Fast Food Marketing Campaign

McDonald's 13,438

Burger King 7,105

Wendy's 5,838

Sonic 3,552

Jack in the Box 2,218

Carl's Jr.

White Castle

Hardee's 1,734

Culvers

Five Guys 1,386

Domino's 6,580

Little Caesars 4,391

Pizza Hut 6,848

Papa John's 3,355

Marco's Pizza

Starbucks 15,450

Subway 3,409

Arby's 3,409

Jimmy John's 2,057

KFC 3,953

Papeyes 2,757

Chick-Fil-A 2,732

Taco Bell

Chipotle

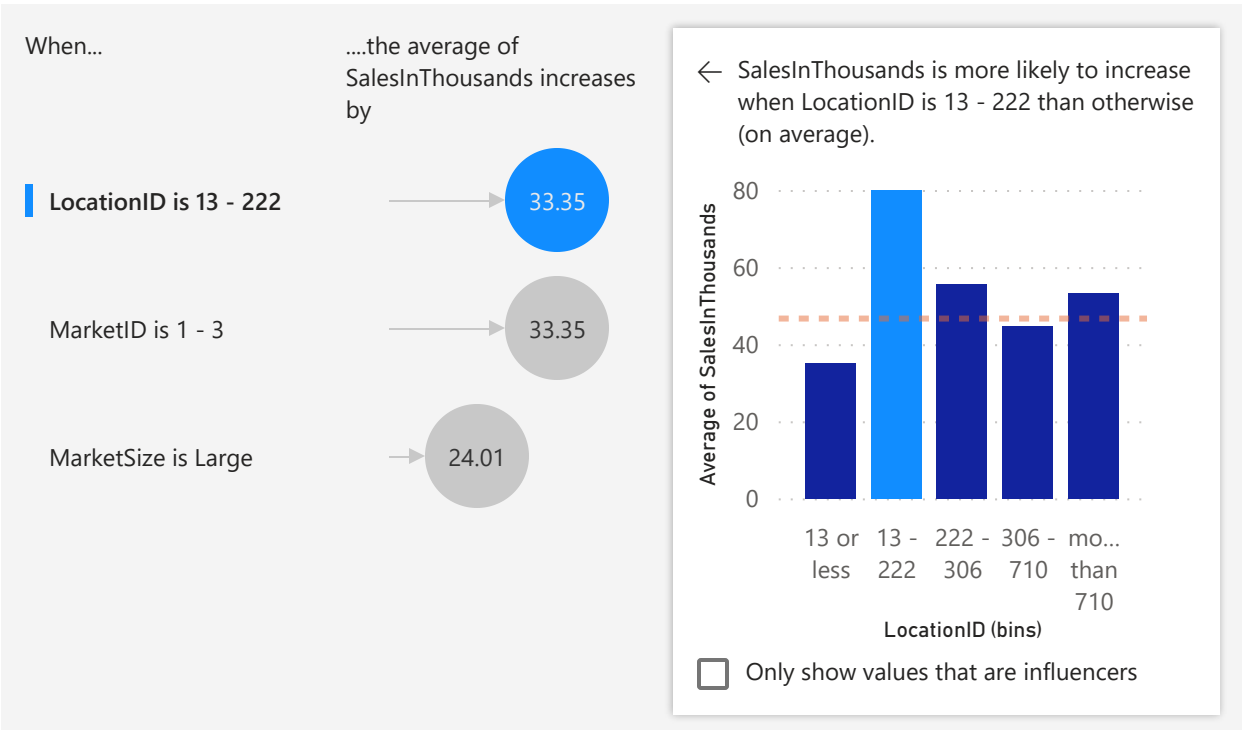**Dunkin Donuts**

Dairy Queen 4,339

A fast food chain carried out a marketing campaign A/B Test in which three promotions were tested.

A Key Influencers Test was performed as an exploratory data check prior to the full investigation.

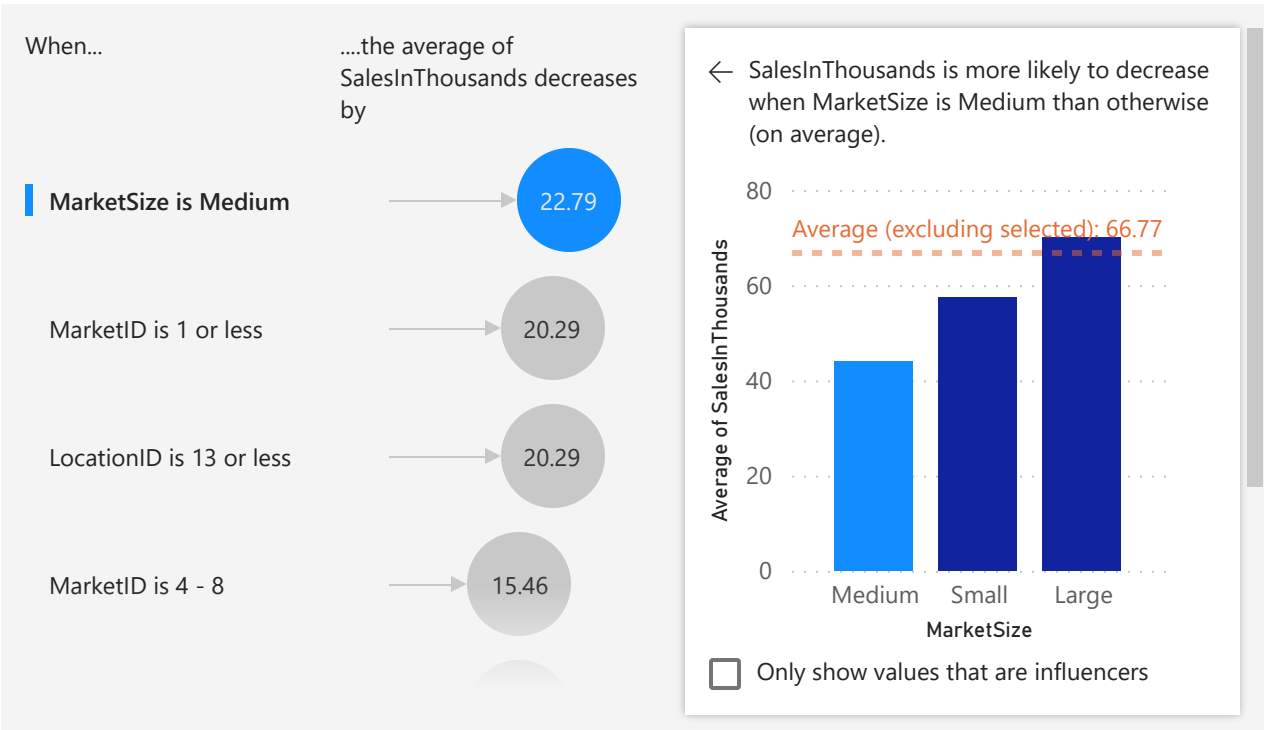
Key influencers   Top segments

What influences SalesInThousands to [Increase ▾] ?

When...   ....the average of SalesInThousands increases by

LocationID is 13 - 222 → 33.35

MarketID is 1 - 3 → 33.35

MarketSize is Large → 24.01

← SalesInThousands is more likely to increase when LocationID is 13 - 222 than otherwise (on average).

Average of SalesInThousands vs LocationID (bins): 13 or less, 13 - 222, 222 - 306, 306 - 710, mo... than 710

☐ Only show values that are influencers

Key influencers   Top segments

What influences SalesInThousands to [Decrease ▾] ?

When...   ....the average of SalesInThousands decreases by

MarketSize is Medium → 22.79

MarketID is 1 or less → 20.29

LocationID is 13 or less → 20.29

MarketID is 4 - 8 → 15.46

← SalesInThousands is more likely to decrease when MarketSize is Medium than otherwise (on average).

Average (excluding selected): 66.77

Average of SalesInThousands vs MarketSize: Medium, Small, Large

☐ Only show values that are influencers

The **biggest key influencers** that <u>increase</u> average of Sales In Thousands are **Location ID is from 13 - 222** and **Market ID is from 1 -3** and **Market Size is Large**.

The **biggest key influencers** that <u>decrease</u> average of Sales In Thousands are **Market Size is Medium** and **Market ID <= 1** and **Location ID <= 13**.
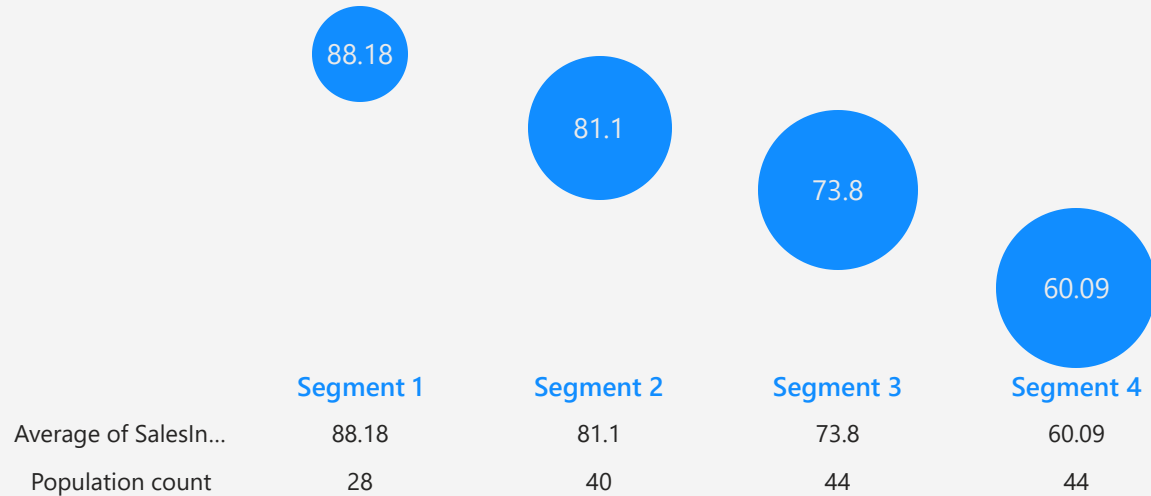
The **Age of Stores** is <u>not a significant</u> **key influencer**.

When is SalesInThousands more likely to be [High ▾] ?   When is SalesInThousands more likely to be [Low ▾] ?

We found 4 segments and ranked them by Average of SalesInThousands and popu...   We found 4 segments and ranked them by Average of SalesInThousands and popul...

	Segment 1	Segment 2	Segment 3	Segment 4
Average of SalesIn...	88.18	81.1	73.8	60.09
Population count	28	40	44	44

	Segment 1	Segment 2	Segment 3	Segment 4
Average of SalesIn...	35.1	38.47	42.07	43.22
Population count	52	40	40	52

The **top segments** when Sales In Thousands are <u>more likely to be high</u> are:
1. **Age of Store is <= 3** and **Location ID from 14 - 222**.
2. **Age of Store is > 3** and **Location ID from 14 - 222** and **Promotion != 3**.
3. **Age of Store is > 3** and **Location ID from 14 - 222** and **Promotion = 3**.
4. **Age of Store is <= 13 or > 222** and **Market Size is not Medium** and **Promotion is 1**.

The **top segments** when Sales In Thousands are <u>more likely to be low</u> are:
1. **Location ID is <= 13** and **Market Size is Medium**.
2. **Age of Store is from 4 - 18** and **Location ID is from 223 - 710** and **Market Size is Medium** and **Promotion is 2**.
3. **Age of Store is <= 3 or > 18** and **Location ID is from 223 - 710** and **Market Size is Medium** and **Promotion is 2**.
4. **Age of Store is from 4 - 18** and **Location ID is from 223 - 710** and **Market Size is Medium** and **Promotion is 3**.
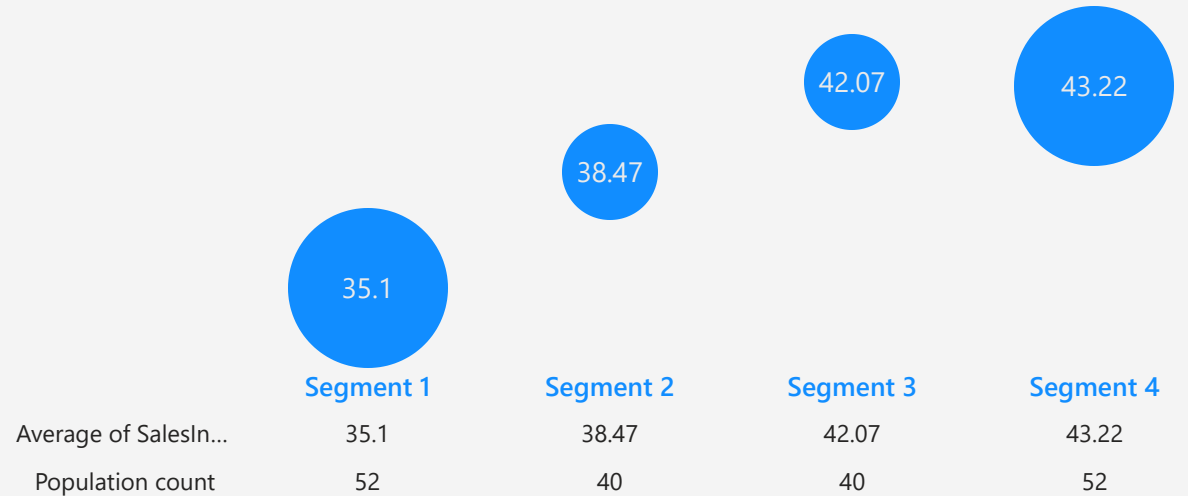
Average of SalesInThousands by Promotion and week
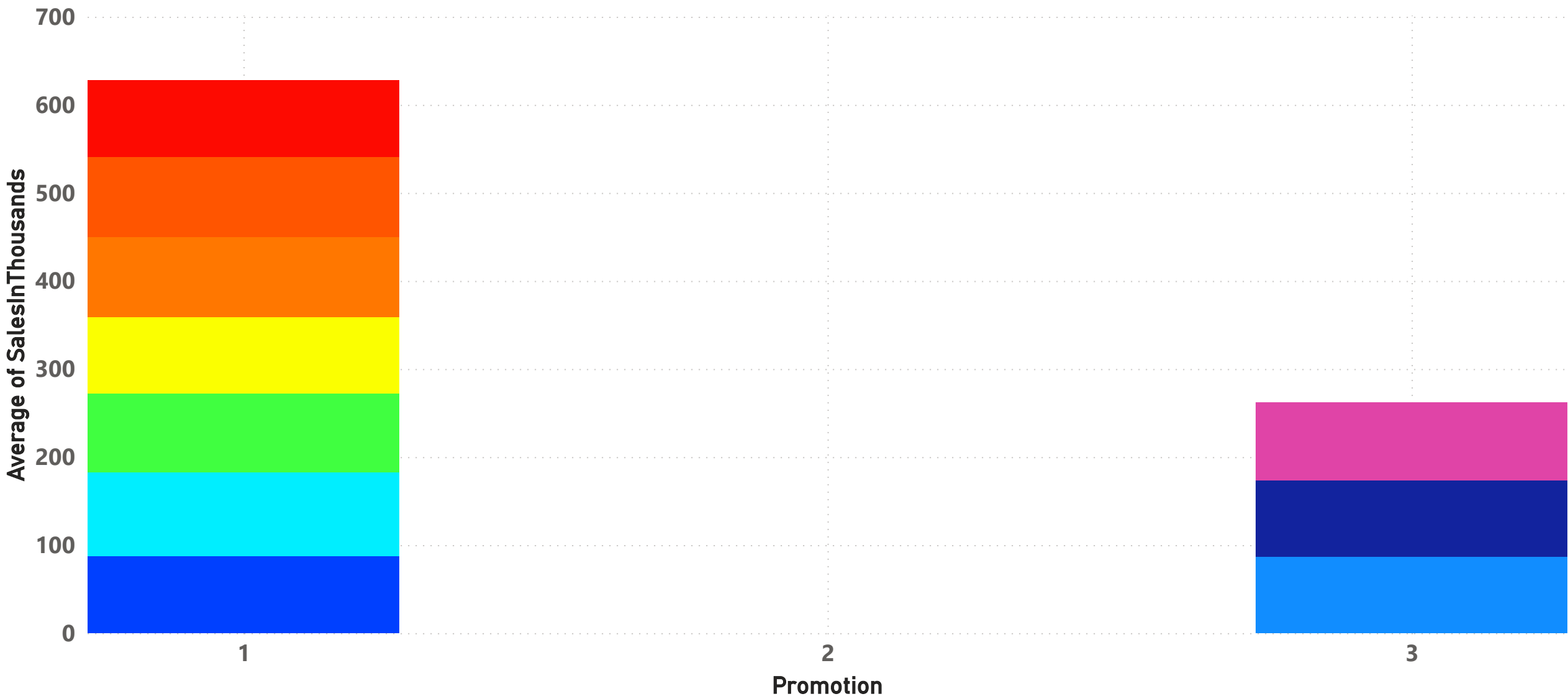
week ● 1 ● 2 ● 3 ● 4
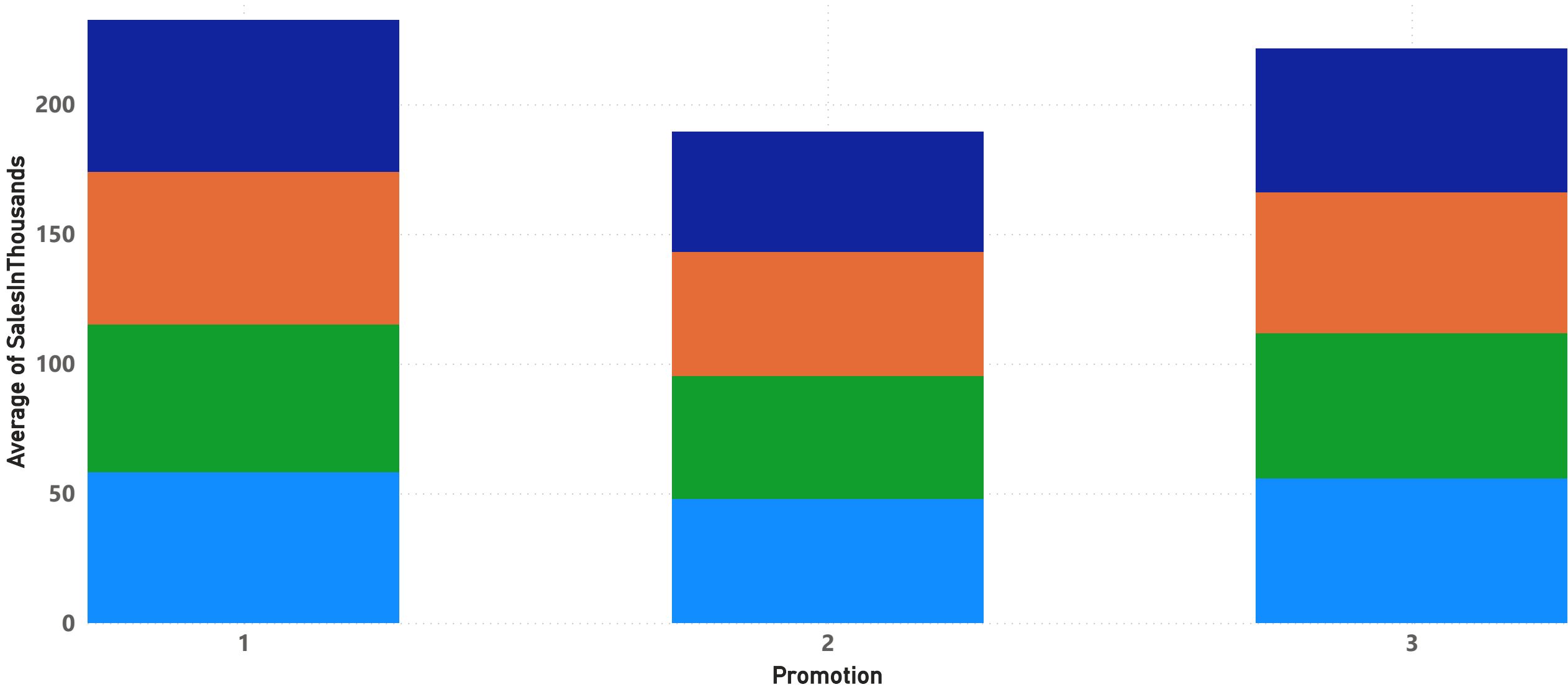
Promotion 1 is <u>the most effective</u> **across all weeks** by Average of Sales in Thousands (**Promotion 3** is <u>almost as effective</u>).

Promotion 2 is <u>the least effective</u> **across all weeks** by Average of Sales in Thousands.

Average of SalesInThousands by Promotion and LocationID

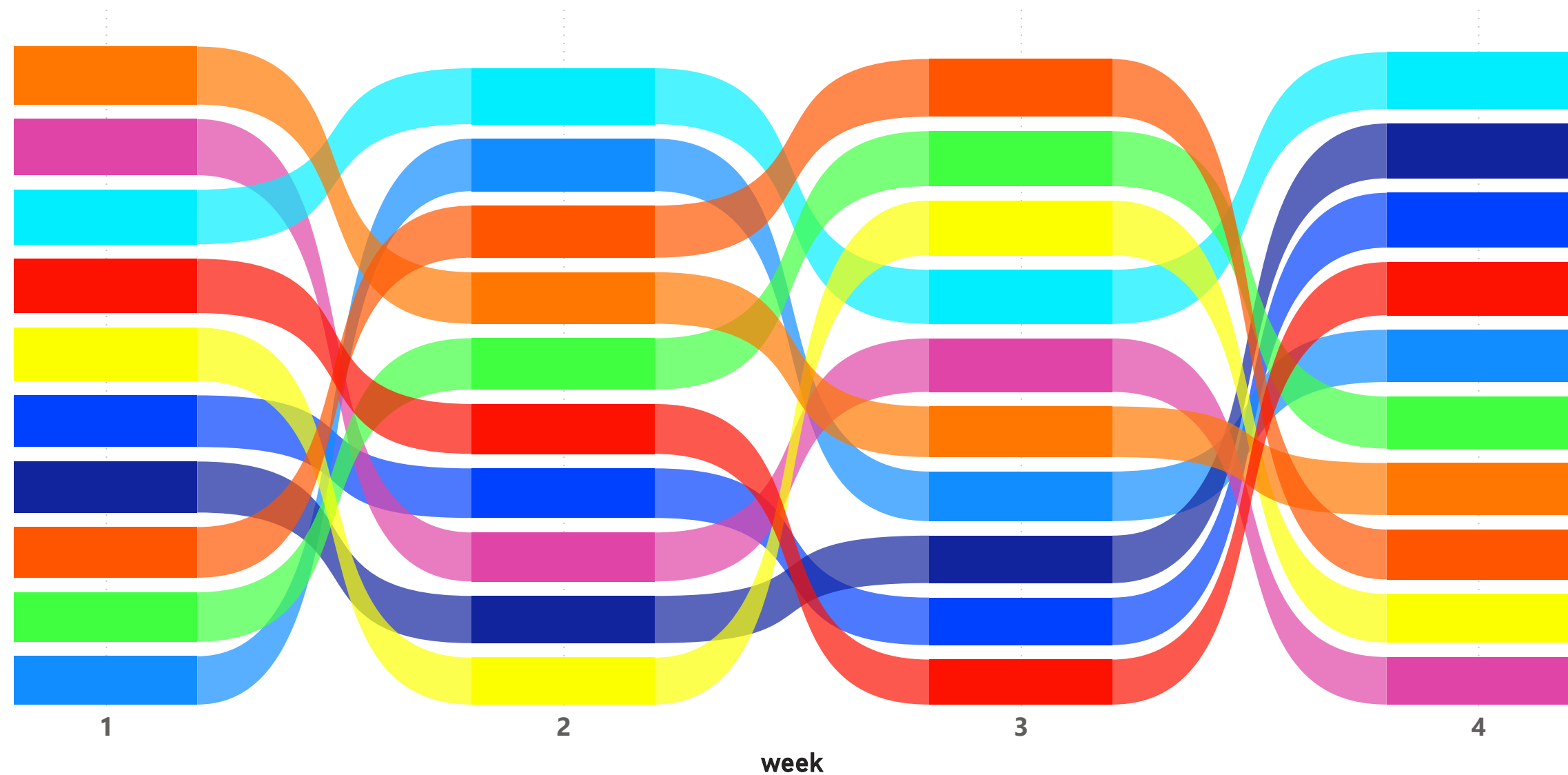**LocationID** ● 202 ● 205 ● 207 ● 208 ● 209 ● 210 ● 214 ● 218 ● 220 ● 222

Promotion 1 is the most effective in **7 of the top 10 stores** by Average of Sales in Thousands.

Promotion 3 is the most effective in **3 of the top 10 stores** by Average of Sales in Thousands.
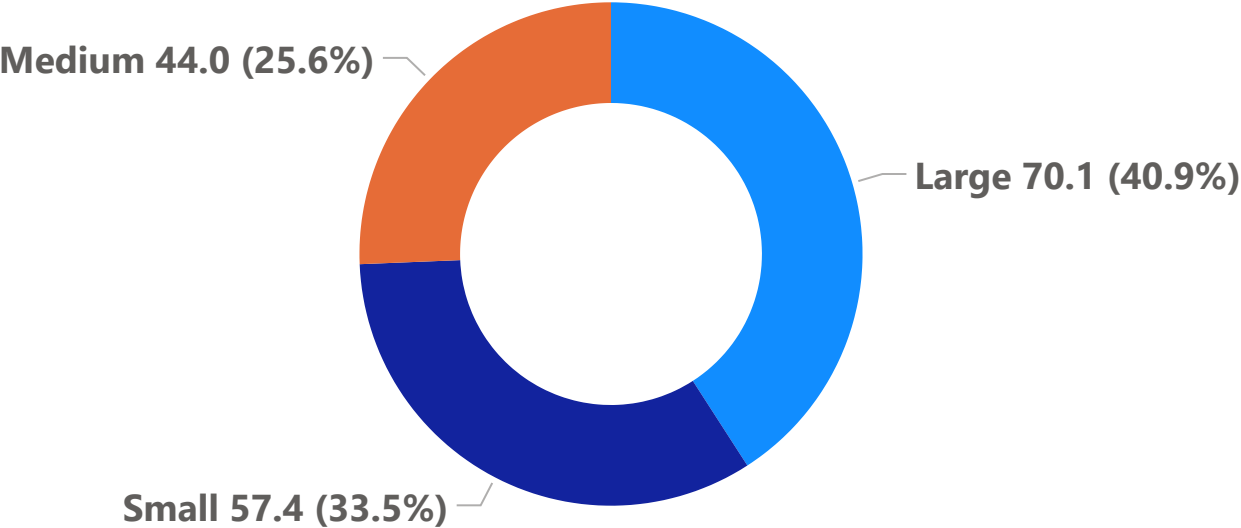
Average of SalesInThousands by week and LocationID

LocationID ● 202 ● 205 ● 207 ● 208 ● 209 ● 210 ● 214 ● 218 ● 220 ● 222

week

Location 209 is <u>among the highest</u> in Average Sales across weeks.
Location 218 is <u>also among the highest</u>, but its relative Average Sales <u>go down every week</u>.

Average of SalesInThousands by MarketSize

Medium 44.0 (25.6%)

Large 70.1 (40.9%)

Small 57.4 (33.5%)

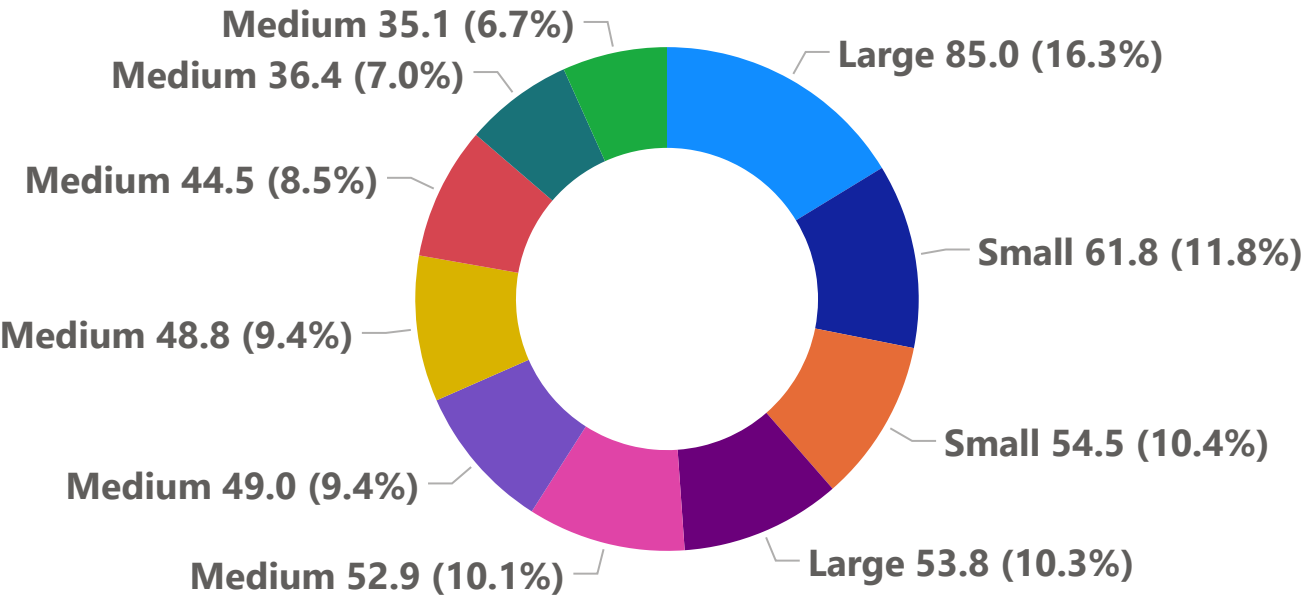**MarketSize**
- Large
- Small
- Medium

Average of Sales in Thousands
(From Greatest to Least)
Large > **Small** > **Medium**

Large and **Small** Sized Markets consistently see higher average sales than **Medium** Sized Markets.

Market ID 3 has the highest average sales by a wide margin.

Average of SalesInThousands by MarketID

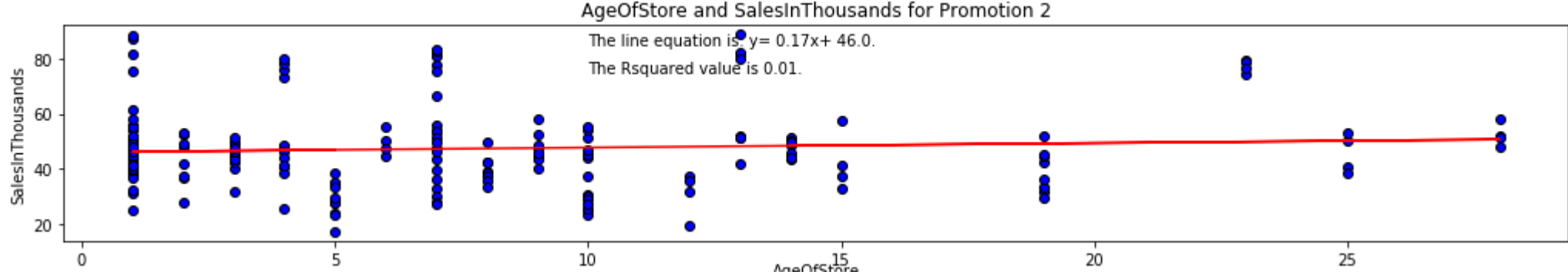Medium 35.1 (6.7%)

Medium 36.4 (7.0%)

Medium 44.5 (8.5%)

Medium 48.8 (9.4%)

Medium 49.0 (9.4%)

Medium 52.9 (10.1%)

Large 85.0 (16.3%)

Small 61.8 (11.8%)

Small 54.5 (10.4%)

Large 53.8 (10.3%)

MarketID
- 3
- 2
- 4
- 10
- 9
- 8
- 5
- 7
- 6

SalesInThousands

AgeOfStore and SalesInThousands for Promotion 1

The line equation is: y= -0.36x+ 61.0.

The Rsquared value is 0.02.

SalesInThousands

AgeOfStore and SalesInThousands for Promotion 2

The line equation is: y= 0.17x+ 46.0.

The Rsquared value is 0.01.

SalesInThousands

AgeOfStore and SalesInThousands for Promotion 3

The line equation is: y= -0.13x+ 57.0.

The Rsquared value is 0.0.
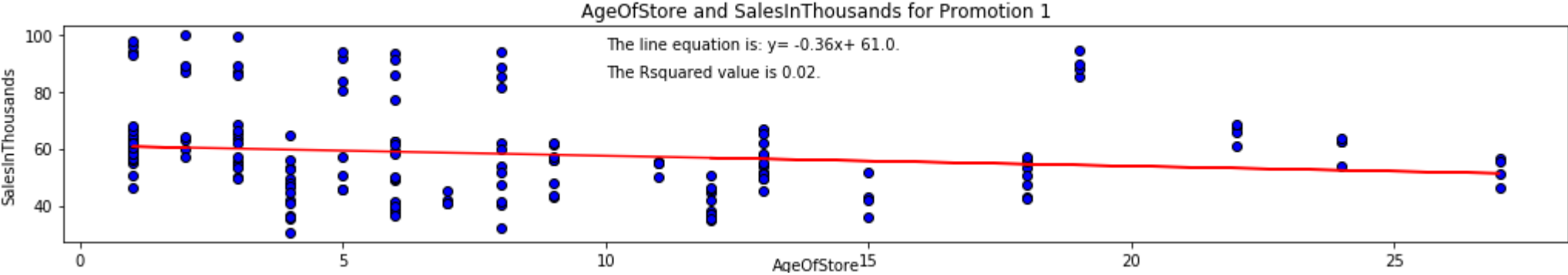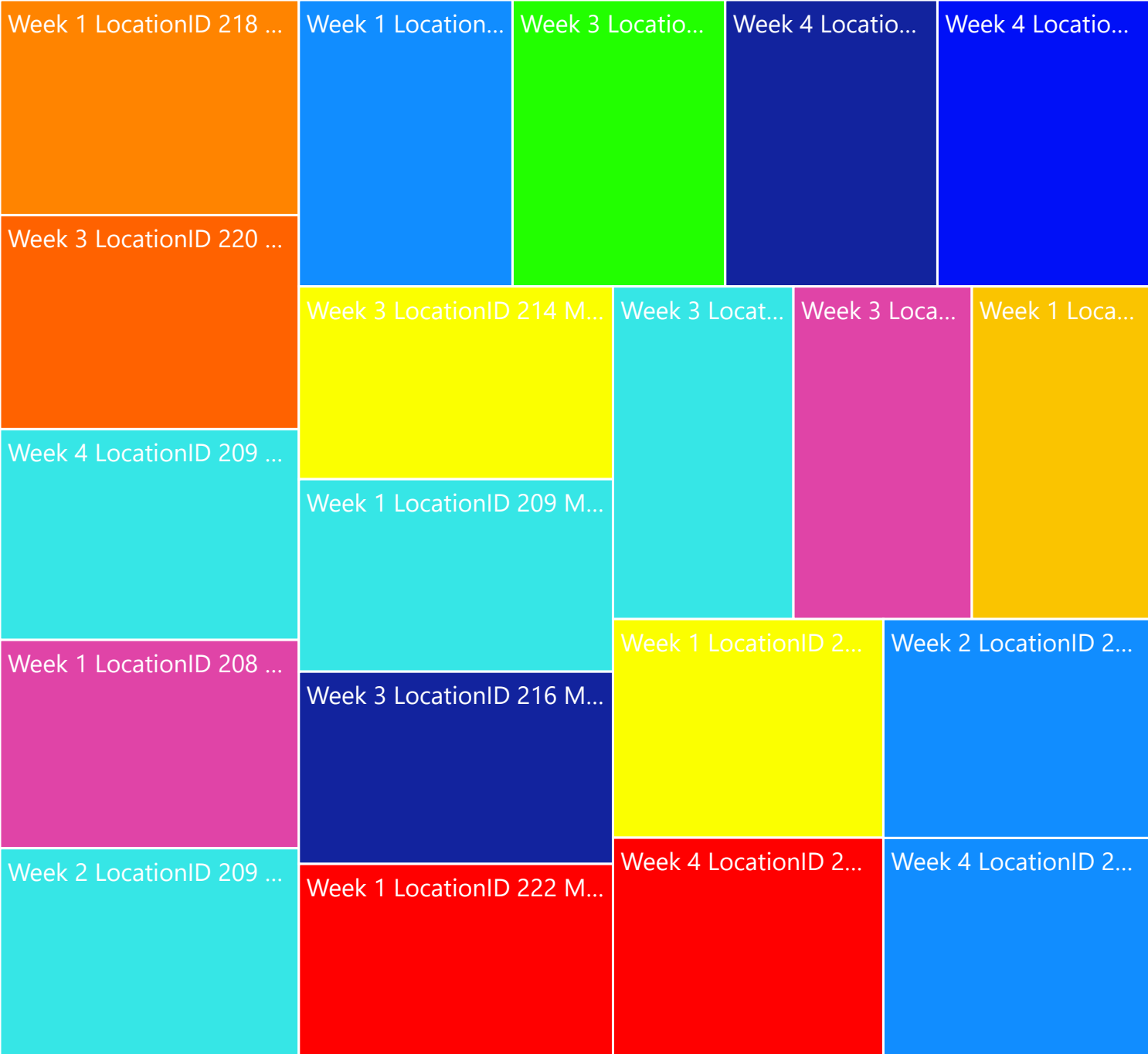
The **Age of Store** does <u>not predict</u> the variation in **Sales in Thousands** for **any of the Promotions**.

Average of SalesInThousands by week-LocationID-MarketID

Week 1 LocationID 218 ...	Week 1 Location...	Week 3 Locatio...	Week 4 Locatio...	Week 4 Locatio...
Week 3 LocationID 220 ...	Week 3 LocationID 214 M...	Week 3 Locat...	Week 3 Loca...	Week 1 Loca...
Week 4 LocationID 209 ...	Week 1 LocationID 209 M...			
Week 1 LocationID 208 ...	Week 3 LocationID 216 M...	Week 1 LocationID 2...	Week 2 LocationID 2...	
Week 2 LocationID 209 ...	Week 1 LocationID 222 M...	Week 4 LocationID 2...	Week 4 LocationID 2...	

Weeks 1 & 3 had <u>the most frequent occurrence in the Top 20</u> by average in Sales, as well as **Location 209**.

The most popular combinations by average of Sales in Thousands are:

1. **Week 1 - Location ID 218 - Market ID 3**
2. **Week 3 - Location ID 220 - Market ID 3**
3. **Week 4 - Location ID 209 - Market ID 3**
4. **Week 1 - Location ID 208 - Market ID 3**
5. **Week 2 - Location ID 209 - Market ID 3**

References

1. https://www.kaggle.com/datasets/chebotinaa/fast-food-marketing-campaign-ab-test