Assignment 1

Sai Sree Pulimamidi

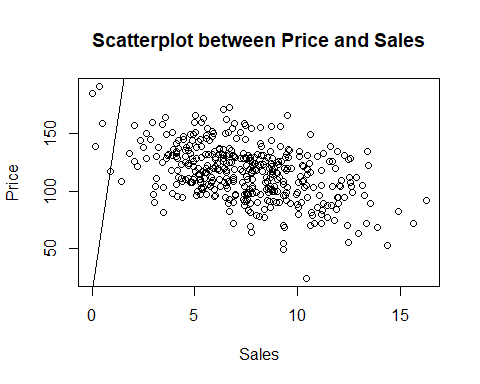
2022-09-26

## Scatterplot between sales and price

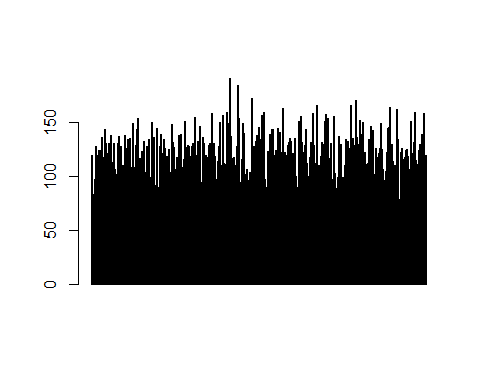
library(ISLR)  
data<- Carseats  
print(Carseats)

## 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  
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## 165 8.22 148 64 0 58 141 Medium 27 13  
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## 169 7.30 129 89 0 425 117 Medium 45 10  
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## 178 10.48 138 72 0 148 94 Medium 27 17  
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## 181 4.94 137 112 15 434 149 Bad 66 13  
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## 189 8.07 116 37 0 426 90 Medium 76 15  
## 190 12.11 118 117 18 509 104 Medium 26 15  
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## 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  
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## 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  
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## 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  
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## 251 9.16 137 105 10 435 156 Good 72 14  
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## 283 7.74 150 96 0 80 154 Good 61 11  
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## 286 7.60 146 26 11 261 131 Medium 39 10  
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## 301 8.57 116 78 1 158 99 Medium 45 11  
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## 303 5.28 108 77 13 388 110 Bad 74 14  
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## 307 4.78 131 32 1 85 133 Medium 48 12  
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## 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  
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## 85 No No  
## 86 No No  
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## 88 No Yes  
## 89 Yes Yes  
## 90 No No  
## 91 No No  
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## 93 Yes No  
## 94 Yes No  
## 95 Yes Yes  
## 96 Yes Yes  
## 97 No Yes  
## 98 Yes Yes  
## 99 No Yes  
## 100 No Yes  
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## 103 No No  
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## 105 Yes No  
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## 110 No No  
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## 117 No No  
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## 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  
## 244 Yes Yes  
## 245 Yes No  
## 246 No Yes  
## 247 Yes Yes  
## 248 Yes No  
## 249 Yes Yes  
## 250 Yes No  
## 251 Yes Yes  
## 252 Yes Yes  
## 253 Yes No  
## 254 No Yes  
## 255 Yes Yes  
## 256 Yes Yes  
## 257 Yes No  
## 258 Yes Yes  
## 259 No No  
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## 261 Yes Yes  
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## 266 Yes Yes  
## 267 No Yes  
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## 269 Yes No  
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## 271 Yes No  
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## 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  
## 289 No No  
## 290 Yes Yes  
## 291 No Yes  
## 292 Yes No  
## 293 Yes Yes  
## 294 Yes No  
## 295 Yes Yes  
## 296 No Yes  
## 297 Yes Yes  
## 298 Yes Yes  
## 299 Yes No  
## 300 No Yes  
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## 307 Yes Yes  
## 308 Yes No  
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## 313 Yes Yes  
## 314 Yes No  
## 315 Yes Yes  
## 316 Yes Yes  
## 317 Yes Yes  
## 318 No No  
## 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  
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## 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",abline(Carseats$Sales,Carseats$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 ShelveLoc 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