**General beta**

beta\_original = [-1.74662743, 0.40812391, 0.10876074, 0.10138235, 0.02202491,

0.04344406, -0.06686938, -1.33110656, 0.15977641]

**3 cluster**

**Beta** = [[-2.08215274,

0.42792156,

0.12208375,

0.11702509,

0.00999331,

0.04675314,

-0.06323514,

-0.99569225,

0.1493836],

[2.02049388,

0.58806615,

0.12565736,

0.11863238,

0.32397264,

0.0330871,

0.2062005,

-1.05314573,

0.18988912],

[1.83949155,

0.28127776,

0.10843109,

0.01705466,

0.16360347,

0.01680751,

-0.24775001,

-0.36514211,

0.19182447]]

**Theta** = [0.8274742008640015, 0.1233326144213739, 0.04919318471462463]

**Revenue for unknown:**

**Data1**: 107.29109444913811

**Data2**: 131.11344212920363

**Data3**: 121.01835939563993

**Data4**: 97.4088309422418

**Data1**:

Revenue for Type 1: 67.21104633429165, choose the assortment of 7 highest price hotel.

Revenue for Type 2: 116.46530195541274, choose the assortment of 1 highest price hotel.

Revenue for Type 3: 118.61326728080468, choose the assortment of 1 highest price hotel.

**Data2**:

Revenue for Type 1: 71.30801404477035, choose the assortment of 3 highest price hotel.

Revenue for Type 2: 215.10739040432304, choose the assortment of 1 highest price hotel.

Revenue for Type 3: 225.19728779793326, choose the assortment of 1 highest price hotel.

**Data3**:

Revenue for Type 1: 84.39048093239713, choose the assortment of 9 highest price hotel.

Revenue for Type 2: 146.67162852755308, choose the assortment of 2 highest price hotel.

Revenue for Type 3: 119.96921028047899, choose the assortment of 1 highest price hotel.

**Data4**:

Revenue for Type 1: 27.69700493238335, choose the assortment of 2 highest price hotel.

Revenue for Type 2: 68.44321534637793, choose the assortment of 1 highest price hotel.

Revenue for Type 3: 68.72451466090337, choose the assortment of 1 highest price hotel.

**4 cluster**

Beta = [[-1.59550736,

0.46089075,

0.11816455,

0.11046467,

0.0717849,

0.03798292,

-0.05805397,

-1.03614344,

0.17266994],

[-1.94242923,

0.17459783,

0.06103661,

0.01711175,

-0.14394501,

0.02369744,

-0.14903244,

-0.01516122,

0.14749104],

[-2.20624549,

0.338743861,

0.11386014,

0.137717589,

-0.00375356203,

0.0376205415,

-0.0896334726,

-4.35882283,

0.0948561237],

[-2.44854238,

0.46847782,

0.13352973,

0.07686038,

-0.03170865,

0.06867889,

-0.07128673,

-4.84973152,

0.13216368]]

**Theta** = [0.663078642432798,0.04850041500826749,0.09439967583606193,0.1940212667228725]

**Revenue for unknown**:

Data1: 107.3396340843958

Data2: 130.5562106874302

Data3: 120.9612284936689

Data4: 97.4088309422418

**Data1**:

Revenue for Type 1: 76.09948094662586, choose the assortment of 6 highest price hotel.

Revenue for Type 2: 56.399565981831635, choose the assortment of 4 highest price hotel.

Revenue for Type 3: 17.825977219784924, choose the assortment of 1 highest price hotel.

Revenue for Type 4: 14.40635043647111, choose the assortment of 1 highest price hotel.

**Data2**:

Revenue for Type 1: 95.08681622346974, choose the assortment of 3 highest price hotel.

Revenue for Type 2: 67.26774225862488, choose the assortment of 3 highest price hotel.

Revenue for Type 3: 79.24615991027659, choose the assortment of 3 highest price hotel.

Revenue for Type 4: 73.5583729290145, choose the assortment of 3 highest price hotel.

**Data3**:

Revenue for Type 1: 103.04253226744395, choose the assortment of 9 highest price hotel.

Revenue for Type 2: 50.08825158709839, choose the assortment of 3 highest price hotel.

Revenue for Type 3: 52.0725866801742, choose the assortment of 3 highest price hotel.

Revenue for Type 4: 55.262678799566295, choose the assortment of 4 highest price hotel.

**Data4**:

Revenue for Type 1: 37.166846933375595, choose the assortment of 2 highest price hotel.

Revenue for Type 2: 17.896870188359003, choose the assortment of 1 highest price hotel.

Revenue for Type 3: 23.0126797928701, choose the assortment of 1 highest price hotel.

Revenue for Type 4: 24.956915436056192, choose the assortment of 1 highest price hotel.