**Data Exploration for Stratification**

N = 1460

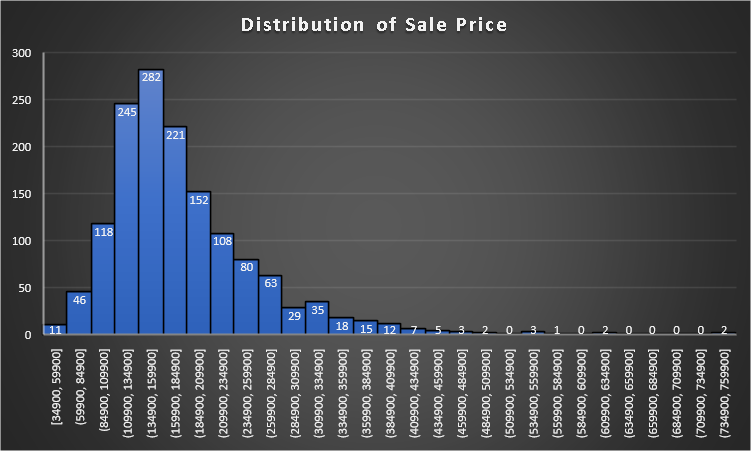
Average sale price = $180,921

Standard deviation of sale price = $79,415

Margin of error at 95% confidence interval = $10,000

(with CLT assuming Normal distribution) Initial sample size n0 = (z95%)2\*s2 / (I90%)2 = (1.96)2\*(79415)2 / (10000)2 = 242

Final sample size n = n0 / (1 + n0 /N) = 242 / (1+ 242/1460) = 208



**Table 1 – By House Style**

1Story One story

1.5Fin One and one-half story: 2nd level finished

1.5Unf One and one-half story: 2nd level unfinished

2Story Two story

2.5Fin Two and one-half story: 2nd level finished

2.5Unf Two and one-half story: 2nd level unfinished

SFoyer Split Foyer

SLvl Split Level

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Row Labels** | **Count of SalePrice** | **Average of SalePrice** | **StdDev of SalePrice** | **Average of GrLivArea** | **StdDev of GrLivArea** |
| 1.5Fin | 154 | 143117 | 54278 | 1565 | 445 |
| 1.5Unf | 14 | 110150 | 19036 | 896 | 110 |
| 1Story | 726 | 175985 | 77056 | 1309 | 381 |
| 2.5Fin | 8 | 220000 | 118212 | 2848 | 613 |
| 2.5Unf | 11 | 157355 | 63934 | 1908 | 445 |
| 2Story | 445 | 210052 | 87339 | 1887 | 528 |
| SFoyer | 37 | 135074 | 30481 | 973 | 280 |
| SLvl | 65 | 166703 | 38305 | 1374 | 387 |
| **Grand Total** | **1460** | **180921** | **79443** | **1515** | **525** |

**Table 2 – By Year of Sale**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Row Labels** | **Count of SalePrice** | **Average of SalePrice** | **StdDev of SalePrice2** | **Average of GrLivArea** | **StdDev of GrLivArea** |
| 2006 | 314 | 182549 | 79427 | 1527 | 498 |
| 2007 | 329 | 186063 | 85768 | 1557 | 601 |
| 2008 | 304 | 177361 | 69736 | 1493 | 550 |
| 2009 | 338 | 179432 | 80879 | 1503 | 458 |
| 2010 | 175 | 177394 | 80451 | 1480 | 500 |
| **Grand Total** | **1460** | **180921** | **79443** | **1515** | **525** |

**Table 3 – Sample Size for Stratification (House Style)**

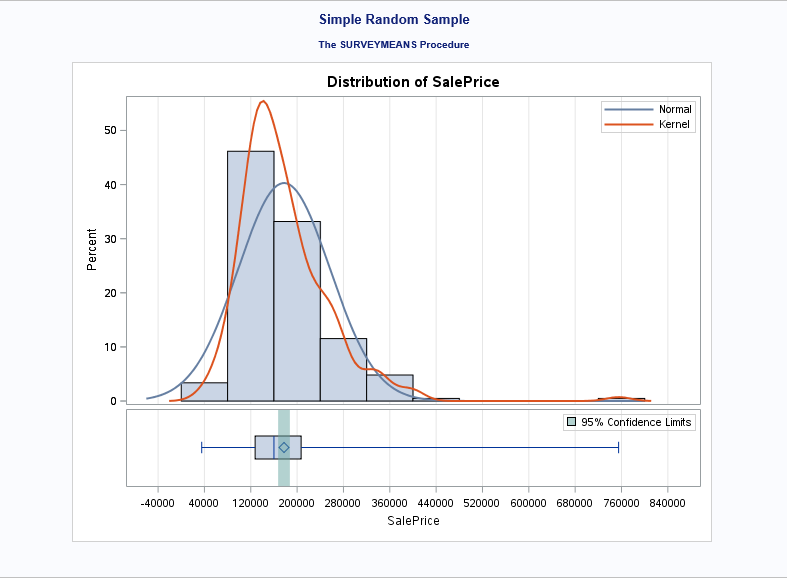
|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Stratum** | **House Style** | **No. Of Houses (Nh)** | **Proportion (ph)** | **Average Gross Living Area** | **Std Dev Gross Living Area (sh)** | **Nh\*sh** | **Sample Size (nh) (Proportional Allocation)** | **Sample Size (nh) (Neyman Allocation)** |
| Stratum 1 | 1 Story | 726 | 0.4973 | 1309 | 381 | 276606 | 103 | 92 |
| Stratum 2 | 1.5 Fin | 154 | 0.1055 | 1565 | 445 | 68530 | 22 | 23 |
| Stratum 3 | 1.5 Unf | 14 | 0.0096 | 896 | 110 | 1540 | 2 | 0 |
| Stratum 4 | 2 Story | 445 | 0.3048 | 1887 | 528 | 234960 | 64 | 78 |
| Stratum 5 | 2.5 Fin | 8 | 0.0055 | 2848 | 613 | 4904 | 1 | 2 |
| Stratum 6 | 2.5 Unf | 11 | 0.0075 | 1908 | 445 | 4895 | 2 | 2 |
| Stratum 7 | Sfoyer | 37 | 0.0253 | 973 | 280 | 10360 | 5 | 3 |
| Stratum 8 | SLvl | 65 | 0.0445 | 1374 | 387 | 25155 | 9 | 8 |
| **Total** |  | **1460** |  |  |  | **626950** | **208** | **208** |

**Table 4 – Sample Size for Stratification (Year of Sale)**

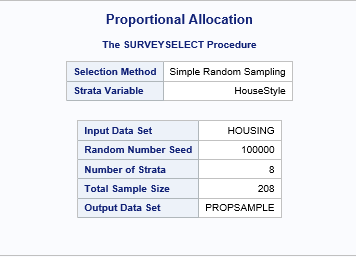
|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Stratum** | **Year of Sale** | **No. Of Houses (Nh)** | **Proportion (ph)** | **Average Gross Living Area** | **Std Dev Gross Living Area (sh)** | **Nh\*sh** | **Sample Size (nh) (Proportional Allocation)** | **Sample Size (nh) (Neyman Allocation)** |
| Stratum 1 | 2006 | 314 | 0.2151 | 1527 | 498 | 156439 | 45 | 43 |
| Stratum 2 | 2007 | 329 | 0.2253 | 1557 | 601 | 197845 | 47 | 54 |
| Stratum 3 | 2008 | 304 | 0.2082 | 1493 | 550 | 167060 | 43 | 45 |
| Stratum 4 | 2009 | 338 | 0.2315 | 1503 | 458 | 154665 | 48 | 42 |
| Stratum 5 | 2010 | 175 | 0.1199 | 1480 | 500 | 87477 | 25 | 24 |
| **Total** |  | **1460** |  |  |  | **763486** | **208** | **208** |

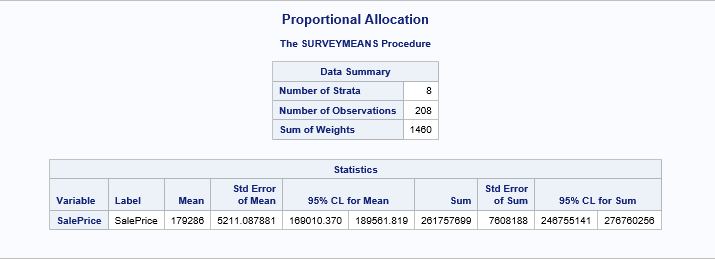
**SRS Output**

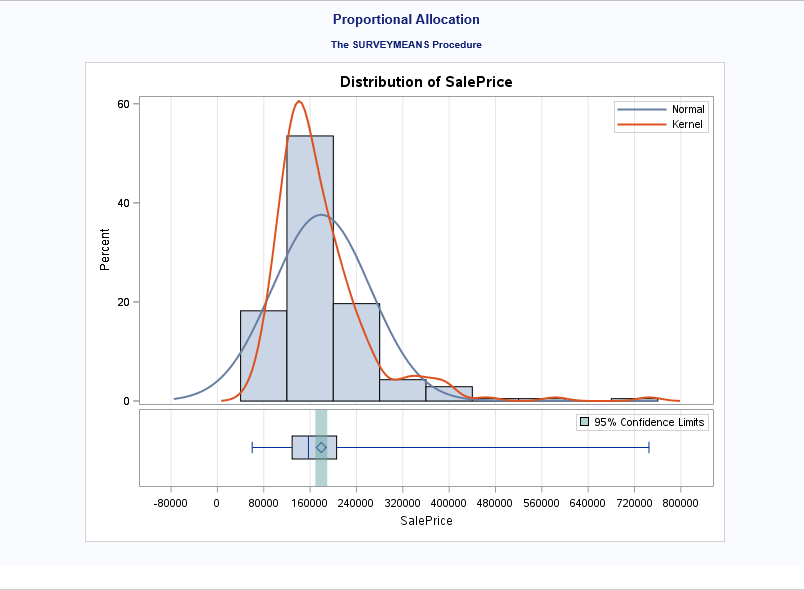
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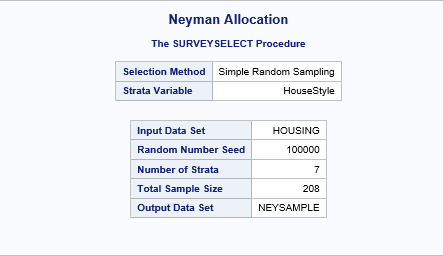
**Proportional Allocation Output (House Style)**

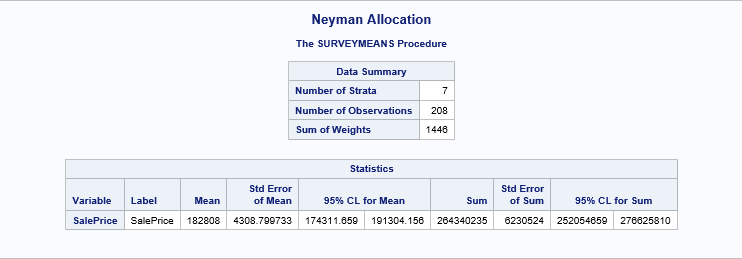
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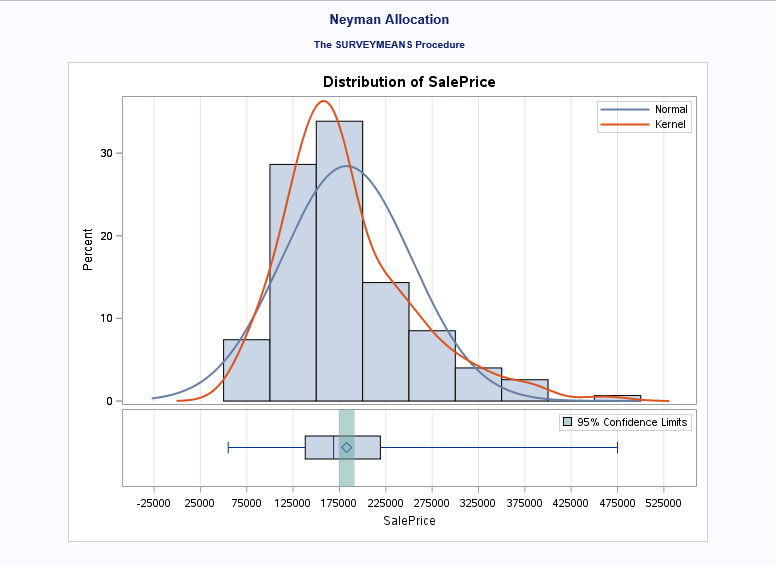
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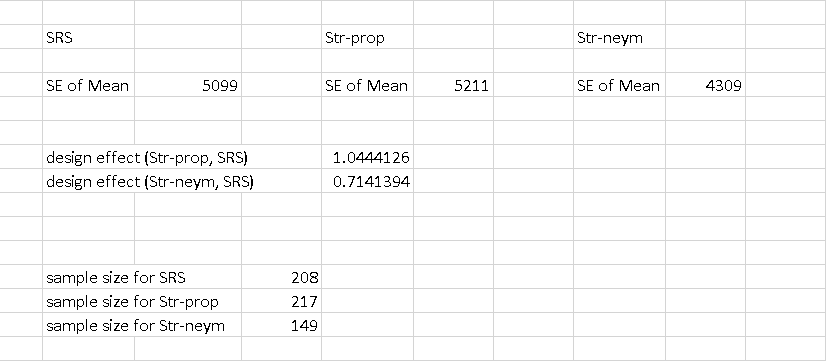
**Neyman Allocation Output (House Style)**

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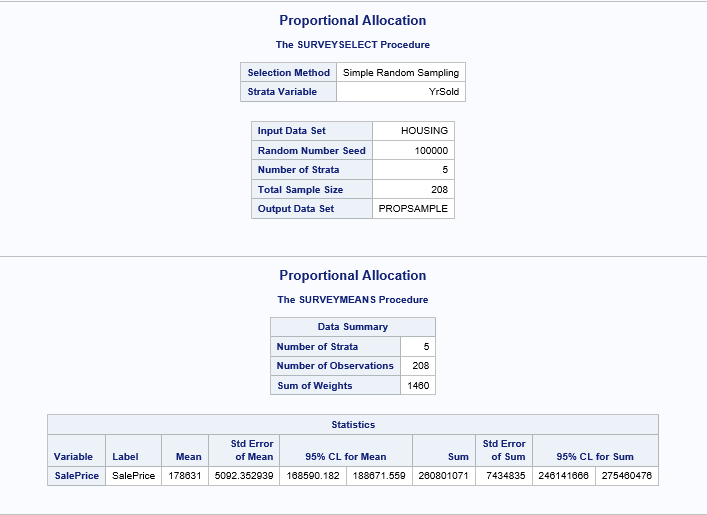
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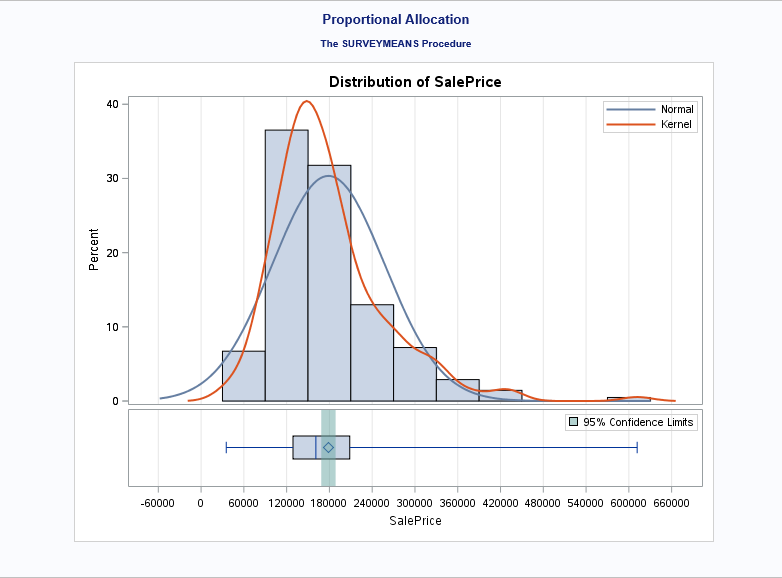
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**Design Effect**

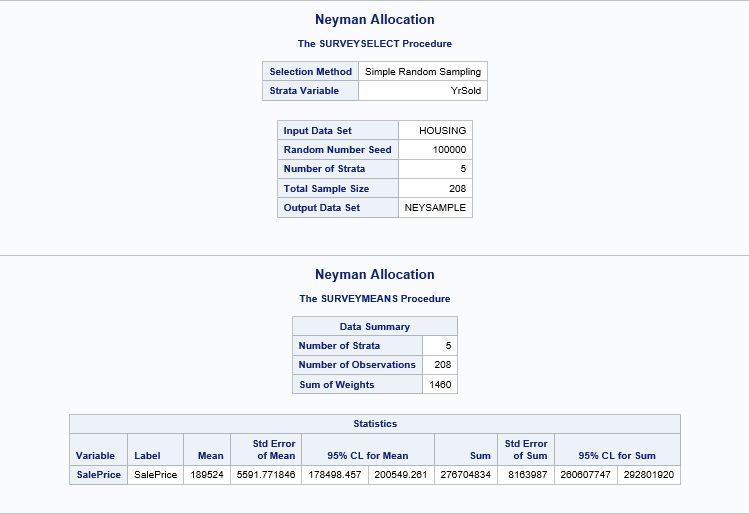
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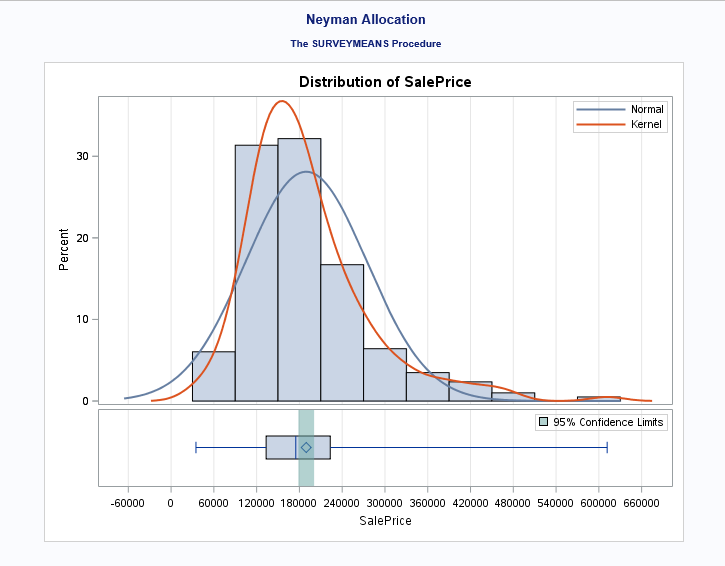
**Proportional Allocation Output (Year of Sale)**

****

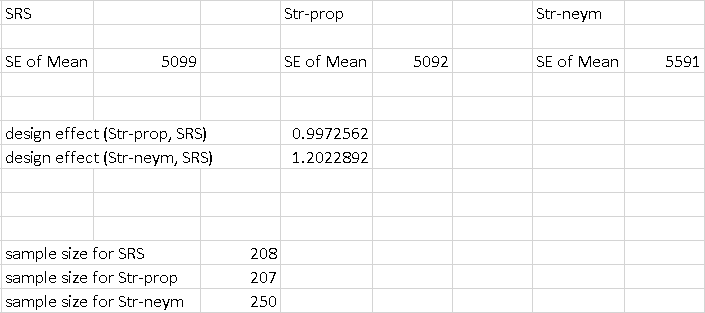
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**Neyman Allocation Output (Year of Sale)**

****

****

**Design Effect**

****

**Data Exploration for Two-Stage Sample (Neighborhood for Clusters and House Style for Stratification)**

Total #PSU (Neighborhood) M = 25

Selected #PSU m = 5

N = 141

N1 = 16, N2 = 17, N3 = 9, N4 = 74, N5 = 25 where Ni = #SSU in ith PSU

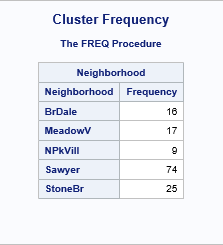
Average Sale Price = $159,696

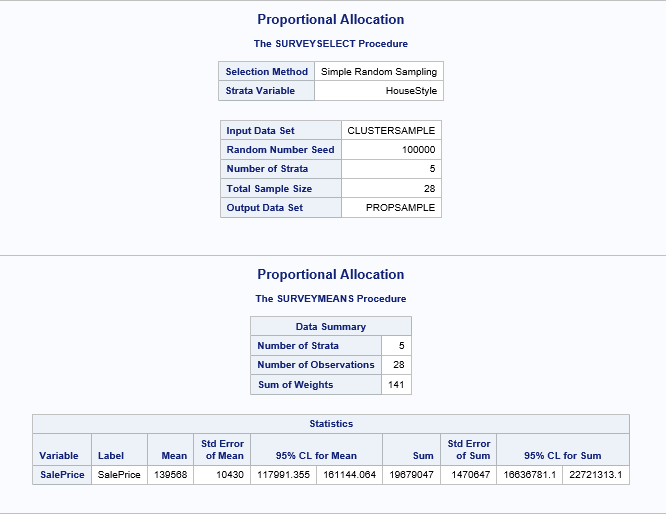
Standard deviation of sale price = $87,421

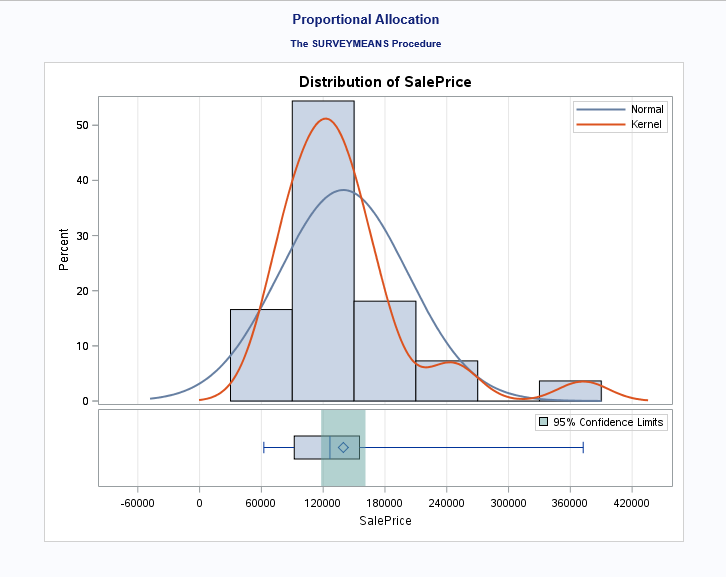
n = 28

n1 = 1, n2 = 15, n3 = 8, n4 = 3, n5 = 1 where ni = selected #SSU

**Output**

****

****

****

**Data Exploration for Two-Stage Sample (Neighborhood for Clusters and Year of Sale for Stratification)**

Total #PSU (Neighborhood) M = 25

Selected #PSU m = 5

N = 141

N1 = 16, N2 = 17, N3 = 9, N4 = 74, N5 = 25 where Ni = #SSU in ith PSU

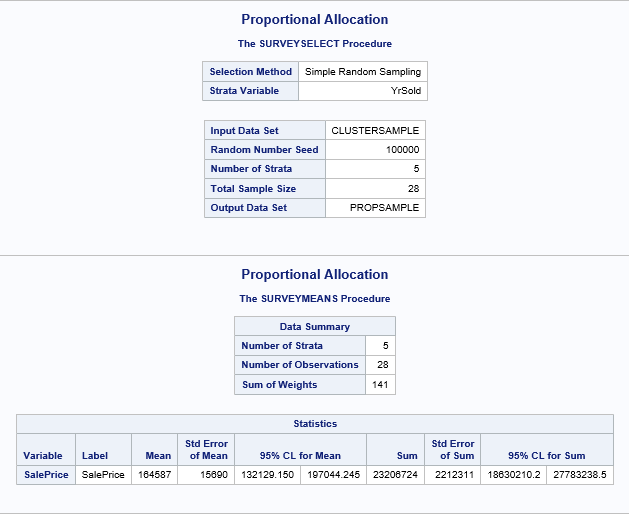
Average Sale Price = $159,696

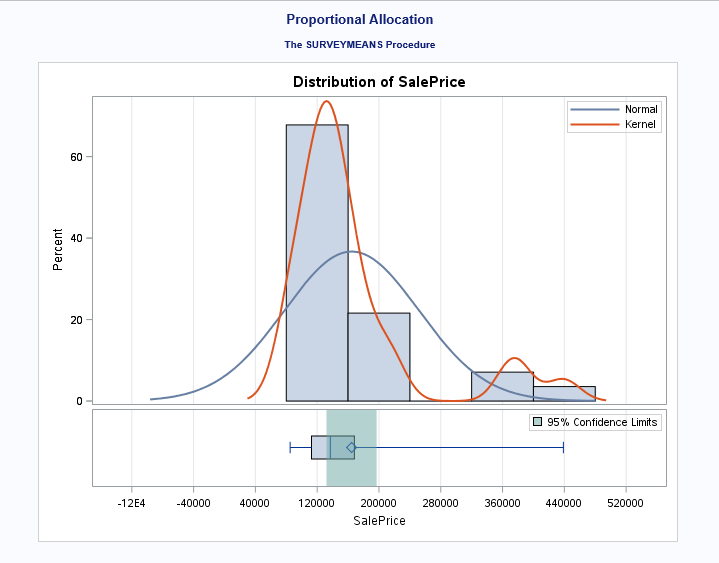
Standard deviation of sale price = $87,421

n = 28

n1 = 6, n2 = 6, n3 = 5, n4 = 6, n5 = 5 where ni = selected #SSU

**Output**

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