

# Assignment 1

Sai Sree Pulimamidi

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## Scatterplot between sales and price

```
library(ISLR)
data<- Carseats
print(Carseats)
```

| ##    | Sales | CompPrice | Income | Advertising | Population | Price | ShelveLoc | Age | Education |
|-------|-------|-----------|--------|-------------|------------|-------|-----------|-----|-----------|
| ## 1  | 9.50  | 138       | 73     | 11          | 276        | 120   | Bad       | 42  | 17        |
| ## 2  | 11.22 | 111       | 48     | 16          | 260        | 83    | Good      | 65  | 10        |
| ## 3  | 10.06 | 113       | 35     | 10          | 269        | 80    | Medium    | 59  | 12        |
| ## 4  | 7.40  | 117       | 100    | 4           | 466        | 97    | Medium    | 55  | 14        |
| ## 5  | 4.15  | 141       | 64     | 3           | 340        | 128   | Bad       | 38  | 13        |
| ## 6  | 10.81 | 124       | 113    | 13          | 501        | 72    | Bad       | 78  | 16        |
| ## 7  | 6.63  | 115       | 105    | 0           | 45         | 108   | Medium    | 71  | 15        |
| ## 8  | 11.85 | 136       | 81     | 15          | 425        | 120   | Good      | 67  | 10        |
| ## 9  | 6.54  | 132       | 110    | 0           | 108        | 124   | Medium    | 76  | 10        |
| ## 10 | 4.69  | 132       | 113    | 0           | 131        | 124   | Medium    | 76  | 17        |
| ## 11 | 9.01  | 121       | 78     | 9           | 150        | 100   | Bad       | 26  | 10        |
| ## 12 | 11.96 | 117       | 94     | 4           | 503        | 94    | Good      | 50  | 13        |
| ## 13 | 3.98  | 122       | 35     | 2           | 393        | 136   | Medium    | 62  | 18        |
| ## 14 | 10.96 | 115       | 28     | 11          | 29         | 86    | Good      | 53  | 18        |
| ## 15 | 11.17 | 107       | 117    | 11          | 148        | 118   | Good      | 52  | 18        |
| ## 16 | 8.71  | 149       | 95     | 5           | 400        | 144   | Medium    | 76  | 18        |
| ## 17 | 7.58  | 118       | 32     | 0           | 284        | 110   | Good      | 63  | 13        |
| ## 18 | 12.29 | 147       | 74     | 13          | 251        | 131   | Good      | 52  | 10        |
| ## 19 | 13.91 | 110       | 110    | 0           | 408        | 68    | Good      | 46  | 17        |
| ## 20 | 8.73  | 129       | 76     | 16          | 58         | 121   | Medium    | 69  | 12        |
| ## 21 | 6.41  | 125       | 90     | 2           | 367        | 131   | Medium    | 35  | 18        |
| ## 22 | 12.13 | 134       | 29     | 12          | 239        | 109   | Good      | 62  | 18        |
| ## 23 | 5.08  | 128       | 46     | 6           | 497        | 138   | Medium    | 42  | 13        |
| ## 24 | 5.87  | 121       | 31     | 0           | 292        | 109   | Medium    | 79  | 10        |
| ## 25 | 10.14 | 145       | 119    | 16          | 294        | 113   | Bad       | 42  | 12        |
| ## 26 | 14.90 | 139       | 32     | 0           | 176        | 82    | Good      | 54  | 11        |
| ## 27 | 8.33  | 107       | 115    | 11          | 496        | 131   | Good      | 50  | 11        |
| ## 28 | 5.27  | 98        | 118    | 0           | 19         | 107   | Medium    | 64  | 17        |
| ## 29 | 2.99  | 103       | 74     | 0           | 359        | 97    | Bad       | 55  | 11        |
| ## 30 | 7.81  | 104       | 99     | 15          | 226        | 102   | Bad       | 58  | 17        |
| ## 31 | 13.55 | 125       | 94     | 0           | 447        | 89    | Good      | 30  | 12        |
| ## 32 | 8.25  | 136       | 58     | 16          | 241        | 131   | Medium    | 44  | 18        |
| ## 33 | 6.20  | 107       | 32     | 12          | 236        | 137   | Good      | 64  | 10        |

|       |       |     |     |    |     |     |        |    |    |
|-------|-------|-----|-----|----|-----|-----|--------|----|----|
| ## 34 | 8.77  | 114 | 38  | 13 | 317 | 128 | Good   | 50 | 16 |
| ## 35 | 2.67  | 115 | 54  | 0  | 406 | 128 | Medium | 42 | 17 |
| ## 36 | 11.07 | 131 | 84  | 11 | 29  | 96  | Medium | 44 | 17 |
| ## 37 | 8.89  | 122 | 76  | 0  | 270 | 100 | Good   | 60 | 18 |
| ## 38 | 4.95  | 121 | 41  | 5  | 412 | 110 | Medium | 54 | 10 |
| ## 39 | 6.59  | 109 | 73  | 0  | 454 | 102 | Medium | 65 | 15 |
| ## 40 | 3.24  | 130 | 60  | 0  | 144 | 138 | Bad    | 38 | 10 |
| ## 41 | 2.07  | 119 | 98  | 0  | 18  | 126 | Bad    | 73 | 17 |
| ## 42 | 7.96  | 157 | 53  | 0  | 403 | 124 | Bad    | 58 | 16 |
| ## 43 | 10.43 | 77  | 69  | 0  | 25  | 24  | Medium | 50 | 18 |
| ## 44 | 4.12  | 123 | 42  | 11 | 16  | 134 | Medium | 59 | 13 |
| ## 45 | 4.16  | 85  | 79  | 6  | 325 | 95  | Medium | 69 | 13 |
| ## 46 | 4.56  | 141 | 63  | 0  | 168 | 135 | Bad    | 44 | 12 |
| ## 47 | 12.44 | 127 | 90  | 14 | 16  | 70  | Medium | 48 | 15 |
| ## 48 | 4.38  | 126 | 98  | 0  | 173 | 108 | Bad    | 55 | 16 |
| ## 49 | 3.91  | 116 | 52  | 0  | 349 | 98  | Bad    | 69 | 18 |
| ## 50 | 10.61 | 157 | 93  | 0  | 51  | 149 | Good   | 32 | 17 |
| ## 51 | 1.42  | 99  | 32  | 18 | 341 | 108 | Bad    | 80 | 16 |
| ## 52 | 4.42  | 121 | 90  | 0  | 150 | 108 | Bad    | 75 | 16 |
| ## 53 | 7.91  | 153 | 40  | 3  | 112 | 129 | Bad    | 39 | 18 |
| ## 54 | 6.92  | 109 | 64  | 13 | 39  | 119 | Medium | 61 | 17 |
| ## 55 | 4.90  | 134 | 103 | 13 | 25  | 144 | Medium | 76 | 17 |
| ## 56 | 6.85  | 143 | 81  | 5  | 60  | 154 | Medium | 61 | 18 |
| ## 57 | 11.91 | 133 | 82  | 0  | 54  | 84  | Medium | 50 | 17 |
| ## 58 | 0.91  | 93  | 91  | 0  | 22  | 117 | Bad    | 75 | 11 |
| ## 59 | 5.42  | 103 | 93  | 15 | 188 | 103 | Bad    | 74 | 16 |
| ## 60 | 5.21  | 118 | 71  | 4  | 148 | 114 | Medium | 80 | 13 |
| ## 61 | 8.32  | 122 | 102 | 19 | 469 | 123 | Bad    | 29 | 13 |
| ## 62 | 7.32  | 105 | 32  | 0  | 358 | 107 | Medium | 26 | 13 |
| ## 63 | 1.82  | 139 | 45  | 0  | 146 | 133 | Bad    | 77 | 17 |
| ## 64 | 8.47  | 119 | 88  | 10 | 170 | 101 | Medium | 61 | 13 |
| ## 65 | 7.80  | 100 | 67  | 12 | 184 | 104 | Medium | 32 | 16 |
| ## 66 | 4.90  | 122 | 26  | 0  | 197 | 128 | Medium | 55 | 13 |
| ## 67 | 8.85  | 127 | 92  | 0  | 508 | 91  | Medium | 56 | 18 |
| ## 68 | 9.01  | 126 | 61  | 14 | 152 | 115 | Medium | 47 | 16 |
| ## 69 | 13.39 | 149 | 69  | 20 | 366 | 134 | Good   | 60 | 13 |
| ## 70 | 7.99  | 127 | 59  | 0  | 339 | 99  | Medium | 65 | 12 |
| ## 71 | 9.46  | 89  | 81  | 15 | 237 | 99  | Good   | 74 | 12 |
| ## 72 | 6.50  | 148 | 51  | 16 | 148 | 150 | Medium | 58 | 17 |
| ## 73 | 5.52  | 115 | 45  | 0  | 432 | 116 | Medium | 25 | 15 |
| ## 74 | 12.61 | 118 | 90  | 10 | 54  | 104 | Good   | 31 | 11 |
| ## 75 | 6.20  | 150 | 68  | 5  | 125 | 136 | Medium | 64 | 13 |
| ## 76 | 8.55  | 88  | 111 | 23 | 480 | 92  | Bad    | 36 | 16 |
| ## 77 | 10.64 | 102 | 87  | 10 | 346 | 70  | Medium | 64 | 15 |
| ## 78 | 7.70  | 118 | 71  | 12 | 44  | 89  | Medium | 67 | 18 |
| ## 79 | 4.43  | 134 | 48  | 1  | 139 | 145 | Medium | 65 | 12 |
| ## 80 | 9.14  | 134 | 67  | 0  | 286 | 90  | Bad    | 41 | 13 |
| ## 81 | 8.01  | 113 | 100 | 16 | 353 | 79  | Bad    | 68 | 11 |
| ## 82 | 7.52  | 116 | 72  | 0  | 237 | 128 | Good   | 70 | 13 |
| ## 83 | 11.62 | 151 | 83  | 4  | 325 | 139 | Good   | 28 | 17 |
| ## 84 | 4.42  | 109 | 36  | 7  | 468 | 94  | Bad    | 56 | 11 |
| ## 85 | 2.23  | 111 | 25  | 0  | 52  | 121 | Bad    | 43 | 18 |
| ## 86 | 8.47  | 125 | 103 | 0  | 304 | 112 | Medium | 49 | 13 |
| ## 87 | 8.70  | 150 | 84  | 9  | 432 | 134 | Medium | 64 | 15 |

|        |       |     |     |    |     |     |        |    |    |
|--------|-------|-----|-----|----|-----|-----|--------|----|----|
| ## 88  | 11.70 | 131 | 67  | 7  | 272 | 126 | Good   | 54 | 16 |
| ## 89  | 6.56  | 117 | 42  | 7  | 144 | 111 | Medium | 62 | 10 |
| ## 90  | 7.95  | 128 | 66  | 3  | 493 | 119 | Medium | 45 | 16 |
| ## 91  | 5.33  | 115 | 22  | 0  | 491 | 103 | Medium | 64 | 11 |
| ## 92  | 4.81  | 97  | 46  | 11 | 267 | 107 | Medium | 80 | 15 |
| ## 93  | 4.53  | 114 | 113 | 0  | 97  | 125 | Medium | 29 | 12 |
| ## 94  | 8.86  | 145 | 30  | 0  | 67  | 104 | Medium | 55 | 17 |
| ## 95  | 8.39  | 115 | 97  | 5  | 134 | 84  | Bad    | 55 | 11 |
| ## 96  | 5.58  | 134 | 25  | 10 | 237 | 148 | Medium | 59 | 13 |
| ## 97  | 9.48  | 147 | 42  | 10 | 407 | 132 | Good   | 73 | 16 |
| ## 98  | 7.45  | 161 | 82  | 5  | 287 | 129 | Bad    | 33 | 16 |
| ## 99  | 12.49 | 122 | 77  | 24 | 382 | 127 | Good   | 36 | 16 |
| ## 100 | 4.88  | 121 | 47  | 3  | 220 | 107 | Bad    | 56 | 16 |
| ## 101 | 4.11  | 113 | 69  | 11 | 94  | 106 | Medium | 76 | 12 |
| ## 102 | 6.20  | 128 | 93  | 0  | 89  | 118 | Medium | 34 | 18 |
| ## 103 | 5.30  | 113 | 22  | 0  | 57  | 97  | Medium | 65 | 16 |
| ## 104 | 5.07  | 123 | 91  | 0  | 334 | 96  | Bad    | 78 | 17 |
| ## 105 | 4.62  | 121 | 96  | 0  | 472 | 138 | Medium | 51 | 12 |
| ## 106 | 5.55  | 104 | 100 | 8  | 398 | 97  | Medium | 61 | 11 |
| ## 107 | 0.16  | 102 | 33  | 0  | 217 | 139 | Medium | 70 | 18 |
| ## 108 | 8.55  | 134 | 107 | 0  | 104 | 108 | Medium | 60 | 12 |
| ## 109 | 3.47  | 107 | 79  | 2  | 488 | 103 | Bad    | 65 | 16 |
| ## 110 | 8.98  | 115 | 65  | 0  | 217 | 90  | Medium | 60 | 17 |
| ## 111 | 9.00  | 128 | 62  | 7  | 125 | 116 | Medium | 43 | 14 |
| ## 112 | 6.62  | 132 | 118 | 12 | 272 | 151 | Medium | 43 | 14 |
| ## 113 | 6.67  | 116 | 99  | 5  | 298 | 125 | Good   | 62 | 12 |
| ## 114 | 6.01  | 131 | 29  | 11 | 335 | 127 | Bad    | 33 | 12 |
| ## 115 | 9.31  | 122 | 87  | 9  | 17  | 106 | Medium | 65 | 13 |
| ## 116 | 8.54  | 139 | 35  | 0  | 95  | 129 | Medium | 42 | 13 |
| ## 117 | 5.08  | 135 | 75  | 0  | 202 | 128 | Medium | 80 | 10 |
| ## 118 | 8.80  | 145 | 53  | 0  | 507 | 119 | Medium | 41 | 12 |
| ## 119 | 7.57  | 112 | 88  | 2  | 243 | 99  | Medium | 62 | 11 |
| ## 120 | 7.37  | 130 | 94  | 8  | 137 | 128 | Medium | 64 | 12 |
| ## 121 | 6.87  | 128 | 105 | 11 | 249 | 131 | Medium | 63 | 13 |
| ## 122 | 11.67 | 125 | 89  | 10 | 380 | 87  | Bad    | 28 | 10 |
| ## 123 | 6.88  | 119 | 100 | 5  | 45  | 108 | Medium | 75 | 10 |
| ## 124 | 8.19  | 127 | 103 | 0  | 125 | 155 | Good   | 29 | 15 |
| ## 125 | 8.87  | 131 | 113 | 0  | 181 | 120 | Good   | 63 | 14 |
| ## 126 | 9.34  | 89  | 78  | 0  | 181 | 49  | Medium | 43 | 15 |
| ## 127 | 11.27 | 153 | 68  | 2  | 60  | 133 | Good   | 59 | 16 |
| ## 128 | 6.52  | 125 | 48  | 3  | 192 | 116 | Medium | 51 | 14 |
| ## 129 | 4.96  | 133 | 100 | 3  | 350 | 126 | Bad    | 55 | 13 |
| ## 130 | 4.47  | 143 | 120 | 7  | 279 | 147 | Bad    | 40 | 10 |
| ## 131 | 8.41  | 94  | 84  | 13 | 497 | 77  | Medium | 51 | 12 |
| ## 132 | 6.50  | 108 | 69  | 3  | 208 | 94  | Medium | 77 | 16 |
| ## 133 | 9.54  | 125 | 87  | 9  | 232 | 136 | Good   | 72 | 10 |
| ## 134 | 7.62  | 132 | 98  | 2  | 265 | 97  | Bad    | 62 | 12 |
| ## 135 | 3.67  | 132 | 31  | 0  | 327 | 131 | Medium | 76 | 16 |
| ## 136 | 6.44  | 96  | 94  | 14 | 384 | 120 | Medium | 36 | 18 |
| ## 137 | 5.17  | 131 | 75  | 0  | 10  | 120 | Bad    | 31 | 18 |
| ## 138 | 6.52  | 128 | 42  | 0  | 436 | 118 | Medium | 80 | 11 |
| ## 139 | 10.27 | 125 | 103 | 12 | 371 | 109 | Medium | 44 | 10 |
| ## 140 | 12.30 | 146 | 62  | 10 | 310 | 94  | Medium | 30 | 13 |
| ## 141 | 6.03  | 133 | 60  | 10 | 277 | 129 | Medium | 45 | 18 |

|        |       |     |     |    |     |     |        |    |    |
|--------|-------|-----|-----|----|-----|-----|--------|----|----|
| ## 142 | 6.53  | 140 | 42  | 0  | 331 | 131 | Bad    | 28 | 15 |
| ## 143 | 7.44  | 124 | 84  | 0  | 300 | 104 | Medium | 77 | 15 |
| ## 144 | 0.53  | 122 | 88  | 7  | 36  | 159 | Bad    | 28 | 17 |
| ## 145 | 9.09  | 132 | 68  | 0  | 264 | 123 | Good   | 34 | 11 |
| ## 146 | 8.77  | 144 | 63  | 11 | 27  | 117 | Medium | 47 | 17 |
| ## 147 | 3.90  | 114 | 83  | 0  | 412 | 131 | Bad    | 39 | 14 |
| ## 148 | 10.51 | 140 | 54  | 9  | 402 | 119 | Good   | 41 | 16 |
| ## 149 | 7.56  | 110 | 119 | 0  | 384 | 97  | Medium | 72 | 14 |
| ## 150 | 11.48 | 121 | 120 | 13 | 140 | 87  | Medium | 56 | 11 |
| ## 151 | 10.49 | 122 | 84  | 8  | 176 | 114 | Good   | 57 | 10 |
| ## 152 | 10.77 | 111 | 58  | 17 | 407 | 103 | Good   | 75 | 17 |
| ## 153 | 7.64  | 128 | 78  | 0  | 341 | 128 | Good   | 45 | 13 |
| ## 154 | 5.93  | 150 | 36  | 7  | 488 | 150 | Medium | 25 | 17 |
| ## 155 | 6.89  | 129 | 69  | 10 | 289 | 110 | Medium | 50 | 16 |
| ## 156 | 7.71  | 98  | 72  | 0  | 59  | 69  | Medium | 65 | 16 |
| ## 157 | 7.49  | 146 | 34  | 0  | 220 | 157 | Good   | 51 | 16 |
| ## 158 | 10.21 | 121 | 58  | 8  | 249 | 90  | Medium | 48 | 13 |
| ## 159 | 12.53 | 142 | 90  | 1  | 189 | 112 | Good   | 39 | 10 |
| ## 160 | 9.32  | 119 | 60  | 0  | 372 | 70  | Bad    | 30 | 18 |
| ## 161 | 4.67  | 111 | 28  | 0  | 486 | 111 | Medium | 29 | 12 |
| ## 162 | 2.93  | 143 | 21  | 5  | 81  | 160 | Medium | 67 | 12 |
| ## 163 | 3.63  | 122 | 74  | 0  | 424 | 149 | Medium | 51 | 13 |
| ## 164 | 5.68  | 130 | 64  | 0  | 40  | 106 | Bad    | 39 | 17 |
| ## 165 | 8.22  | 148 | 64  | 0  | 58  | 141 | Medium | 27 | 13 |
| ## 166 | 0.37  | 147 | 58  | 7  | 100 | 191 | Bad    | 27 | 15 |
| ## 167 | 6.71  | 119 | 67  | 17 | 151 | 137 | Medium | 55 | 11 |
| ## 168 | 6.71  | 106 | 73  | 0  | 216 | 93  | Medium | 60 | 13 |
| ## 169 | 7.30  | 129 | 89  | 0  | 425 | 117 | Medium | 45 | 10 |
| ## 170 | 11.48 | 104 | 41  | 15 | 492 | 77  | Good   | 73 | 18 |
| ## 171 | 8.01  | 128 | 39  | 12 | 356 | 118 | Medium | 71 | 10 |
| ## 172 | 12.49 | 93  | 106 | 12 | 416 | 55  | Medium | 75 | 15 |
| ## 173 | 9.03  | 104 | 102 | 13 | 123 | 110 | Good   | 35 | 16 |
| ## 174 | 6.38  | 135 | 91  | 5  | 207 | 128 | Medium | 66 | 18 |
| ## 175 | 0.00  | 139 | 24  | 0  | 358 | 185 | Medium | 79 | 15 |
| ## 176 | 7.54  | 115 | 89  | 0  | 38  | 122 | Medium | 25 | 12 |
| ## 177 | 5.61  | 138 | 107 | 9  | 480 | 154 | Medium | 47 | 11 |
| ## 178 | 10.48 | 138 | 72  | 0  | 148 | 94  | Medium | 27 | 17 |
| ## 179 | 10.66 | 104 | 71  | 14 | 89  | 81  | Medium | 25 | 14 |
| ## 180 | 7.78  | 144 | 25  | 3  | 70  | 116 | Medium | 77 | 18 |
| ## 181 | 4.94  | 137 | 112 | 15 | 434 | 149 | Bad    | 66 | 13 |
| ## 182 | 7.43  | 121 | 83  | 0  | 79  | 91  | Medium | 68 | 11 |
| ## 183 | 4.74  | 137 | 60  | 4  | 230 | 140 | Bad    | 25 | 13 |
| ## 184 | 5.32  | 118 | 74  | 6  | 426 | 102 | Medium | 80 | 18 |
| ## 185 | 9.95  | 132 | 33  | 7  | 35  | 97  | Medium | 60 | 11 |
| ## 186 | 10.07 | 130 | 100 | 11 | 449 | 107 | Medium | 64 | 10 |
| ## 187 | 8.68  | 120 | 51  | 0  | 93  | 86  | Medium | 46 | 17 |
| ## 188 | 6.03  | 117 | 32  | 0  | 142 | 96  | Bad    | 62 | 17 |
| ## 189 | 8.07  | 116 | 37  | 0  | 426 | 90  | Medium | 76 | 15 |
| ## 190 | 12.11 | 118 | 117 | 18 | 509 | 104 | Medium | 26 | 15 |
| ## 191 | 8.79  | 130 | 37  | 13 | 297 | 101 | Medium | 37 | 13 |
| ## 192 | 6.67  | 156 | 42  | 13 | 170 | 173 | Good   | 74 | 14 |
| ## 193 | 7.56  | 108 | 26  | 0  | 408 | 93  | Medium | 56 | 14 |
| ## 194 | 13.28 | 139 | 70  | 7  | 71  | 96  | Good   | 61 | 10 |
| ## 195 | 7.23  | 112 | 98  | 18 | 481 | 128 | Medium | 45 | 11 |

|        |       |     |     |    |     |     |        |    |    |
|--------|-------|-----|-----|----|-----|-----|--------|----|----|
| ## 196 | 4.19  | 117 | 93  | 4  | 420 | 112 | Bad    | 66 | 11 |
| ## 197 | 4.10  | 130 | 28  | 6  | 410 | 133 | Bad    | 72 | 16 |
| ## 198 | 2.52  | 124 | 61  | 0  | 333 | 138 | Medium | 76 | 16 |
| ## 199 | 3.62  | 112 | 80  | 5  | 500 | 128 | Medium | 69 | 10 |
| ## 200 | 6.42  | 122 | 88  | 5  | 335 | 126 | Medium | 64 | 14 |
| ## 201 | 5.56  | 144 | 92  | 0  | 349 | 146 | Medium | 62 | 12 |
| ## 202 | 5.94  | 138 | 83  | 0  | 139 | 134 | Medium | 54 | 18 |
| ## 203 | 4.10  | 121 | 78  | 4  | 413 | 130 | Bad    | 46 | 10 |
| ## 204 | 2.05  | 131 | 82  | 0  | 132 | 157 | Bad    | 25 | 14 |
| ## 205 | 8.74  | 155 | 80  | 0  | 237 | 124 | Medium | 37 | 14 |
| ## 206 | 5.68  | 113 | 22  | 1  | 317 | 132 | Medium | 28 | 12 |
| ## 207 | 4.97  | 162 | 67  | 0  | 27  | 160 | Medium | 77 | 17 |
| ## 208 | 8.19  | 111 | 105 | 0  | 466 | 97  | Bad    | 61 | 10 |
| ## 209 | 7.78  | 86  | 54  | 0  | 497 | 64  | Bad    | 33 | 12 |
| ## 210 | 3.02  | 98  | 21  | 11 | 326 | 90  | Bad    | 76 | 11 |
| ## 211 | 4.36  | 125 | 41  | 2  | 357 | 123 | Bad    | 47 | 14 |
| ## 212 | 9.39  | 117 | 118 | 14 | 445 | 120 | Medium | 32 | 15 |
| ## 213 | 12.04 | 145 | 69  | 19 | 501 | 105 | Medium | 45 | 11 |
| ## 214 | 8.23  | 149 | 84  | 5  | 220 | 139 | Medium | 33 | 10 |
| ## 215 | 4.83  | 115 | 115 | 3  | 48  | 107 | Medium | 73 | 18 |
| ## 216 | 2.34  | 116 | 83  | 15 | 170 | 144 | Bad    | 71 | 11 |
| ## 217 | 5.73  | 141 | 33  | 0  | 243 | 144 | Medium | 34 | 17 |
| ## 218 | 4.34  | 106 | 44  | 0  | 481 | 111 | Medium | 70 | 14 |
| ## 219 | 9.70  | 138 | 61  | 12 | 156 | 120 | Medium | 25 | 14 |
| ## 220 | 10.62 | 116 | 79  | 19 | 359 | 116 | Good   | 58 | 17 |
| ## 221 | 10.59 | 131 | 120 | 15 | 262 | 124 | Medium | 30 | 10 |
| ## 222 | 6.43  | 124 | 44  | 0  | 125 | 107 | Medium | 80 | 11 |
| ## 223 | 7.49  | 136 | 119 | 6  | 178 | 145 | Medium | 35 | 13 |
| ## 224 | 3.45  | 110 | 45  | 9  | 276 | 125 | Medium | 62 | 14 |
| ## 225 | 4.10  | 134 | 82  | 0  | 464 | 141 | Medium | 48 | 13 |
| ## 226 | 6.68  | 107 | 25  | 0  | 412 | 82  | Bad    | 36 | 14 |
| ## 227 | 7.80  | 119 | 33  | 0  | 245 | 122 | Good   | 56 | 14 |
| ## 228 | 8.69  | 113 | 64  | 10 | 68  | 101 | Medium | 57 | 16 |
| ## 229 | 5.40  | 149 | 73  | 13 | 381 | 163 | Bad    | 26 | 11 |
| ## 230 | 11.19 | 98  | 104 | 0  | 404 | 72  | Medium | 27 | 18 |
| ## 231 | 5.16  | 115 | 60  | 0  | 119 | 114 | Bad    | 38 | 14 |
| ## 232 | 8.09  | 132 | 69  | 0  | 123 | 122 | Medium | 27 | 11 |
| ## 233 | 13.14 | 137 | 80  | 10 | 24  | 105 | Good   | 61 | 15 |
| ## 234 | 8.65  | 123 | 76  | 18 | 218 | 120 | Medium | 29 | 14 |
| ## 235 | 9.43  | 115 | 62  | 11 | 289 | 129 | Good   | 56 | 16 |
| ## 236 | 5.53  | 126 | 32  | 8  | 95  | 132 | Medium | 50 | 17 |
| ## 237 | 9.32  | 141 | 34  | 16 | 361 | 108 | Medium | 69 | 10 |
| ## 238 | 9.62  | 151 | 28  | 8  | 499 | 135 | Medium | 48 | 10 |
| ## 239 | 7.36  | 121 | 24  | 0  | 200 | 133 | Good   | 73 | 13 |
| ## 240 | 3.89  | 123 | 105 | 0  | 149 | 118 | Bad    | 62 | 16 |
| ## 241 | 10.31 | 159 | 80  | 0  | 362 | 121 | Medium | 26 | 18 |
| ## 242 | 12.01 | 136 | 63  | 0  | 160 | 94  | Medium | 38 | 12 |
| ## 243 | 4.68  | 124 | 46  | 0  | 199 | 135 | Medium | 52 | 14 |
| ## 244 | 7.82  | 124 | 25  | 13 | 87  | 110 | Medium | 57 | 10 |
| ## 245 | 8.78  | 130 | 30  | 0  | 391 | 100 | Medium | 26 | 18 |
| ## 246 | 10.00 | 114 | 43  | 0  | 199 | 88  | Good   | 57 | 10 |
| ## 247 | 6.90  | 120 | 56  | 20 | 266 | 90  | Bad    | 78 | 18 |
| ## 248 | 5.04  | 123 | 114 | 0  | 298 | 151 | Bad    | 34 | 16 |
| ## 249 | 5.36  | 111 | 52  | 0  | 12  | 101 | Medium | 61 | 11 |

|        |       |     |     |    |     |     |        |    |    |
|--------|-------|-----|-----|----|-----|-----|--------|----|----|
| ## 250 | 5.05  | 125 | 67  | 0  | 86  | 117 | Bad    | 65 | 11 |
| ## 251 | 9.16  | 137 | 105 | 10 | 435 | 156 | Good   | 72 | 14 |
| ## 252 | 3.72  | 139 | 111 | 5  | 310 | 132 | Bad    | 62 | 13 |
| ## 253 | 8.31  | 133 | 97  | 0  | 70  | 117 | Medium | 32 | 16 |
| ## 254 | 5.64  | 124 | 24  | 5  | 288 | 122 | Medium | 57 | 12 |
| ## 255 | 9.58  | 108 | 104 | 23 | 353 | 129 | Good   | 37 | 17 |
| ## 256 | 7.71  | 123 | 81  | 8  | 198 | 81  | Bad    | 80 | 15 |
| ## 257 | 4.20  | 147 | 40  | 0  | 277 | 144 | Medium | 73 | 10 |
| ## 258 | 8.67  | 125 | 62  | 14 | 477 | 112 | Medium | 80 | 13 |
| ## 259 | 3.47  | 108 | 38  | 0  | 251 | 81  | Bad    | 72 | 14 |
| ## 260 | 5.12  | 123 | 36  | 10 | 467 | 100 | Bad    | 74 | 11 |
| ## 261 | 7.67  | 129 | 117 | 8  | 400 | 101 | Bad    | 36 | 10 |
| ## 262 | 5.71  | 121 | 42  | 4  | 188 | 118 | Medium | 54 | 15 |
| ## 263 | 6.37  | 120 | 77  | 15 | 86  | 132 | Medium | 48 | 18 |
| ## 264 | 7.77  | 116 | 26  | 6  | 434 | 115 | Medium | 25 | 17 |
| ## 265 | 6.95  | 128 | 29  | 5  | 324 | 159 | Good   | 31 | 15 |
| ## 266 | 5.31  | 130 | 35  | 10 | 402 | 129 | Bad    | 39 | 17 |
| ## 267 | 9.10  | 128 | 93  | 12 | 343 | 112 | Good   | 73 | 17 |
| ## 268 | 5.83  | 134 | 82  | 7  | 473 | 112 | Bad    | 51 | 12 |
| ## 269 | 6.53  | 123 | 57  | 0  | 66  | 105 | Medium | 39 | 11 |
| ## 270 | 5.01  | 159 | 69  | 0  | 438 | 166 | Medium | 46 | 17 |
| ## 271 | 11.99 | 119 | 26  | 0  | 284 | 89  | Good   | 26 | 10 |
| ## 272 | 4.55  | 111 | 56  | 0  | 504 | 110 | Medium | 62 | 16 |
| ## 273 | 12.98 | 113 | 33  | 0  | 14  | 63  | Good   | 38 | 12 |
| ## 274 | 10.04 | 116 | 106 | 8  | 244 | 86  | Medium | 58 | 12 |
| ## 275 | 7.22  | 135 | 93  | 2  | 67  | 119 | Medium | 34 | 11 |
| ## 276 | 6.67  | 107 | 119 | 11 | 210 | 132 | Medium | 53 | 11 |
| ## 277 | 6.93  | 135 | 69  | 14 | 296 | 130 | Medium | 73 | 15 |
| ## 278 | 7.80  | 136 | 48  | 12 | 326 | 125 | Medium | 36 | 16 |
| ## 279 | 7.22  | 114 | 113 | 2  | 129 | 151 | Good   | 40 | 15 |
| ## 280 | 3.42  | 141 | 57  | 13 | 376 | 158 | Medium | 64 | 18 |
| ## 281 | 2.86  | 121 | 86  | 10 | 496 | 145 | Bad    | 51 | 10 |
| ## 282 | 11.19 | 122 | 69  | 7  | 303 | 105 | Good   | 45 | 16 |
| ## 283 | 7.74  | 150 | 96  | 0  | 80  | 154 | Good   | 61 | 11 |
| ## 284 | 5.36  | 135 | 110 | 0  | 112 | 117 | Medium | 80 | 16 |
| ## 285 | 6.97  | 106 | 46  | 11 | 414 | 96  | Bad    | 79 | 17 |
| ## 286 | 7.60  | 146 | 26  | 11 | 261 | 131 | Medium | 39 | 10 |
| ## 287 | 7.53  | 117 | 118 | 11 | 429 | 113 | Medium | 67 | 18 |
| ## 288 | 6.88  | 95  | 44  | 4  | 208 | 72  | Bad    | 44 | 17 |
| ## 289 | 6.98  | 116 | 40  | 0  | 74  | 97  | Medium | 76 | 15 |
| ## 290 | 8.75  | 143 | 77  | 25 | 448 | 156 | Medium | 43 | 17 |
| ## 291 | 9.49  | 107 | 111 | 14 | 400 | 103 | Medium | 41 | 11 |
| ## 292 | 6.64  | 118 | 70  | 0  | 106 | 89  | Bad    | 39 | 17 |
| ## 293 | 11.82 | 113 | 66  | 16 | 322 | 74  | Good   | 76 | 15 |
| ## 294 | 11.28 | 123 | 84  | 0  | 74  | 89  | Good   | 59 | 10 |
| ## 295 | 12.66 | 148 | 76  | 3  | 126 | 99  | Good   | 60 | 11 |
| ## 296 | 4.21  | 118 | 35  | 14 | 502 | 137 | Medium | 79 | 10 |
| ## 297 | 8.21  | 127 | 44  | 13 | 160 | 123 | Good   | 63 | 18 |
| ## 298 | 3.07  | 118 | 83  | 13 | 276 | 104 | Bad    | 75 | 10 |
| ## 299 | 10.98 | 148 | 63  | 0  | 312 | 130 | Good   | 63 | 15 |
| ## 300 | 9.40  | 135 | 40  | 17 | 497 | 96  | Medium | 54 | 17 |
| ## 301 | 8.57  | 116 | 78  | 1  | 158 | 99  | Medium | 45 | 11 |
| ## 302 | 7.41  | 99  | 93  | 0  | 198 | 87  | Medium | 57 | 16 |
| ## 303 | 5.28  | 108 | 77  | 13 | 388 | 110 | Bad    | 74 | 14 |

|        |       |     |     |    |     |     |        |    |    |
|--------|-------|-----|-----|----|-----|-----|--------|----|----|
| ## 304 | 10.01 | 133 | 52  | 16 | 290 | 99  | Medium | 43 | 11 |
| ## 305 | 11.93 | 123 | 98  | 12 | 408 | 134 | Good   | 29 | 10 |
| ## 306 | 8.03  | 115 | 29  | 26 | 394 | 132 | Medium | 33 | 13 |
| ## 307 | 4.78  | 131 | 32  | 1  | 85  | 133 | Medium | 48 | 12 |
| ## 308 | 5.90  | 138 | 92  | 0  | 13  | 120 | Bad    | 61 | 12 |
| ## 309 | 9.24  | 126 | 80  | 19 | 436 | 126 | Medium | 52 | 10 |
| ## 310 | 11.18 | 131 | 111 | 13 | 33  | 80  | Bad    | 68 | 18 |
| ## 311 | 9.53  | 175 | 65  | 29 | 419 | 166 | Medium | 53 | 12 |
| ## 312 | 6.15  | 146 | 68  | 12 | 328 | 132 | Bad    | 51 | 14 |
| ## 313 | 6.80  | 137 | 117 | 5  | 337 | 135 | Bad    | 38 | 10 |
| ## 314 | 9.33  | 103 | 81  | 3  | 491 | 54  | Medium | 66 | 13 |
| ## 315 | 7.72  | 133 | 33  | 10 | 333 | 129 | Good   | 71 | 14 |
| ## 316 | 6.39  | 131 | 21  | 8  | 220 | 171 | Good   | 29 | 14 |
| ## 317 | 15.63 | 122 | 36  | 5  | 369 | 72  | Good   | 35 | 10 |
| ## 318 | 6.41  | 142 | 30  | 0  | 472 | 136 | Good   | 80 | 15 |
| ## 319 | 10.08 | 116 | 72  | 10 | 456 | 130 | Good   | 41 | 14 |
| ## 320 | 6.97  | 127 | 45  | 19 | 459 | 129 | Medium | 57 | 11 |
| ## 321 | 5.86  | 136 | 70  | 12 | 171 | 152 | Medium | 44 | 18 |
| ## 322 | 7.52  | 123 | 39  | 5  | 499 | 98  | Medium | 34 | 15 |
| ## 323 | 9.16  | 140 | 50  | 10 | 300 | 139 | Good   | 60 | 15 |
| ## 324 | 10.36 | 107 | 105 | 18 | 428 | 103 | Medium | 34 | 12 |
| ## 325 | 2.66  | 136 | 65  | 4  | 133 | 150 | Bad    | 53 | 13 |
| ## 326 | 11.70 | 144 | 69  | 11 | 131 | 104 | Medium | 47 | 11 |
| ## 327 | 4.69  | 133 | 30  | 0  | 152 | 122 | Medium | 53 | 17 |
| ## 328 | 6.23  | 112 | 38  | 17 | 316 | 104 | Medium | 80 | 16 |
| ## 329 | 3.15  | 117 | 66  | 1  | 65  | 111 | Bad    | 55 | 11 |
| ## 330 | 11.27 | 100 | 54  | 9  | 433 | 89  | Good   | 45 | 12 |
| ## 331 | 4.99  | 122 | 59  | 0  | 501 | 112 | Bad    | 32 | 14 |
| ## 332 | 10.10 | 135 | 63  | 15 | 213 | 134 | Medium | 32 | 10 |
| ## 333 | 5.74  | 106 | 33  | 20 | 354 | 104 | Medium | 61 | 12 |
| ## 334 | 5.87  | 136 | 60  | 7  | 303 | 147 | Medium | 41 | 10 |
| ## 335 | 7.63  | 93  | 117 | 9  | 489 | 83  | Bad    | 42 | 13 |
| ## 336 | 6.18  | 120 | 70  | 15 | 464 | 110 | Medium | 72 | 15 |
| ## 337 | 5.17  | 138 | 35  | 6  | 60  | 143 | Bad    | 28 | 18 |
| ## 338 | 8.61  | 130 | 38  | 0  | 283 | 102 | Medium | 80 | 15 |
| ## 339 | 5.97  | 112 | 24  | 0  | 164 | 101 | Medium | 45 | 11 |
| ## 340 | 11.54 | 134 | 44  | 4  | 219 | 126 | Good   | 44 | 15 |
| ## 341 | 7.50  | 140 | 29  | 0  | 105 | 91  | Bad    | 43 | 16 |
| ## 342 | 7.38  | 98  | 120 | 0  | 268 | 93  | Medium | 72 | 10 |
| ## 343 | 7.81  | 137 | 102 | 13 | 422 | 118 | Medium | 71 | 10 |
| ## 344 | 5.99  | 117 | 42  | 10 | 371 | 121 | Bad    | 26 | 14 |
| ## 345 | 8.43  | 138 | 80  | 0  | 108 | 126 | Good   | 70 | 13 |
| ## 346 | 4.81  | 121 | 68  | 0  | 279 | 149 | Good   | 79 | 12 |
| ## 347 | 8.97  | 132 | 107 | 0  | 144 | 125 | Medium | 33 | 13 |
| ## 348 | 6.88  | 96  | 39  | 0  | 161 | 112 | Good   | 27 | 14 |
| ## 349 | 12.57 | 132 | 102 | 20 | 459 | 107 | Good   | 49 | 11 |
| ## 350 | 9.32  | 134 | 27  | 18 | 467 | 96  | Medium | 49 | 14 |
| ## 351 | 8.64  | 111 | 101 | 17 | 266 | 91  | Medium | 63 | 17 |
| ## 352 | 10.44 | 124 | 115 | 16 | 458 | 105 | Medium | 62 | 16 |
| ## 353 | 13.44 | 133 | 103 | 14 | 288 | 122 | Good   | 61 | 17 |
| ## 354 | 9.45  | 107 | 67  | 12 | 430 | 92  | Medium | 35 | 12 |
| ## 355 | 5.30  | 133 | 31  | 1  | 80  | 145 | Medium | 42 | 18 |
| ## 356 | 7.02  | 130 | 100 | 0  | 306 | 146 | Good   | 42 | 11 |
| ## 357 | 3.58  | 142 | 109 | 0  | 111 | 164 | Good   | 72 | 12 |

|        |       |     |     |    |     |     |        |    |    |
|--------|-------|-----|-----|----|-----|-----|--------|----|----|
| ## 358 | 13.36 | 103 | 73  | 3  | 276 | 72  | Medium | 34 | 15 |
| ## 359 | 4.17  | 123 | 96  | 10 | 71  | 118 | Bad    | 69 | 11 |
| ## 360 | 3.13  | 130 | 62  | 11 | 396 | 130 | Bad    | 66 | 14 |
| ## 361 | 8.77  | 118 | 86  | 7  | 265 | 114 | Good   | 52 | 15 |
| ## 362 | 8.68  | 131 | 25  | 10 | 183 | 104 | Medium | 56 | 15 |
| ## 363 | 5.25  | 131 | 55  | 0  | 26  | 110 | Bad    | 79 | 12 |
| ## 364 | 10.26 | 111 | 75  | 1  | 377 | 108 | Good   | 25 | 12 |
| ## 365 | 10.50 | 122 | 21  | 16 | 488 | 131 | Good   | 30 | 14 |
| ## 366 | 6.53  | 154 | 30  | 0  | 122 | 162 | Medium | 57 | 17 |
| ## 367 | 5.98  | 124 | 56  | 11 | 447 | 134 | Medium | 53 | 12 |
| ## 368 | 14.37 | 95  | 106 | 0  | 256 | 53  | Good   | 52 | 17 |
| ## 369 | 10.71 | 109 | 22  | 10 | 348 | 79  | Good   | 74 | 14 |
| ## 370 | 10.26 | 135 | 100 | 22 | 463 | 122 | Medium | 36 | 14 |
| ## 371 | 7.68  | 126 | 41  | 22 | 403 | 119 | Bad    | 42 | 12 |
| ## 372 | 9.08  | 152 | 81  | 0  | 191 | 126 | Medium | 54 | 16 |
| ## 373 | 7.80  | 121 | 50  | 0  | 508 | 98  | Medium | 65 | 11 |
| ## 374 | 5.58  | 137 | 71  | 0  | 402 | 116 | Medium | 78 | 17 |
| ## 375 | 9.44  | 131 | 47  | 7  | 90  | 118 | Medium | 47 | 12 |
| ## 376 | 7.90  | 132 | 46  | 4  | 206 | 124 | Medium | 73 | 11 |
| ## 377 | 16.27 | 141 | 60  | 19 | 319 | 92  | Good   | 44 | 11 |
| ## 378 | 6.81  | 132 | 61  | 0  | 263 | 125 | Medium | 41 | 12 |
| ## 379 | 6.11  | 133 | 88  | 3  | 105 | 119 | Medium | 79 | 12 |
| ## 380 | 5.81  | 125 | 111 | 0  | 404 | 107 | Bad    | 54 | 15 |
| ## 381 | 9.64  | 106 | 64  | 10 | 17  | 89  | Medium | 68 | 17 |
| ## 382 | 3.90  | 124 | 65  | 21 | 496 | 151 | Bad    | 77 | 13 |
| ## 383 | 4.95  | 121 | 28  | 19 | 315 | 121 | Medium | 66 | 14 |
| ## 384 | 9.35  | 98  | 117 | 0  | 76  | 68  | Medium | 63 | 10 |
| ## 385 | 12.85 | 123 | 37  | 15 | 348 | 112 | Good   | 28 | 12 |
| ## 386 | 5.87  | 131 | 73  | 13 | 455 | 132 | Medium | 62 | 17 |
| ## 387 | 5.32  | 152 | 116 | 0  | 170 | 160 | Medium | 39 | 16 |
| ## 388 | 8.67  | 142 | 73  | 14 | 238 | 115 | Medium | 73 | 14 |
| ## 389 | 8.14  | 135 | 89  | 11 | 245 | 78  | Bad    | 79 | 16 |
| ## 390 | 8.44  | 128 | 42  | 8  | 328 | 107 | Medium | 35 | 12 |
| ## 391 | 5.47  | 108 | 75  | 9  | 61  | 111 | Medium | 67 | 12 |
| ## 392 | 6.10  | 153 | 63  | 0  | 49  | 124 | Bad    | 56 | 16 |
| ## 393 | 4.53  | 129 | 42  | 13 | 315 | 130 | Bad    | 34 | 13 |
| ## 394 | 5.57  | 109 | 51  | 10 | 26  | 120 | Medium | 30 | 17 |
| ## 395 | 5.35  | 130 | 58  | 19 | 366 | 139 | Bad    | 33 | 16 |
| ## 396 | 12.57 | 138 | 108 | 17 | 203 | 128 | Good   | 33 | 14 |
| ## 397 | 6.14  | 139 | 23  | 3  | 37  | 120 | Medium | 55 | 11 |
| ## 398 | 7.41  | 162 | 26  | 12 | 368 | 159 | Medium | 40 | 18 |
| ## 399 | 5.94  | 100 | 79  | 7  | 284 | 95  | Bad    | 50 | 12 |
| ## 400 | 9.71  | 134 | 37  | 0  | 27  | 120 | Good   | 49 | 16 |
| ##     | Urban | US  |     |    |     |     |        |    |    |
| ## 1   | Yes   | Yes |     |    |     |     |        |    |    |
| ## 2   | Yes   | Yes |     |    |     |     |        |    |    |
| ## 3   | Yes   | Yes |     |    |     |     |        |    |    |
| ## 4   | Yes   | Yes |     |    |     |     |        |    |    |
| ## 5   | Yes   | No  |     |    |     |     |        |    |    |
| ## 6   | No    | Yes |     |    |     |     |        |    |    |
| ## 7   | Yes   | No  |     |    |     |     |        |    |    |
| ## 8   | Yes   | Yes |     |    |     |     |        |    |    |
| ## 9   | No    | No  |     |    |     |     |        |    |    |
| ## 10  | No    | Yes |     |    |     |     |        |    |    |



|       |     |     |
|-------|-----|-----|
| ## 11 | No  | Yes |
| ## 12 | Yes | Yes |
| ## 13 | Yes | No  |
| ## 14 | Yes | Yes |
| ## 15 | Yes | Yes |
| ## 16 | No  | No  |
| ## 17 | Yes | No  |
| ## 18 | Yes | Yes |
| ## 19 | No  | Yes |
| ## 20 | Yes | Yes |
| ## 21 | Yes | Yes |
| ## 22 | No  | Yes |
| ## 23 | Yes | No  |
| ## 24 | Yes | No  |
| ## 25 | Yes | Yes |
| ## 26 | No  | No  |
| ## 27 | No  | Yes |
| ## 28 | Yes | No  |
| ## 29 | Yes | Yes |
| ## 30 | Yes | Yes |
| ## 31 | Yes | No  |
| ## 32 | Yes | Yes |
| ## 33 | No  | Yes |
| ## 34 | Yes | Yes |
| ## 35 | Yes | Yes |
| ## 36 | No  | Yes |
| ## 37 | No  | No  |
| ## 38 | Yes | Yes |
| ## 39 | Yes | No  |
| ## 40 | No  | No  |
| ## 41 | No  | No  |
| ## 42 | Yes | No  |
| ## 43 | Yes | No  |
| ## 44 | Yes | Yes |
| ## 45 | Yes | Yes |
| ## 46 | Yes | Yes |
| ## 47 | No  | Yes |
| ## 48 | Yes | No  |
| ## 49 | Yes | No  |
| ## 50 | Yes | No  |
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| ## 52 | Yes | No  |
| ## 53 | Yes | Yes |
| ## 54 | Yes | Yes |
| ## 55 | No  | Yes |
| ## 56 | Yes | Yes |
| ## 57 | Yes | No  |
| ## 58 | Yes | No  |
| ## 59 | Yes | Yes |
| ## 60 | Yes | No  |
| ## 61 | Yes | Yes |
| ## 62 | No  | No  |
| ## 63 | Yes | Yes |
| ## 64 | Yes | Yes |

|        |     |     |
|--------|-----|-----|
| ## 65  | No  | Yes |
| ## 66  | No  | No  |
| ## 67  | Yes | No  |
| ## 68  | Yes | Yes |
| ## 69  | Yes | Yes |
| ## 70  | Yes | No  |
| ## 71  | Yes | Yes |
| ## 72  | No  | Yes |
| ## 73  | Yes | No  |
| ## 74  | No  | Yes |
| ## 75  | No  | Yes |
| ## 76  | No  | Yes |
| ## 77  | Yes | Yes |
| ## 78  | No  | Yes |
| ## 79  | Yes | Yes |
| ## 80  | Yes | No  |
| ## 81  | Yes | Yes |
| ## 82  | Yes | No  |
| ## 83  | Yes | Yes |
| ## 84  | Yes | Yes |
| ## 85  | No  | No  |
| ## 86  | No  | No  |
| ## 87  | Yes | No  |
| ## 88  | No  | Yes |
| ## 89  | Yes | Yes |
| ## 90  | No  | No  |
| ## 91  | No  | No  |
| ## 92  | Yes | Yes |
| ## 93  | Yes | No  |
| ## 94  | Yes | No  |
| ## 95  | Yes | Yes |
| ## 96  | Yes | Yes |
| ## 97  | No  | Yes |
| ## 98  | Yes | Yes |
| ## 99  | No  | Yes |
| ## 100 | No  | Yes |
| ## 101 | No  | Yes |
| ## 102 | Yes | No  |
| ## 103 | No  | No  |
| ## 104 | Yes | Yes |
| ## 105 | Yes | No  |
| ## 106 | Yes | Yes |
| ## 107 | No  | No  |
| ## 108 | Yes | No  |
| ## 109 | Yes | No  |
| ## 110 | No  | No  |
| ## 111 | Yes | Yes |
| ## 112 | Yes | Yes |
| ## 113 | Yes | Yes |
| ## 114 | Yes | Yes |
| ## 115 | Yes | Yes |
| ## 116 | Yes | No  |
| ## 117 | No  | No  |
| ## 118 | Yes | No  |

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| ## | 119 | Yes | Yes |
| ## | 120 | Yes | Yes |
| ## | 121 | Yes | Yes |
| ## | 122 | Yes | Yes |
| ## | 123 | Yes | Yes |
| ## | 124 | No  | Yes |
| ## | 125 | Yes | No  |
| ## | 126 | No  | No  |
| ## | 127 | Yes | Yes |
| ## | 128 | Yes | Yes |
| ## | 129 | Yes | Yes |
| ## | 130 | No  | Yes |
| ## | 131 | Yes | Yes |
| ## | 132 | Yes | No  |
| ## | 133 | Yes | Yes |
| ## | 134 | Yes | Yes |
| ## | 135 | Yes | No  |
| ## | 136 | No  | Yes |
| ## | 137 | No  | No  |
| ## | 138 | Yes | No  |
| ## | 139 | Yes | Yes |
| ## | 140 | No  | Yes |
| ## | 141 | Yes | Yes |
| ## | 142 | Yes | No  |
| ## | 143 | Yes | No  |
| ## | 144 | Yes | Yes |
| ## | 145 | No  | No  |
| ## | 146 | Yes | Yes |
| ## | 147 | Yes | No  |
| ## | 148 | No  | Yes |
| ## | 149 | No  | Yes |
| ## | 150 | Yes | Yes |
| ## | 151 | No  | Yes |
| ## | 152 | No  | Yes |
| ## | 153 | No  | No  |
| ## | 154 | No  | Yes |
| ## | 155 | No  | Yes |
| ## | 156 | Yes | No  |
| ## | 157 | Yes | No  |
| ## | 158 | No  | Yes |
| ## | 159 | No  | Yes |
| ## | 160 | No  | No  |
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| ## | 162 | No  | Yes |
| ## | 163 | Yes | No  |
| ## | 164 | No  | No  |
| ## | 165 | No  | Yes |
| ## | 166 | Yes | Yes |
| ## | 167 | Yes | Yes |
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| ## | 169 | Yes | No  |
| ## | 170 | Yes | Yes |
| ## | 171 | Yes | Yes |
| ## | 172 | Yes | Yes |

|        |     |     |
|--------|-----|-----|
| ## 173 | Yes | Yes |
| ## 174 | Yes | Yes |
| ## 175 | No  | No  |
| ## 176 | Yes | No  |
| ## 177 | No  | Yes |
| ## 178 | Yes | Yes |
| ## 179 | No  | Yes |
| ## 180 | Yes | Yes |
| ## 181 | Yes | Yes |
| ## 182 | Yes | No  |
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| ## 184 | Yes | Yes |
| ## 185 | No  | Yes |
| ## 186 | Yes | Yes |
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| ## 190 | No  | Yes |
| ## 191 | No  | Yes |
| ## 192 | Yes | Yes |
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| ## 195 | Yes | Yes |
| ## 196 | Yes | Yes |
| ## 197 | Yes | Yes |
| ## 198 | Yes | No  |
| ## 199 | Yes | Yes |
| ## 200 | Yes | Yes |
| ## 201 | No  | No  |
| ## 202 | Yes | No  |
| ## 203 | No  | Yes |
| ## 204 | Yes | No  |
| ## 205 | Yes | No  |
| ## 206 | Yes | No  |
| ## 207 | Yes | Yes |
| ## 208 | No  | No  |
| ## 209 | Yes | No  |
| ## 210 | No  | Yes |
| ## 211 | No  | Yes |
| ## 212 | Yes | Yes |
| ## 213 | Yes | Yes |
| ## 214 | Yes | Yes |
| ## 215 | Yes | Yes |
| ## 216 | Yes | Yes |
| ## 217 | Yes | No  |
| ## 218 | No  | No  |
| ## 219 | Yes | Yes |
| ## 220 | Yes | Yes |
| ## 221 | Yes | Yes |
| ## 222 | Yes | No  |
| ## 223 | Yes | Yes |
| ## 224 | Yes | Yes |
| ## 225 | No  | No  |
| ## 226 | Yes | No  |

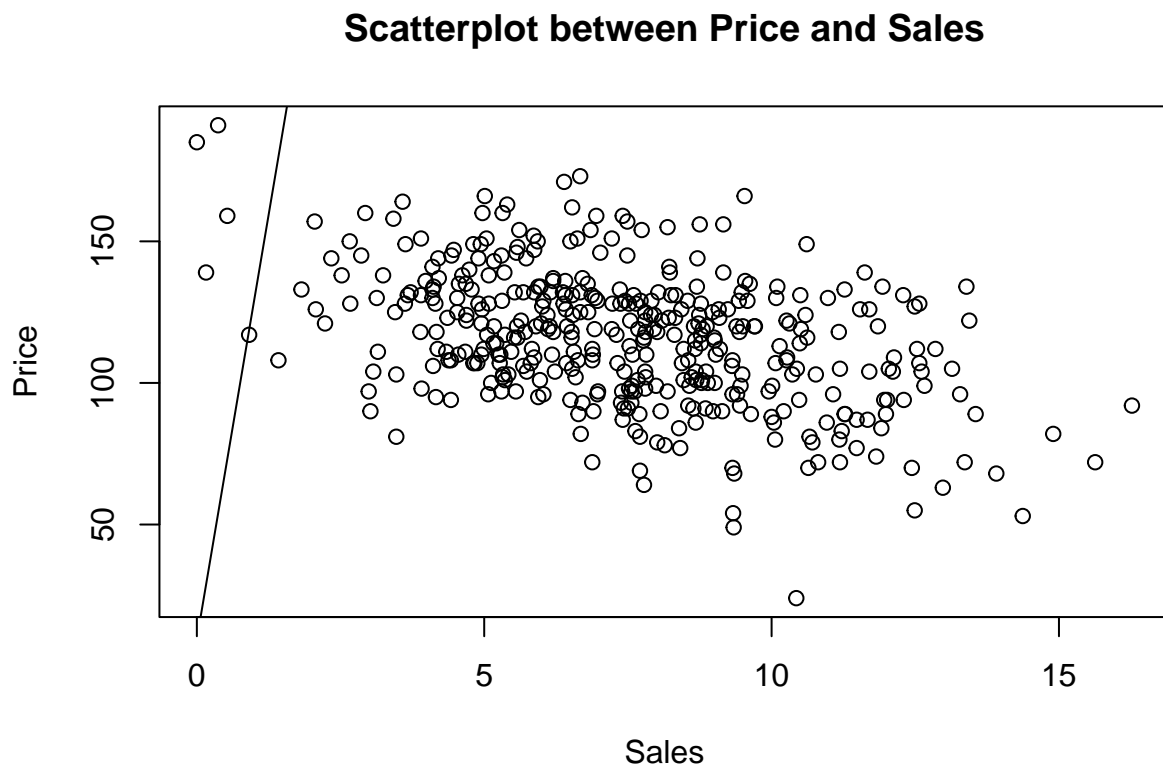
|    |     |     |     |
|----|-----|-----|-----|
| ## | 227 | Yes | No  |
| ## | 228 | Yes | Yes |
| ## | 229 | No  | Yes |
| ## | 230 | No  | No  |
| ## | 231 | No  | No  |
| ## | 232 | No  | No  |
| ## | 233 | Yes | Yes |
| ## | 234 | No  | Yes |
| ## | 235 | No  | Yes |
| ## | 236 | Yes | Yes |
| ## | 237 | Yes | Yes |
| ## | 238 | Yes | Yes |
| ## | 239 | Yes | No  |
| ## | 240 | Yes | Yes |
| ## | 241 | Yes | No  |
| ## | 242 | Yes | No  |
| ## | 243 | No  | No  |
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| ## | 247 | Yes | Yes |
| ## | 248 | Yes | No  |
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| ## | 250 | Yes | No  |
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| ## | 255 | Yes | Yes |
| ## | 256 | Yes | Yes |
| ## | 257 | Yes | No  |
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| ## | 261 | Yes | Yes |
| ## | 262 | Yes | Yes |
| ## | 263 | Yes | Yes |
| ## | 264 | Yes | Yes |
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| ## | 267 | No  | Yes |
| ## | 268 | No  | Yes |
| ## | 269 | Yes | No  |
| ## | 270 | Yes | No  |
| ## | 271 | Yes | No  |
| ## | 272 | Yes | No  |
| ## | 273 | Yes | No  |
| ## | 274 | Yes | Yes |
| ## | 275 | Yes | Yes |
| ## | 276 | Yes | Yes |
| ## | 277 | Yes | Yes |
| ## | 278 | Yes | Yes |
| ## | 279 | No  | Yes |
| ## | 280 | Yes | Yes |

|    |     |     |     |
|----|-----|-----|-----|
| ## | 281 | Yes | Yes |
| ## | 282 | No  | Yes |
| ## | 283 | Yes | No  |
| ## | 284 | No  | No  |
| ## | 285 | No  | No  |
| ## | 286 | Yes | Yes |
| ## | 287 | No  | Yes |
| ## | 288 | Yes | Yes |
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| ## | 294 | Yes | No  |
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| ## | 296 | No  | Yes |
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| ## | 304 | Yes | Yes |
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| ## | 314 | Yes | No  |
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| ## | 317 | Yes | Yes |
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| ## | 319 | No  | Yes |
| ## | 320 | No  | Yes |
| ## | 321 | Yes | Yes |
| ## | 322 | Yes | No  |
| ## | 323 | Yes | Yes |
| ## | 324 | Yes | Yes |
| ## | 325 | Yes | Yes |
| ## | 326 | Yes | Yes |
| ## | 327 | Yes | No  |
| ## | 328 | Yes | Yes |
| ## | 329 | Yes | Yes |
| ## | 330 | Yes | Yes |
| ## | 331 | No  | No  |
| ## | 332 | Yes | Yes |
| ## | 333 | Yes | Yes |
| ## | 334 | Yes | Yes |

|        |     |     |
|--------|-----|-----|
| ## 335 | Yes | Yes |
| ## 336 | Yes | Yes |
| ## 337 | Yes | No  |
| ## 338 | Yes | No  |
| ## 339 | Yes | No  |
| ## 340 | Yes | Yes |
| ## 341 | Yes | No  |
| ## 342 | No  | No  |
| ## 343 | No  | Yes |
| ## 344 | Yes | Yes |
| ## 345 | No  | Yes |
| ## 346 | Yes | No  |
| ## 347 | No  | No  |
| ## 348 | No  | No  |
| ## 349 | Yes | Yes |
| ## 350 | No  | Yes |
| ## 351 | No  | Yes |
| ## 352 | No  | Yes |
| ## 353 | Yes | Yes |
| ## 354 | No  | Yes |
| ## 355 | Yes | Yes |
| ## 356 | Yes | No  |
| ## 357 | Yes | No  |
| ## 358 | Yes | Yes |
| ## 359 | Yes | Yes |
| ## 360 | Yes | Yes |
| ## 361 | No  | Yes |
| ## 362 | No  | Yes |
| ## 363 | Yes | Yes |
| ## 364 | Yes | No  |
| ## 365 | Yes | Yes |
| ## 366 | No  | No  |
| ## 367 | No  | Yes |
| ## 368 | Yes | No  |
| ## 369 | No  | Yes |
| ## 370 | Yes | Yes |
| ## 371 | Yes | Yes |
| ## 372 | Yes | No  |
| ## 373 | No  | No  |
| ## 374 | Yes | No  |
| ## 375 | Yes | Yes |
| ## 376 | Yes | No  |
| ## 377 | Yes | Yes |
| ## 378 | No  | No  |
| ## 379 | Yes | Yes |
| ## 380 | Yes | No  |
| ## 381 | Yes | Yes |
| ## 382 | Yes | Yes |
| ## 383 | Yes | Yes |
| ## 384 | Yes | No  |
| ## 385 | Yes | Yes |
| ## 386 | Yes | Yes |
| ## 387 | Yes | No  |
| ## 388 | No  | Yes |

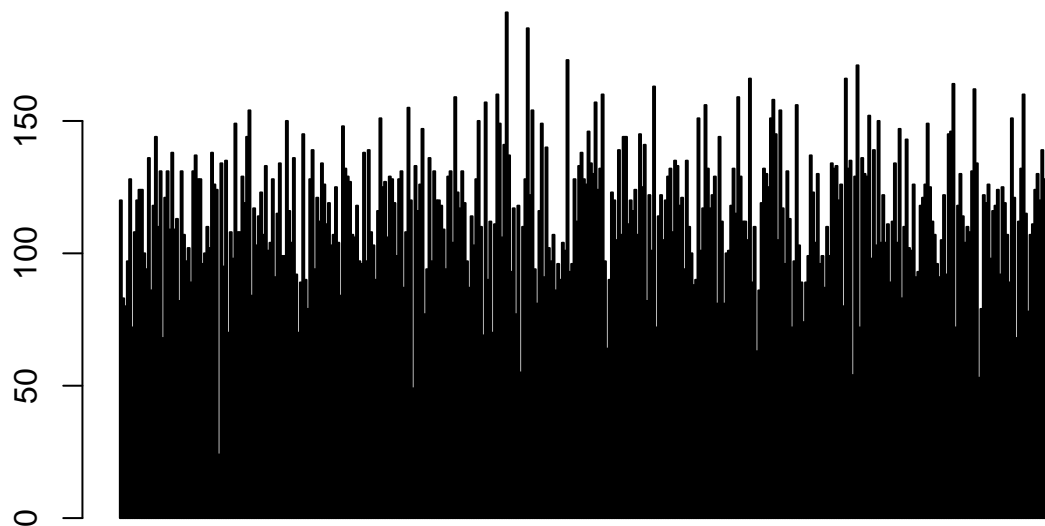
```
## 389   Yes Yes
## 390   Yes Yes
## 391   Yes Yes
## 392   Yes No
## 393   Yes Yes
## 394    No Yes
## 395   Yes Yes
## 396   Yes Yes
## 397    No Yes
## 398   Yes Yes
## 399   Yes Yes
## 400   Yes Yes
```

```
plot(Carseats$Sales, Carseats$Price, main = "Scatterplot between Price and Sales", xlab = "Sales", ylab = "Price")
```



```
barplot(Carseats$Price)
```





```
#maximum value attribute of advertisement
```

```
max(Carseats$Advertising)
```

```
## [1] 29
```

```
#summary of carseats
```

```
summary(data)
```

```
##      Sales      CompPrice      Income      Advertising
##  Min.   : 0.000   Min.    : 77   Min.    : 21.00   Min.    : 0.000
## 1st Qu.: 5.390   1st Qu.:115   1st Qu.: 42.75   1st Qu.: 0.000
## Median : 7.490   Median :125   Median : 69.00   Median : 5.000
## Mean   : 7.496   Mean    :125   Mean    : 68.66   Mean    : 6.635
## 3rd Qu.: 9.320   3rd Qu.:135   3rd Qu.: 91.00   3rd Qu.:12.000
## Max.   :16.270   Max.    :175   Max.    :120.00   Max.    :29.000
##  Population      Price      ShelfLoc      Age      Education
##  Min.    : 10.0   Min.    : 24.0   Bad    : 96   Min.    :25.00   Min.    :10.0
## 1st Qu.:139.0   1st Qu.:100.0   Good   : 85   1st Qu.:39.75   1st Qu.:12.0
## Median :272.0   Median :117.0   Medium:219   Median :54.50   Median :14.0
## Mean    :264.8   Mean     :115.8                      Mean    :53.32   Mean    :13.9
## 3rd Qu.:398.5   3rd Qu.:131.0                      3rd Qu.:66.00   3rd Qu.:16.0
## Max.    :509.0   Max.     :191.0                      Max.    :80.00   Max.    :18.0
## Urban      US
```

```
## No :118 No :142
## Yes:282 Yes:258
##
##
##
##
```

```
#Interquartile range of price
```

```
IQR(Carseats$Price)
```

```
## [1] 31
```