-31	originator	0
2026-09-07	repeat	30
2026-09-07	originator	0
2026-09-14	repeat	30
2026-09-14	originator	0
2026-09-21	repeat	30
2026-09-21	originator	0
2026-09-28	repeat	30
2026-09-28	originator	0

Figure 43. Find point clusters: Footfall counts by week over time [85]

period	value
2026-04-06	30
2026-04-13	30
2026-04-20	30
2026-04-27	30
2026-05-04	30
2026-05-11	30
2026-05-18	30
2026-05-25	30
2026-06-01	30
2026-06-08	30
2026-06-15	30
2026-06-22	30
2026-06-29	30
2026-07-06	30
2026-07-13	30
2026-07-20	30
2026-07-27	30
2026-08-03	30
2026-08-10	30
2026-08-17	30
2026-08-24	30
2026-08-31	30
2026-09-07	30
2026-09-14	30
2026-09-21	30
2026-09-28	30