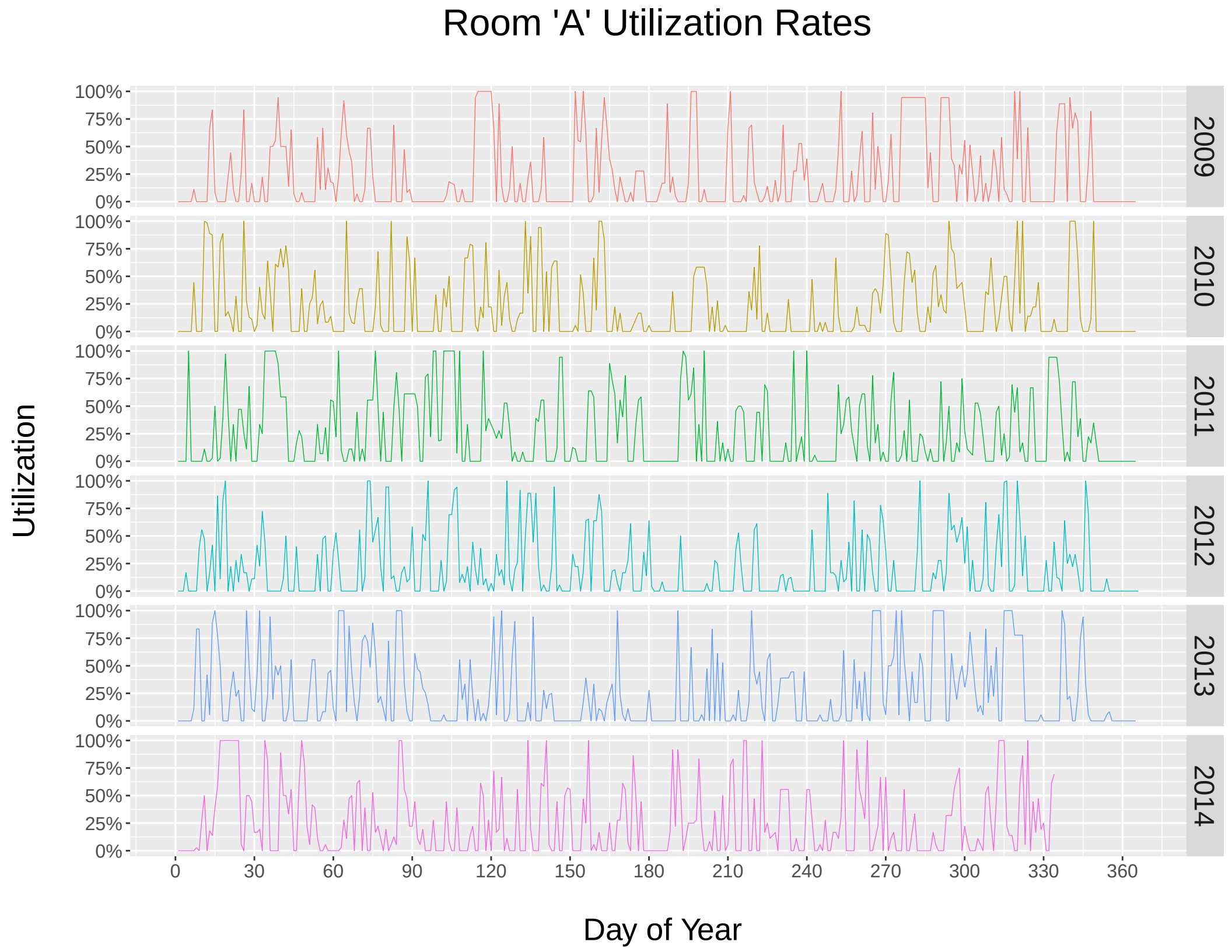
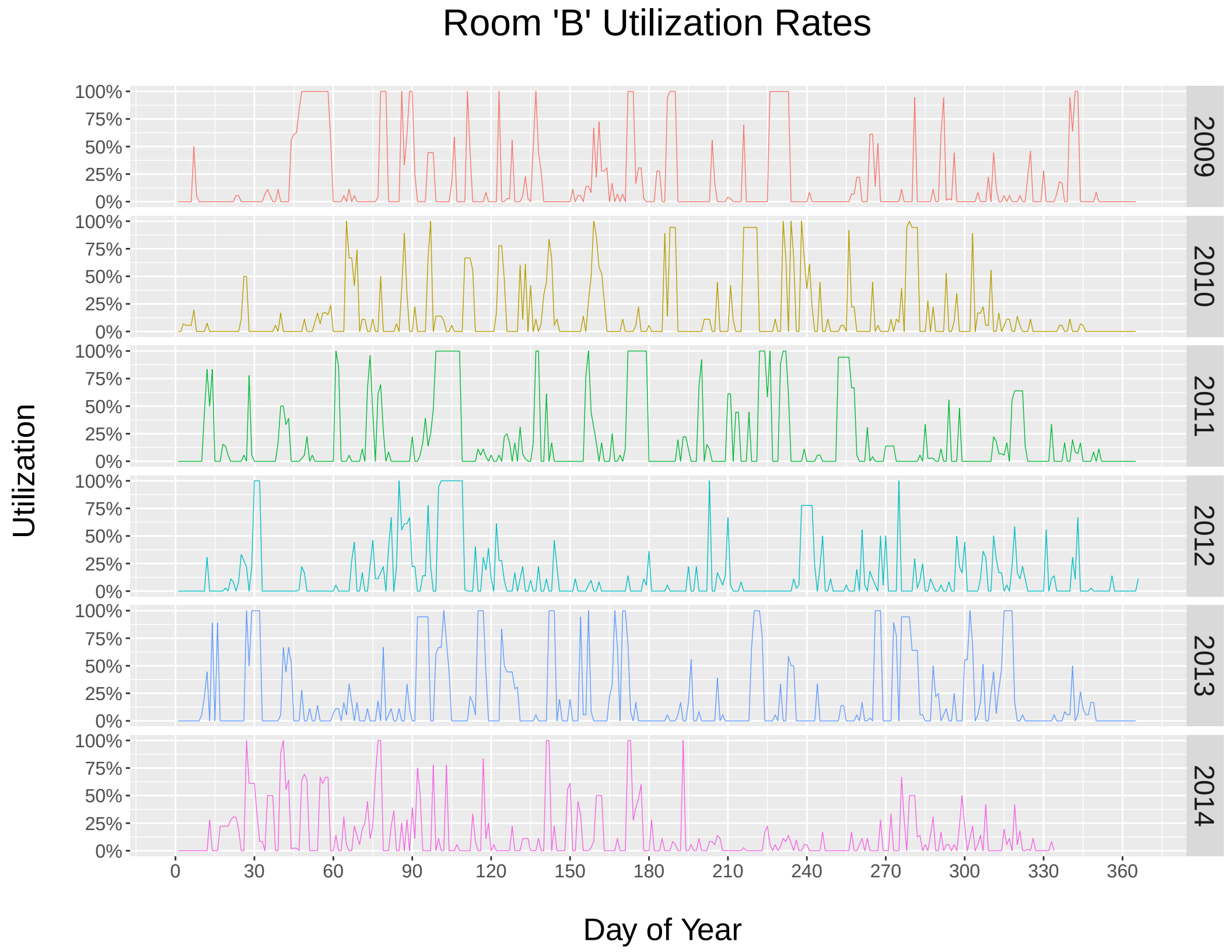

Room 'A' Utilization Rates
Utilization
100%
75%
50%
25%
0%
2009
2010
2011
2012
2013
2014
0
30
60
90
120
150
180
210
240
270
300
330
360
Day of Year


Room 'B' Utilization Rates
Utilization
100%
75%
50%
25%
0%
2009
2010
2011
2012
2013
2014
0
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60
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120
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180
210
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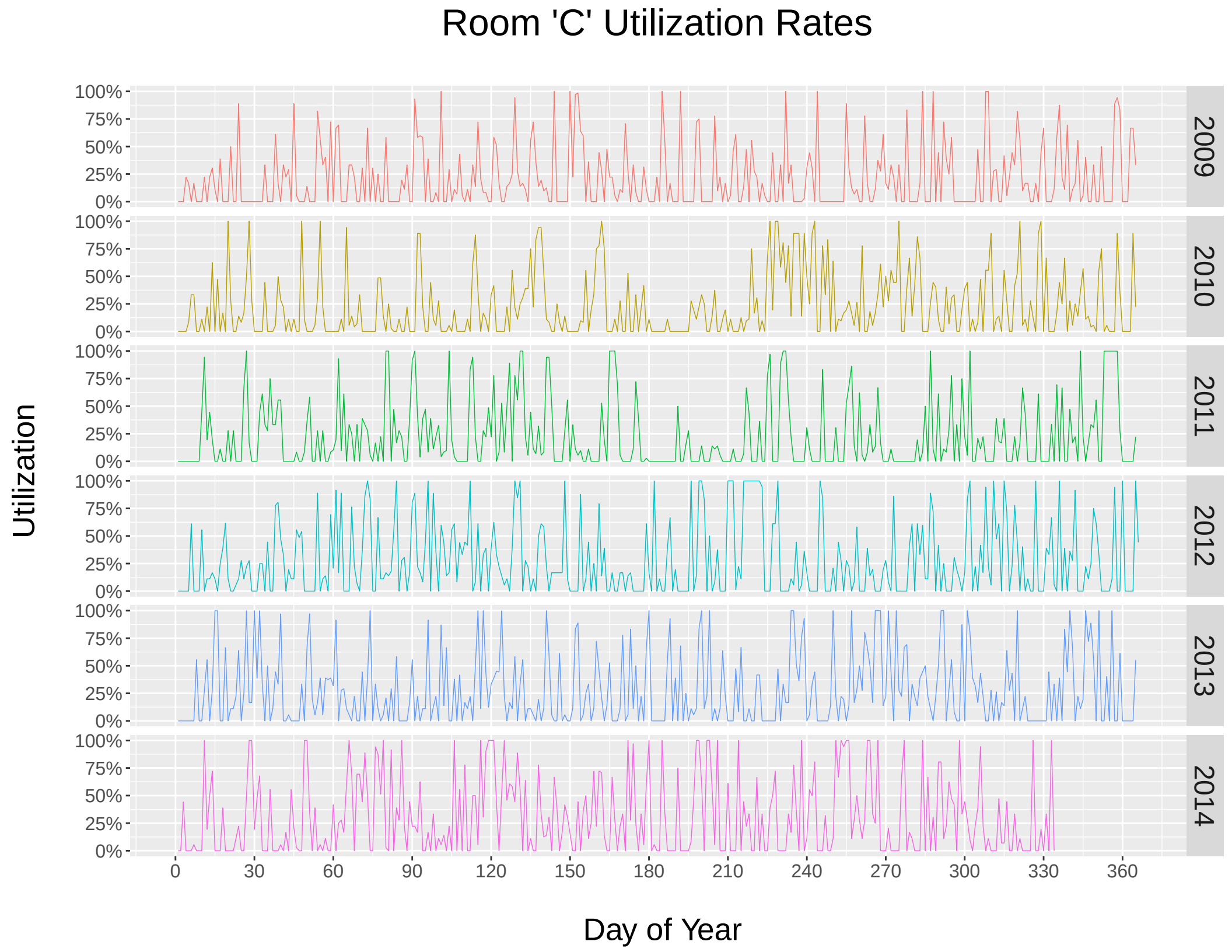
300
330
360
Day of Year


Room 'C' Utilization Rates
Utilization
100%
75%
50%
25%
0%
2009
2010
2011
2012
2013
2014
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180
210
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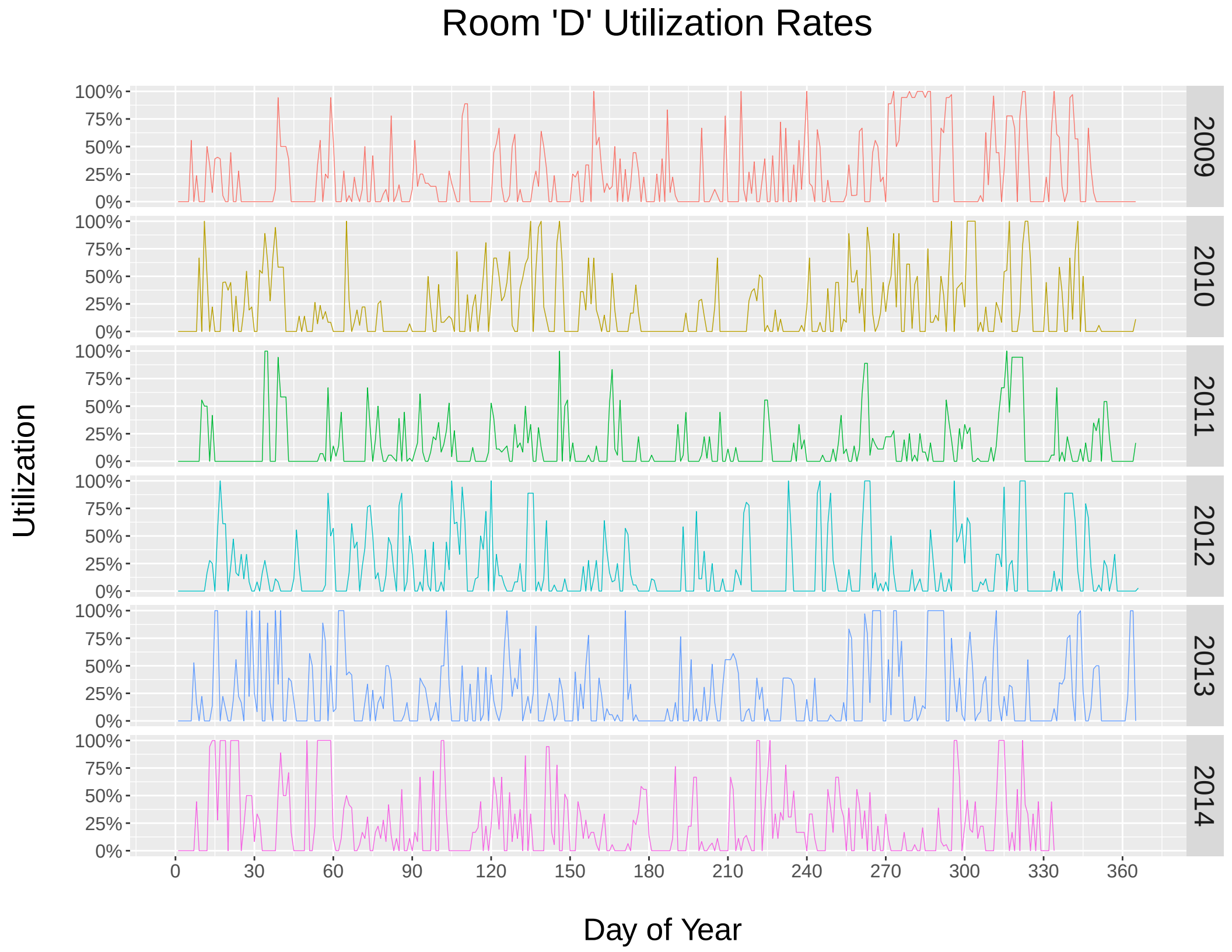
300
330
360
Day of Year


Room 'D' Utilization Rates
Utilization
100%
75%
50%
25%
0%
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2010
2011
2012
2013
2014
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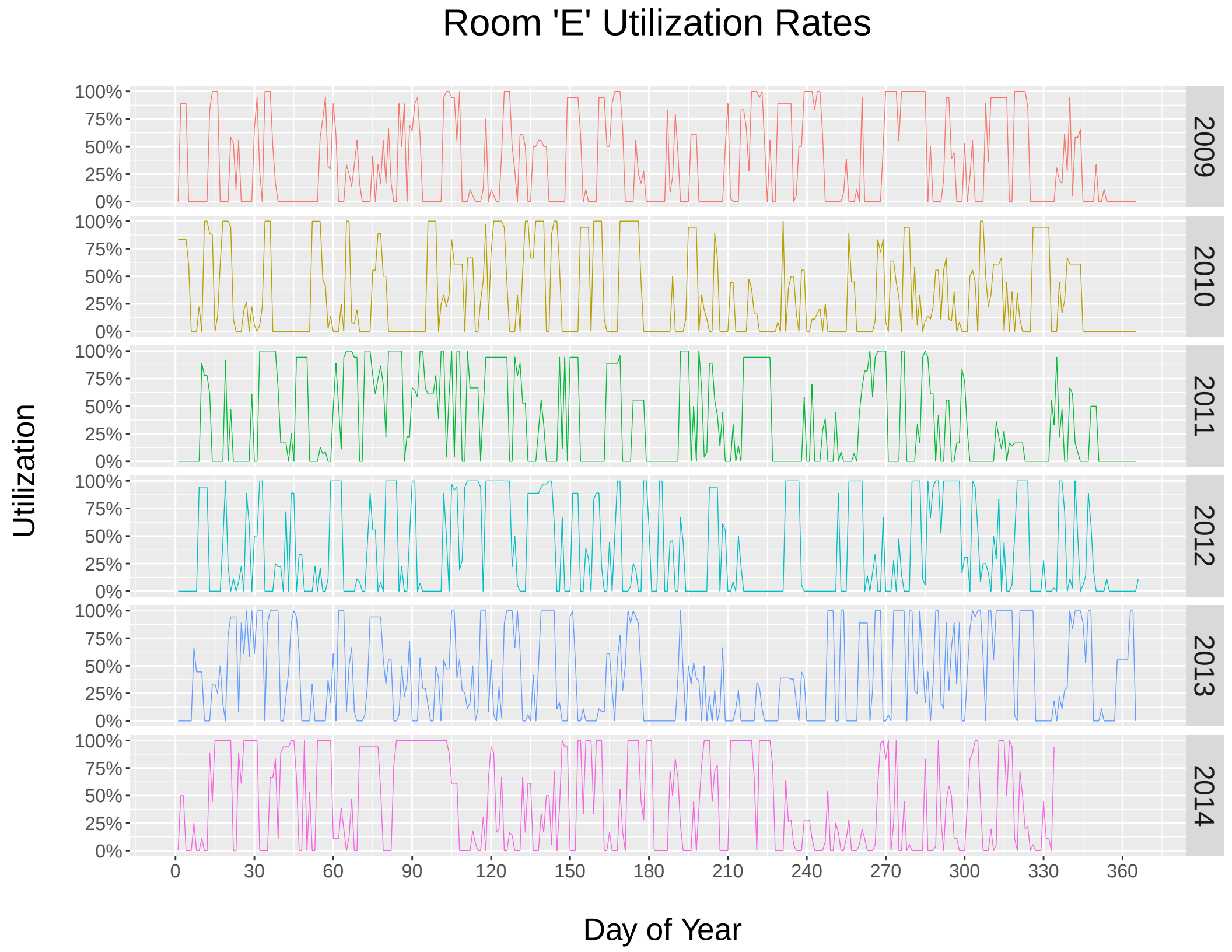
300
330
360
Day of Year


Room 'E' Utilization Rates
Utilization
100%
75%
50%
25%
0%
2009
2010
2011
2012
2013
2014
0
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120
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180
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300
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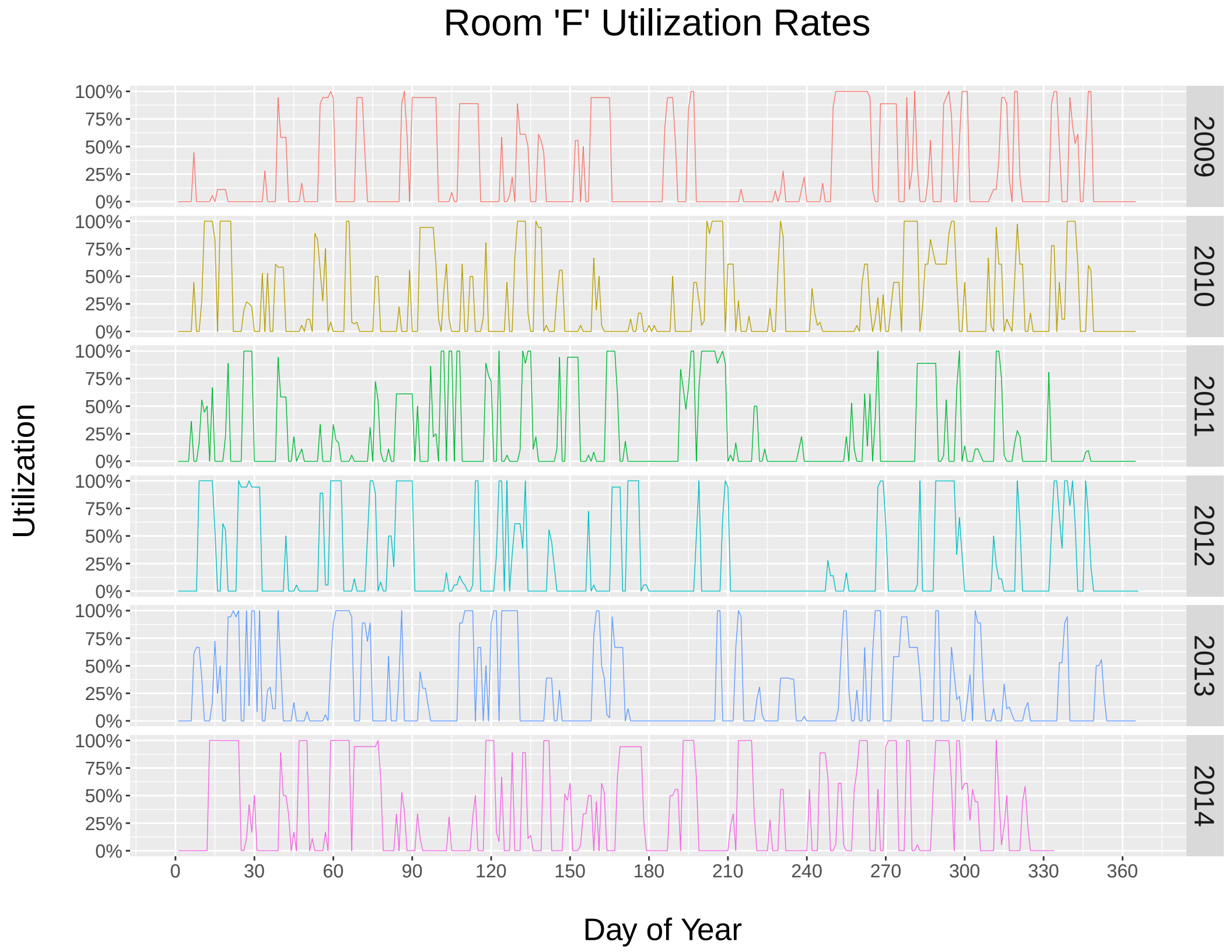
360
Day of Year


Room 'F' Utilization Rates
Utilization
100%
75%
50%
25%
0%
2009
2010
2011
2012
2013
2014
0
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120
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300
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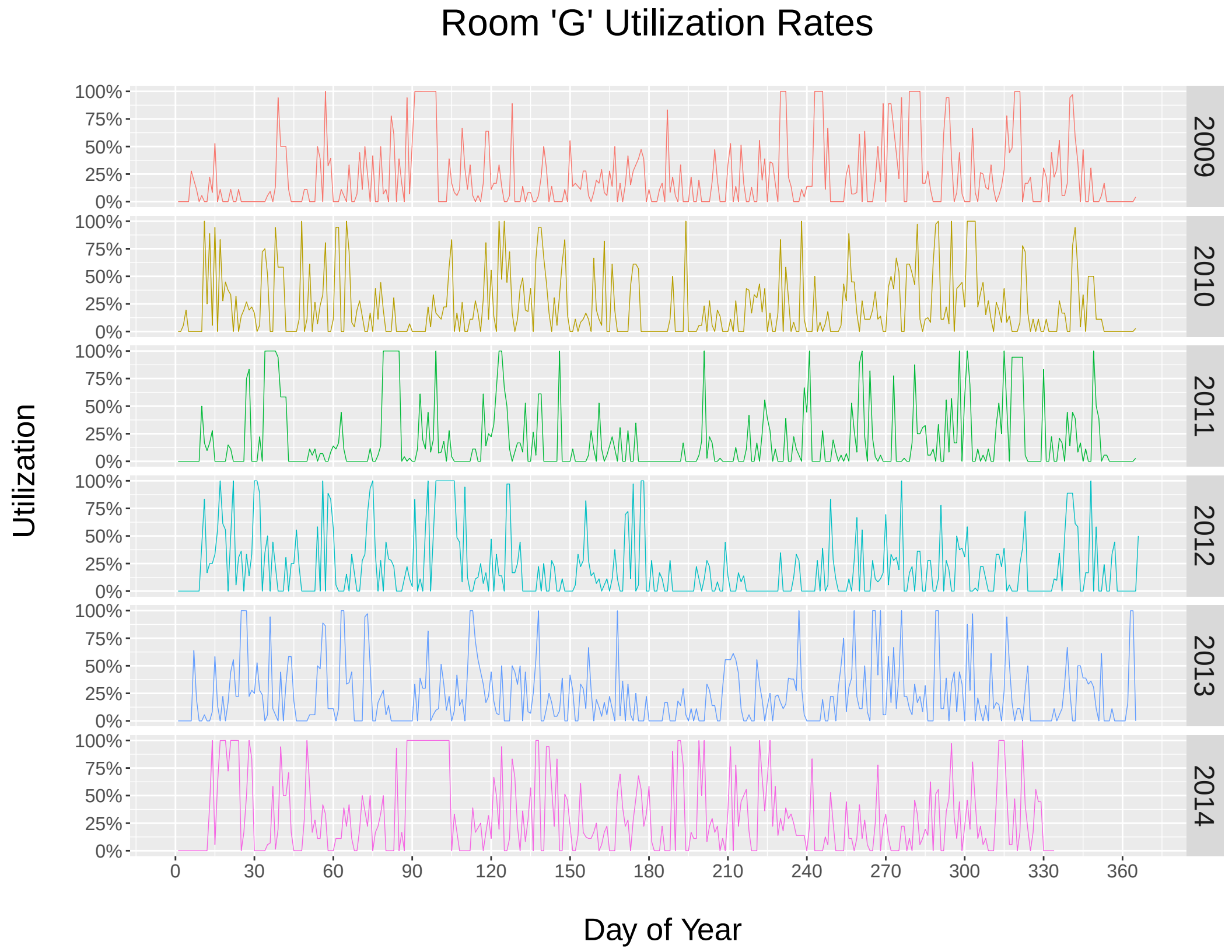
360
Day of Year


Room 'G' Utilization Rates
Utilization
100%
75%
50%
25%
0%
2009
2010
2011
2012
2013
2014
0
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60
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120
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300
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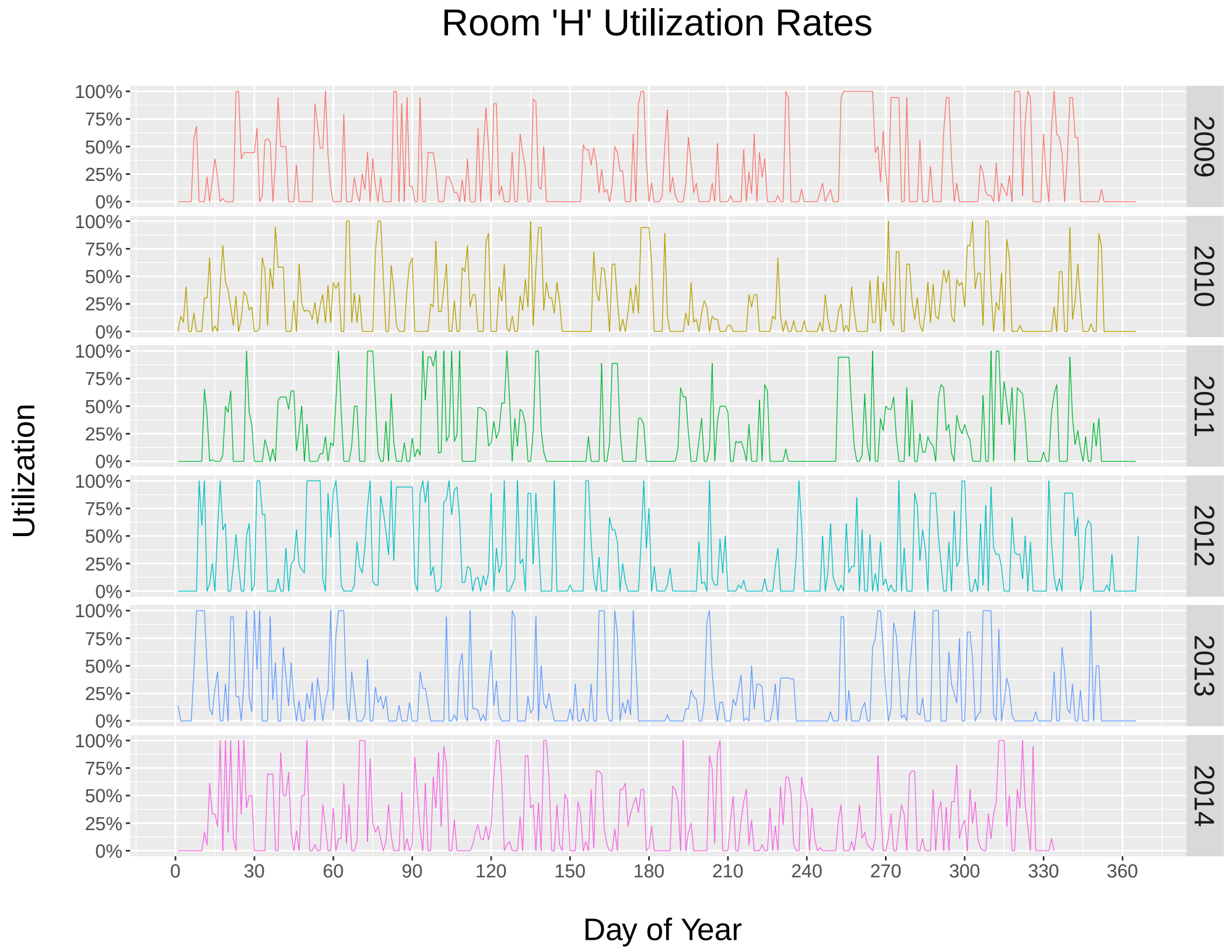
360
Day of Year


Room 'H' Utilization Rates
Utilization
100%
75%
50%
25%
0%
2009
2010
2011
2012
2013
2014
0
30
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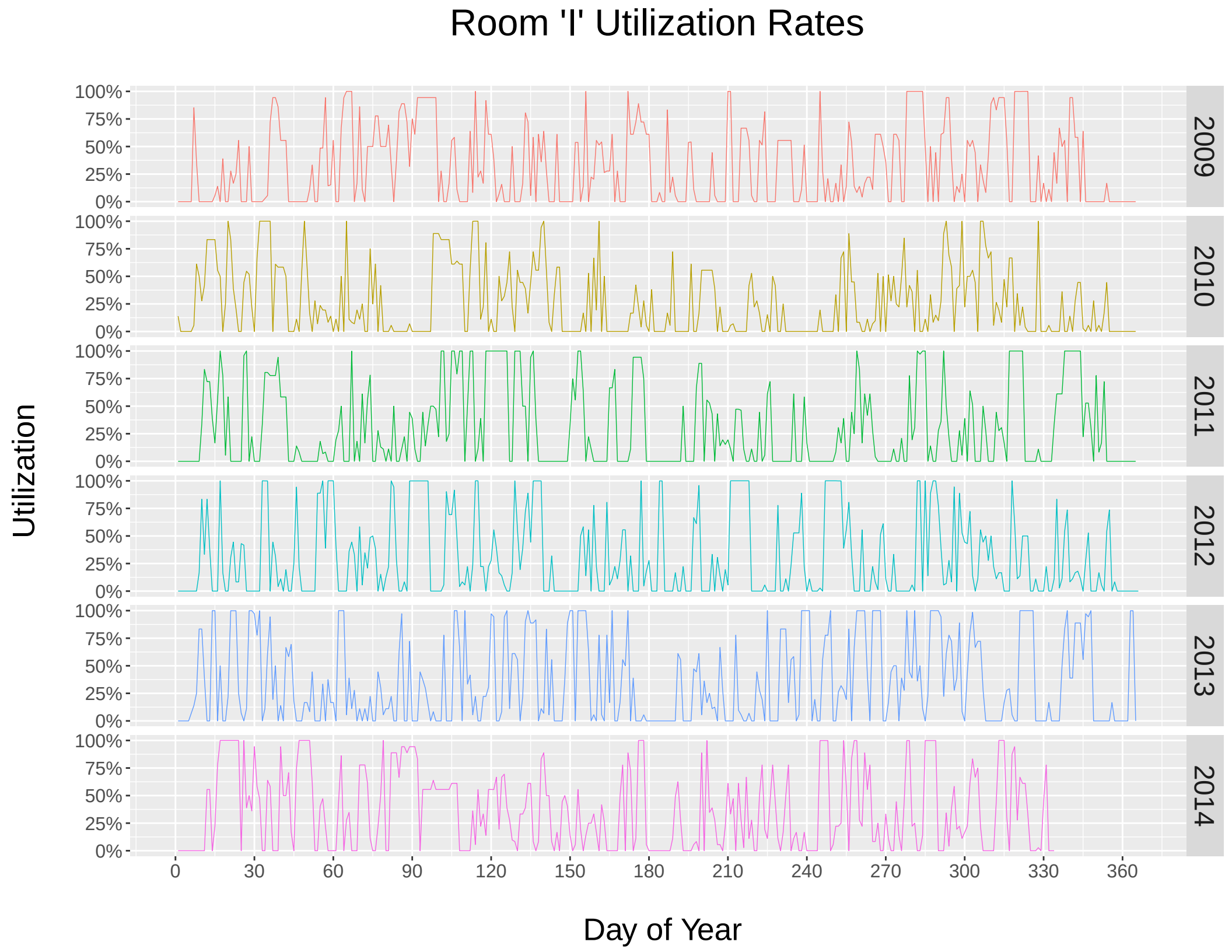
330
360
Day of Year


Room 'I' Utilization Rates
Utilization
100%
75%
50%
25%
0%
2009
2010
2011
2012
2013
2014
0
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60
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120
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210
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300
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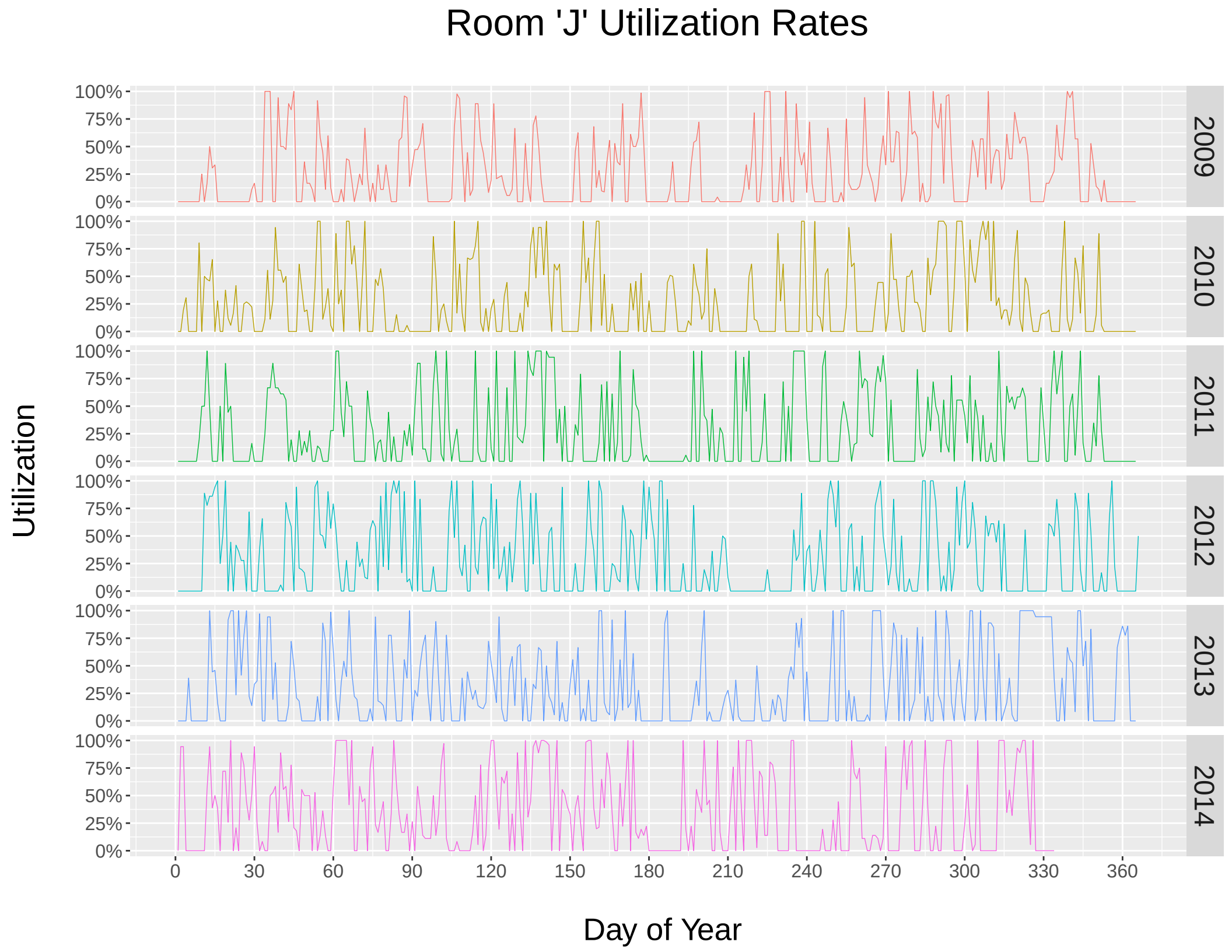
Day of Year


Room 'J' Utilization Rates
Utilization
100%
75%
50%
25%
0%
2009
2010
2011
2012
2013
2014
0
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60
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120
150
180
210
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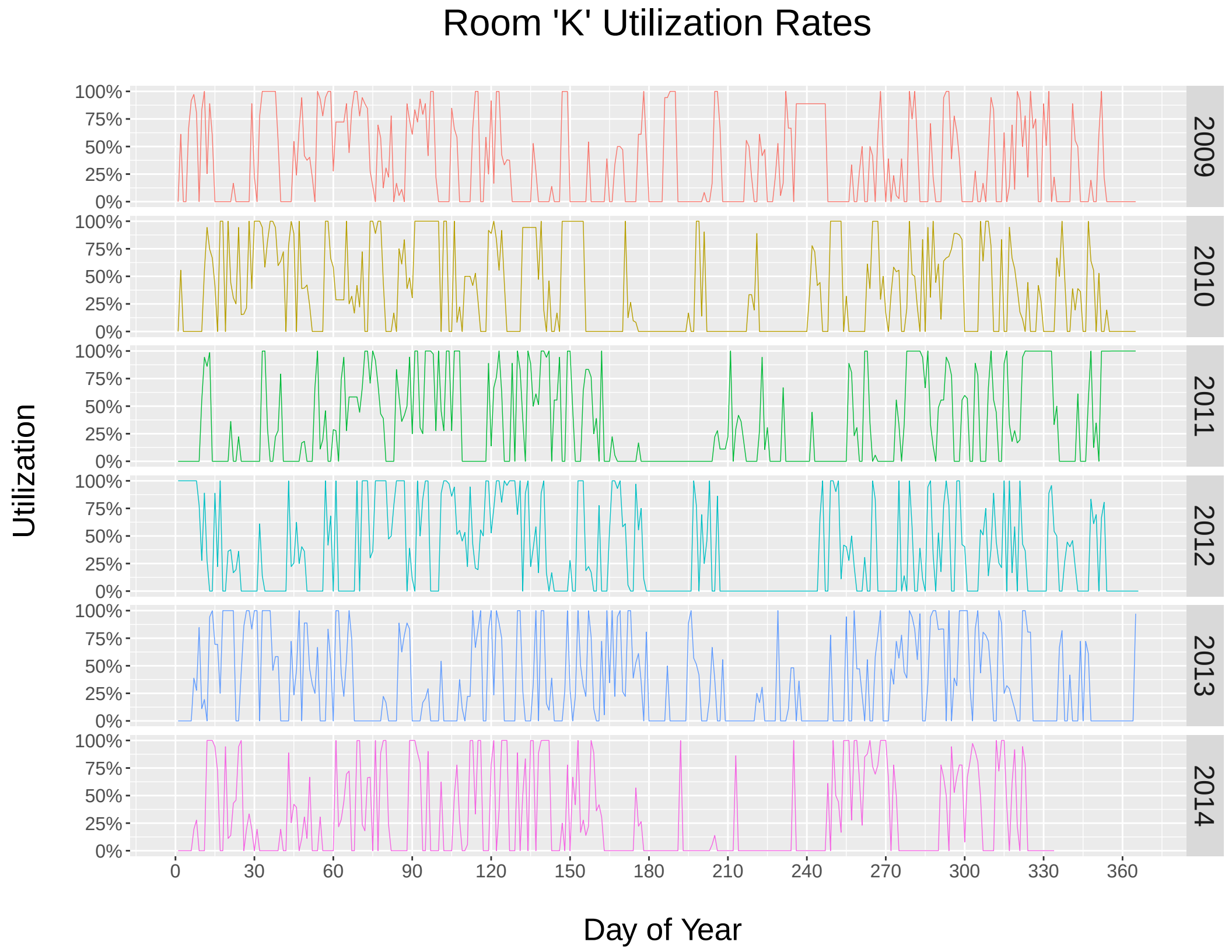
300
330
360
Day of Year


Room 'K' Utilization Rates
Utilization
100%
75%
50%
25%
0%
2009
2010
2011
2012
2013
2014
0
30
60
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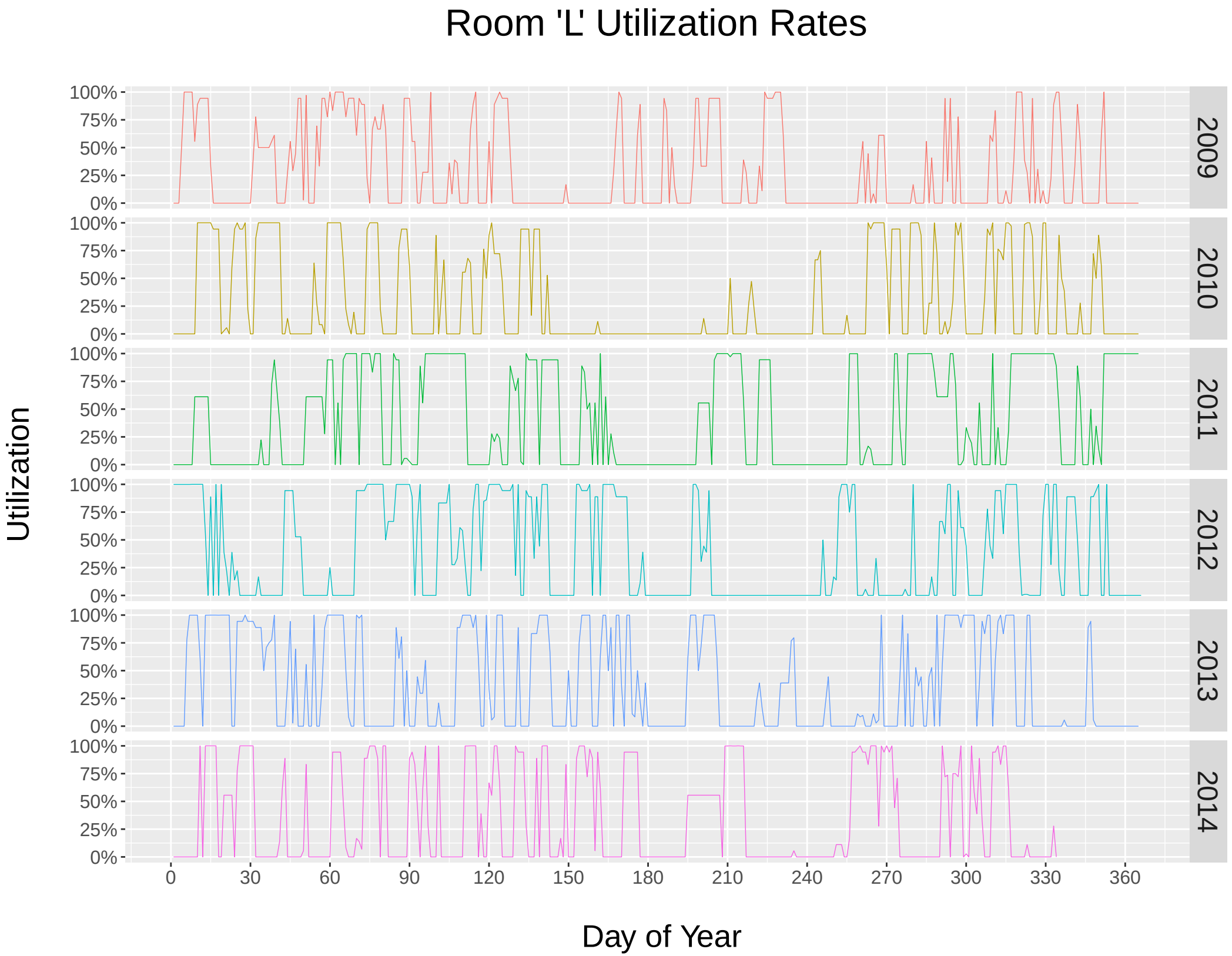
120
150
180
210
240
270
300
330
360
Day of Year


Room 'L' Utilization Rates
Utilization
100%
75%
50%
25%
0%
2009
2010
2011
2012
2013
2014
0
30
60
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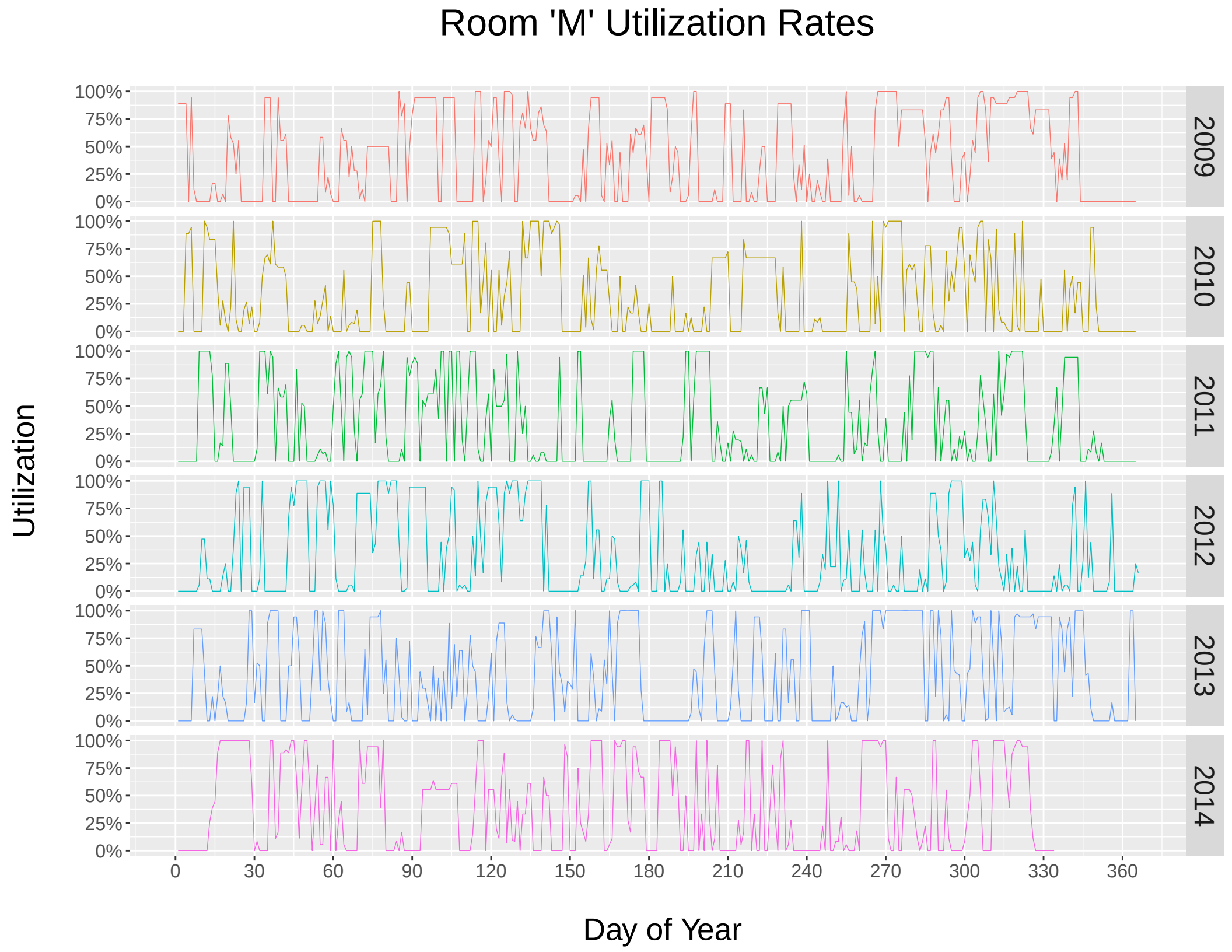
120
150
180
210
240
270
300
330
360
Day of Year


Room 'M' Utilization Rates
Utilization
100%
75%
50%
25%
0%
2009
2010
2011
2012
2013
2014
0
30
60
90
120
150
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210
240
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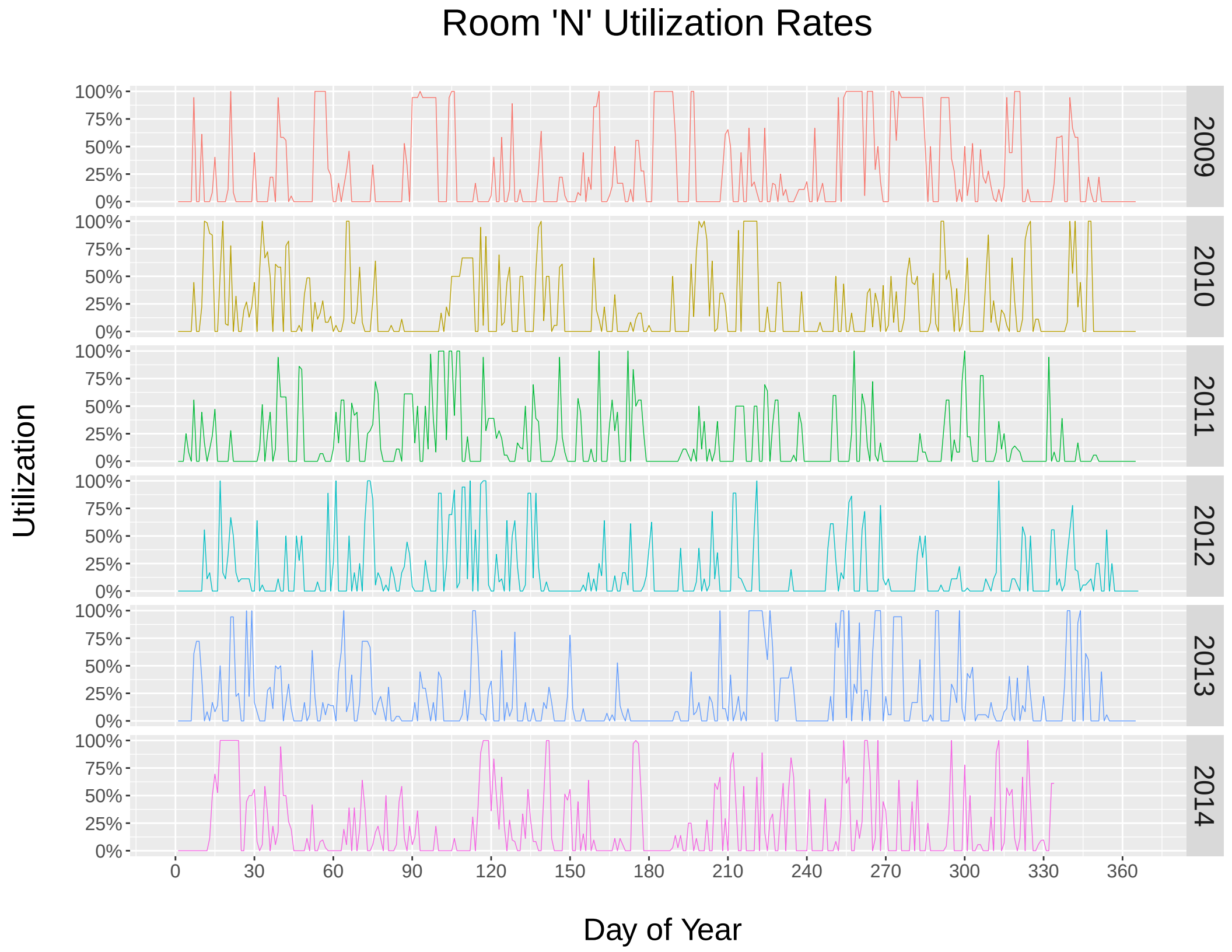
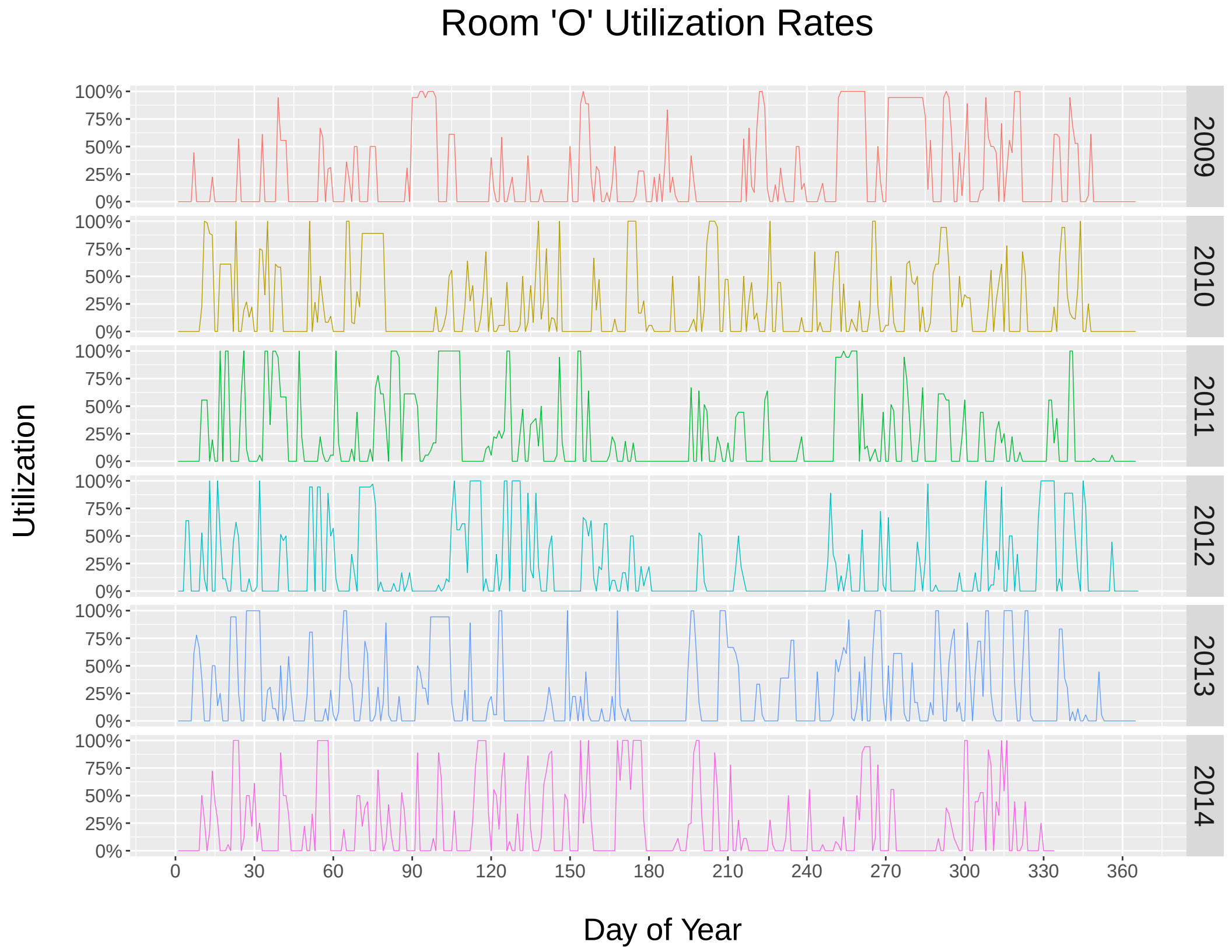
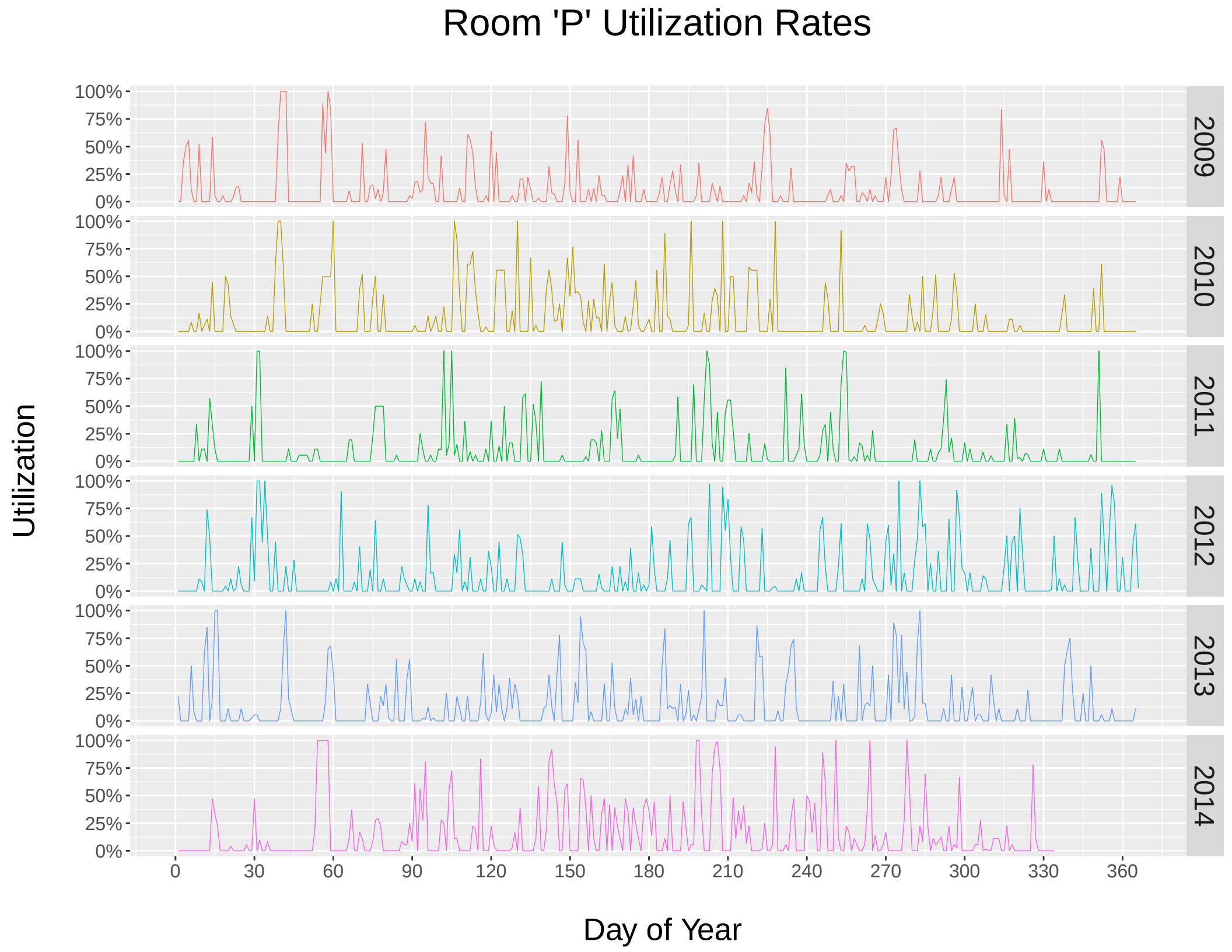
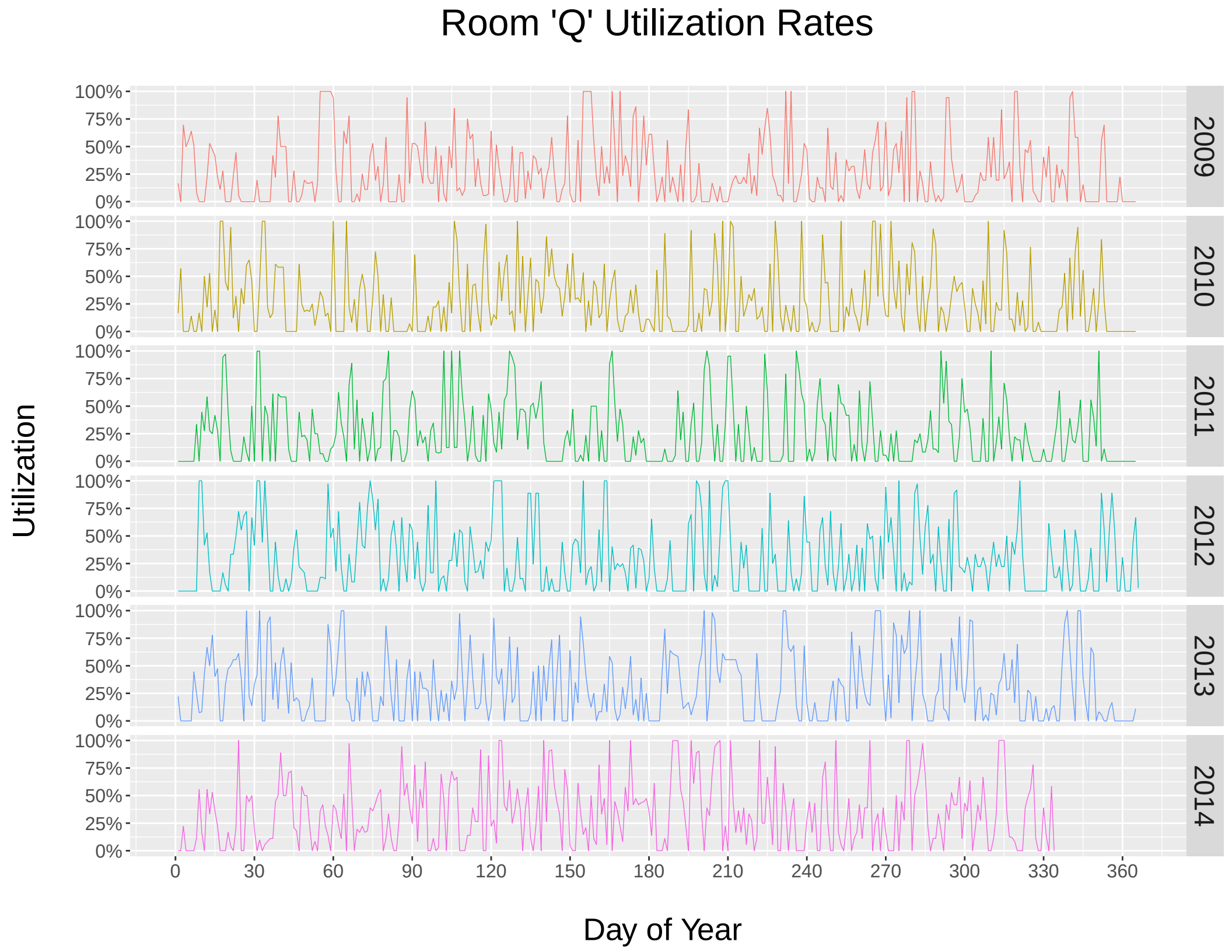
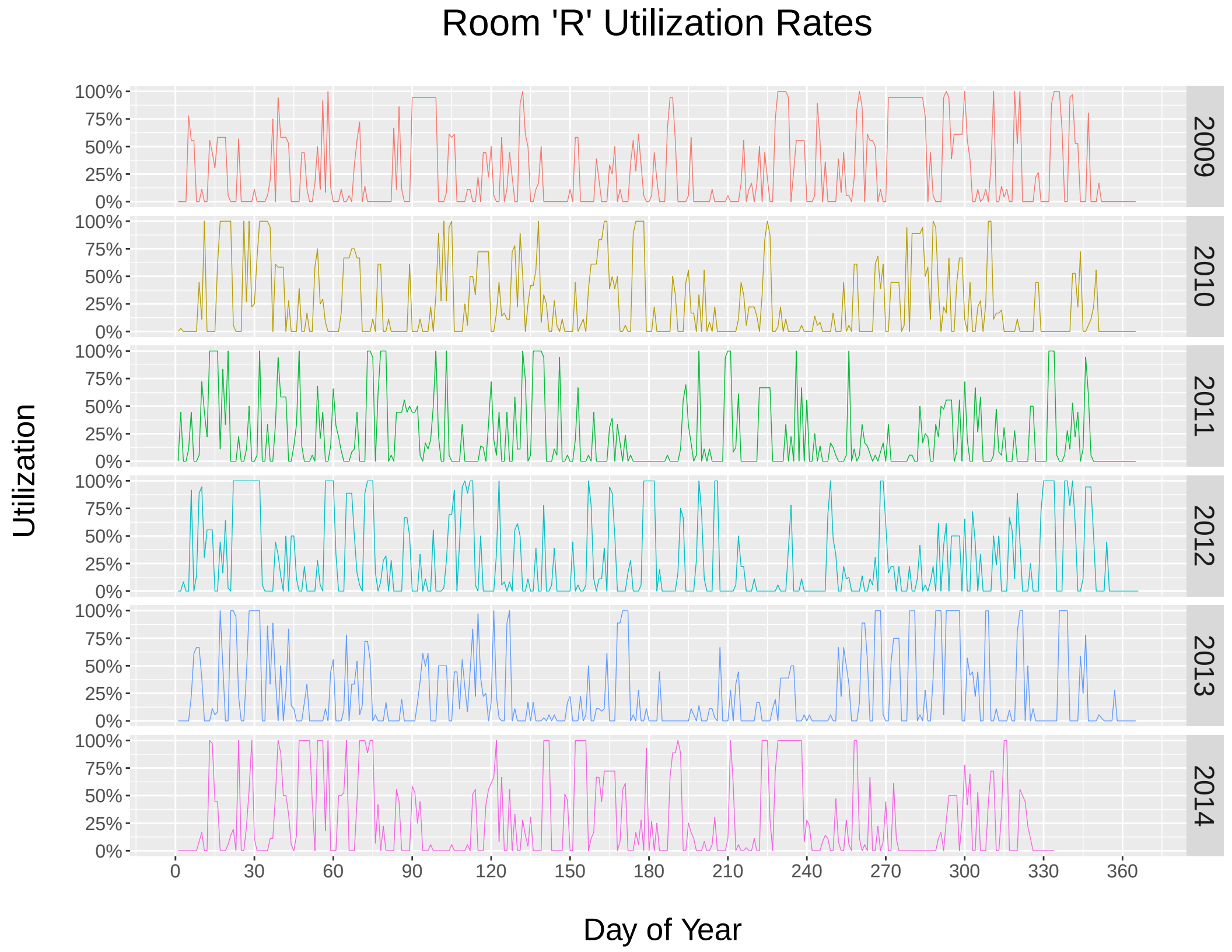
300
330
360
Day of Year

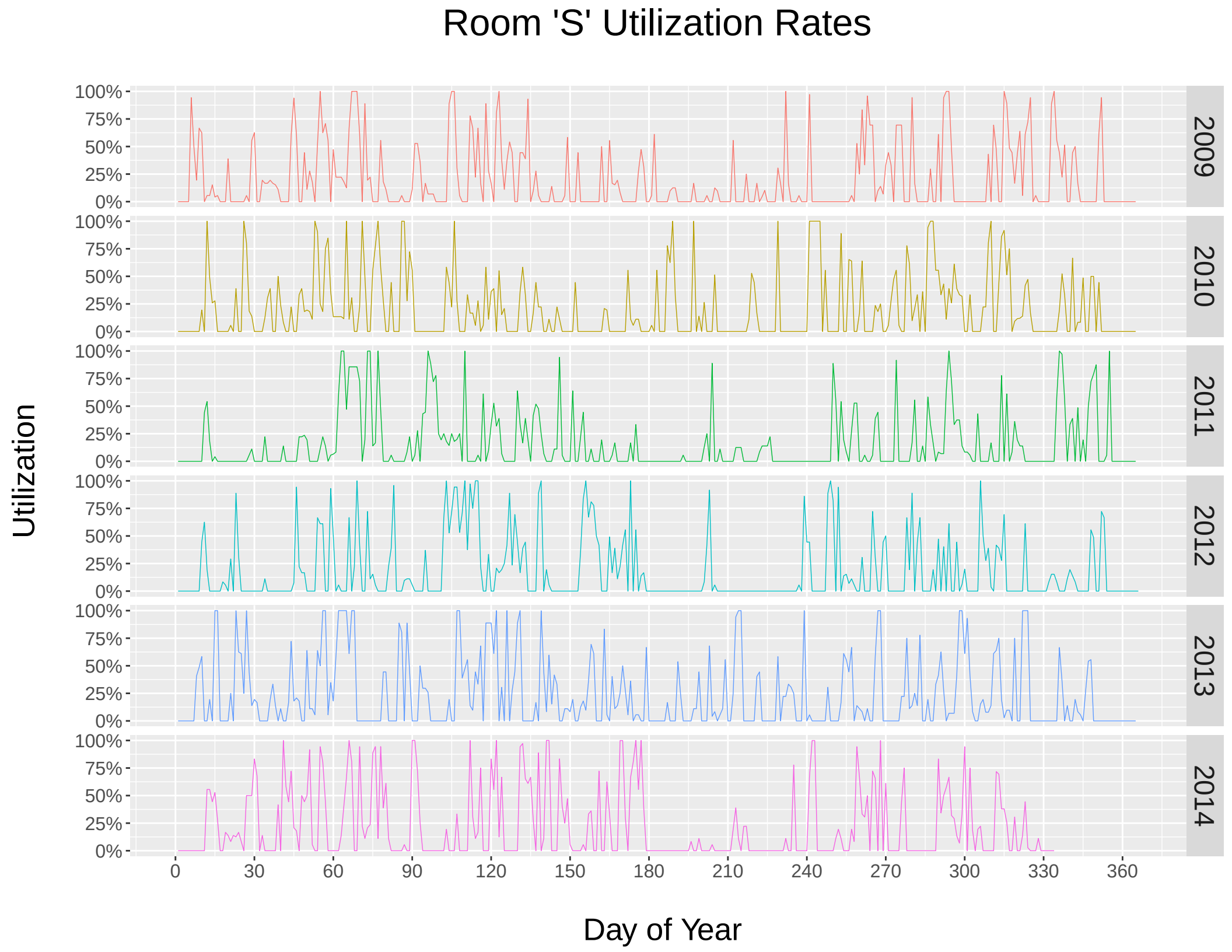

Room 'N' Utilization Rates
Utilization
100%
75%
50%
25%
0%
2009
2010
2011
2012
2013
2014
0
30
60
90
120
150
180
210
240
270
300
330
360
Day of Year


Room 'O' Utilization Rates
Utilization
100%
75%
50%
25%
0%
2009
2010
2011
2012
2013
2014
0
30
60
90
120
150
180
210
240
270
300
330
360
Day of Year


Room 'P' Utilization Rates
Utilization
100%
75%
50%
25%
0%
2009
2010
2011
2012
2013
2014
0
30
60
90
120
150
180
210
240
270
300
330
360
Day of Year


Room 'Q' Utilization Rates
Utilization
100%
75%
50%
25%
0%
2009
2010
2011
2012
2013
2014
0
30
60
90
120
150
180
210
240
270
300
330
360
Day of Year


Room 'R' Utilization Rates
Utilization
100%
75%
50%
25%
0%
2009
2010
2011
2012
2013
2014
0
30
60
90
120
150
180
210
240
270
300
330
360
Day of Year


Room 'S' Utilization Rates
Utilization
100%
75%
50%
25%
0%
2009
2010
2011
2012
2013
2014
0
30
60
90
120
150
180
210
240
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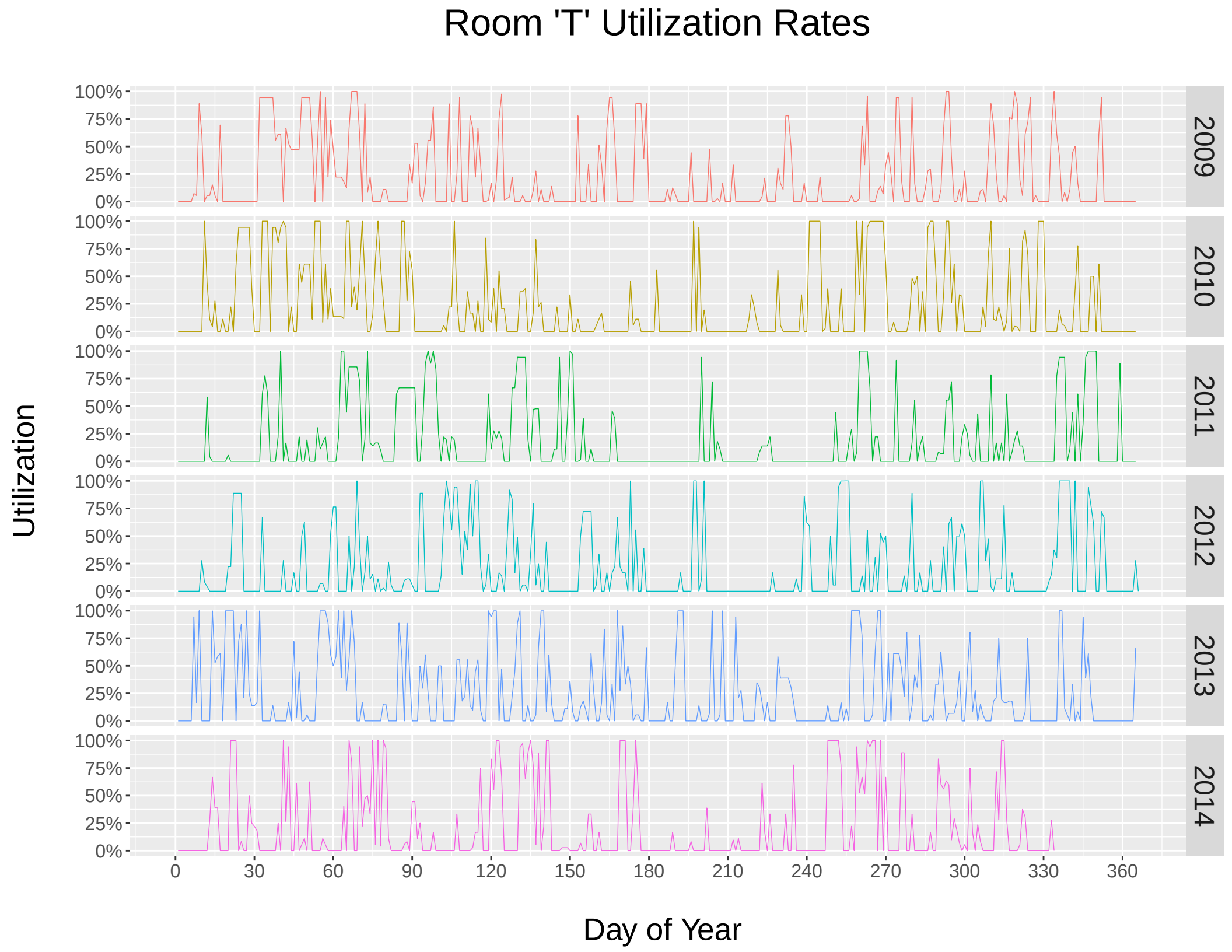
300
330
360
Day of Year


Room 'T' Utilization Rates
Utilization
100%
75%
50%
25%
0%
2009
2010
2011
2012
2013
2014
0
30
60
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120
150
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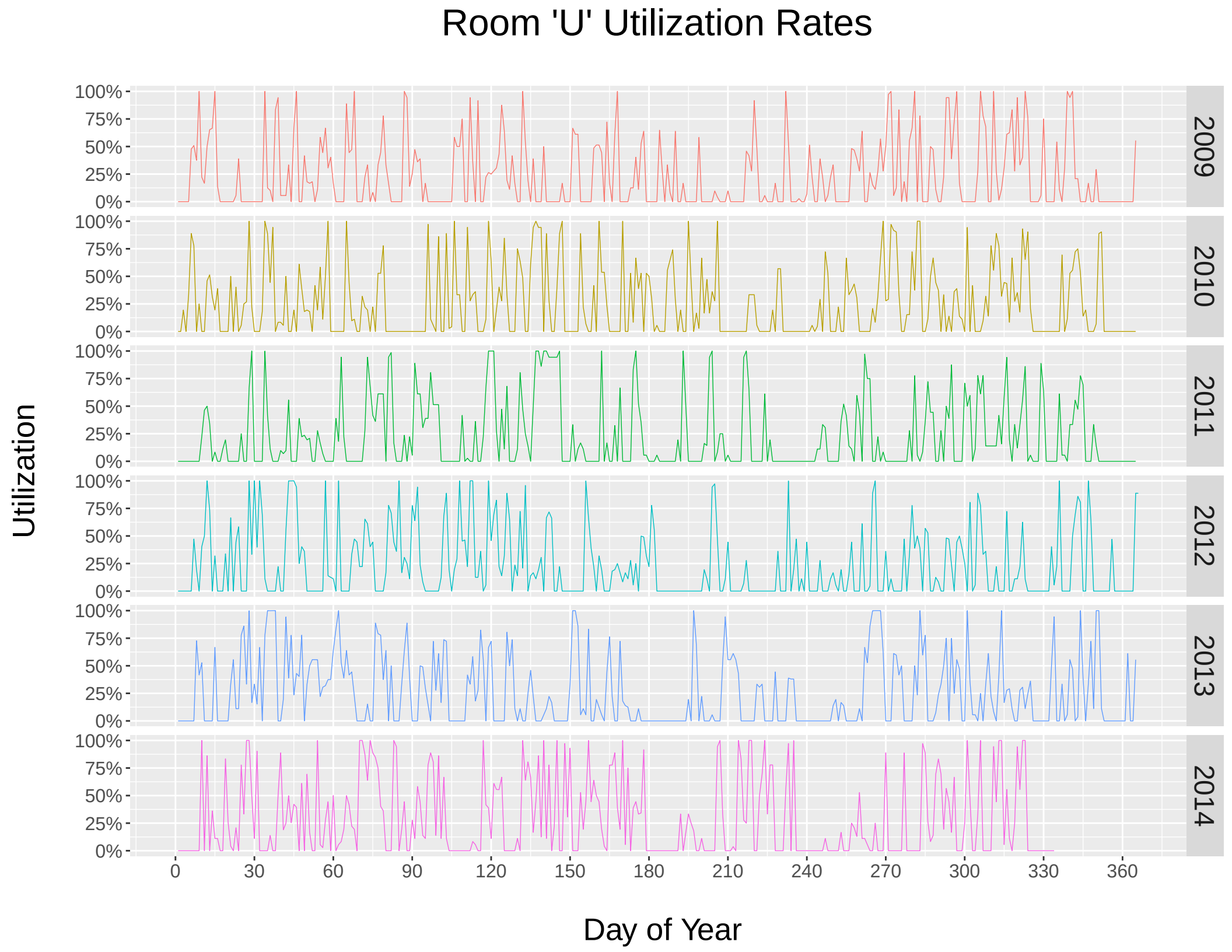
210
240
270
300
330
360
Day of Year


Room 'U' Utilization Rates
Utilization
100%
75%
50%
25%
0%
2009
2010
2011
2012
2013
2014
0
30
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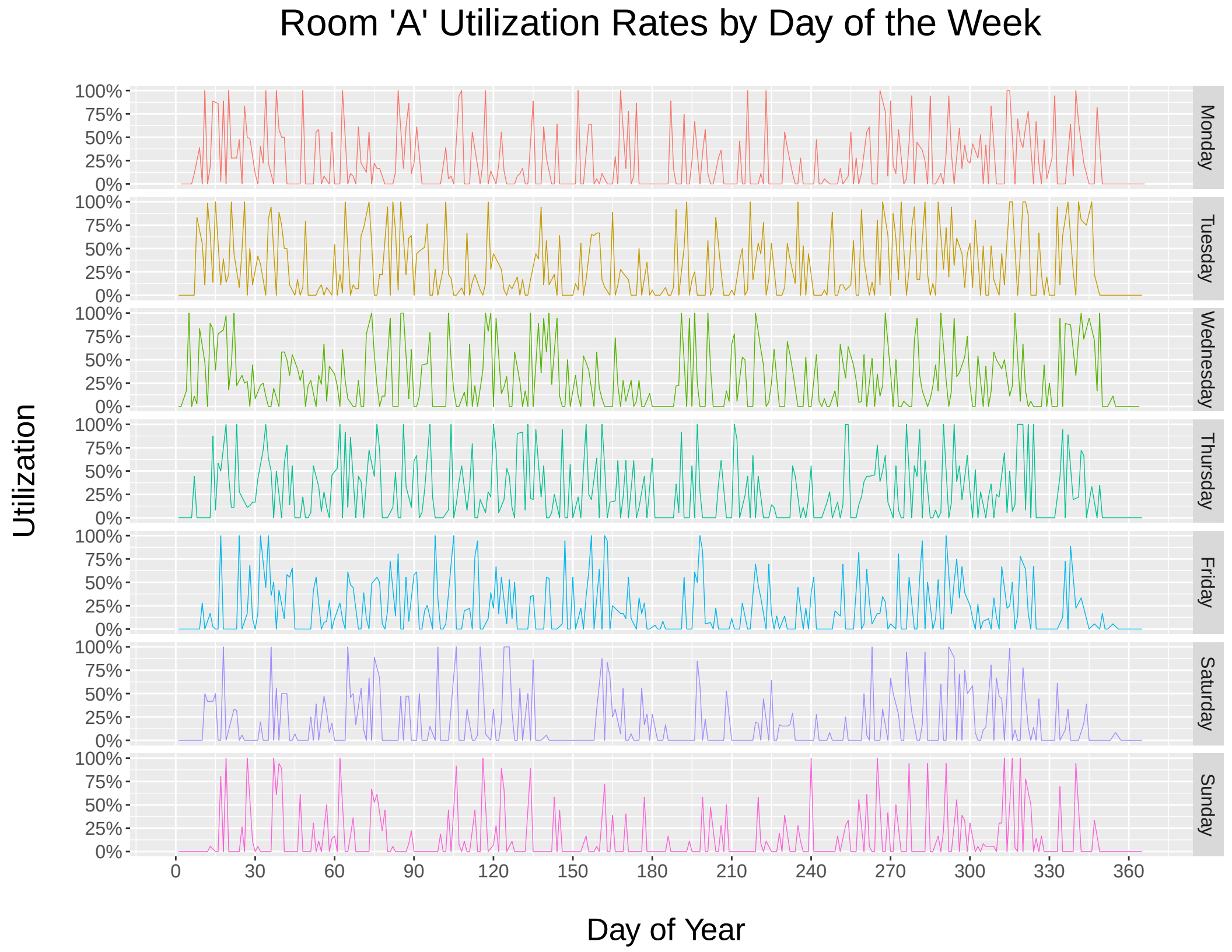
120
150
180
210
240
270
300
330
360
Day of Year


Room 'A' Utilization Rates by Day of the Week
Utilization
100%
75%
50%
25%
0%
Monday
Tuesday
Wednesday
Thursday
Friday
Saturday
Sunday
0
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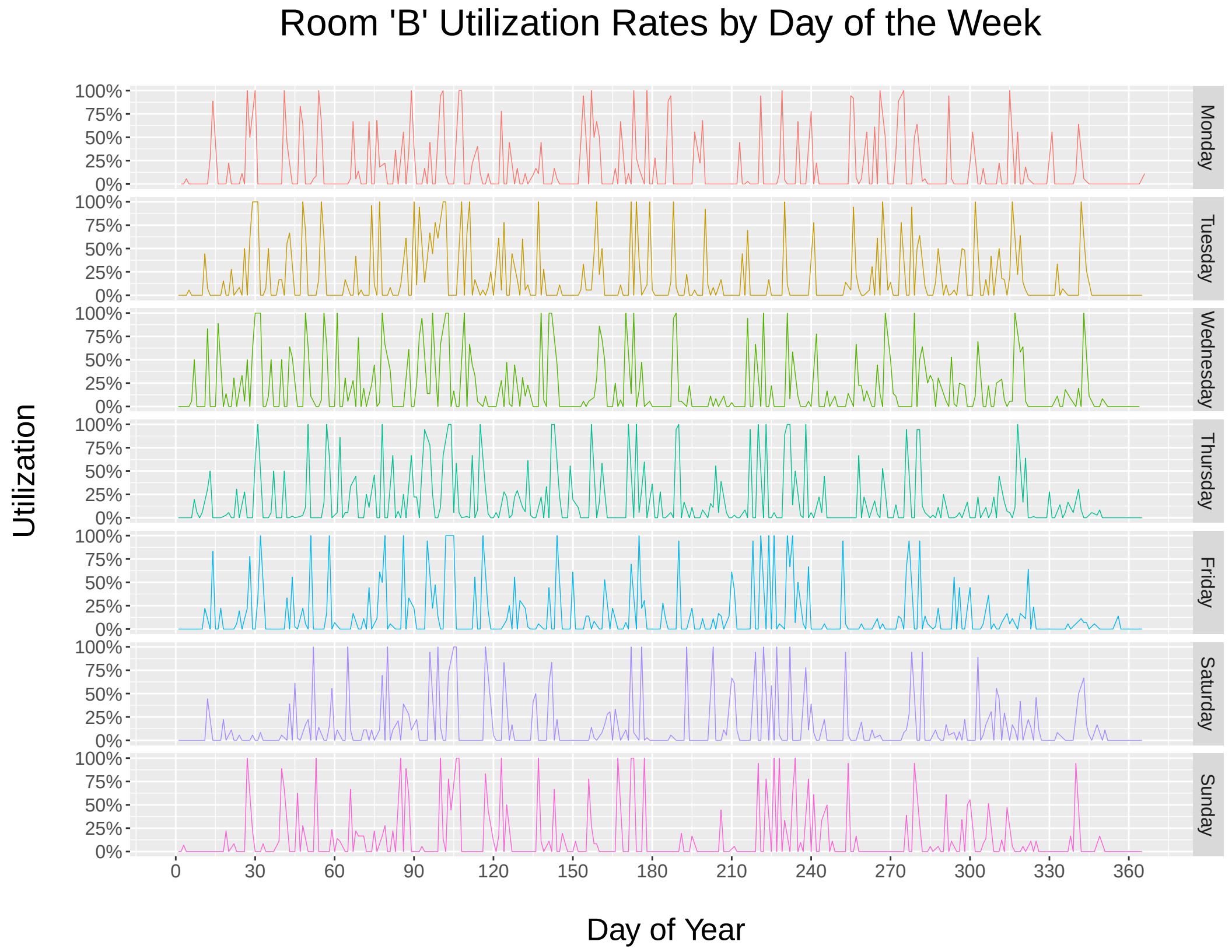
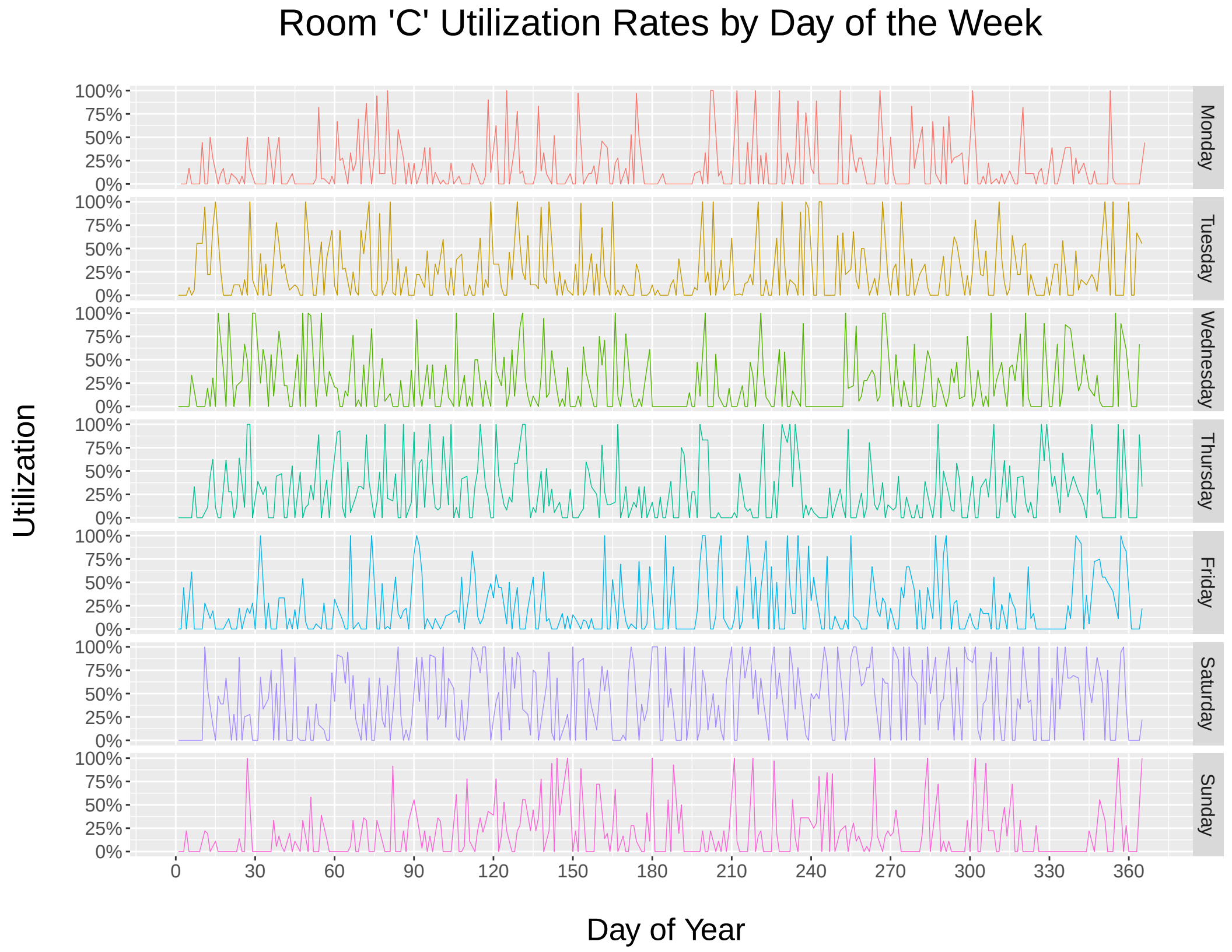
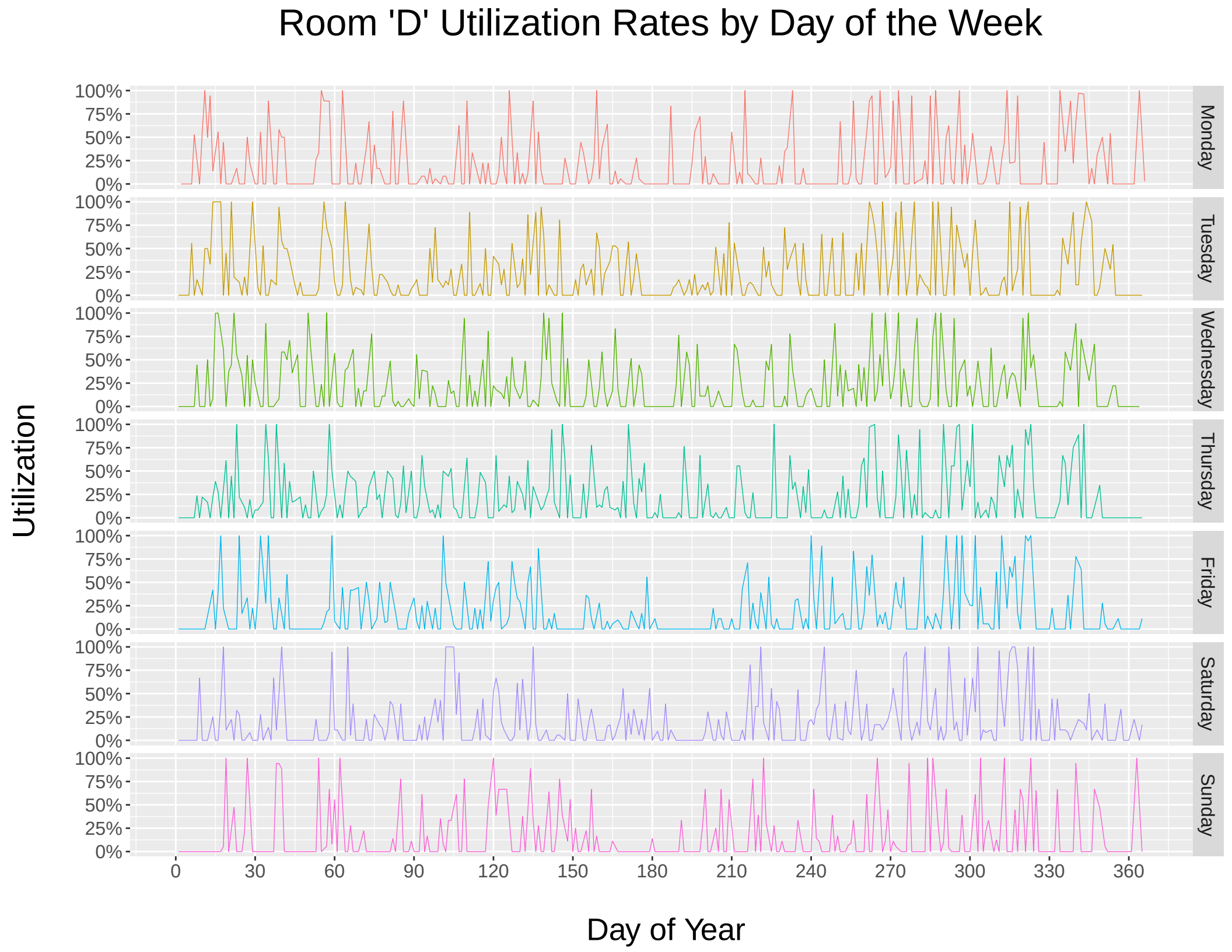
90
120
150
180
210
240
270
300
330
360
Day of Year


Room 'B' Utilization Rates by Day of the Week
Utilization
100%
75%
50%
25%
0%
Monday
Tuesday
Wednesday
Thursday
Friday
Saturday
Sunday
0
30
60
90
120
150
180
210
240
270
300
330
360
Day of Year


Room 'C' Utilization Rates by Day of the Week
Utilization
100%
75%
50%
25%
0%
Monday
Tuesday
Wednesday
Thursday
Friday
Saturday
Sunday
0
30
60
90
120
150
180
210
240
270
300
330
360
Day of Year


Room 'D' Utilization Rates by Day of the Week
Utilization
100%
75%
50%
25%
0%
Monday
Tuesday
Wednesday
Thursday
Friday
Saturday
Sunday
0
30
60
90
120
150
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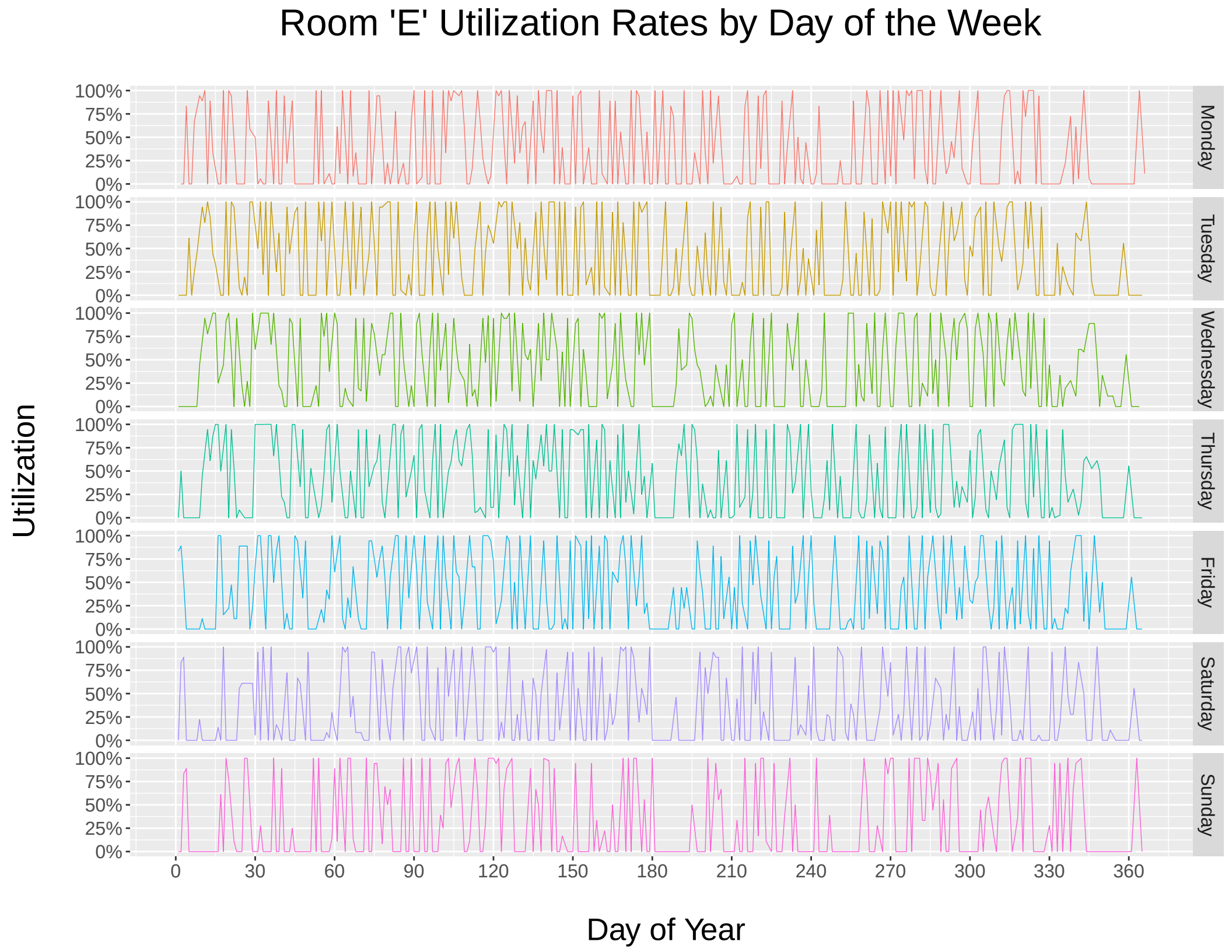
330
360
Day of Year


Room 'E' Utilization Rates by Day of the Week
Utilization
100%
75%
50%
25%
0%
Monday
Tuesday
Wednesday
Thursday
Friday
Saturday
Sunday
0
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60
90
120
150
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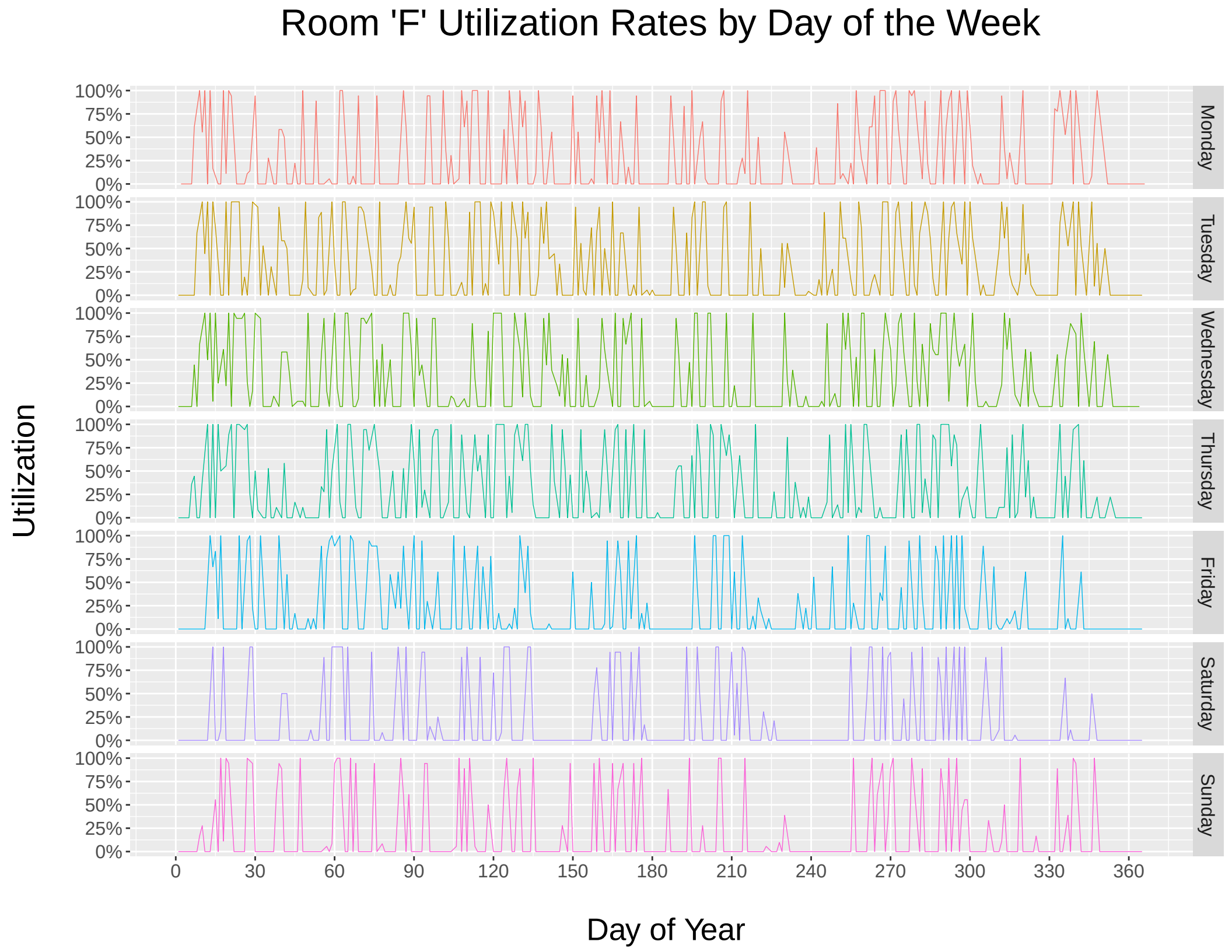
330
360
Day of Year


Room 'F' Utilization Rates by Day of the Week
Utilization
100%
75%
50%
25%
0%
Monday
Tuesday
Wednesday
Thursday
Friday
Saturday
Sunday
0
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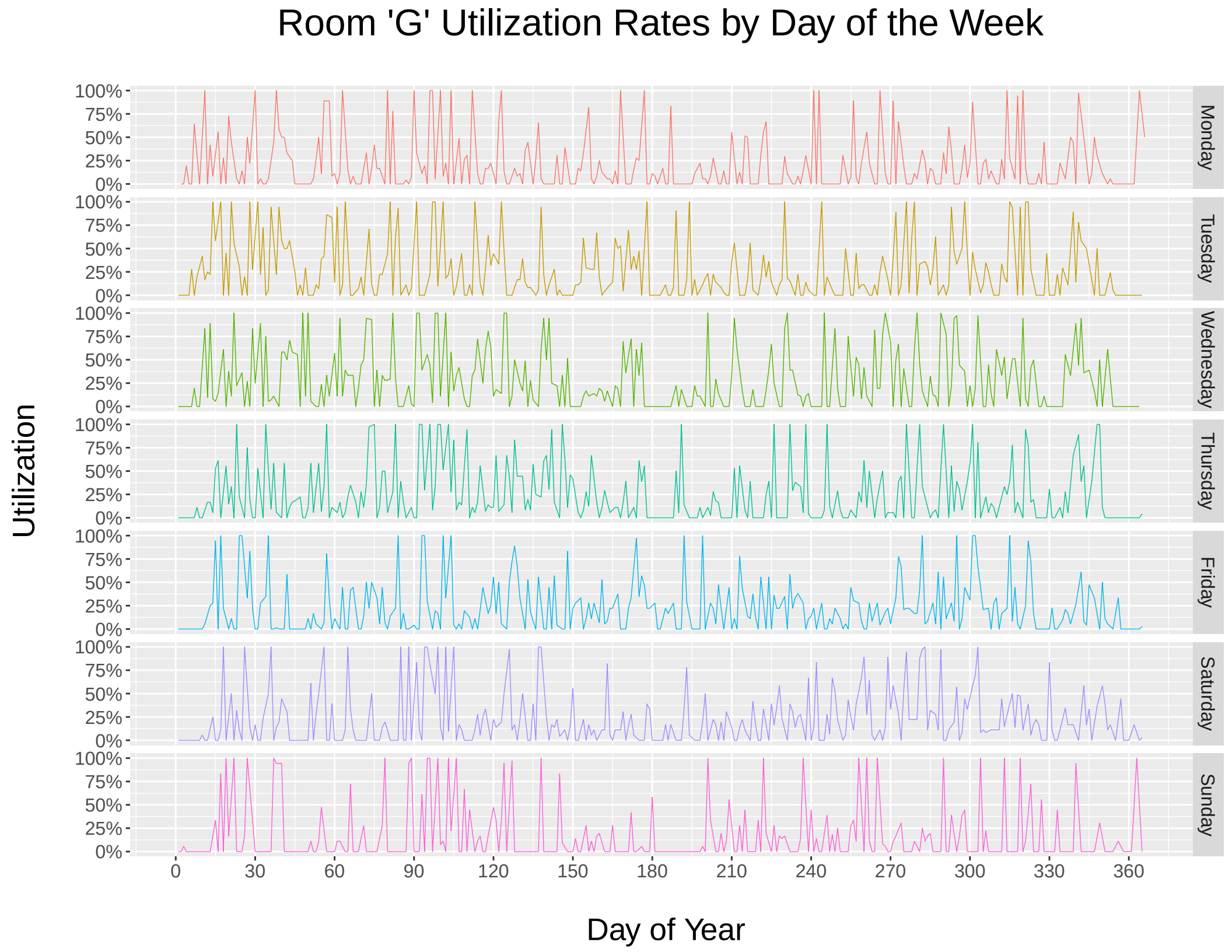
60
90
120
150
180
210
240
270
300
330
360
Day of Year


Room 'G' Utilization Rates by Day of the Week
Utilization
100%
75%
50%
25%
0%
Monday
Tuesday
Wednesday
Thursday
Friday
Saturday
Sunday
0
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90
120
150
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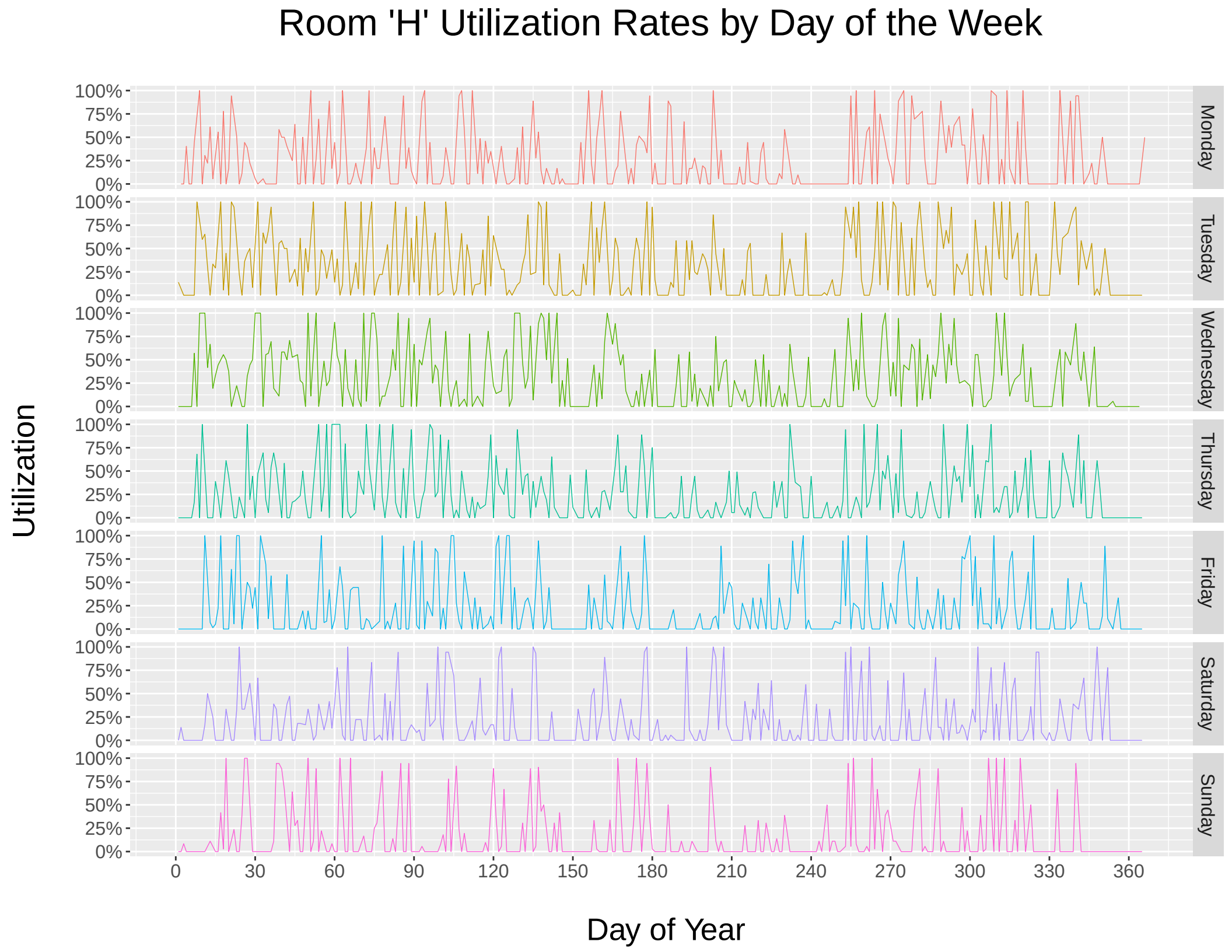
330
360
Day of Year


Room 'H' Utilization Rates by Day of the Week
Utilization
100%
75%
50%
25%
0%
Monday
Tuesday
Wednesday
Thursday
Friday
Saturday
Sunday
0
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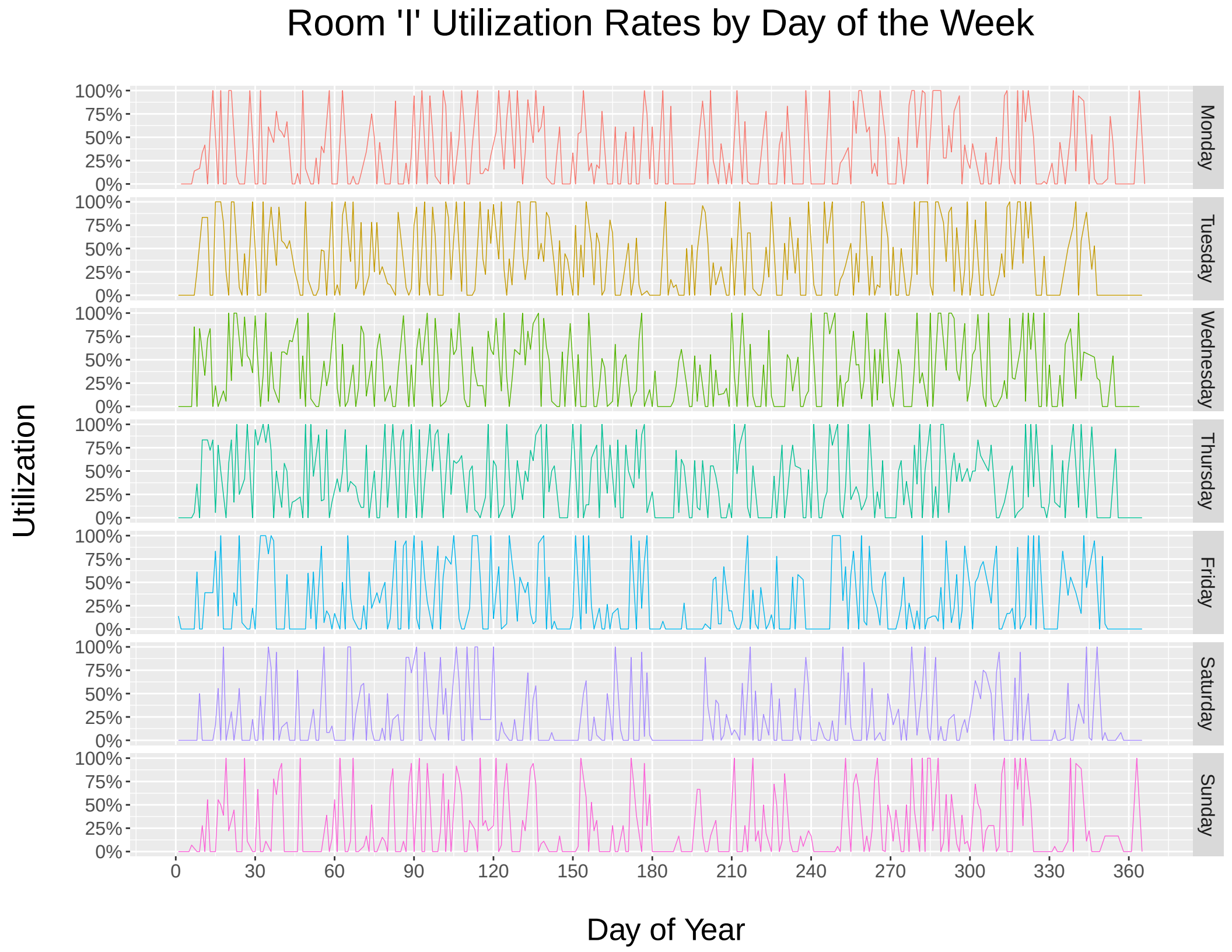
90
120
150
180
210
240
270
300
330
360
Day of Year


Room 'I' Utilization Rates by Day of the Week
Utilization
100%
75%
50%
25%
0%
Monday
Tuesday
Wednesday
Thursday
Friday
Saturday
Sunday
0
30
60
90
120
150
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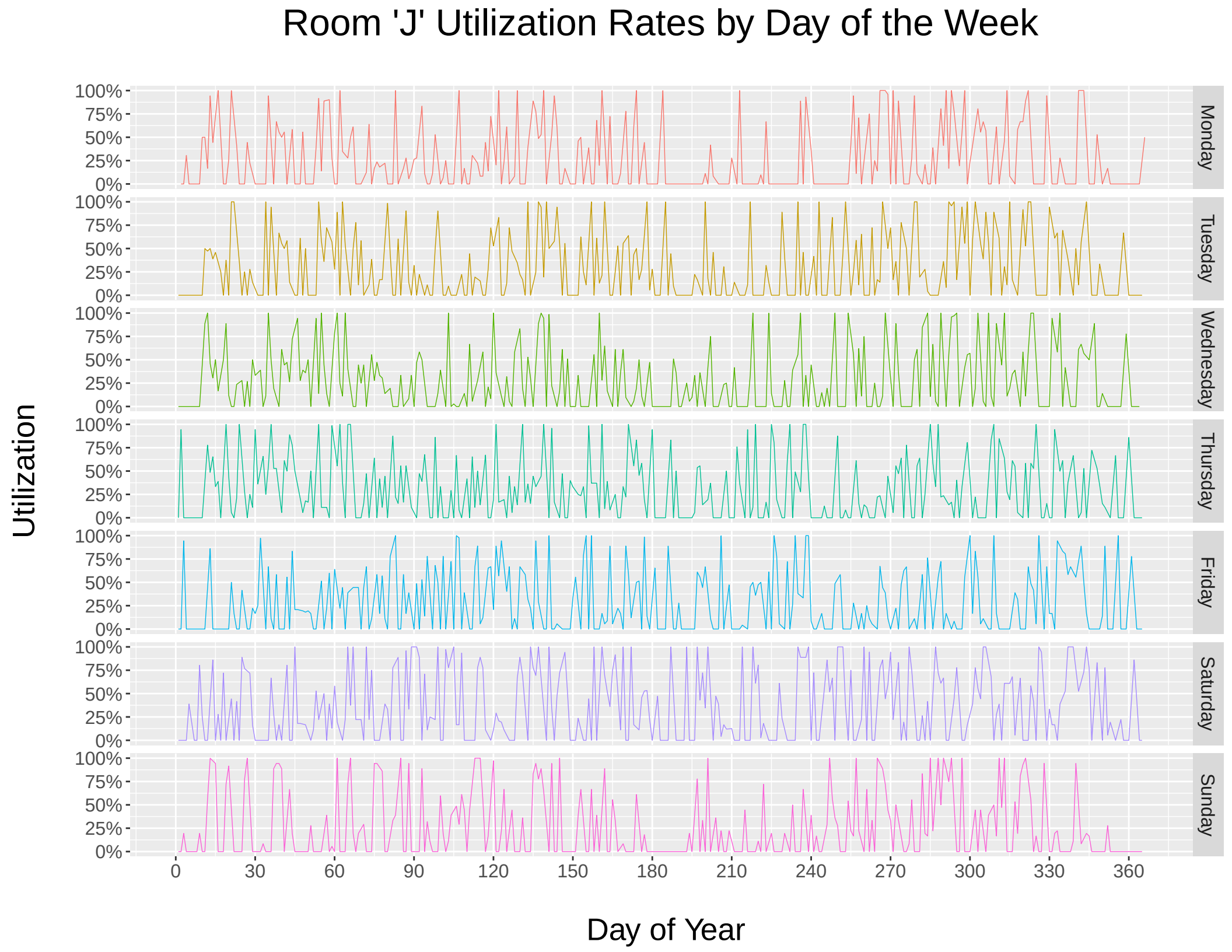
330
360
Day of Year


Room 'J' Utilization Rates by Day of the Week
Utilization
100%
75%
50%
25%
0%
Monday
Tuesday
Wednesday
Thursday
Friday
Saturday
Sunday
0
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120
150
180
210
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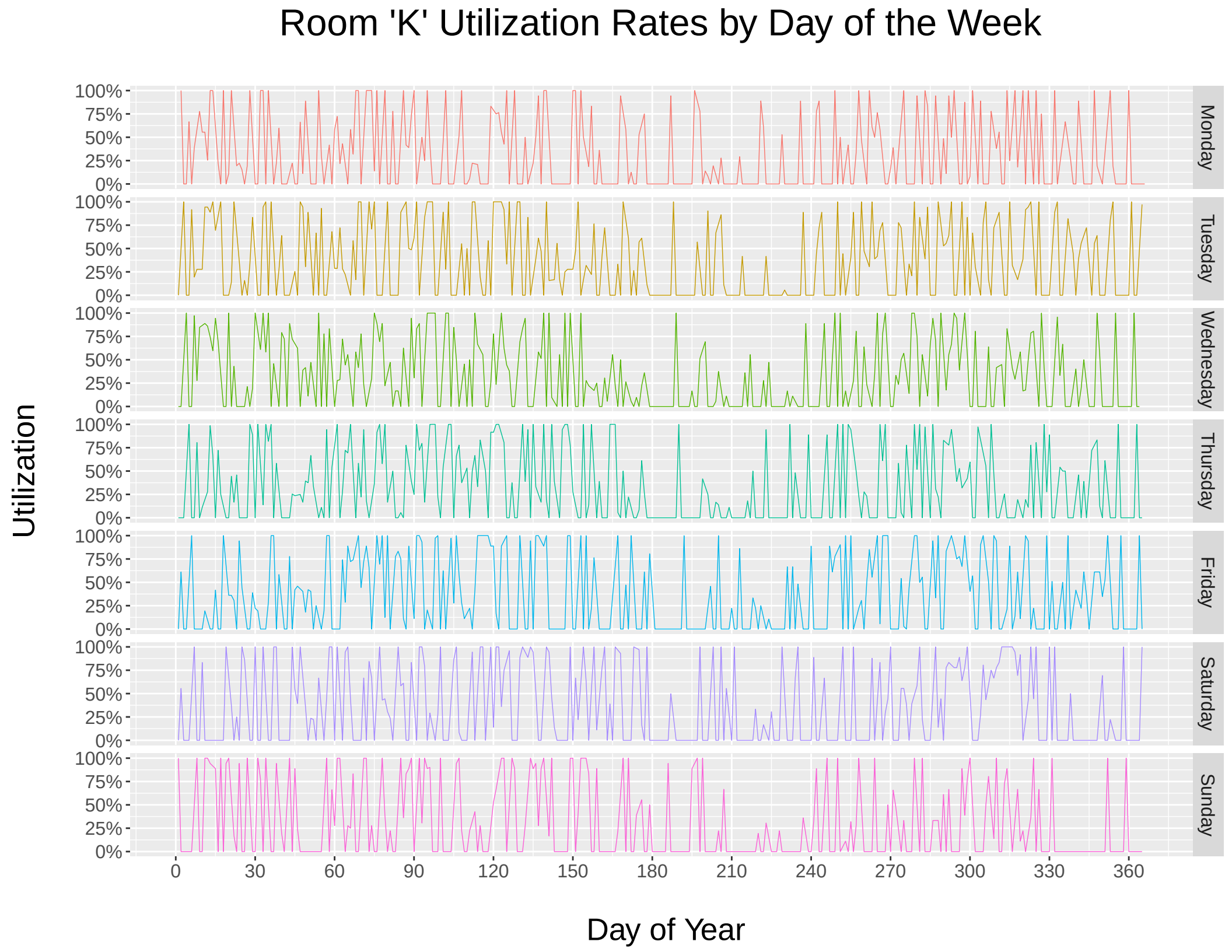
300
330
360
Day of Year


Room 'K' Utilization Rates by Day of the Week
Utilization
100%
75%
50%
25%
0%
Monday
Tuesday
Wednesday
Thursday
Friday
Saturday
Sunday
0
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90
120
150
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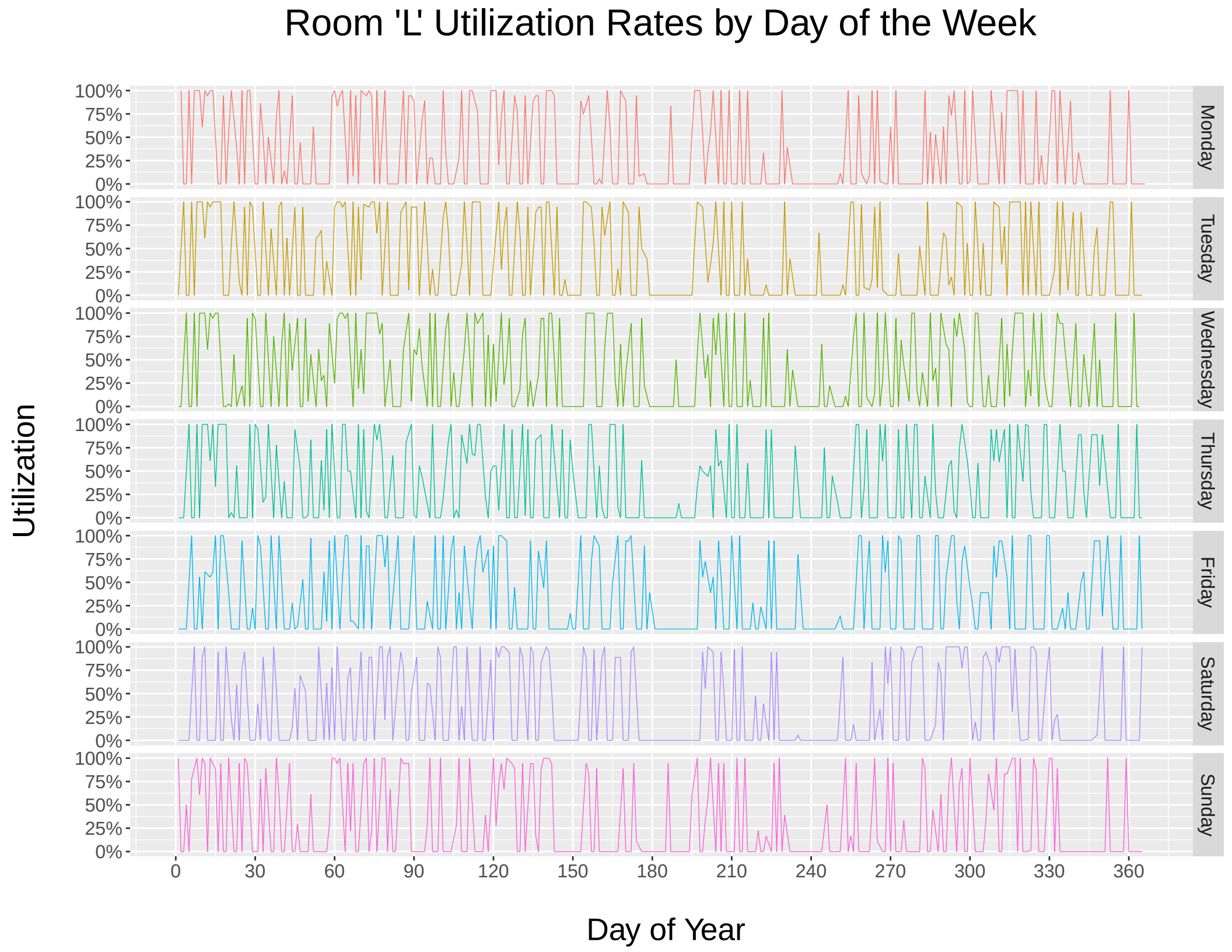
330
360
Day of Year


Room 'L' Utilization Rates by Day of the Week
Utilization
100%
75%
50%
25%
0%
Monday
Tuesday
Wednesday
Thursday
Friday
Saturday
Sunday
0
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60
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120
150
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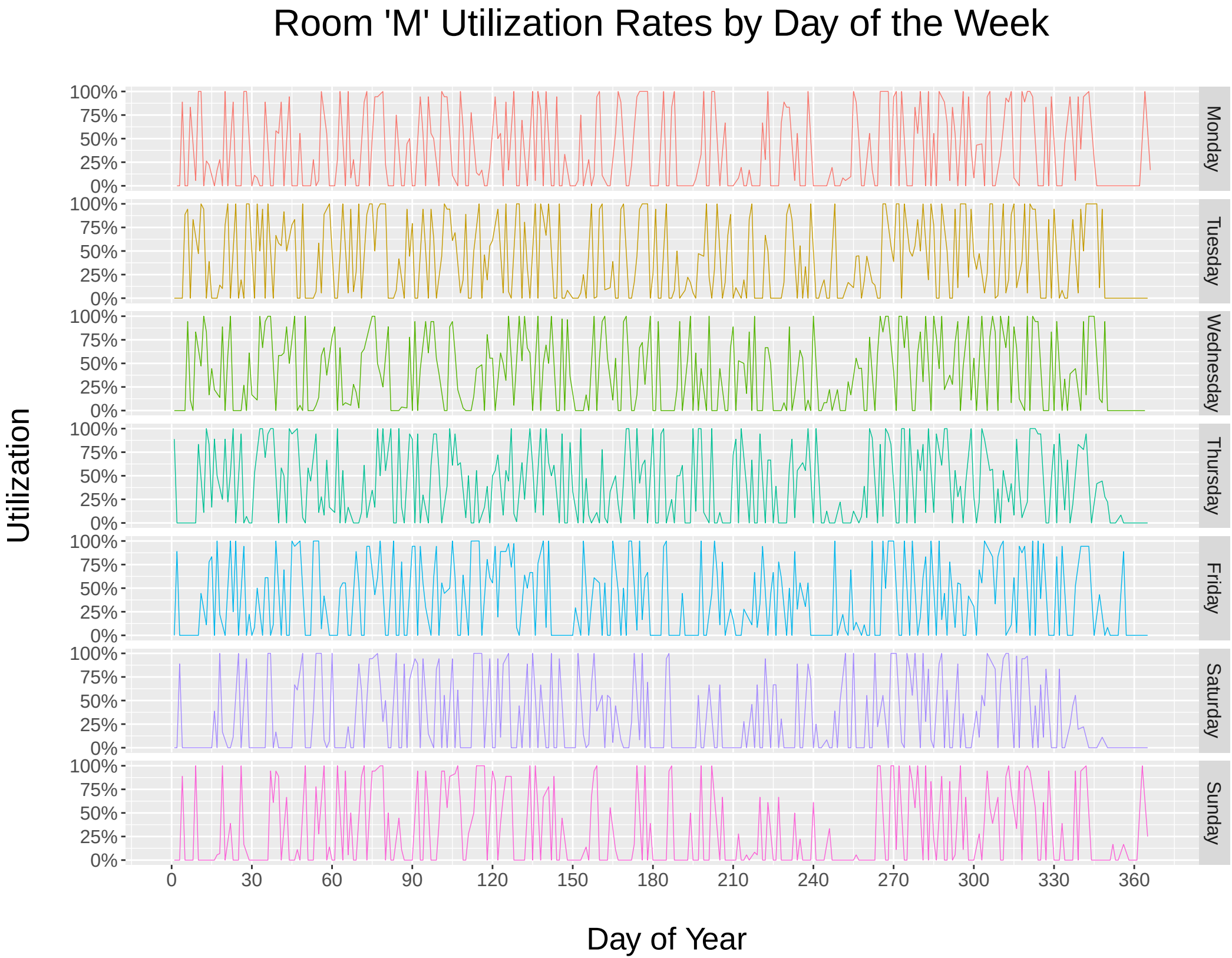
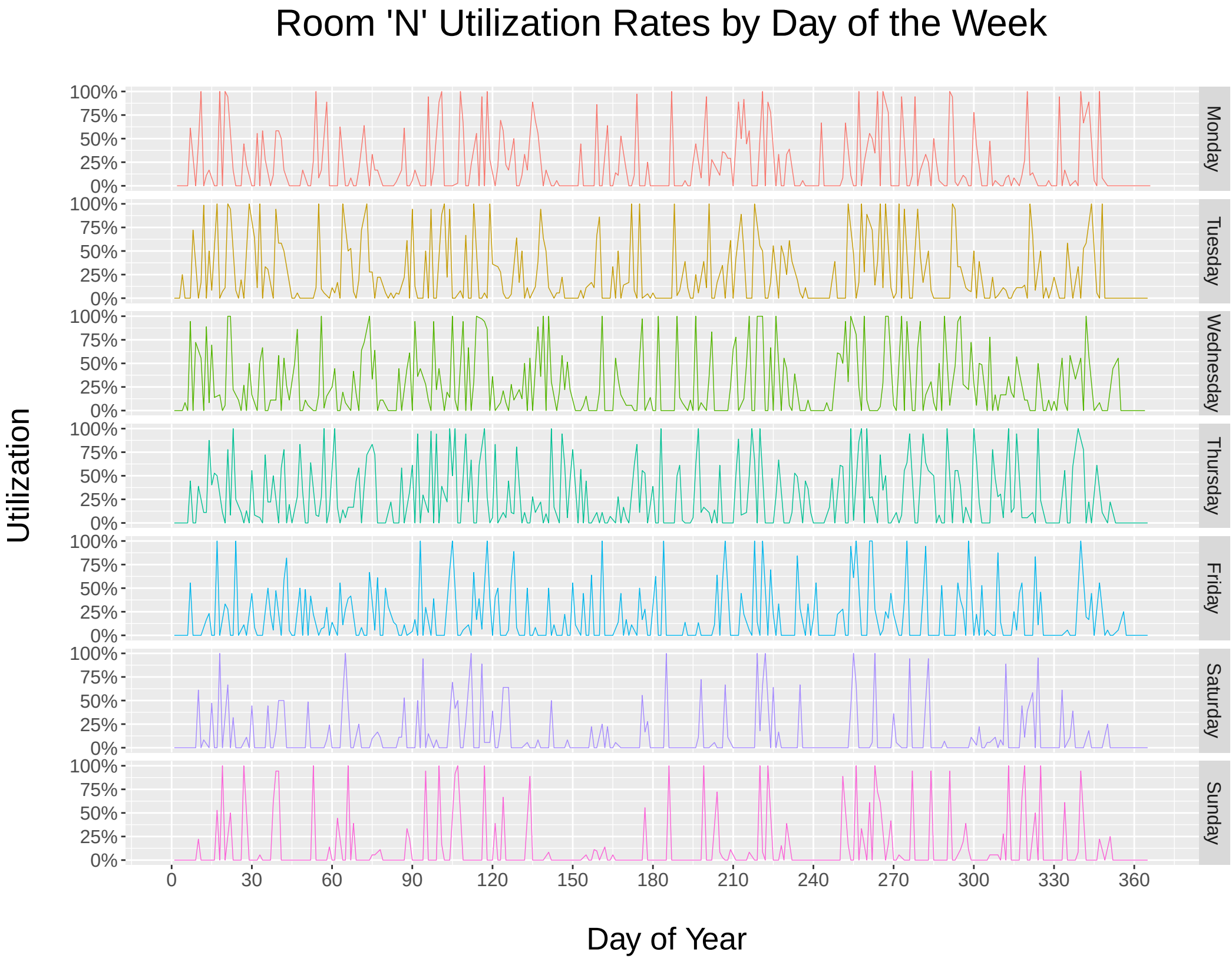
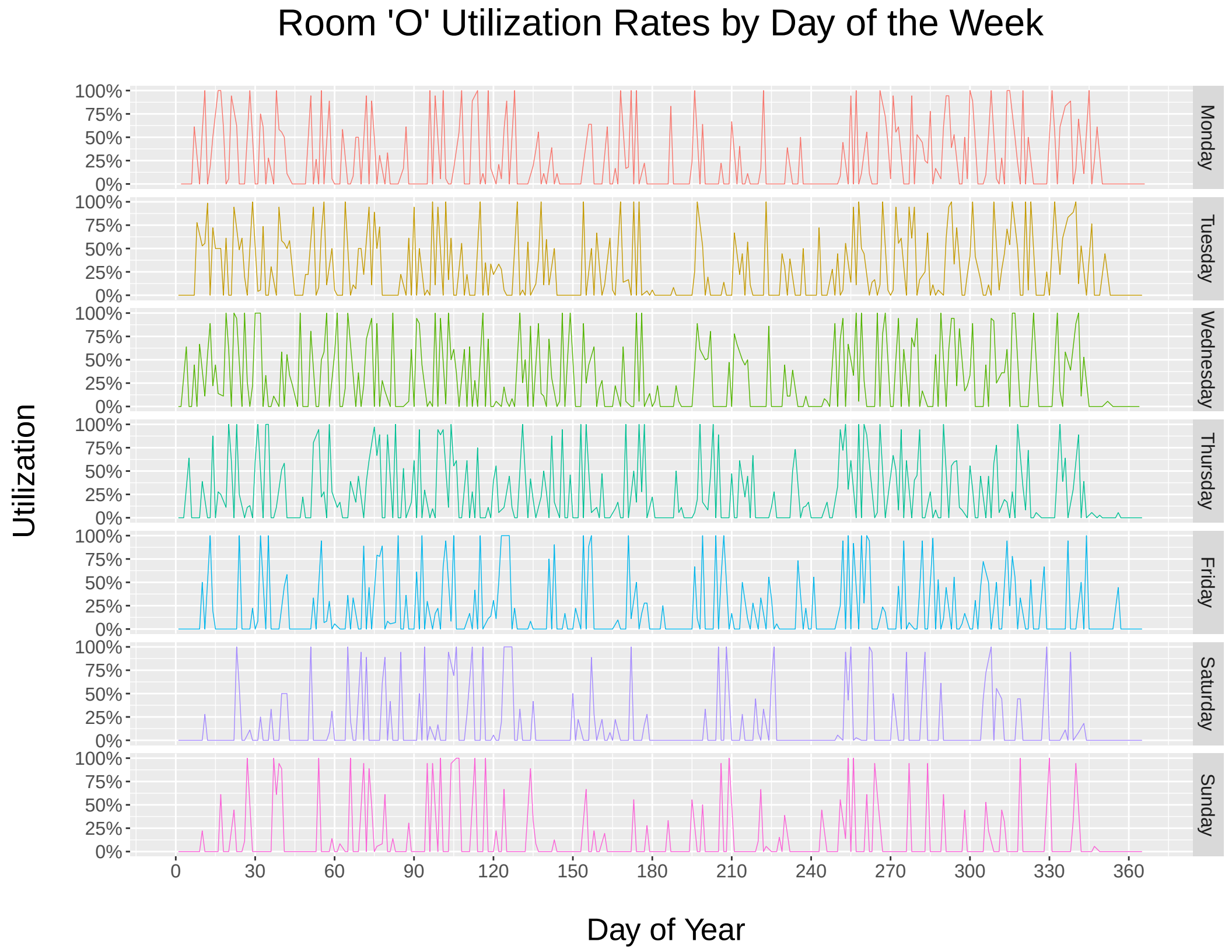
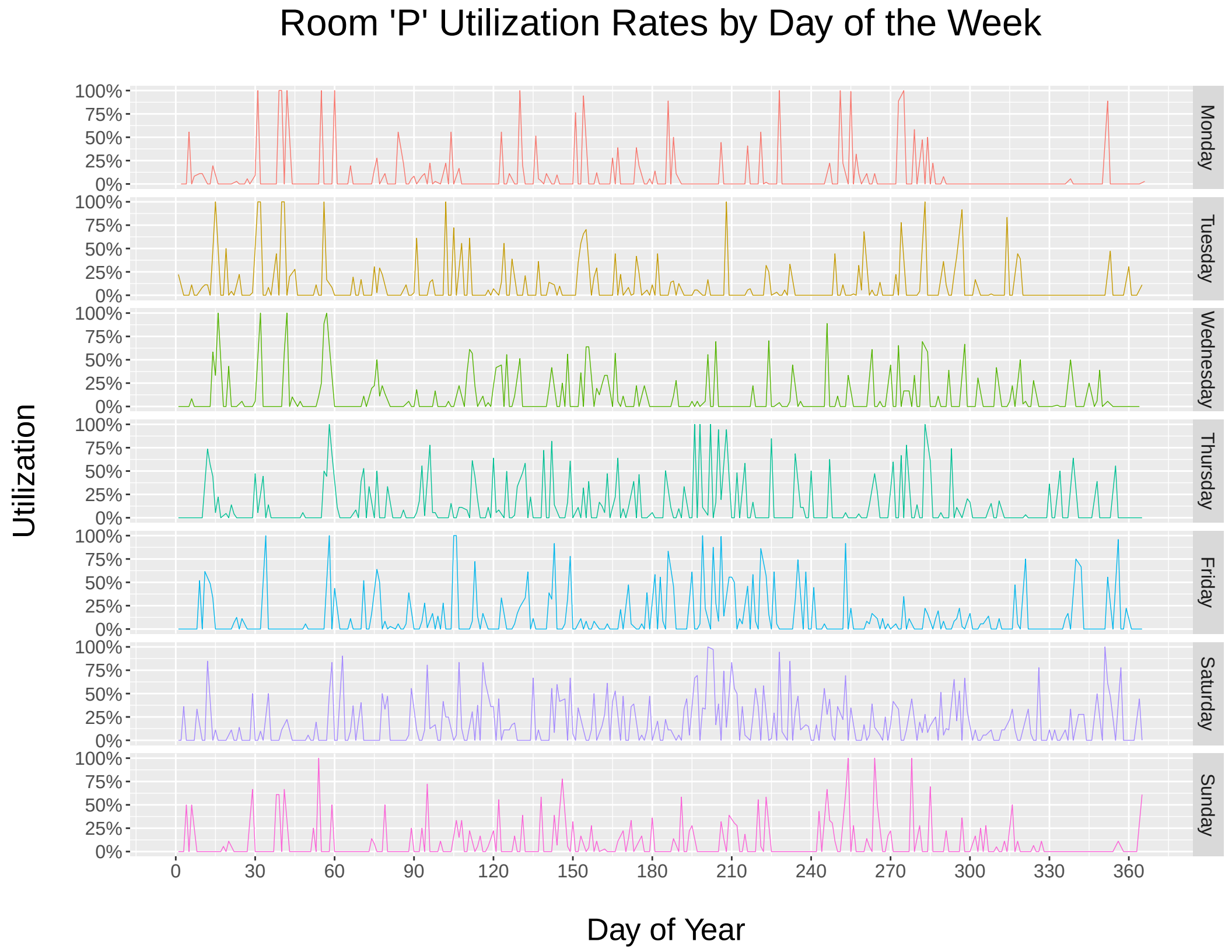
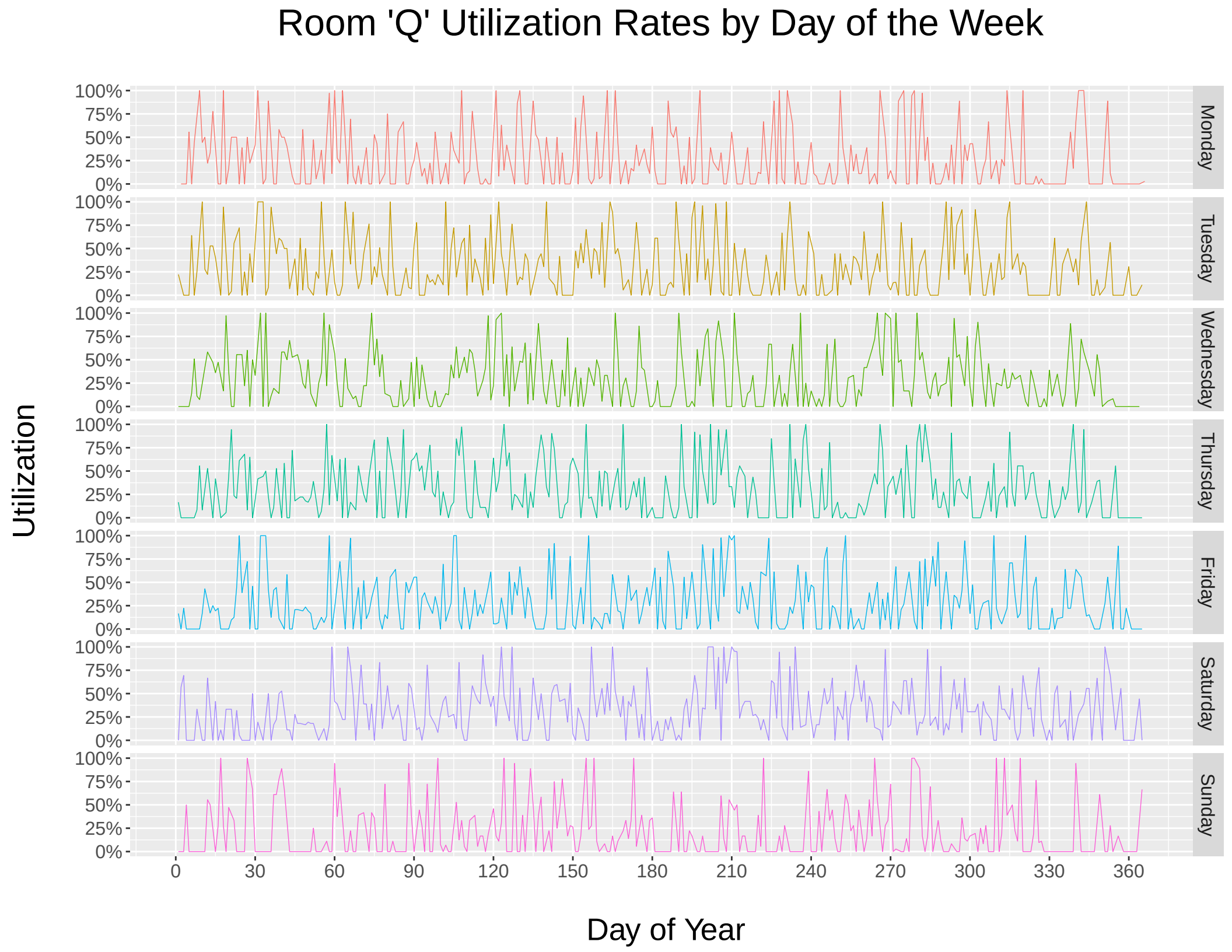
330
360
Day of Year

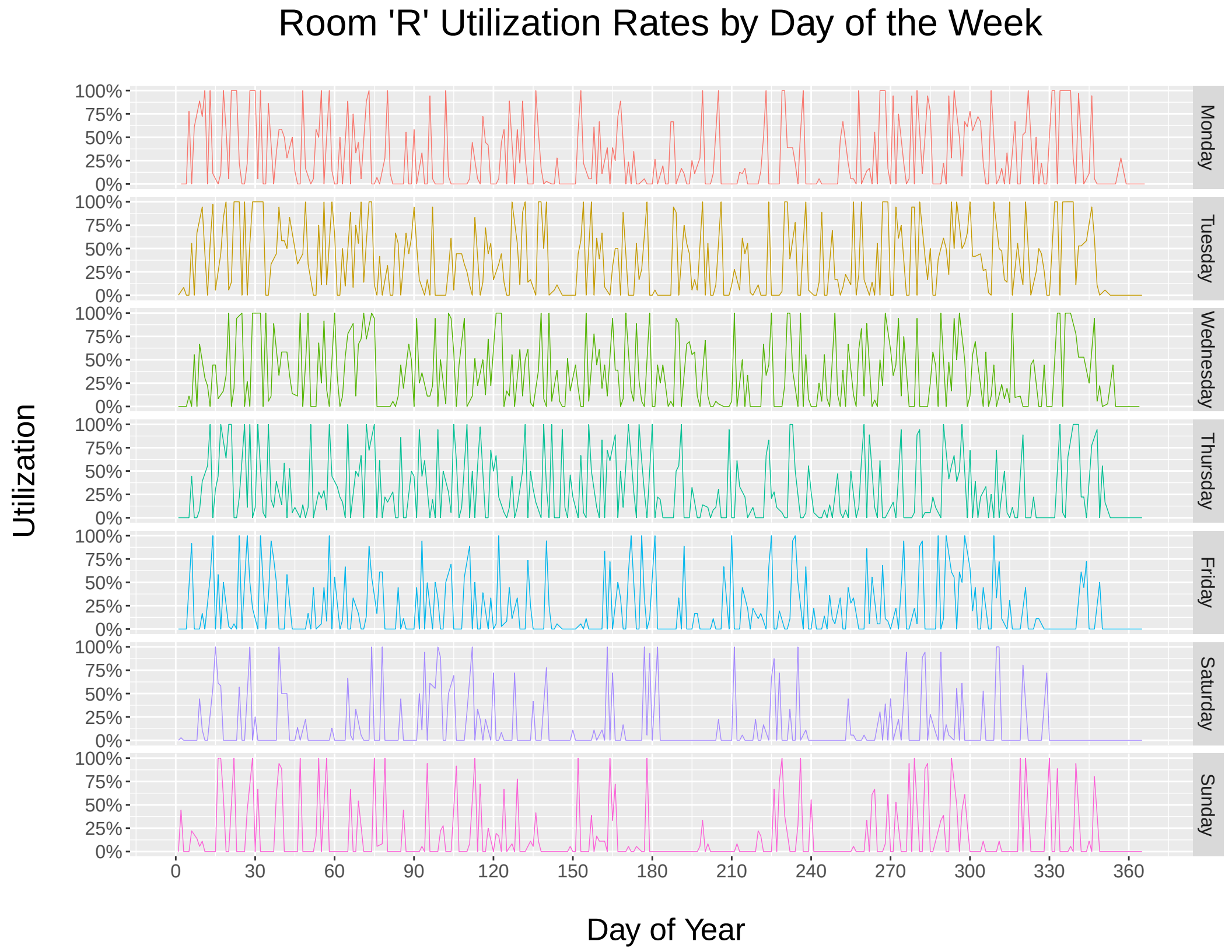

Room 'M' Utilization Rates by Day of the Week
Utilization
100%
75%
50%
25%
0%
Monday
Tuesday
Wednesday
Thursday
Friday
Saturday
Sunday
0
30
60
90
120
150
180
210
240
270
300
330
360
Day of Year

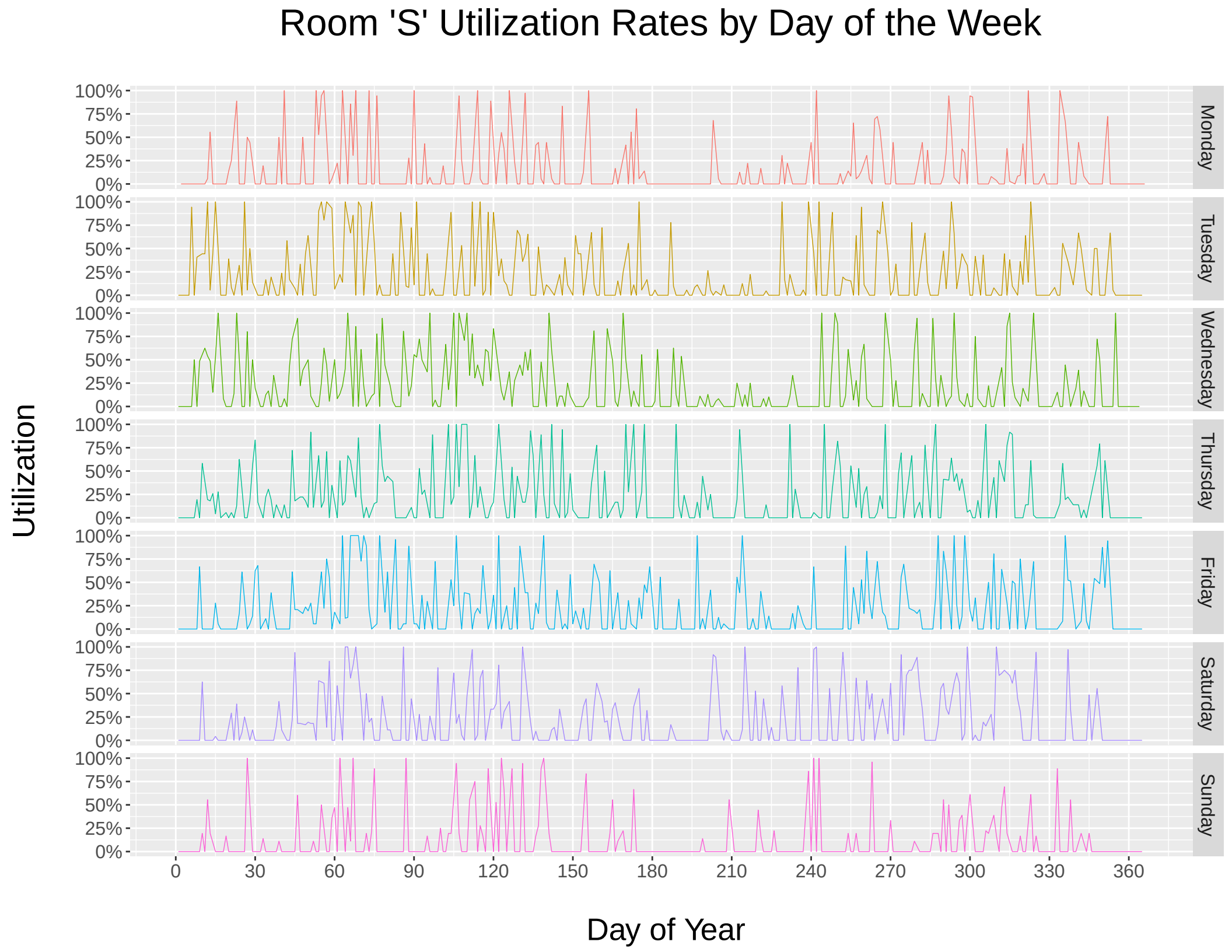

Room 'N' Utilization Rates by Day of the Week
Utilization
100%
75%
50%
25%
0%
Monday
Tuesday
Wednesday
Thursday
Friday
Saturday
Sunday
0
30
60
90
120
150
180
210
240
270
300
330
360
Day of Year

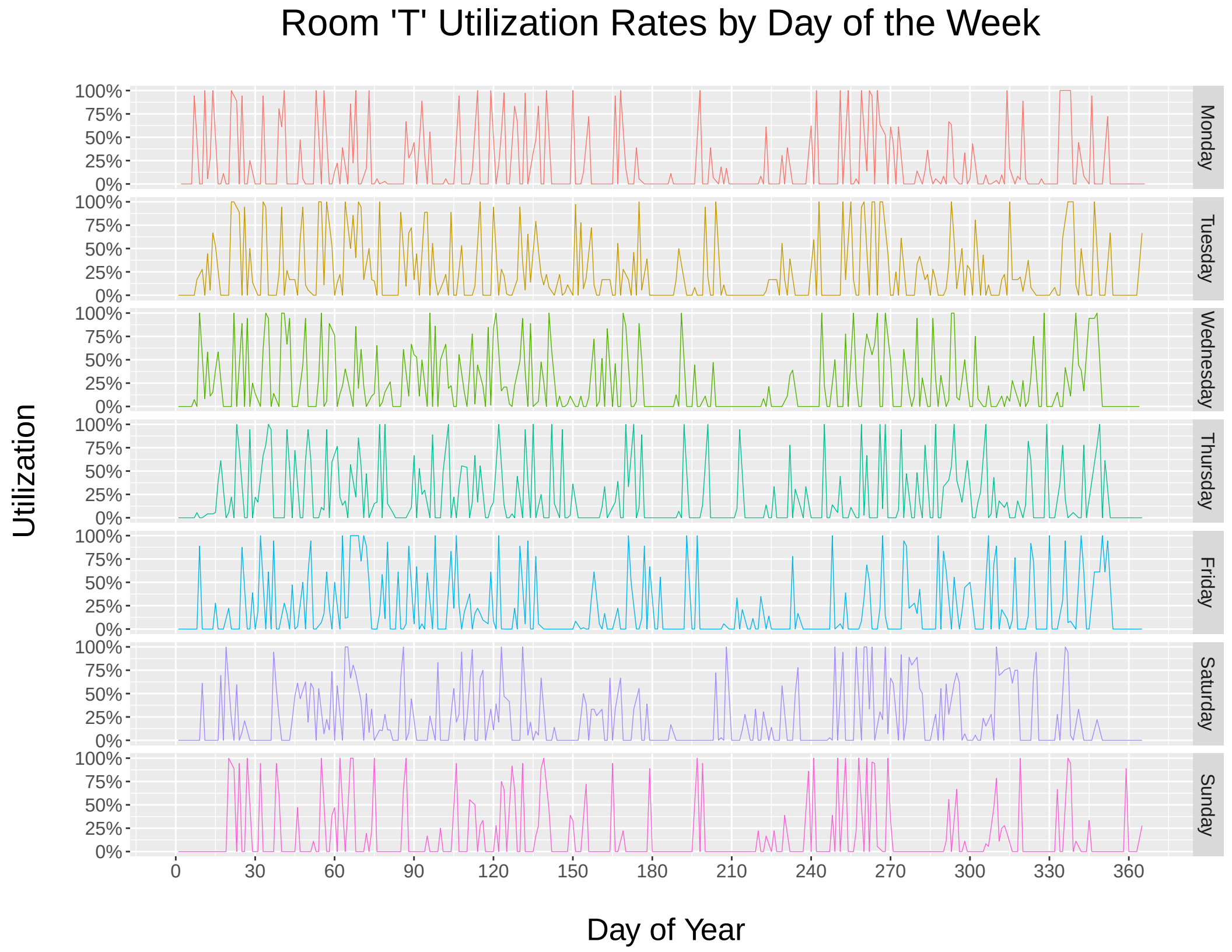

Room 'O' Utilization Rates by Day of the Week
Utilization
100%
75%
50%
25%
0%
Monday
Tuesday
Wednesday
Thursday
Friday
Saturday
Sunday
0
30
60
90
120
150
180
210
240
270
300
330
360
Day of Year

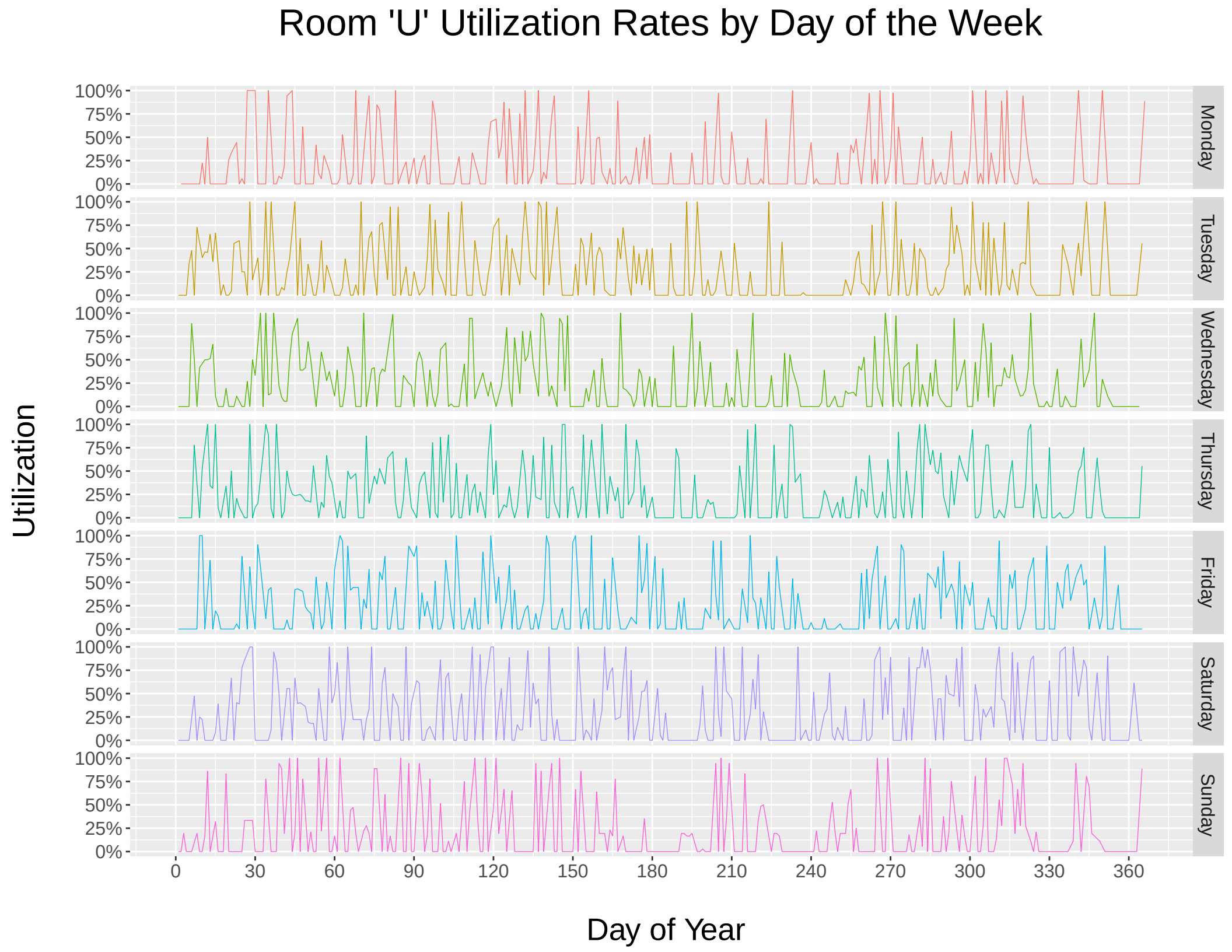

Room 'P' Utilization Rates by Day of the Week
Utilization
100%
75%
50%
25%
0%
Monday
Tuesday
Wednesday
Thursday
Friday
Saturday
Sunday
0
30
60
90
120
150
180
210
240
270
300
330
360
Day of Year

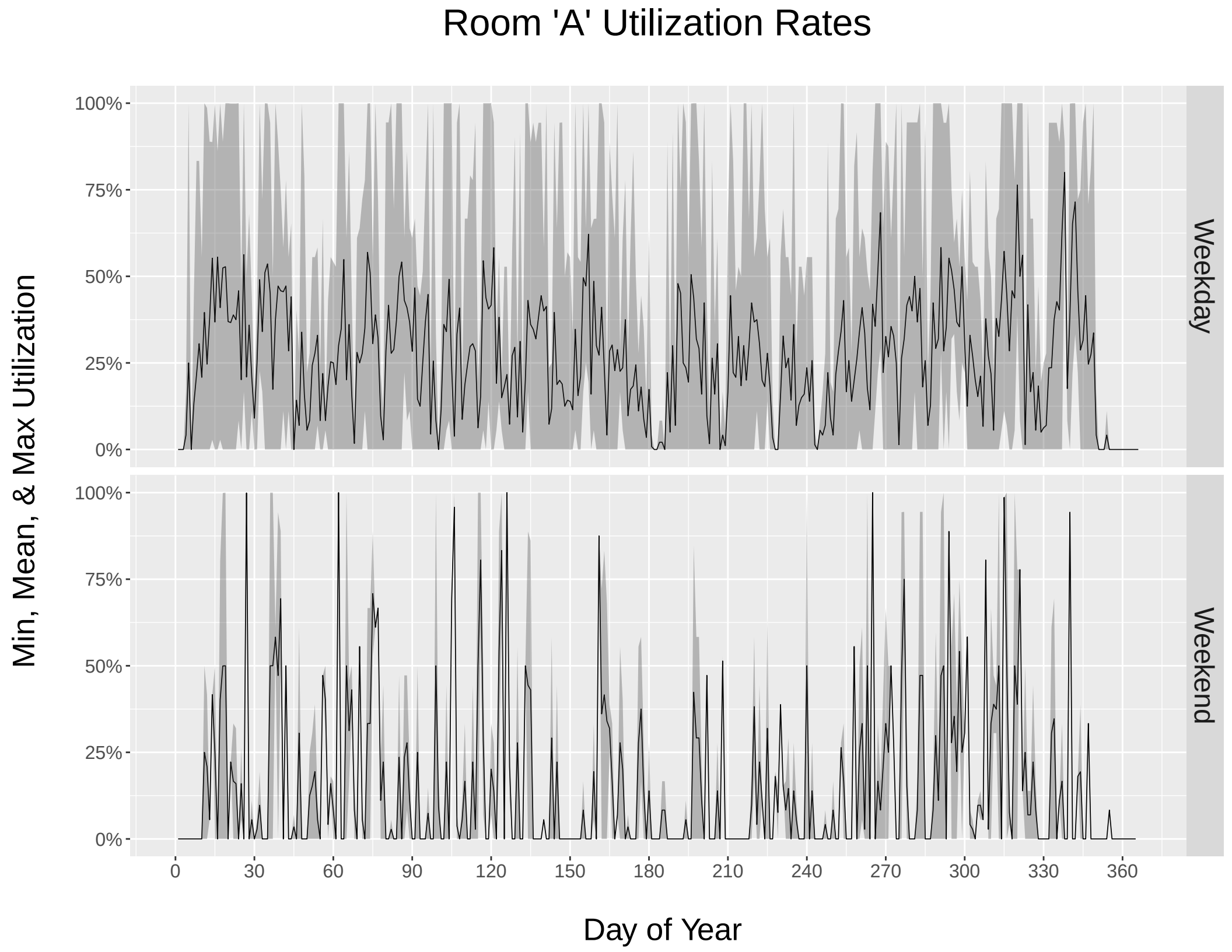

Room 'Q' Utilization Rates by Day of the Week
Utilization
100%
75%
50%
25%
0%
Monday
Tuesday
Wednesday
Thursday
Friday
Saturday
Sunday
0
30
60
90
120
150
180
210
240
270
300
330
360
Day of Year

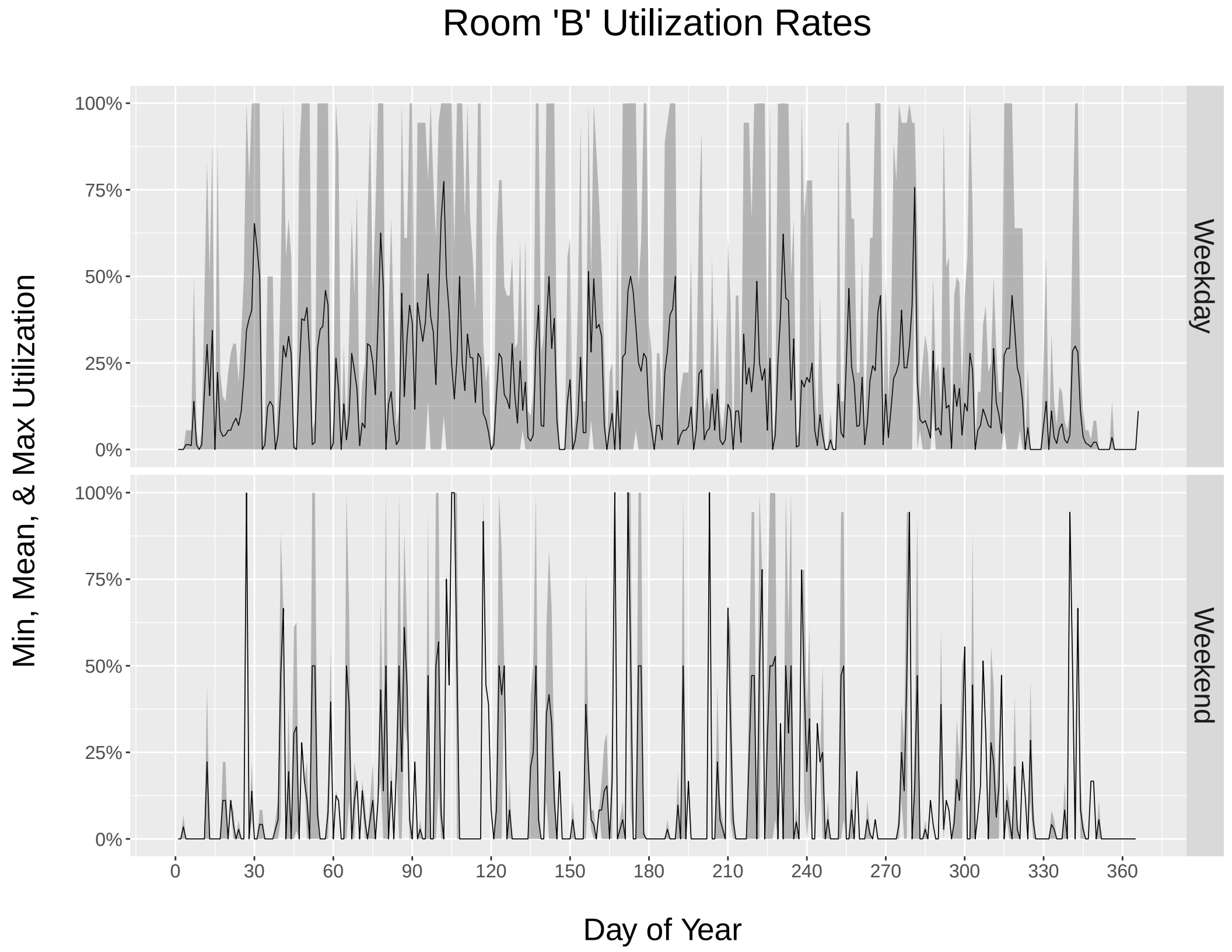

Room 'R' Utilization Rates by Day of the Week
Utilization
100%
75%
50%
25%
0%
Monday
Tuesday
Wednesday
Thursday
Friday
Saturday
Sunday
0
30
60
90
120
150
180
210
240
270
300
330
360
Day of Year

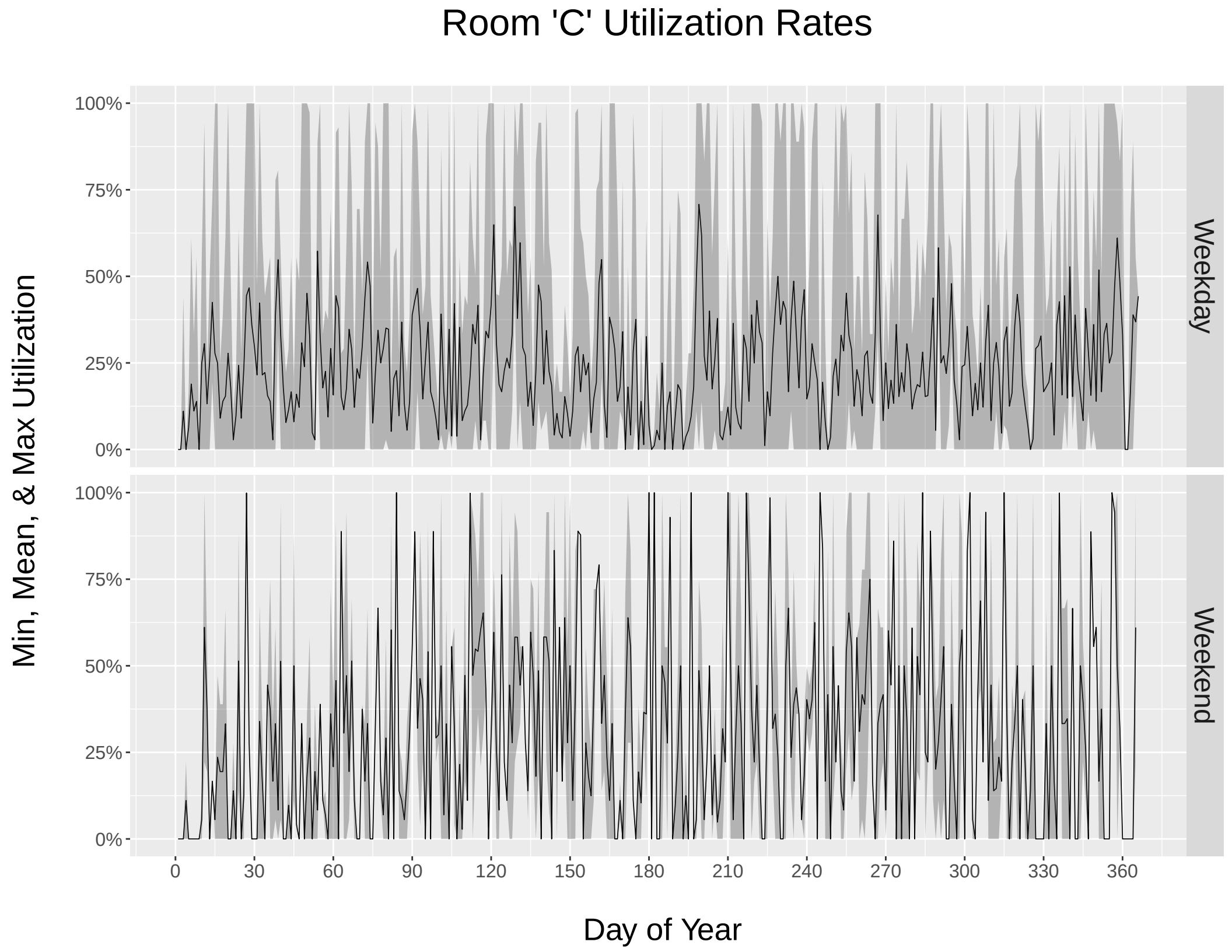

Room 'S' Utilization Rates by Day of the Week
Utilization
100%
75%
50%
25%
0%
Monday
Tuesday
Wednesday
Thursday
Friday
Saturday
Sunday
0
30
60
90
120
150
180
210
240
270
300
330
360
Day of Year

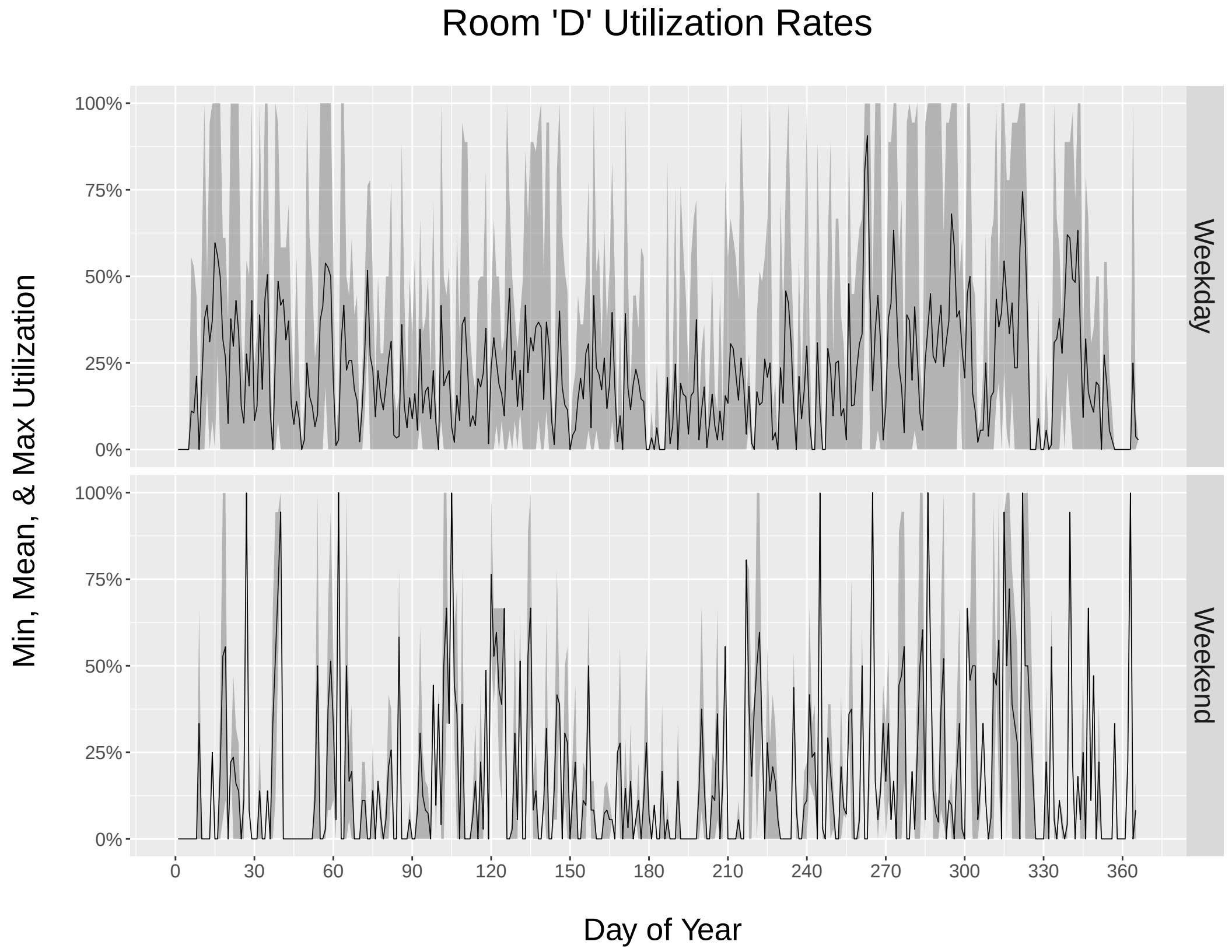

Room 'T' Utilization Rates by Day of the Week
Utilization
100%
75%
50%
25%
0%
Monday
Tuesday
Wednesday
Thursday
Friday
Saturday
Sunday
0
30
60
90
120
150
180
210
240
270
300
330
360
Day of Year

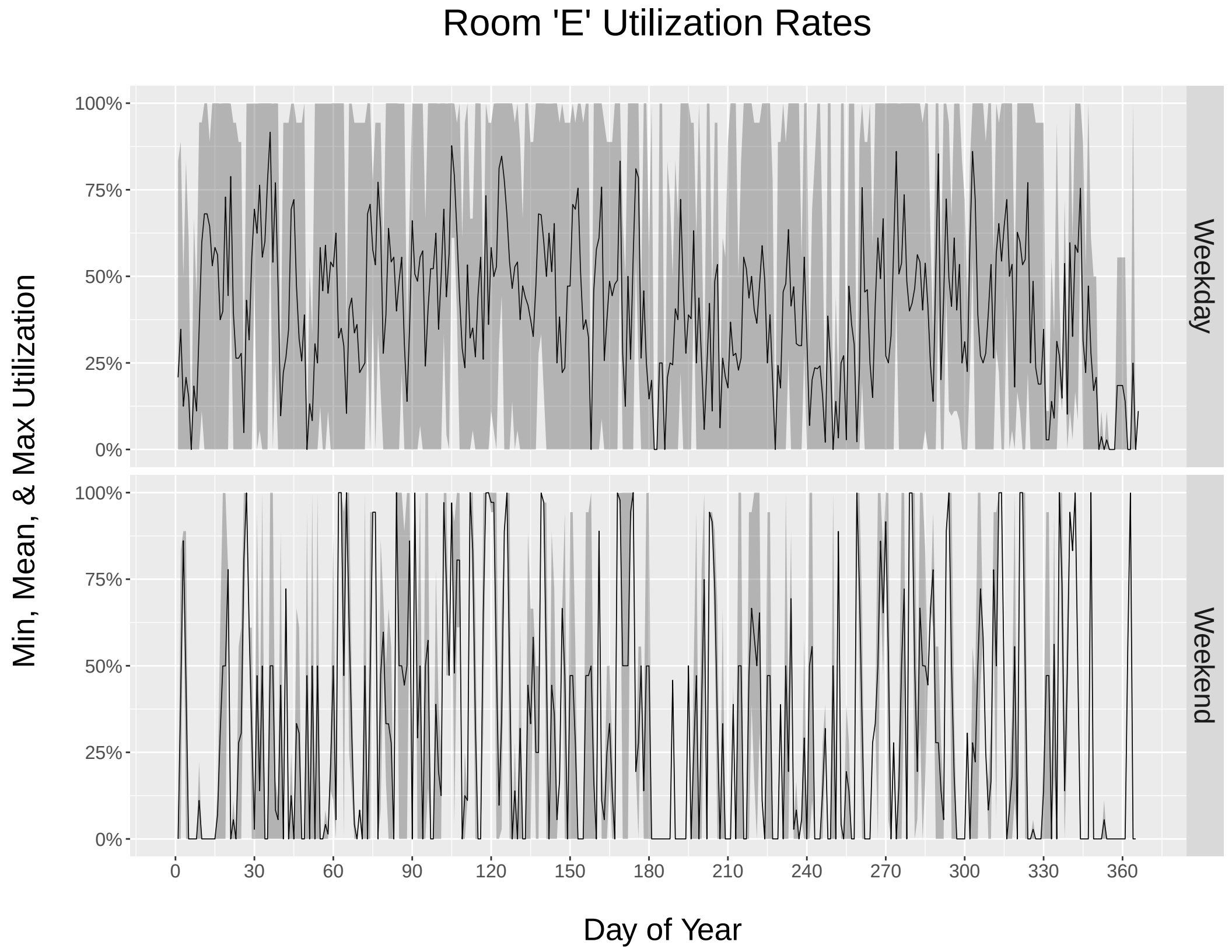

Room 'U' Utilization Rates by Day of the Week
Utilization
100%
75%
50%
25%
0%
Monday
Tuesday
Wednesday
Thursday
Friday
Saturday
Sunday
0
30
60
90
120
150
180
210
240
270
300
330
360
Day of Year

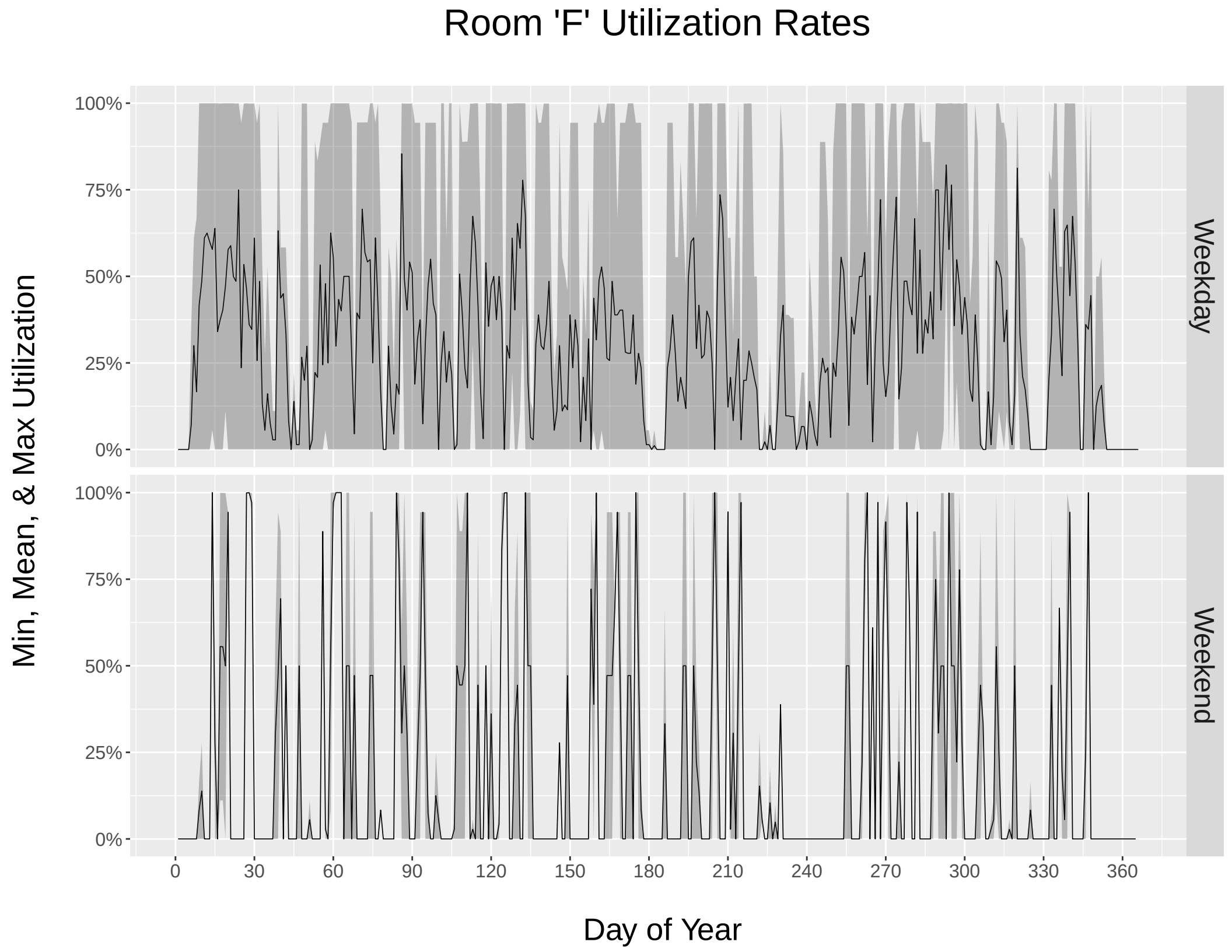

Room 'A' Utilization Rates
Min, Mean, & Max Utilization
100%
75%
50%
25%
0%
Weekday
Weekend
0
30
60
90
120
150
180
210
240
270
300
330
360
Day of Year

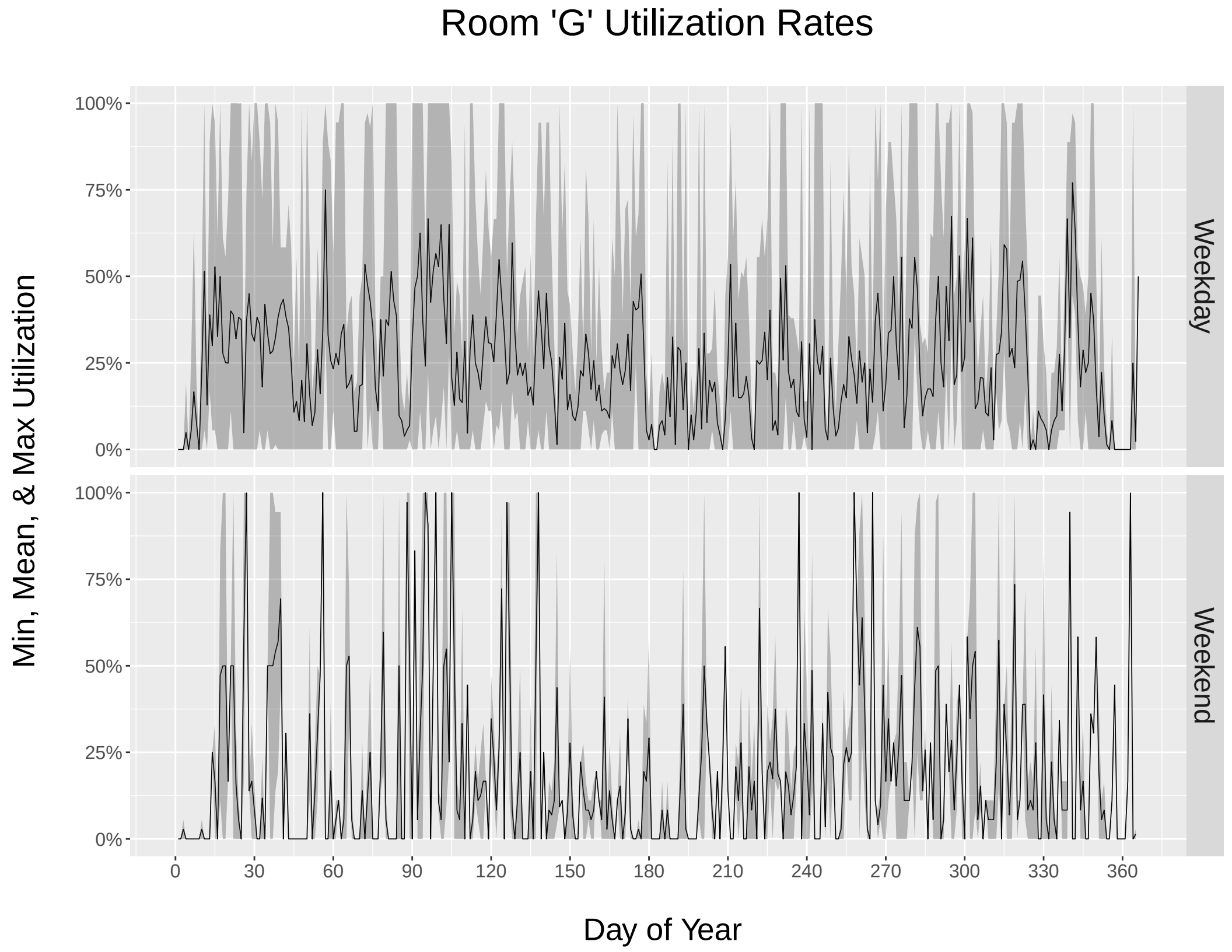

Room 'B' Utilization Rates
Min, Mean, & Max Utilization
100%
75%
50%
25%
0%
Weekday
Weekend
0
30
60
90
120
150
180
210
240
270
300
330
360
Day of Year

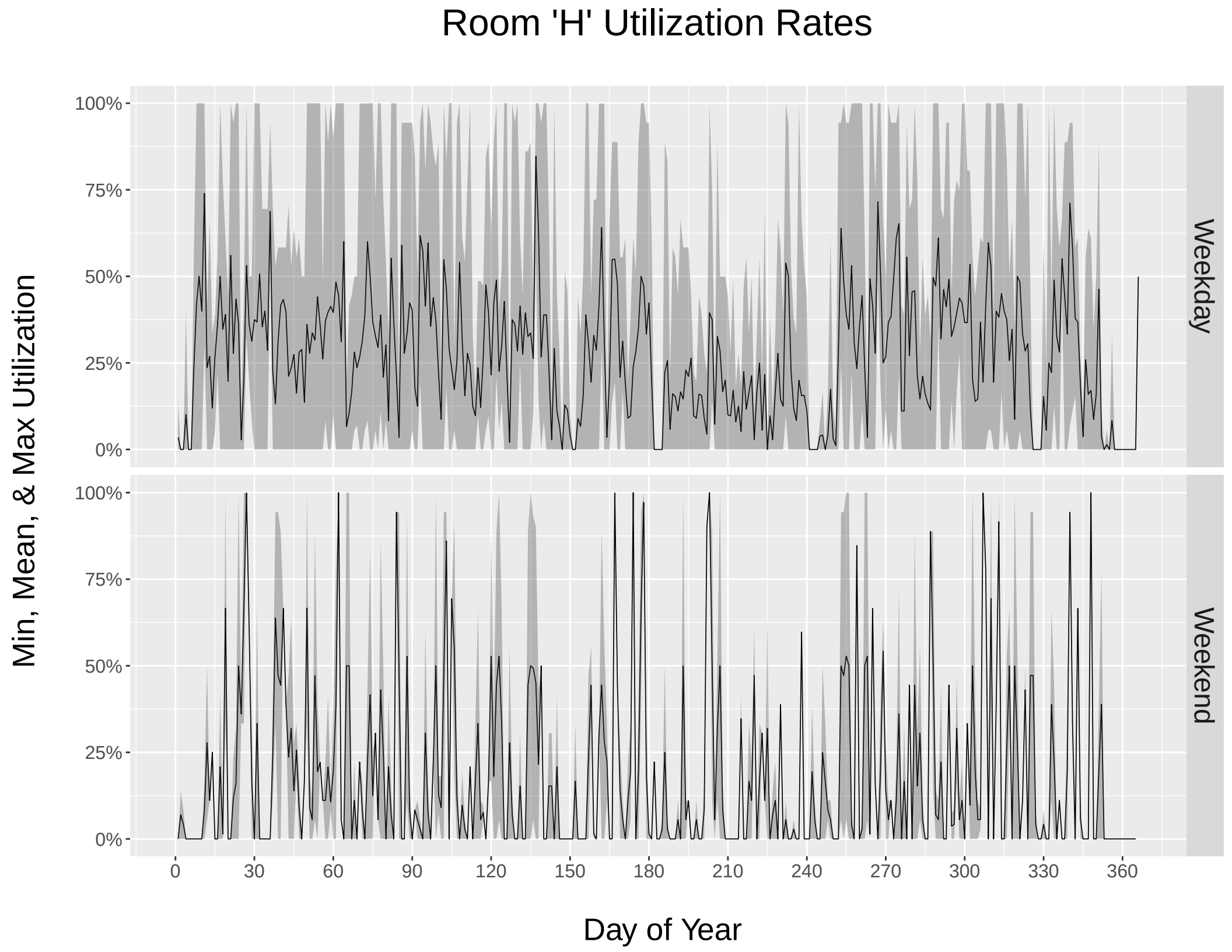

Room 'C' Utilization Rates
Min, Mean, & Max Utilization
100%
75%
50%
25%
0%
Weekday
Weekend
0
30
60
90
120
150
180
210
240
270
300
330
360
Day of Year

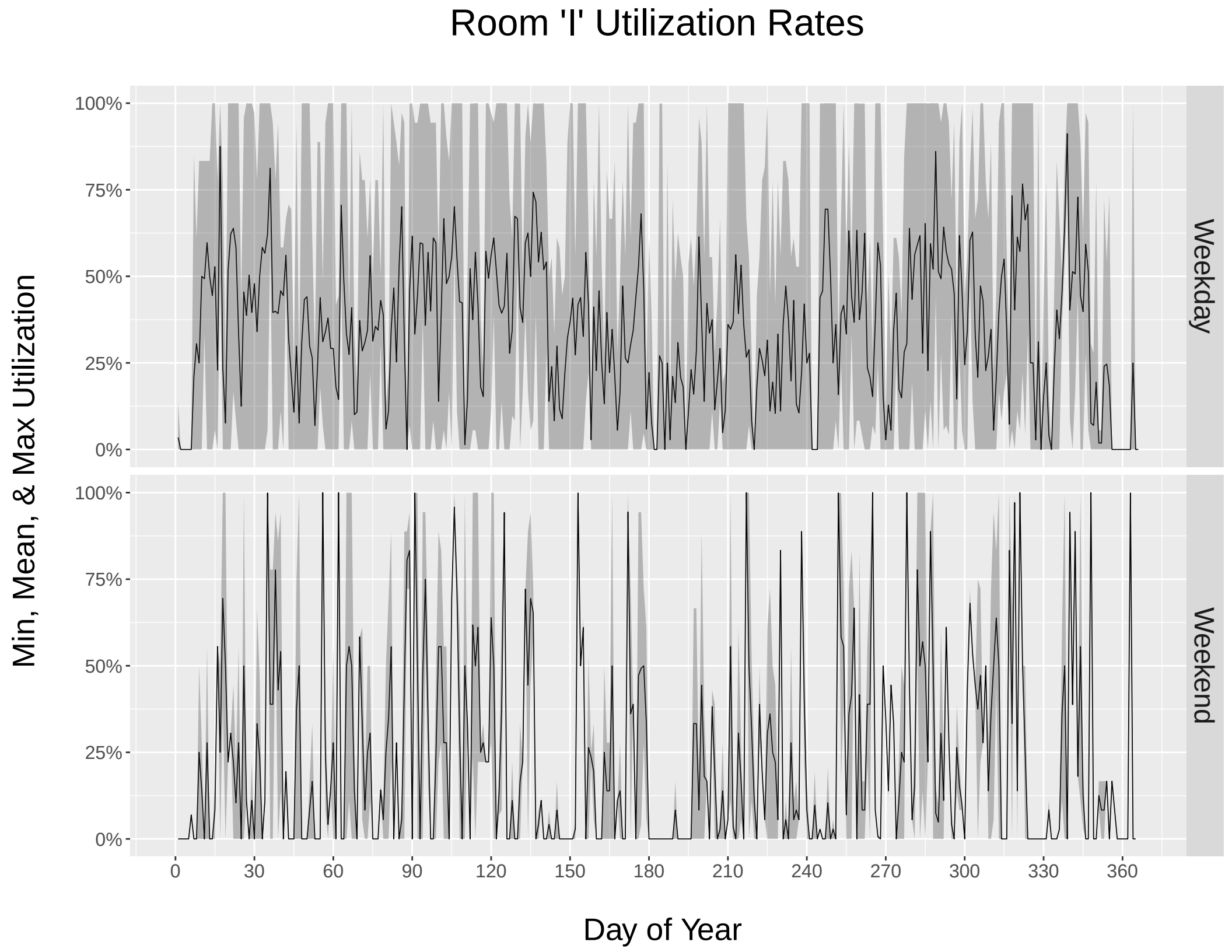

Room 'D' Utilization Rates
Min, Mean, & Max Utilization
100%
75%
50%
25%
0%
Weekday
Weekend
0
30
60
90
120
150
180
210
240
270
300
330
360
Day of Year

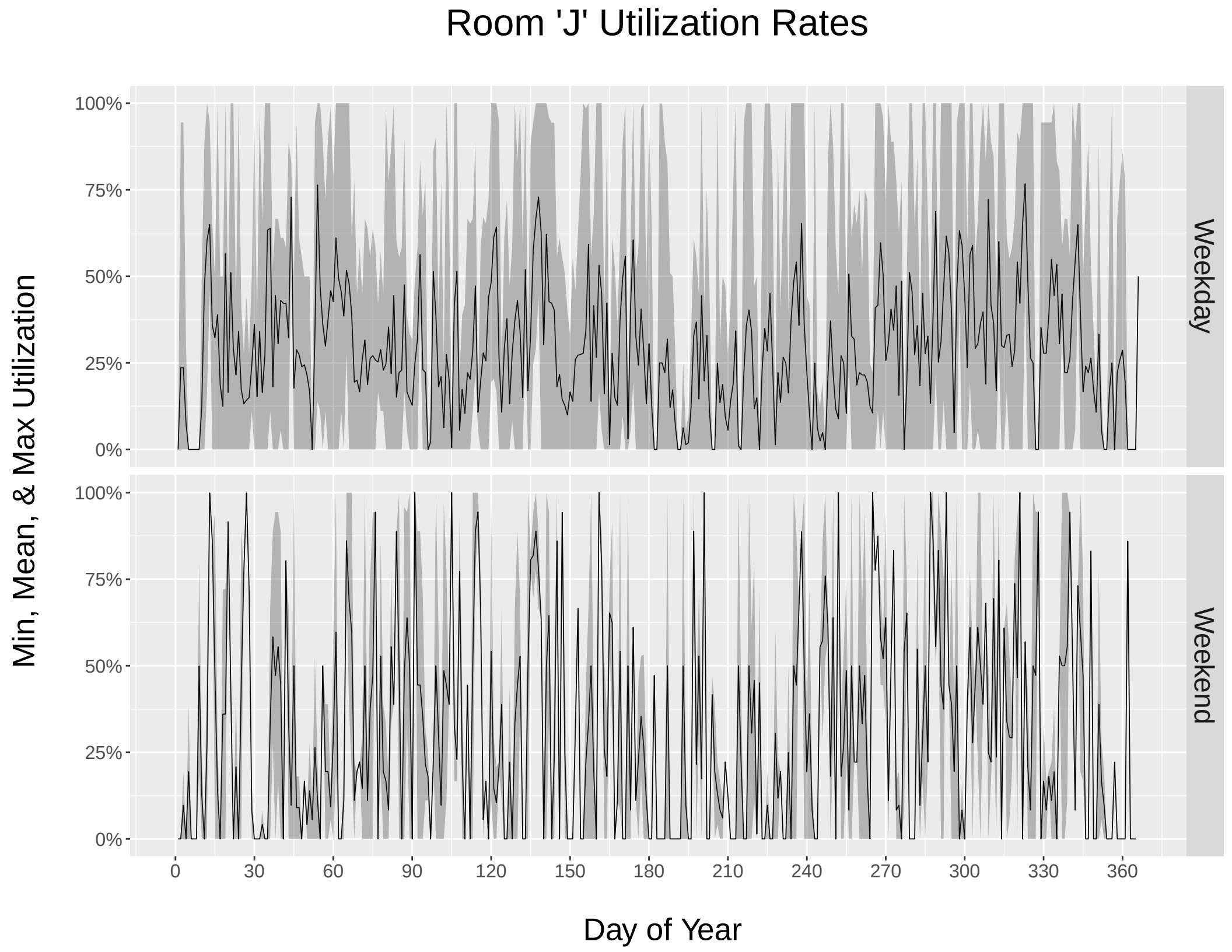

Room 'E' Utilization Rates
Min, Mean, & Max Utilization
100%
75%
50%
25%
0%
Weekday
Weekend
0
30
60
90
120
150
180
210
240
270
300
330
360
Day of Year

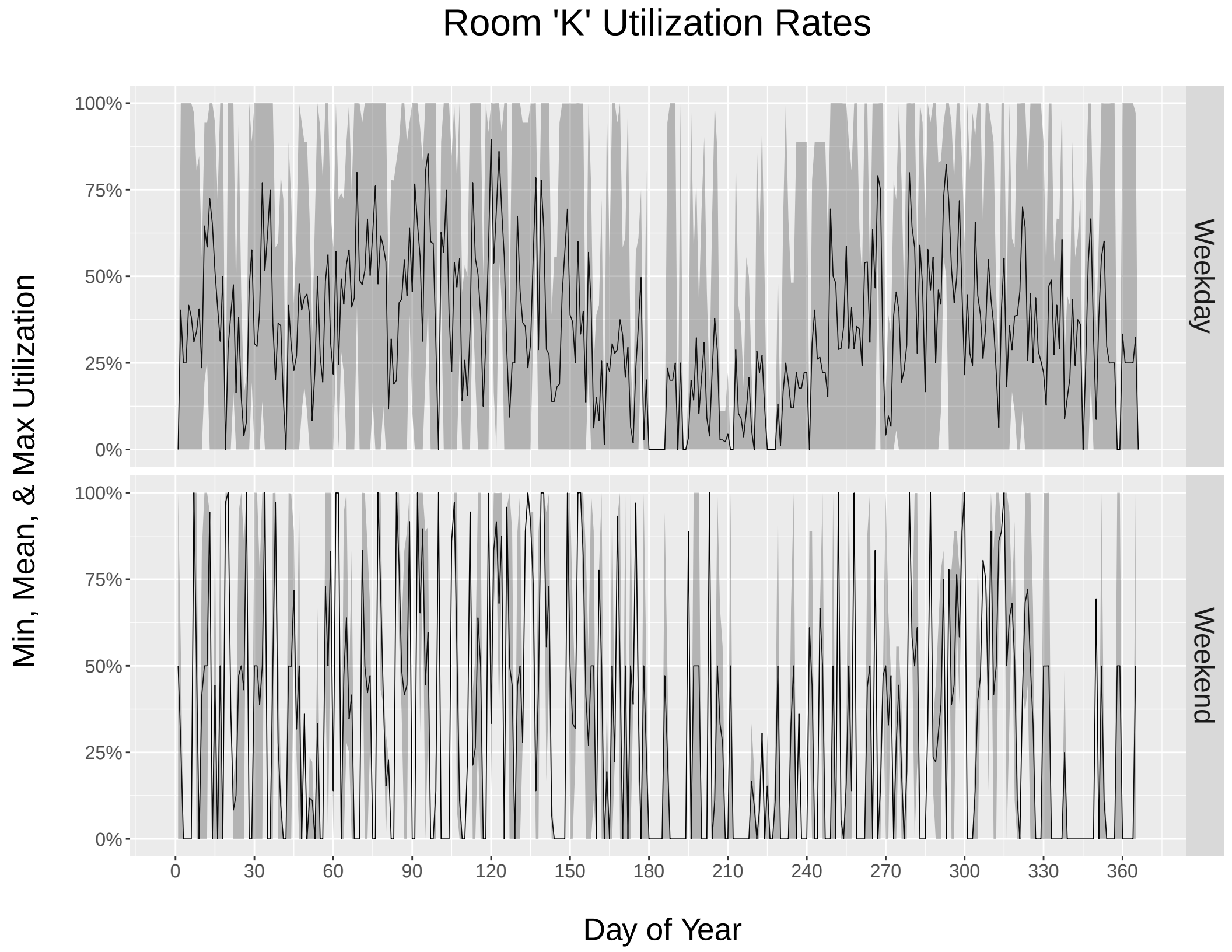

Room 'F' Utilization Rates
Min, Mean, & Max Utilization
100%
75%
50%
25%
0%
Weekday
Weekend
0
30
60
90
120
150
180
210
240
270
300
330
360
Day of Year

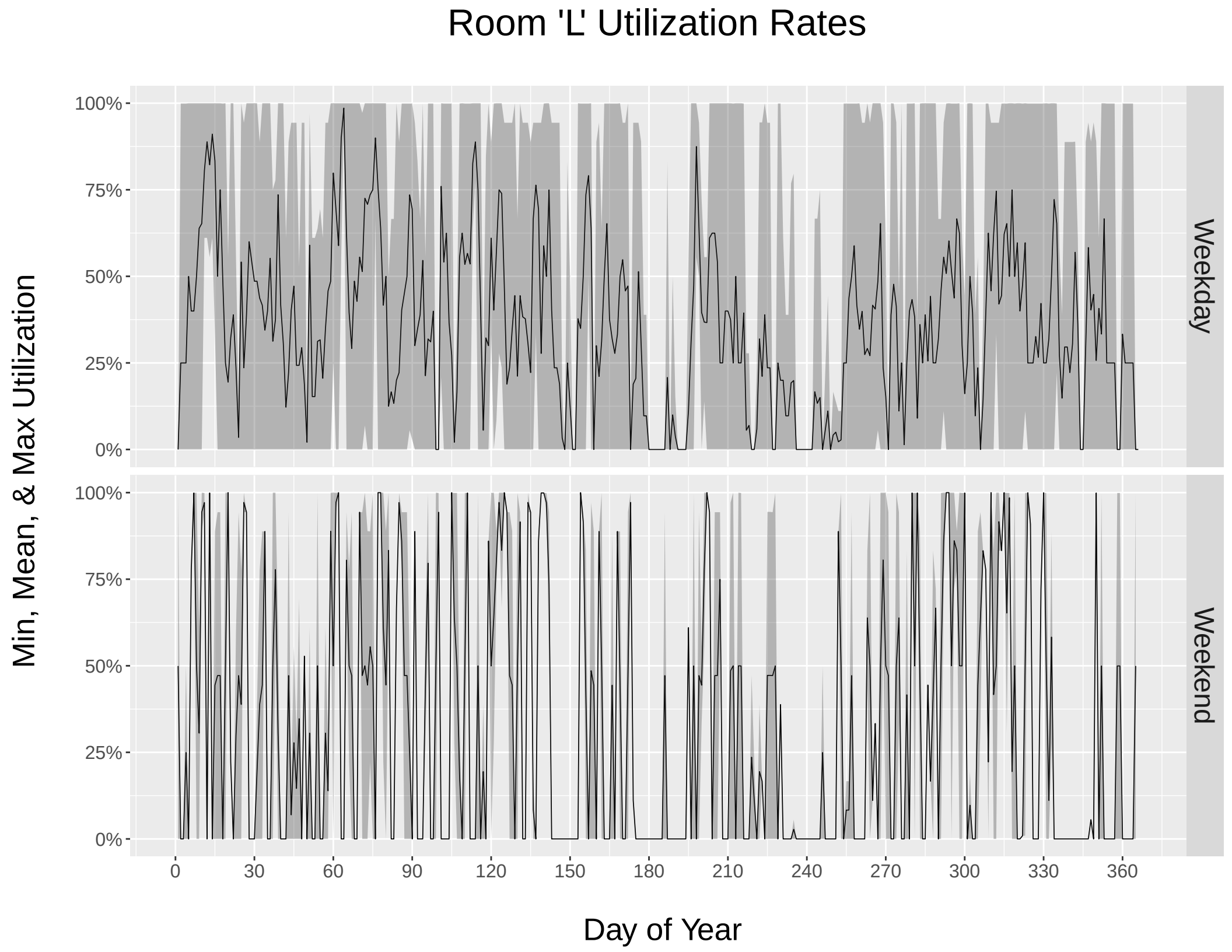

Room 'G' Utilization Rates
Min, Mean, & Max Utilization
100%
75%
50%
25%
0%
Weekday
Weekend
0
30
60
90
120
150
180
210
240
270
300
330
360
Day of Year

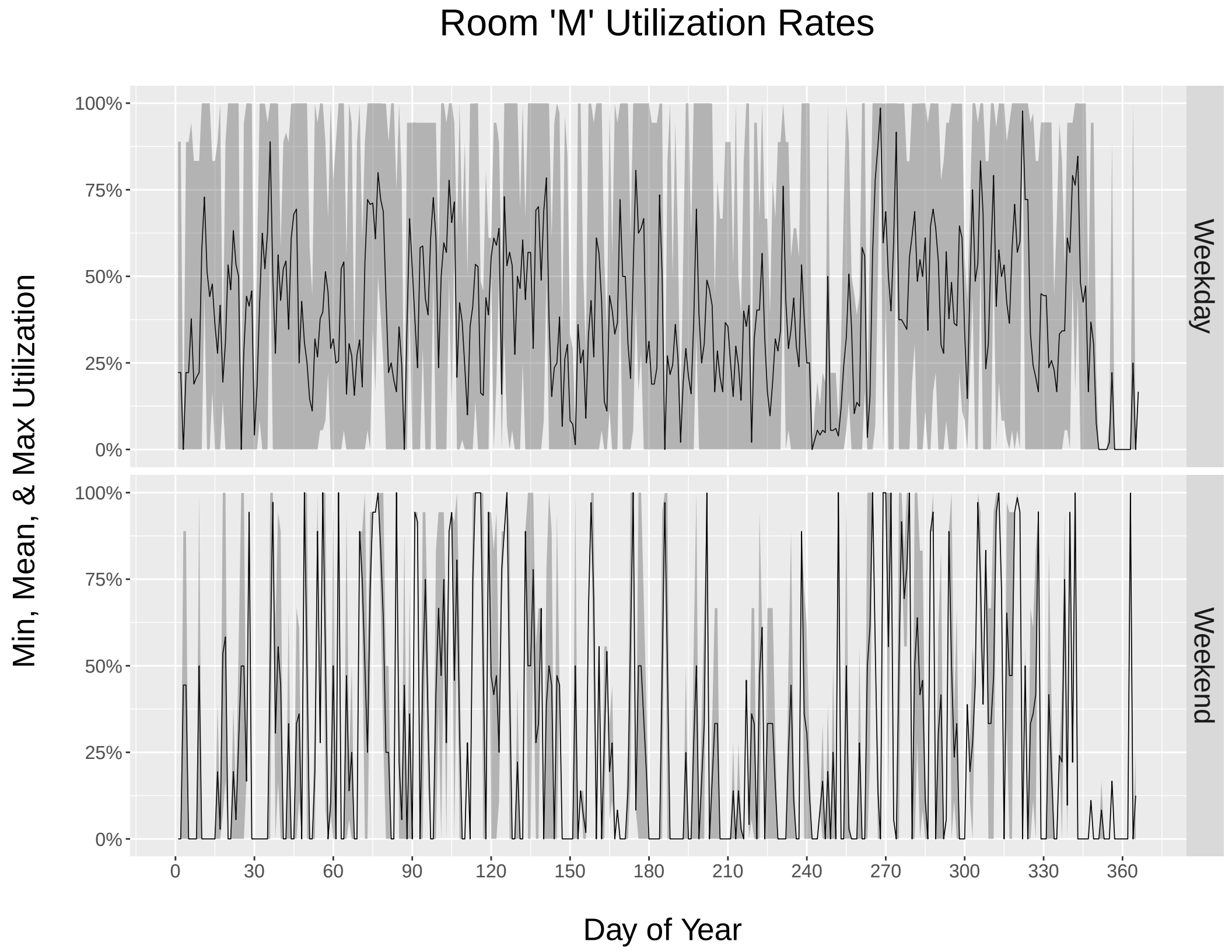

Room 'H' Utilization Rates
Min, Mean, & Max Utilization
100%
75%
50%
25%
0%
Weekday
Weekend
0
30
60
90
120
150
180
210
240
270
300
330
360
Day of Year

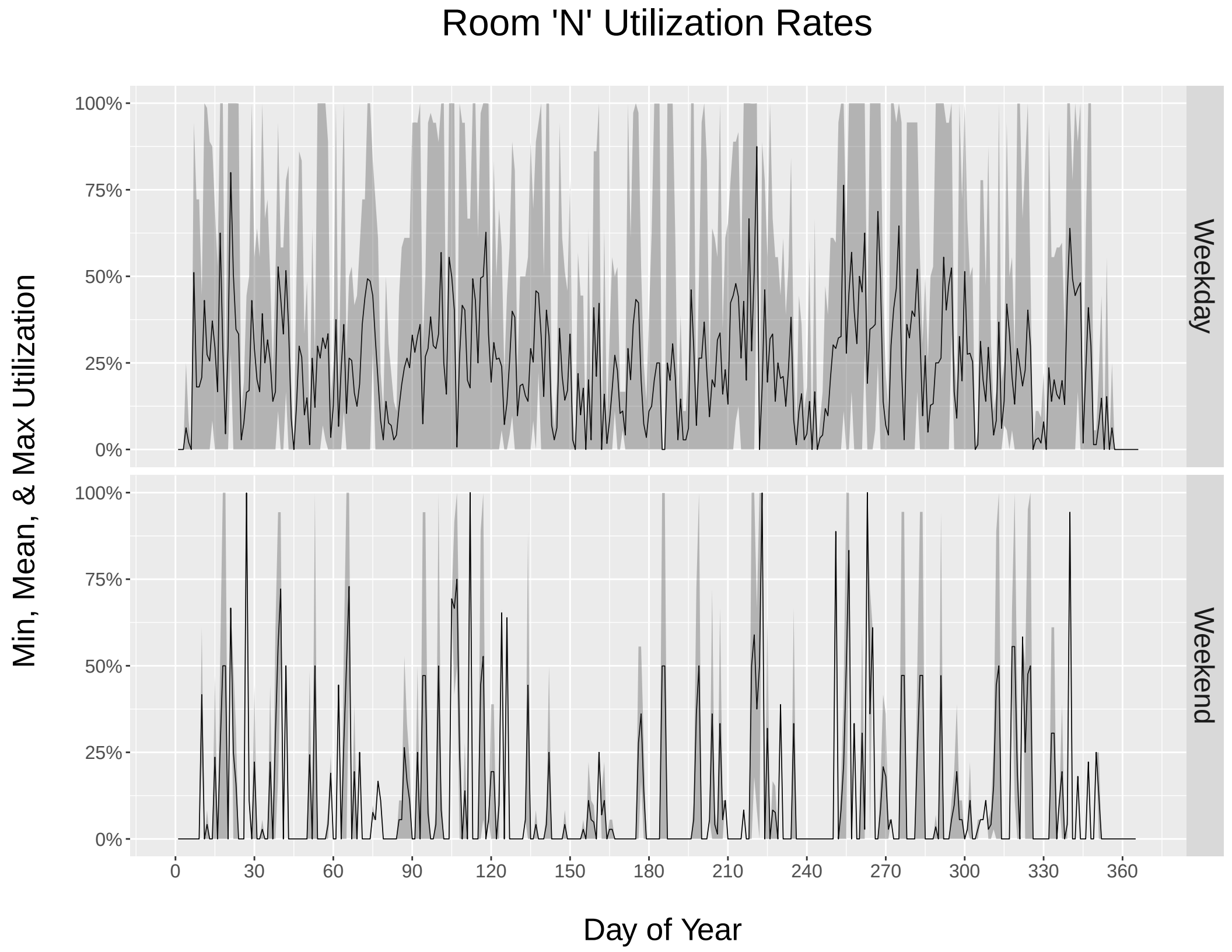

Room 'I' Utilization Rates
Min, Mean, & Max Utilization
100%
75%
50%
25%
0%
Weekday
Weekend
0
30
60
90
120
150
180
210
240
270
300
330
360
Day of Year

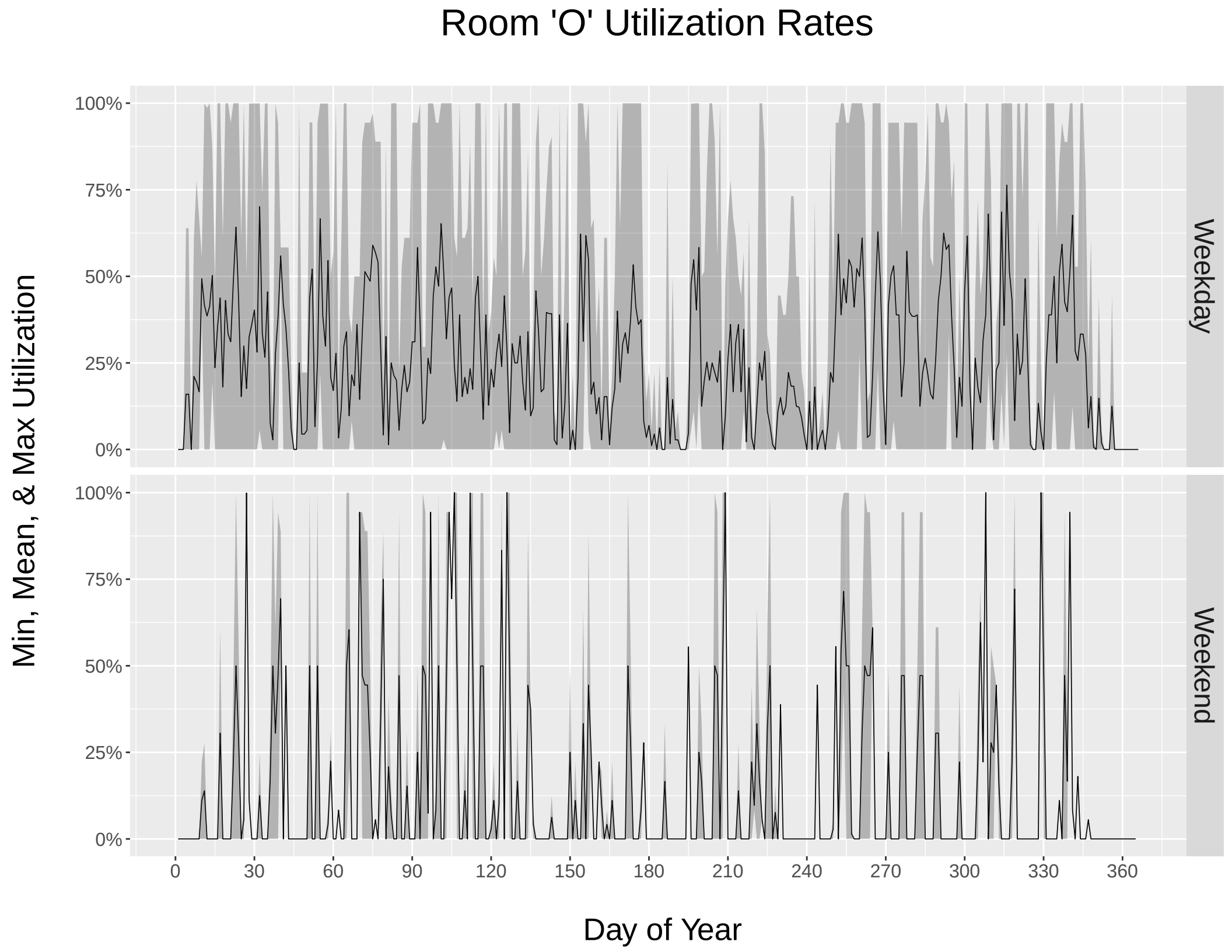

Room 'J' Utilization Rates
Min, Mean, & Max Utilization
100%
75%
50%
25%
0%
Weekday
Weekend
0
30
60
90
120
150
180
210
240
270
300
330
360
Day of Year

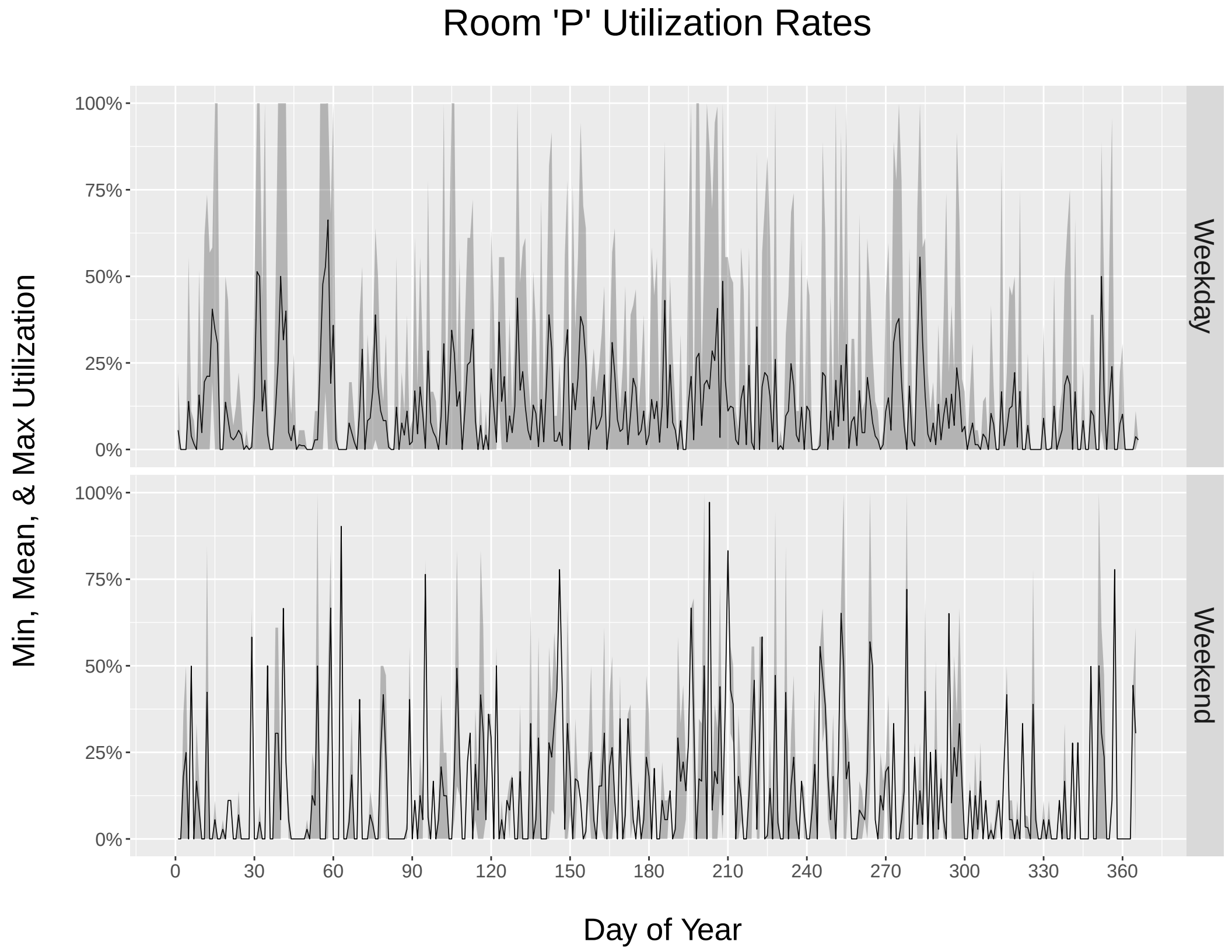

Room 'K' Utilization Rates
Min, Mean, & Max Utilization
100%
75%
50%
25%
0%
Weekday
Weekend
0
30
60
90
120
150
180
210
240
270
300
330
360
Day of Year

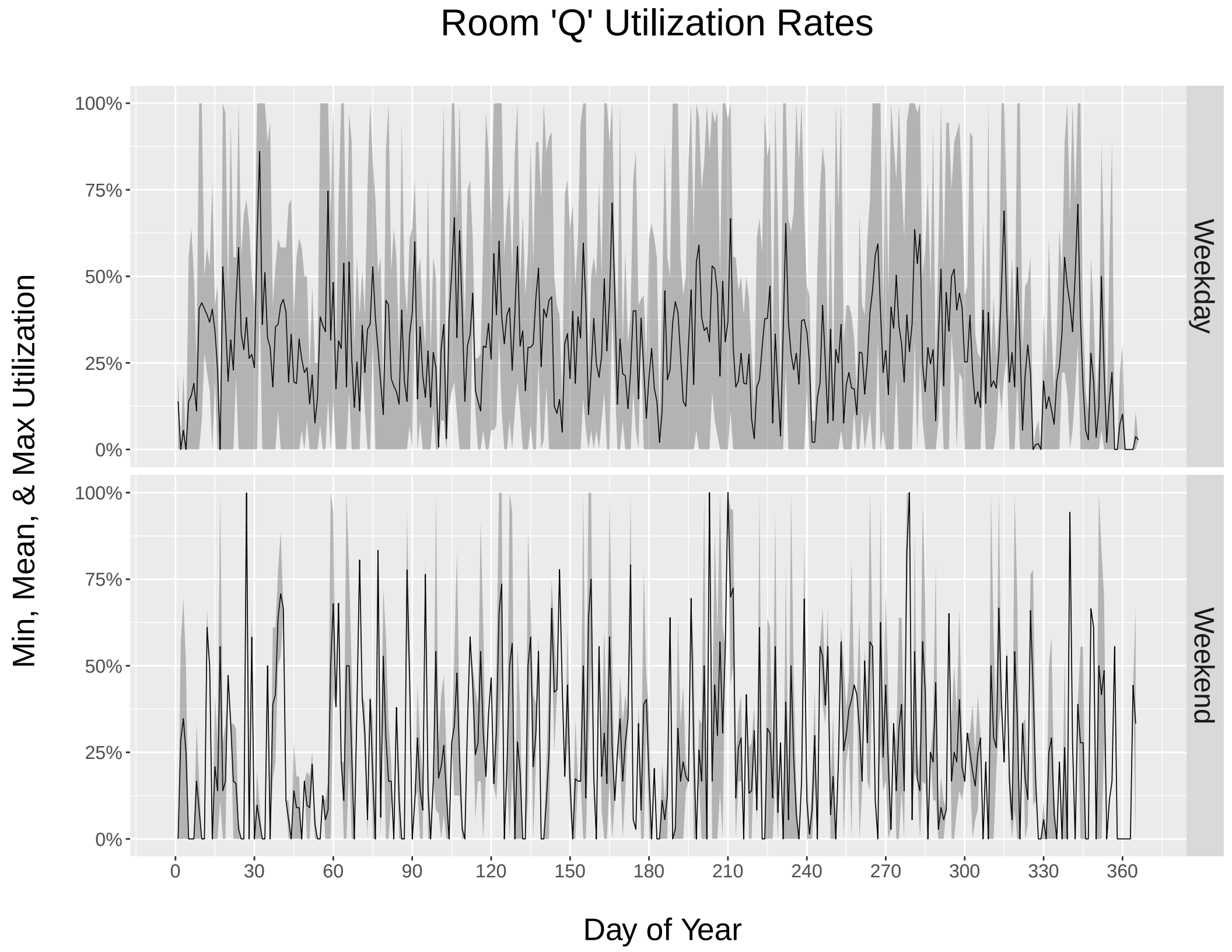

Room 'L' Utilization Rates
Min, Mean, & Max Utilization
100%
75%
50%
25%
0%
Weekday
Weekend
0
30
60
90
120
150
180
210
240
270
300
330
360
Day of Year

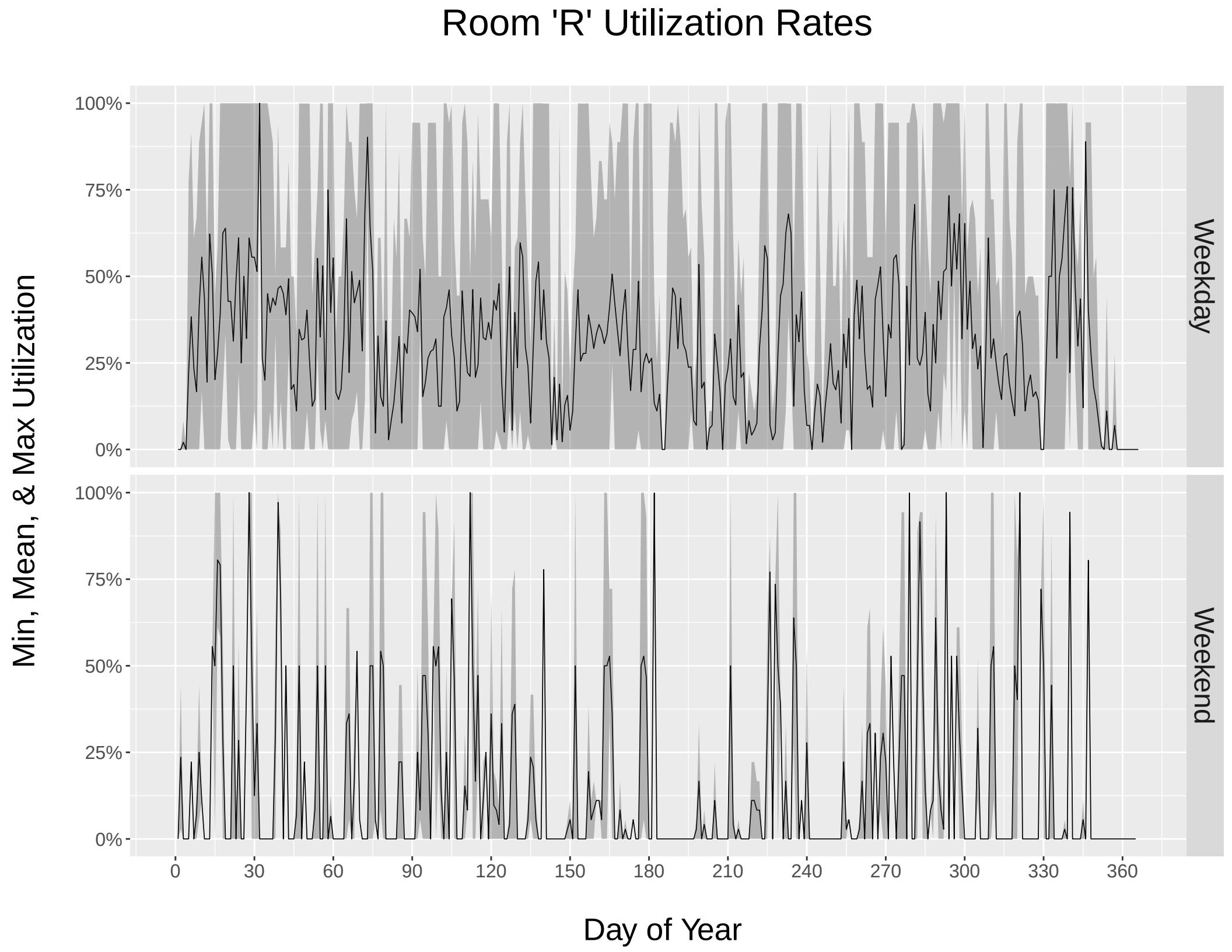

Room 'M' Utilization Rates
Min, Mean, & Max Utilization
100%
75%
50%
25%
0%
Weekday
Weekend
0
30
60
90
120
150
180
210
240
270
300
330
360
Day of Year

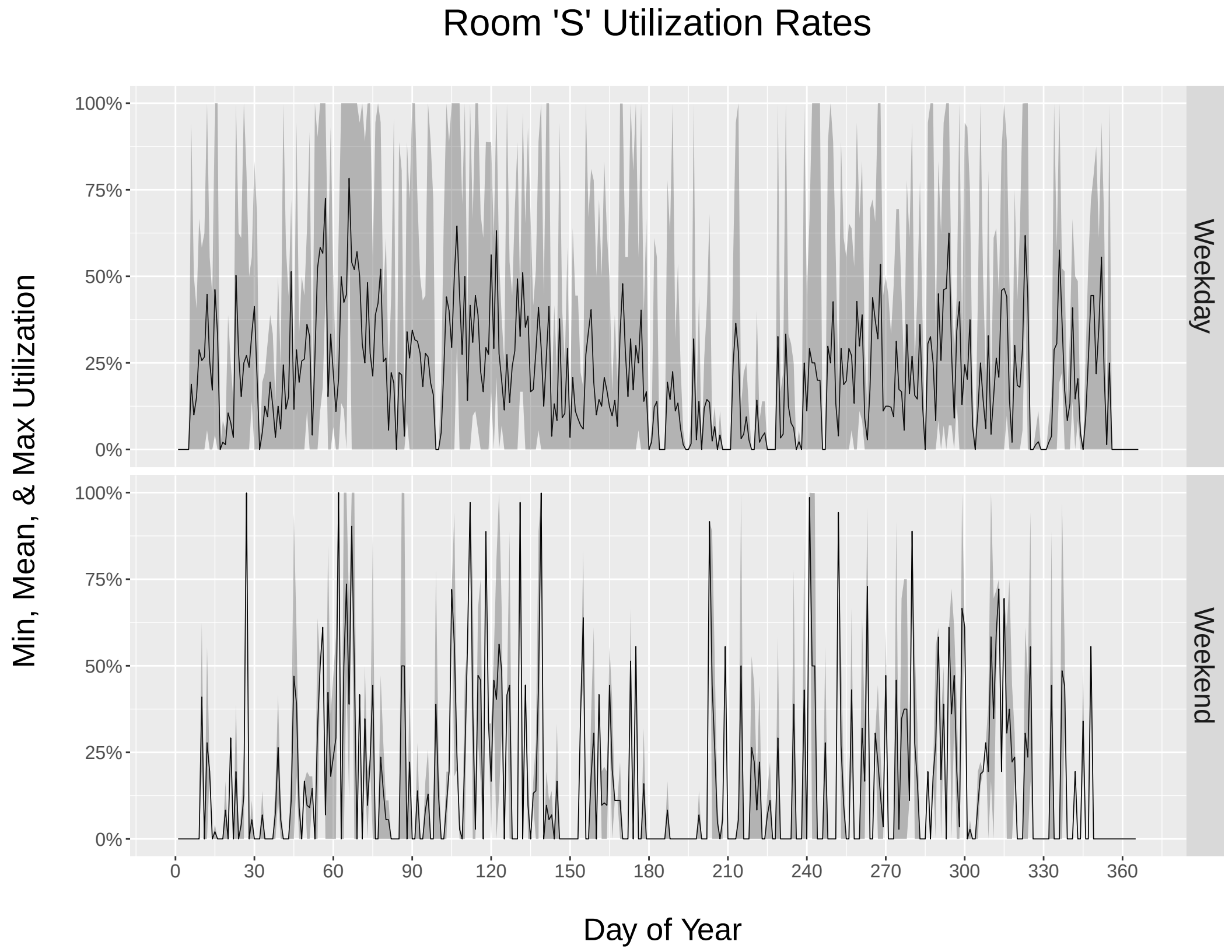

Room 'N' Utilization Rates
Min, Mean, & Max Utilization
100%
75%
50%
25%
0%
Weekday
Weekend
0
30
60
90
120
150
180
210
240
270
300
330
360
Day of Year

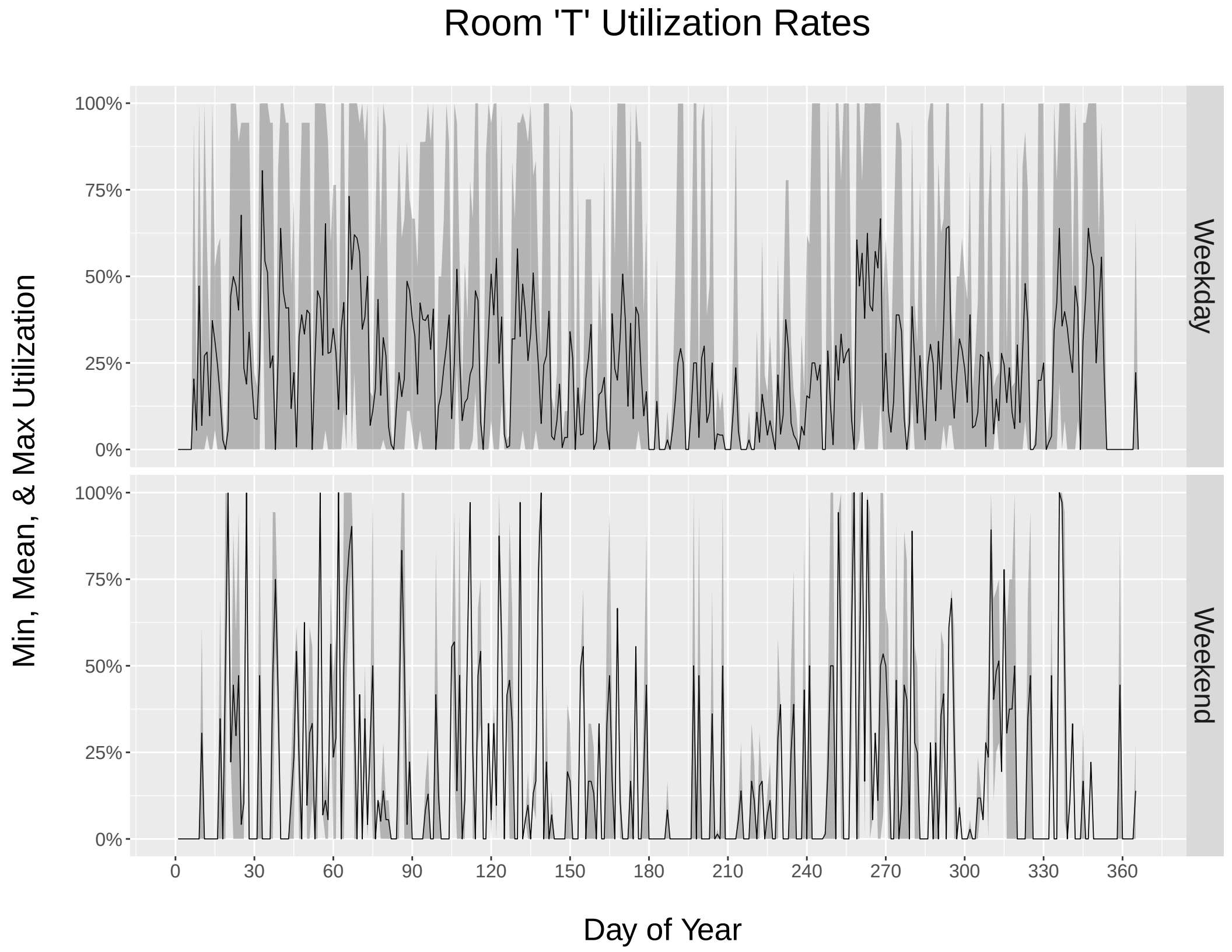

Room 'O' Utilization Rates
Min, Mean, & Max Utilization
100%
75%
50%
25%
0%
Weekday
Weekend
0
30
60
90
120
150
180
210
240
270
300
330
360
Day of Year

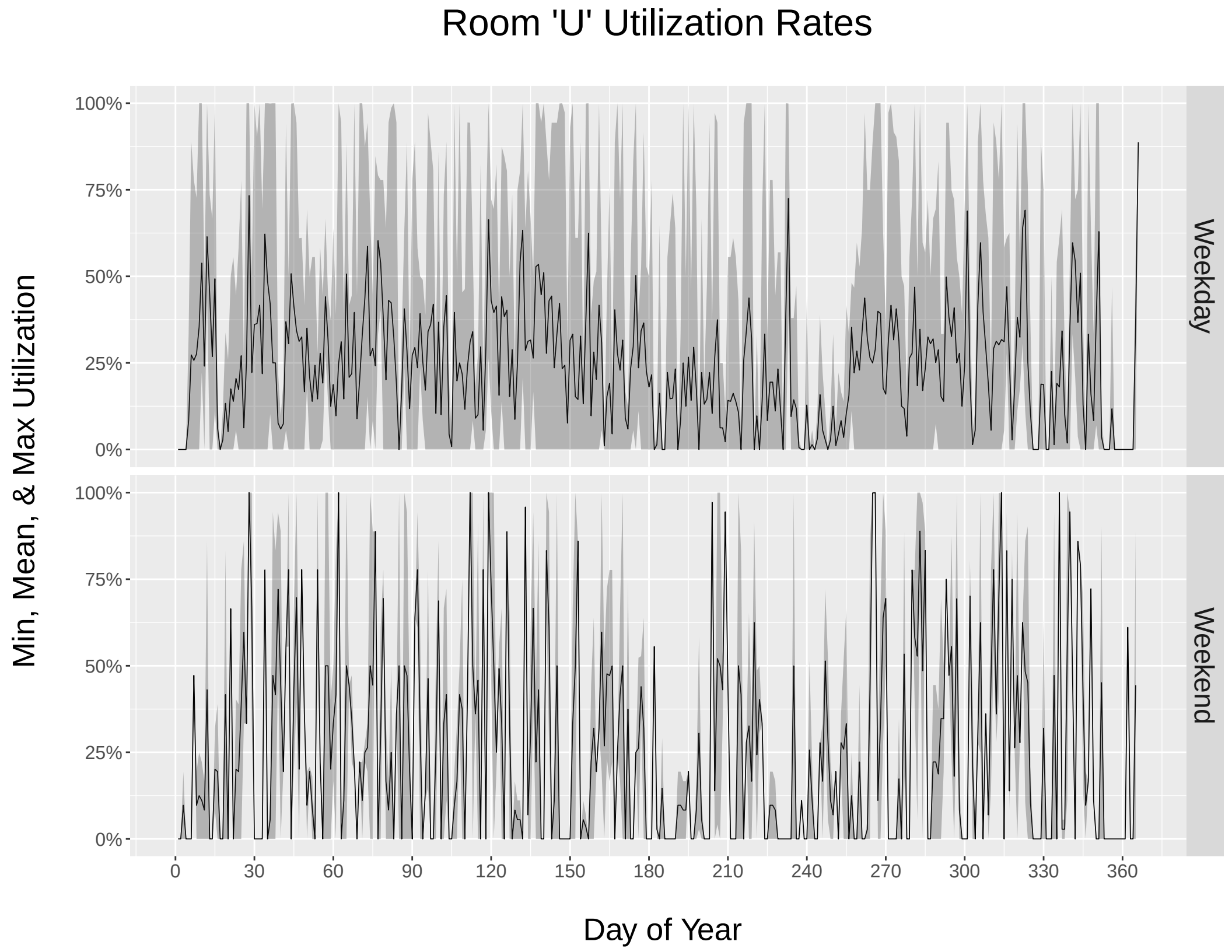

Room 'P' Utilization Rates
Min, Mean, & Max Utilization
100%
75%
50%
25%
0%
Weekday
Weekend
0
30
60
90
120
150
180
210
240
270
300
330
360
Day of Year

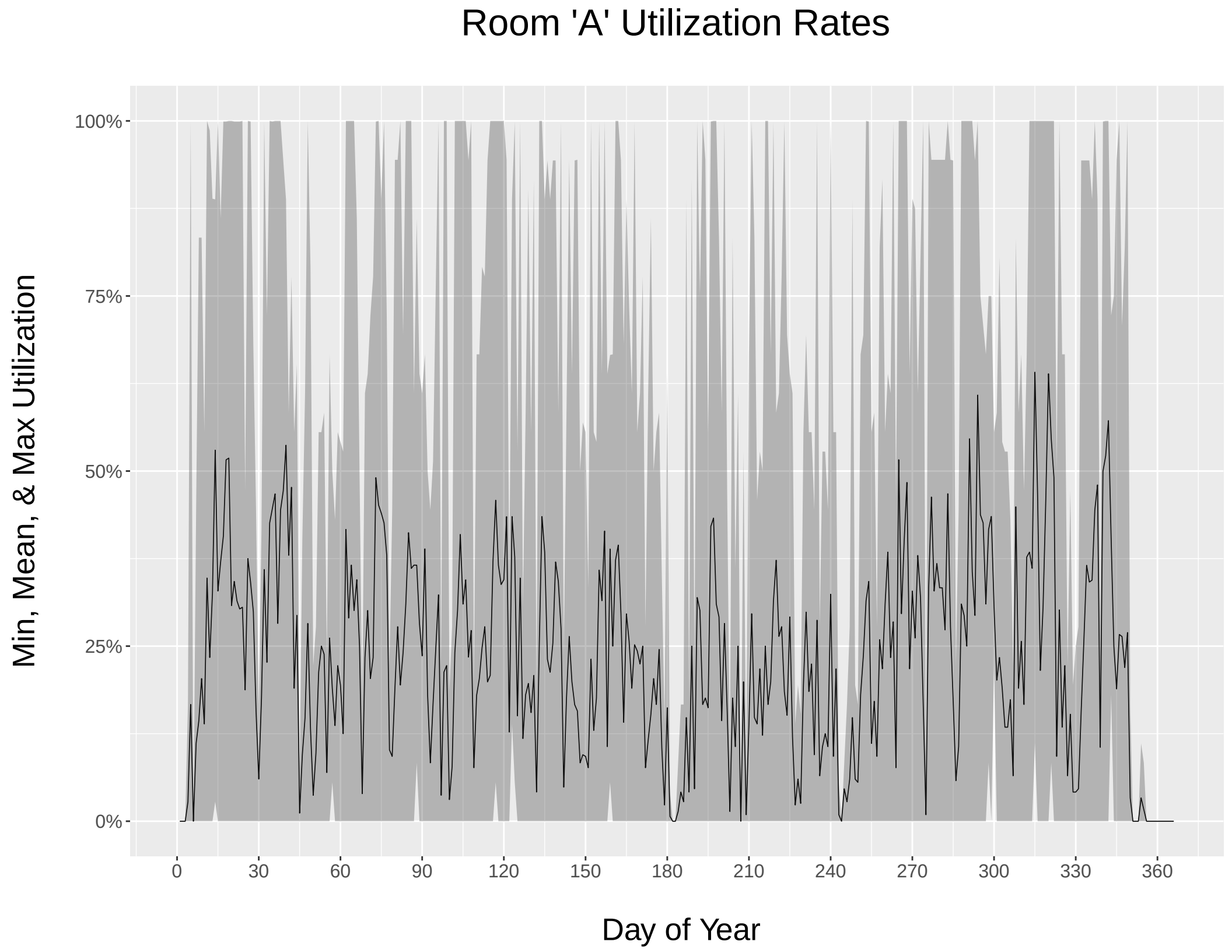

Room 'Q' Utilization Rates
Min, Mean, & Max Utilization
100%
75%
50%
25%
0%
Weekday
Weekend
0
30
60
90
120
150
180
210
240
270
300
330
360
Day of Year

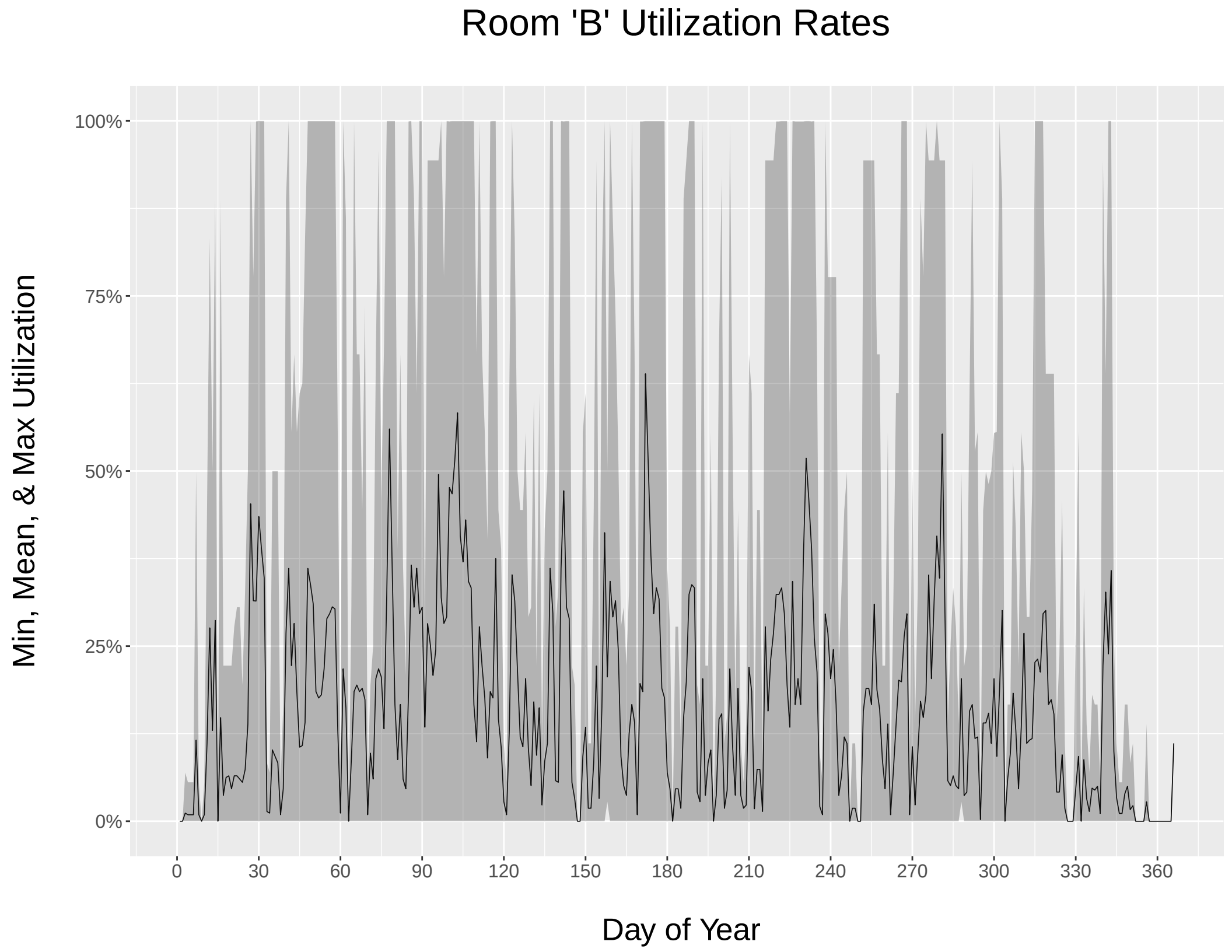

Room 'R' Utilization Rates
Min, Mean, & Max Utilization
100%
75%
50%
25%
0%
Weekday
Weekend
0
30
60
90
120
150
180
210
240
270
300
330
360
Day of Year

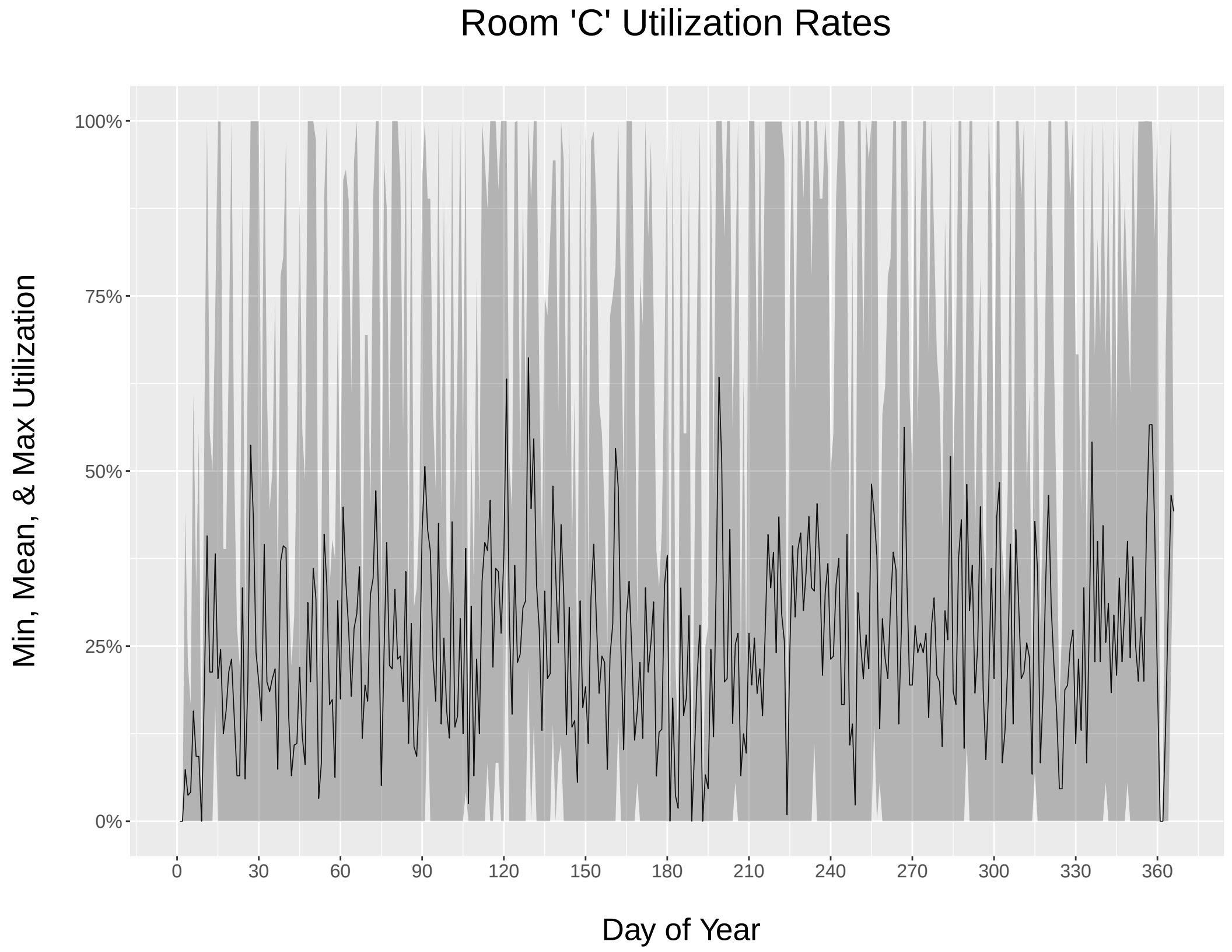

Room 'S' Utilization Rates
Min, Mean, & Max Utilization
100%
75%
50%
25%
0%
Weekday
Weekend
0
30
60
90
120
150
180
210
240
270
300
330
360
Day of Year


Room 'T' Utilization Rates
Min, Mean, & Max Utilization
100%
75%
50%
25%
0%
Weekday
Weekend
0
30
60
90
120
150
180
210
240
270
300
330
360
Day of Year


Room 'U' Utilization Rates
Min, Mean, & Max Utilization
100%
75%
50%
25%
0%
Weekday
Weekend
0
30
60
90
120
150
180
210
240
270
300
330
360
Day of Year


Room 'A' Utilization Rates
Min, Mean, & Max Utilization
100%
75%
50%
25%
0%
0
30
60
90
120
150
180
210
240
270
300
330
360
Day of Year


Room 'B' Utilization Rates
Min, Mean, & Max Utilization
100%
75%
50%
25%
0%
0
30
60
90
120
150
180
210
240
270
300
330
360
Day of Year


Room 'C' Utilization Rates
Min, Mean, & Max Utilization
100%
75%
50%
25%
0%
0
30
60
90
120
150
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210
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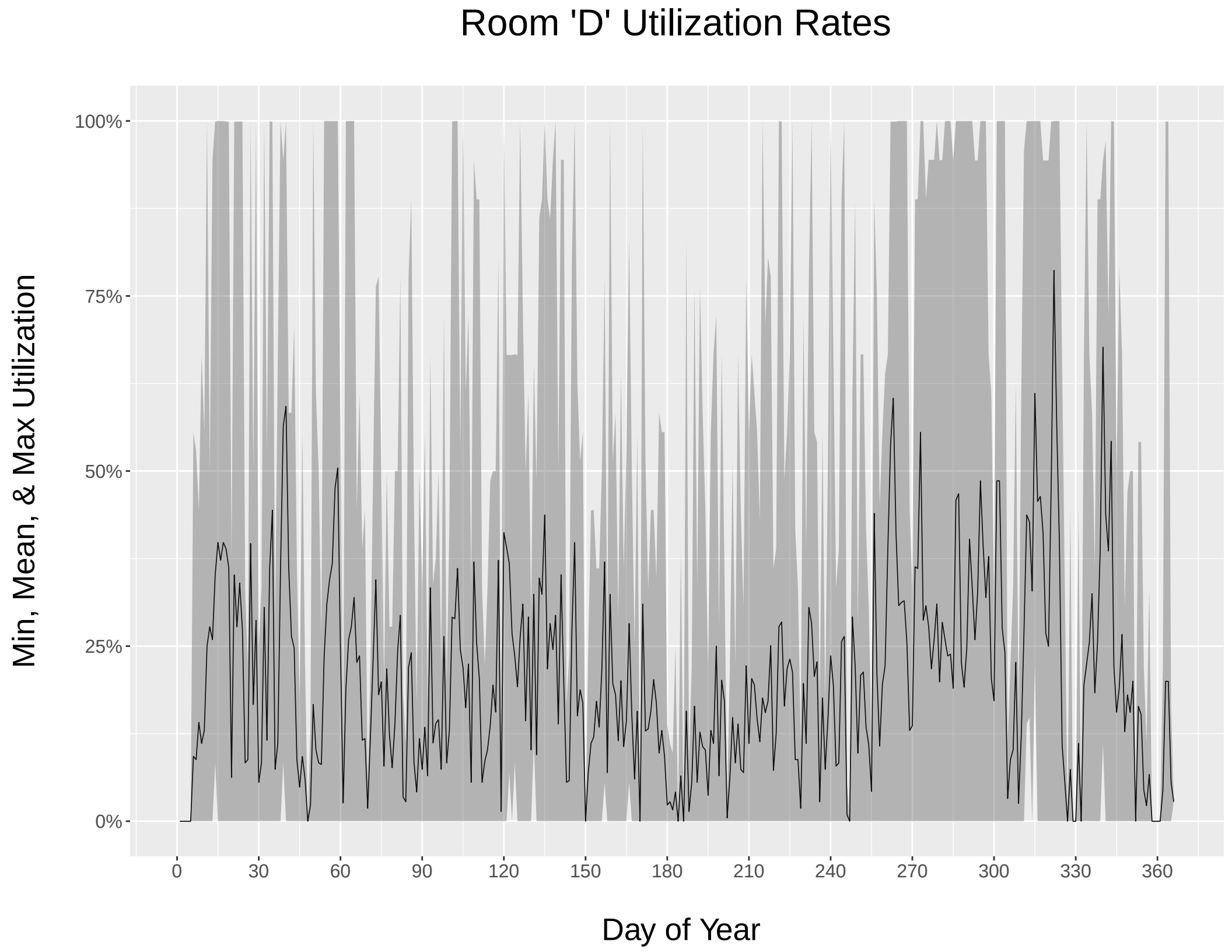
300
330
360
Day of Year


Room 'D' Utilization Rates
Min, Mean, & Max Utilization
100%
75%
50%
25%
0%
0
30
60
90
120
150
180
210
240
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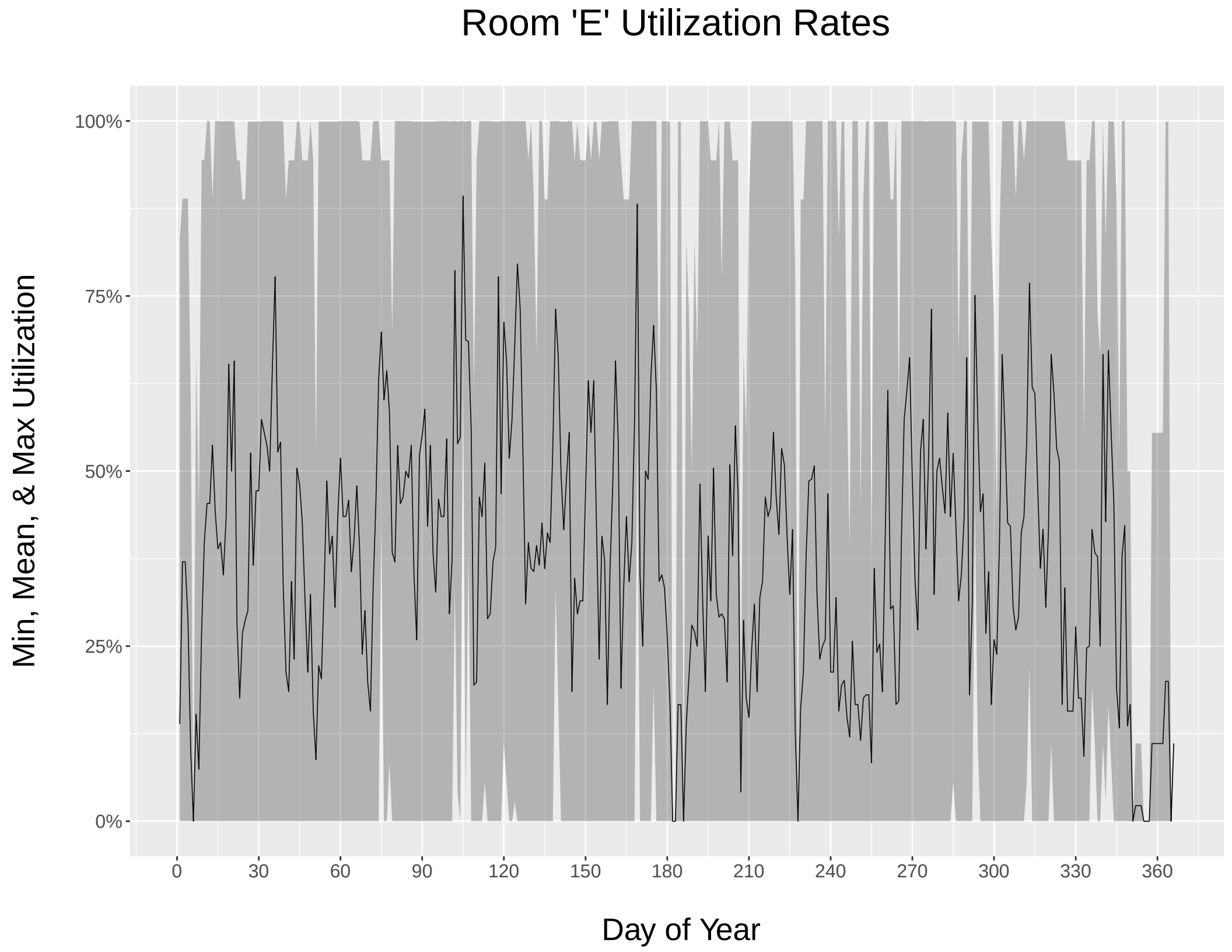
300
330
360
Day of Year


Room 'E' Utilization Rates
Min, Mean, & Max Utilization
100%
75%
50%
25%
0%
0
30
60
90
120
150
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210
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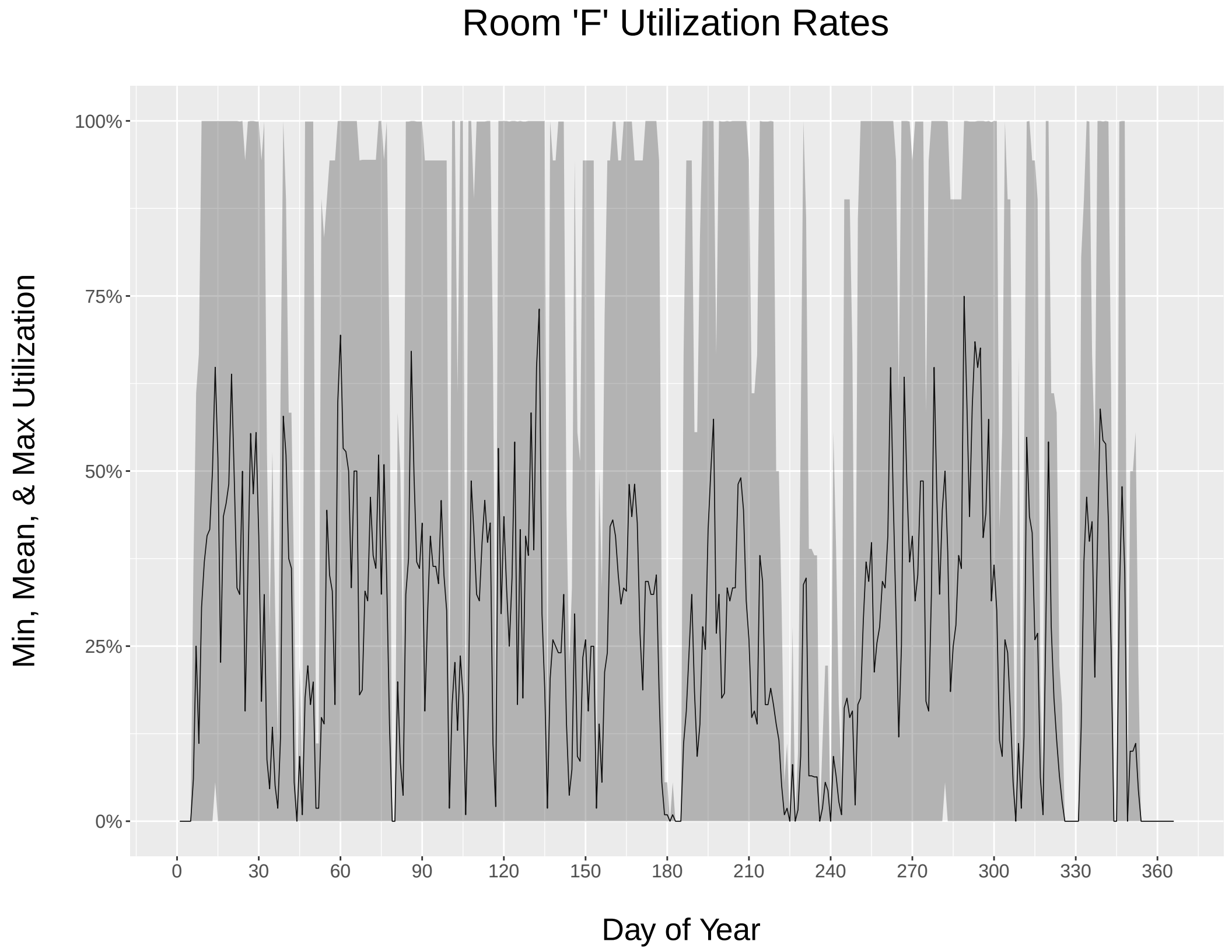
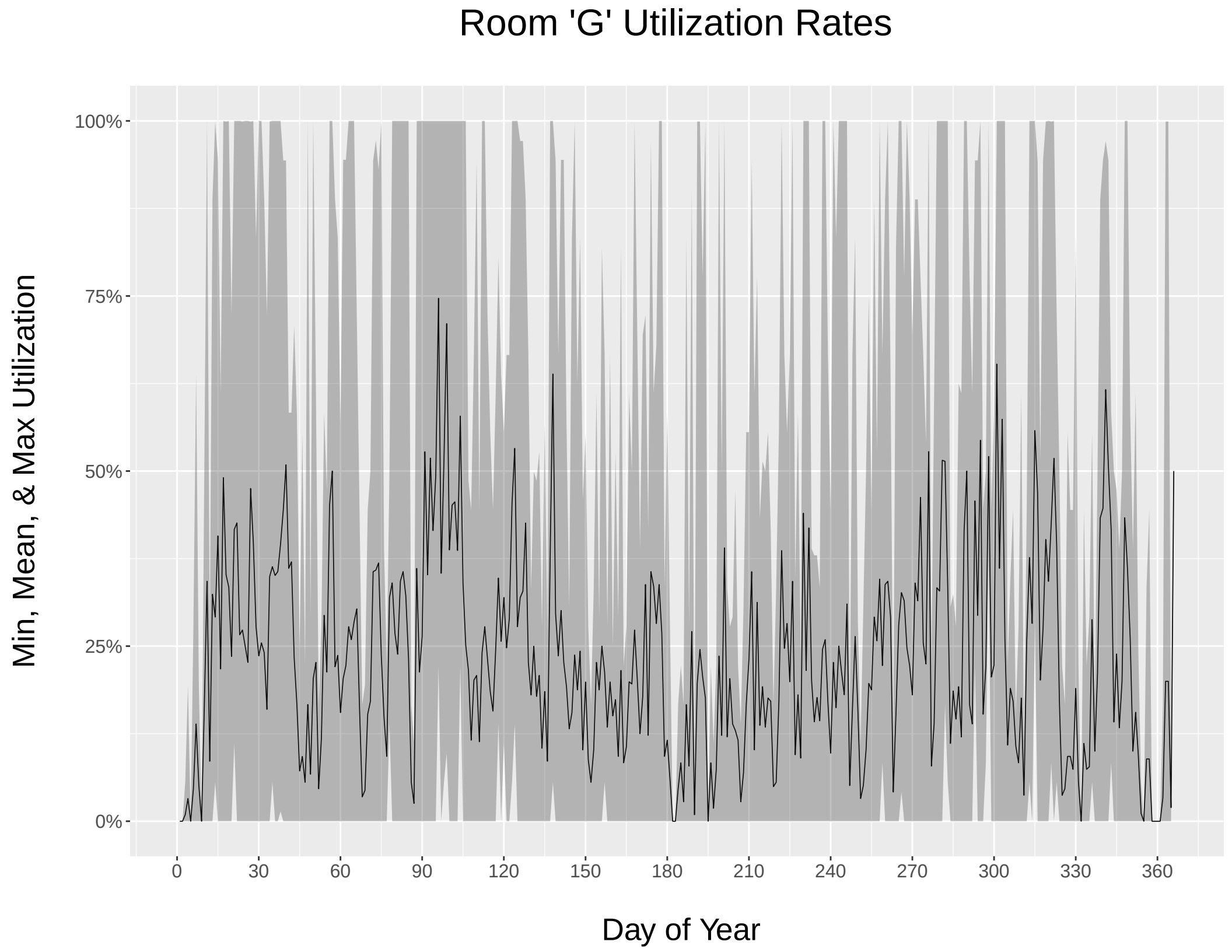
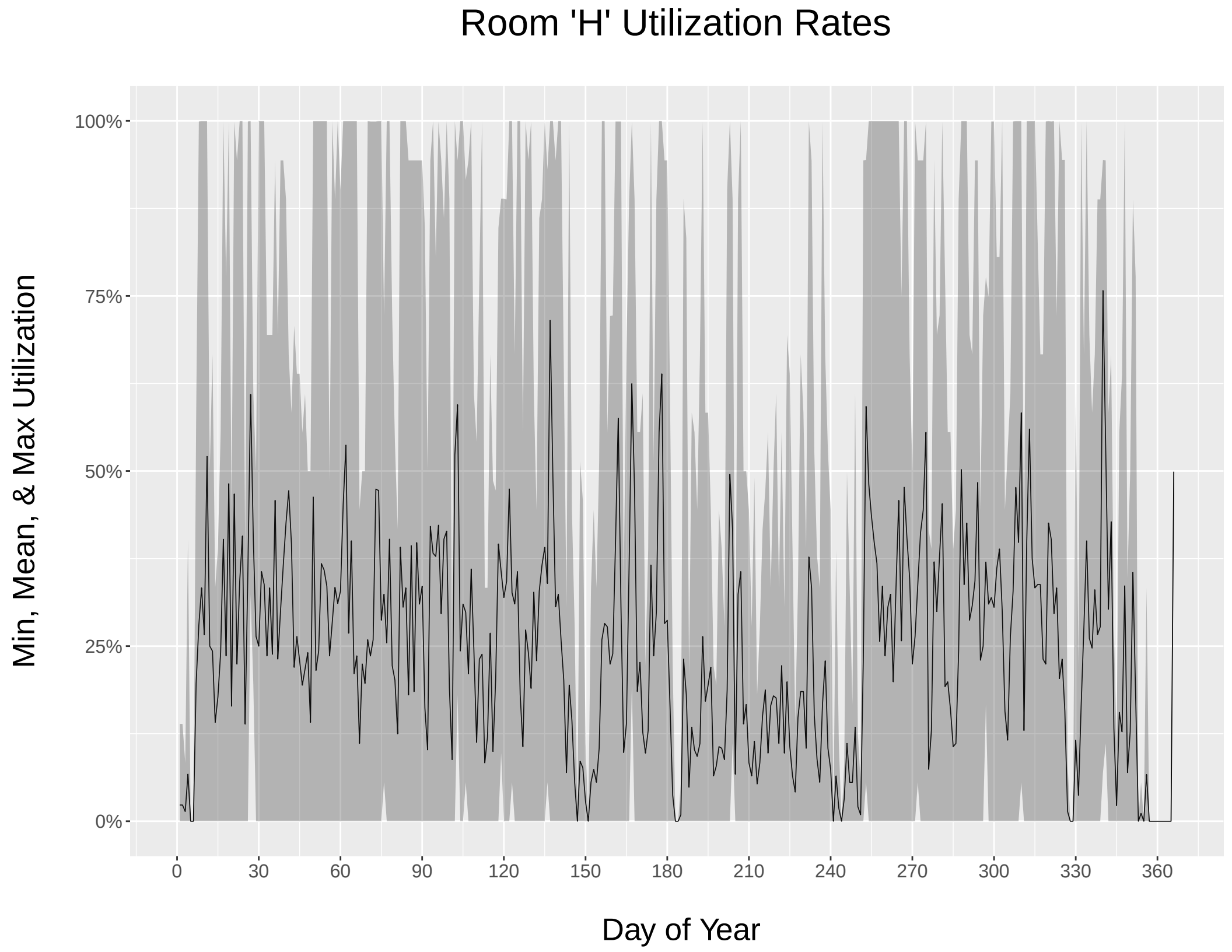
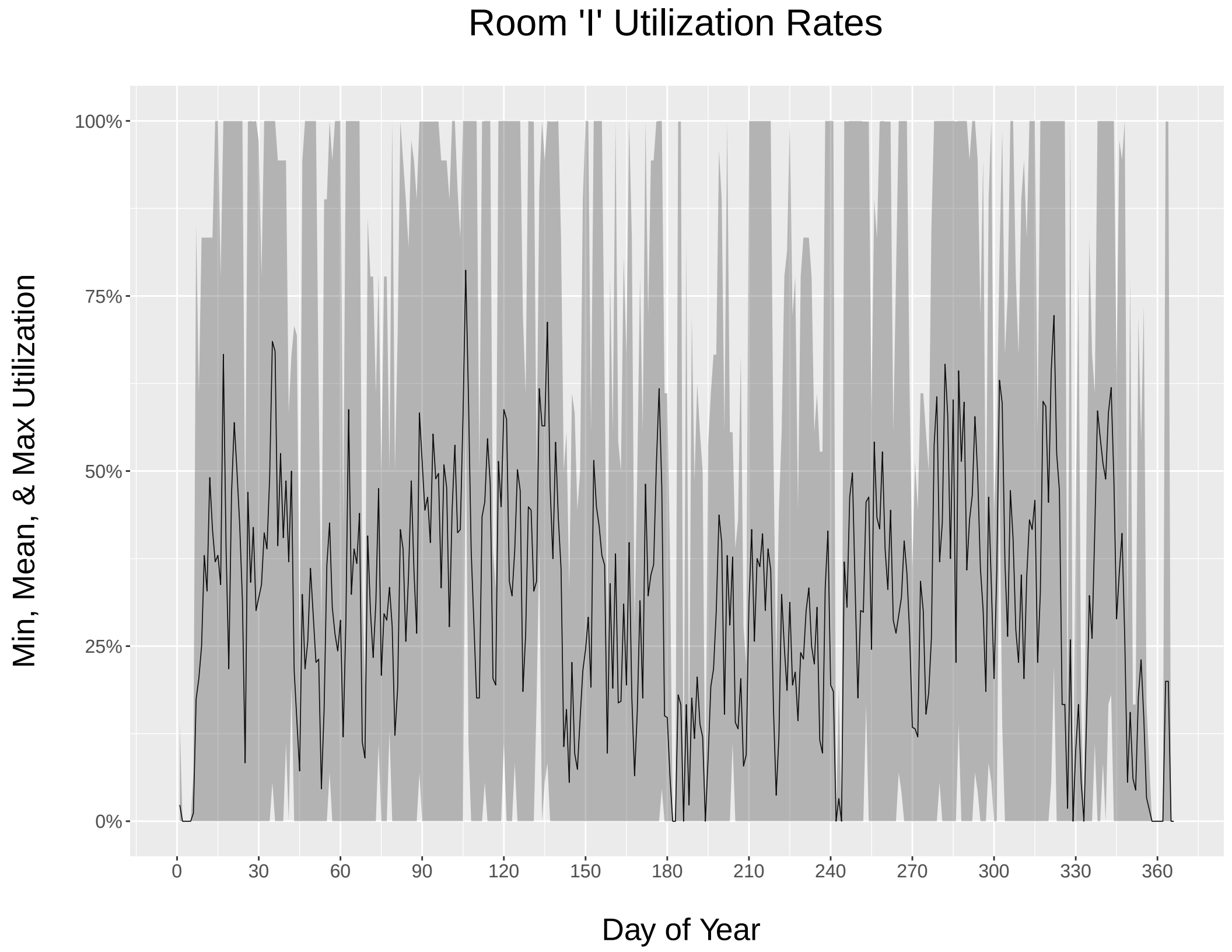
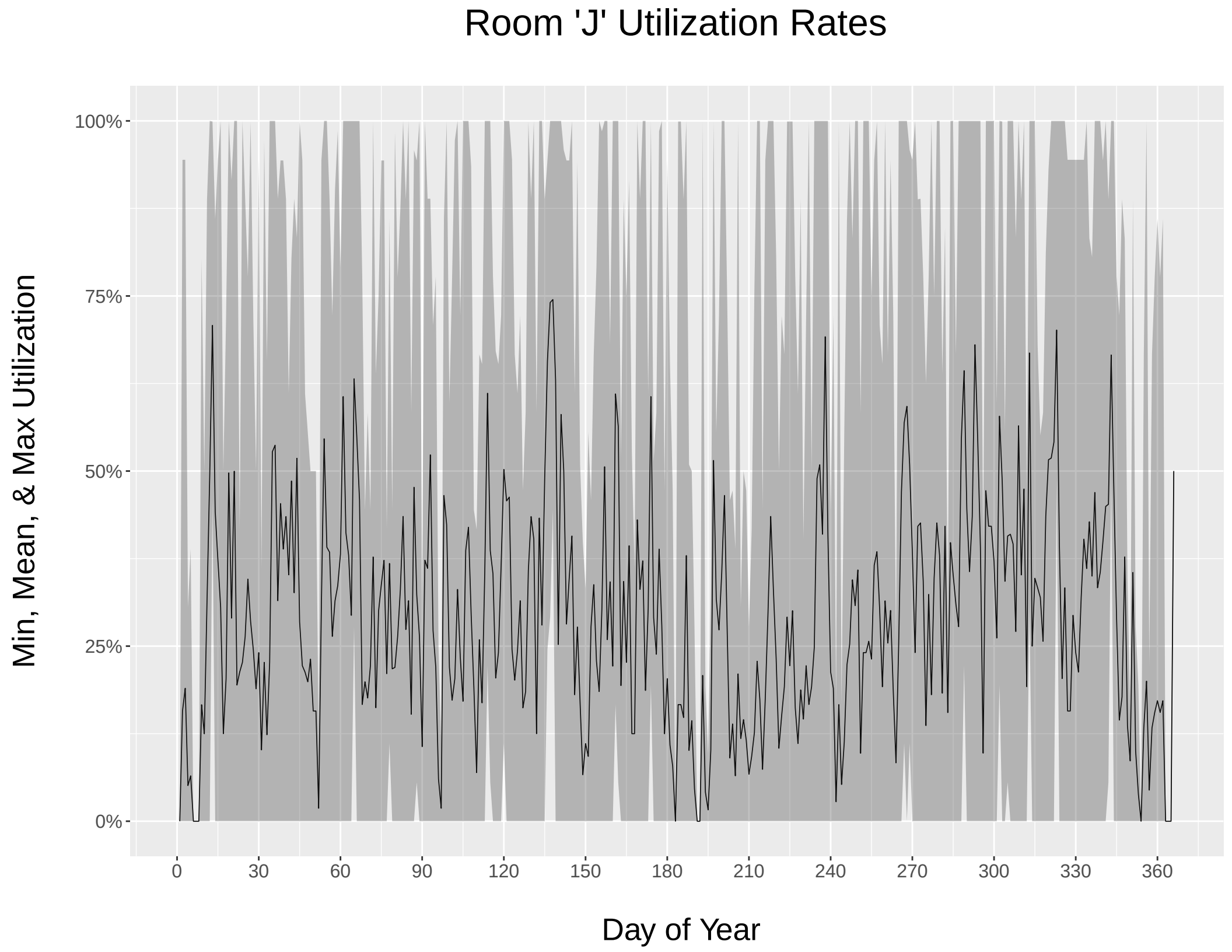
300
330
360
Day of Year

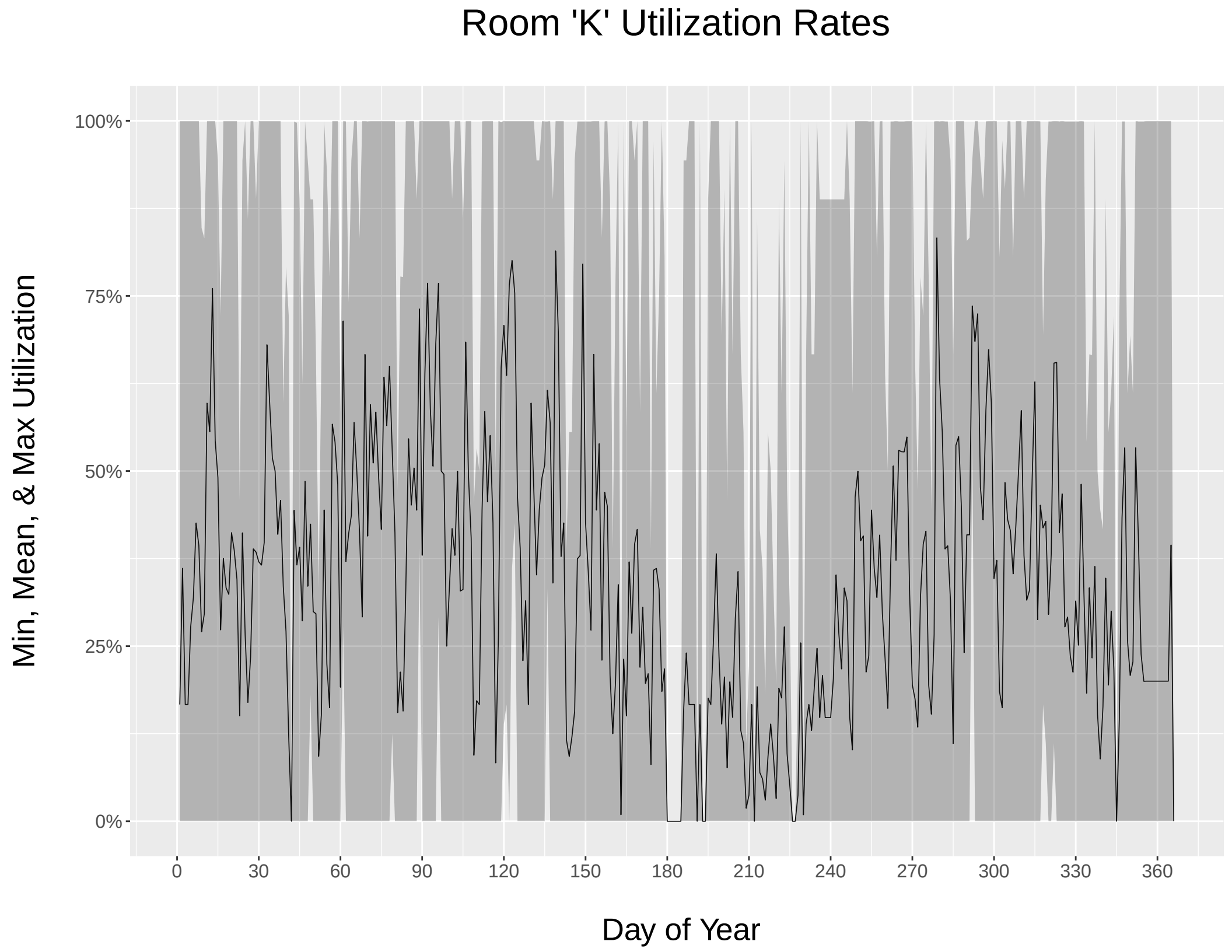

Room 'F' Utilization Rates
Min, Mean, & Max Utilization
100%
75%
50%
25%
0%
0
30
60
90
120
150
180
210
240
270
300
330
360
Day of Year

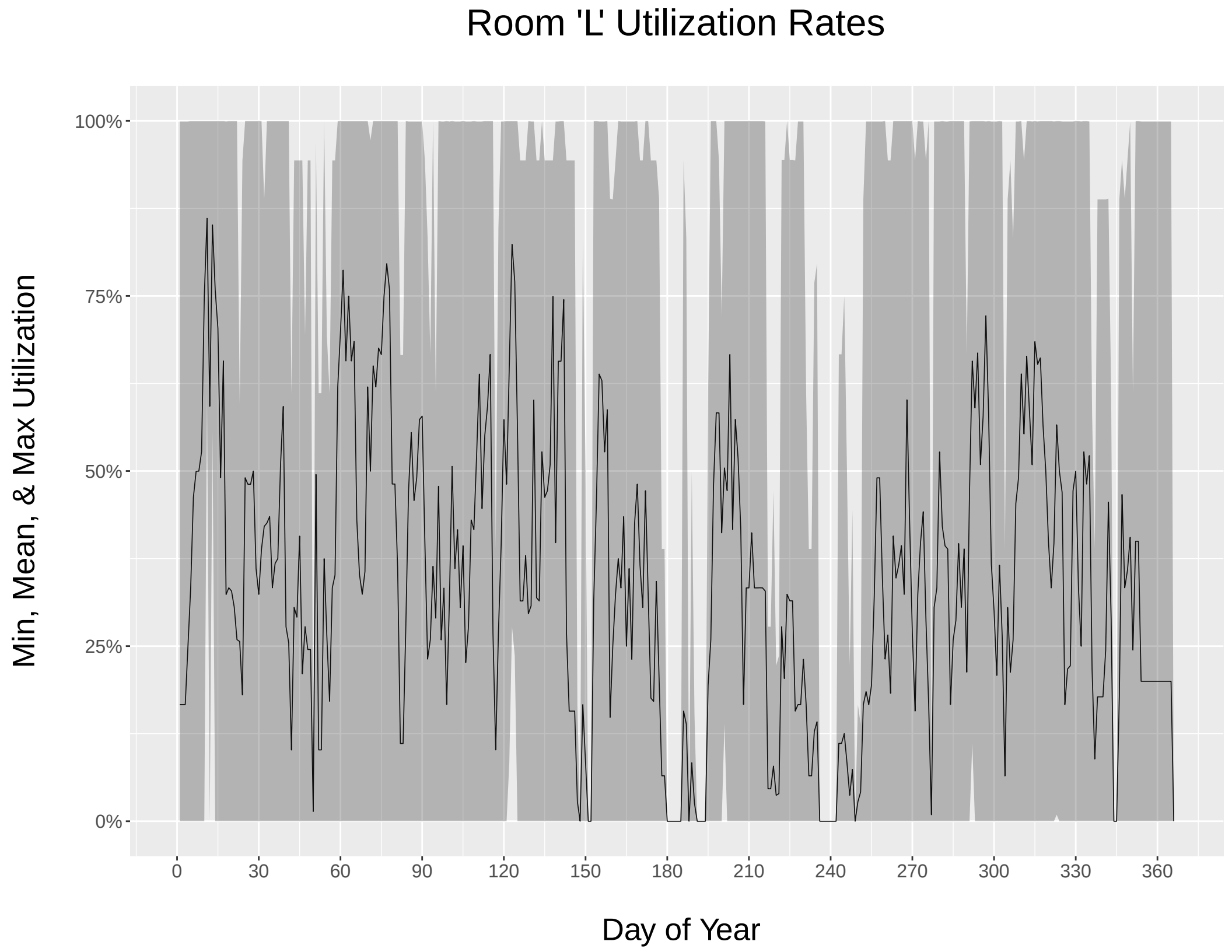

Room 'G' Utilization Rates
Min, Mean, & Max Utilization
100%
75%
50%
25%
0%
0
30
60
90
120
150
180
210
240
270
300
330
360
Day of Year

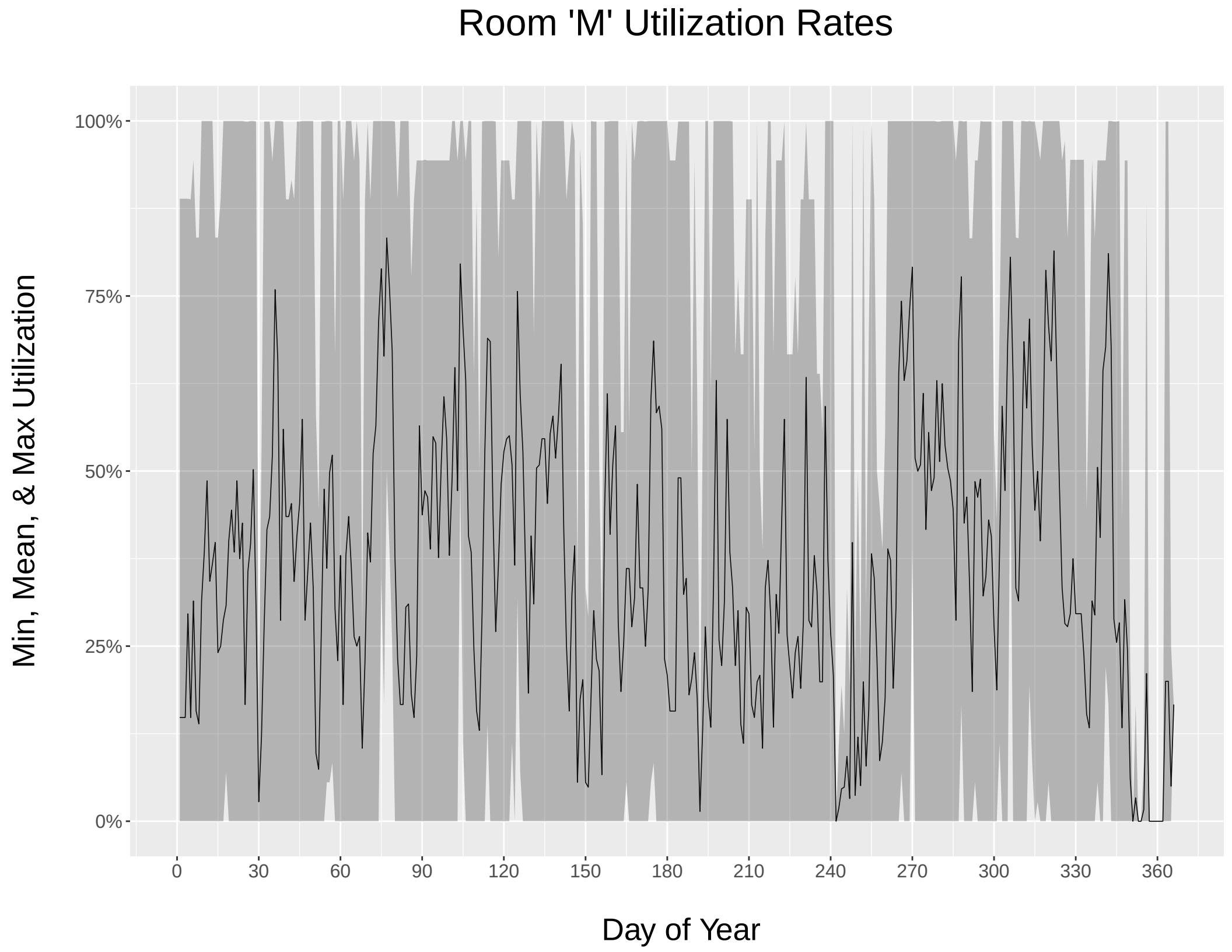

Room 'H' Utilization Rates
Min, Mean, & Max Utilization
100%
75%
50%
25%
0%
0
30
60
90
120
150
180
210
240
270
300
330
360
Day of Year

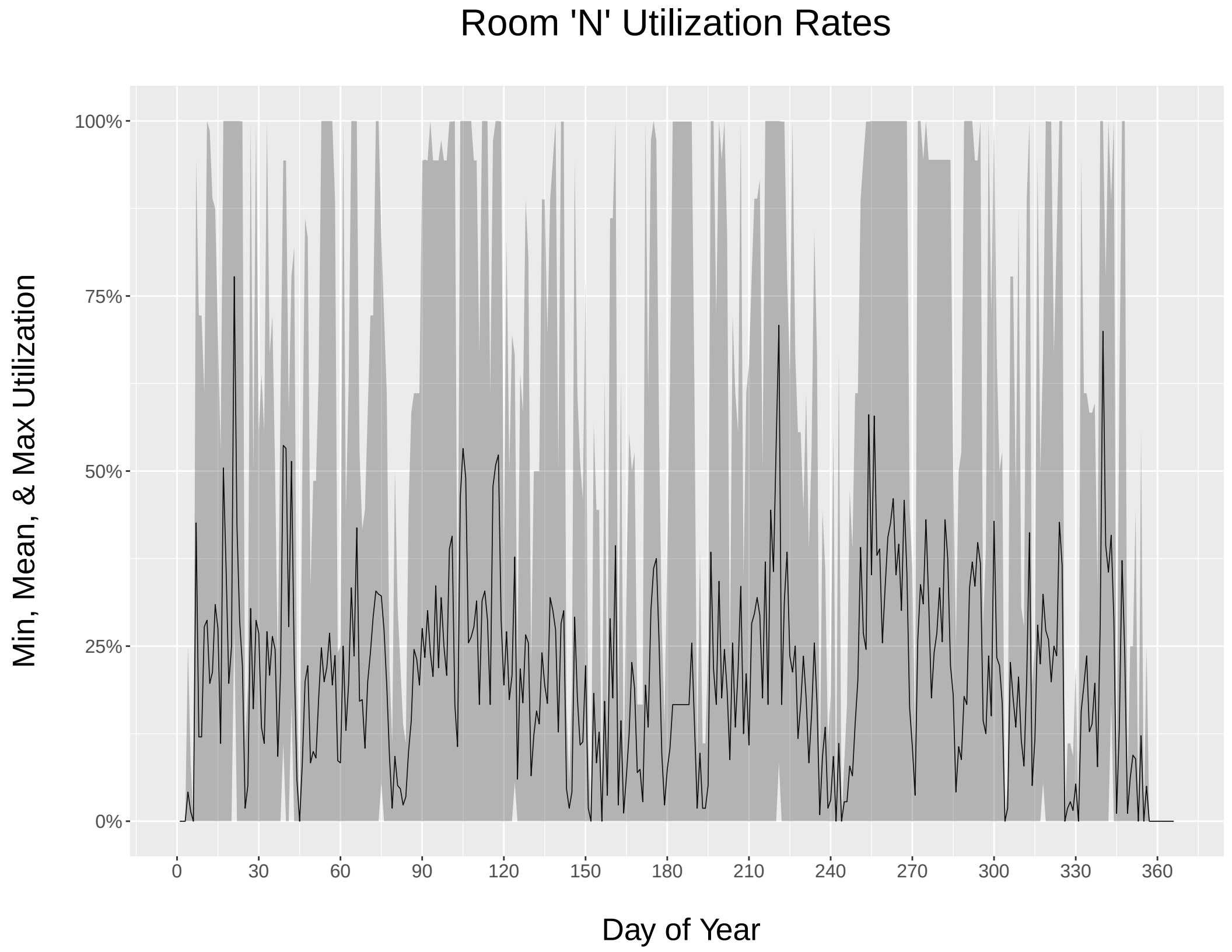

Room 'I' Utilization Rates
Min, Mean, & Max Utilization
100%
75%
50%
25%
0%
0
30
60
90
120
150
180
210
240
270
300
330
360
Day of Year

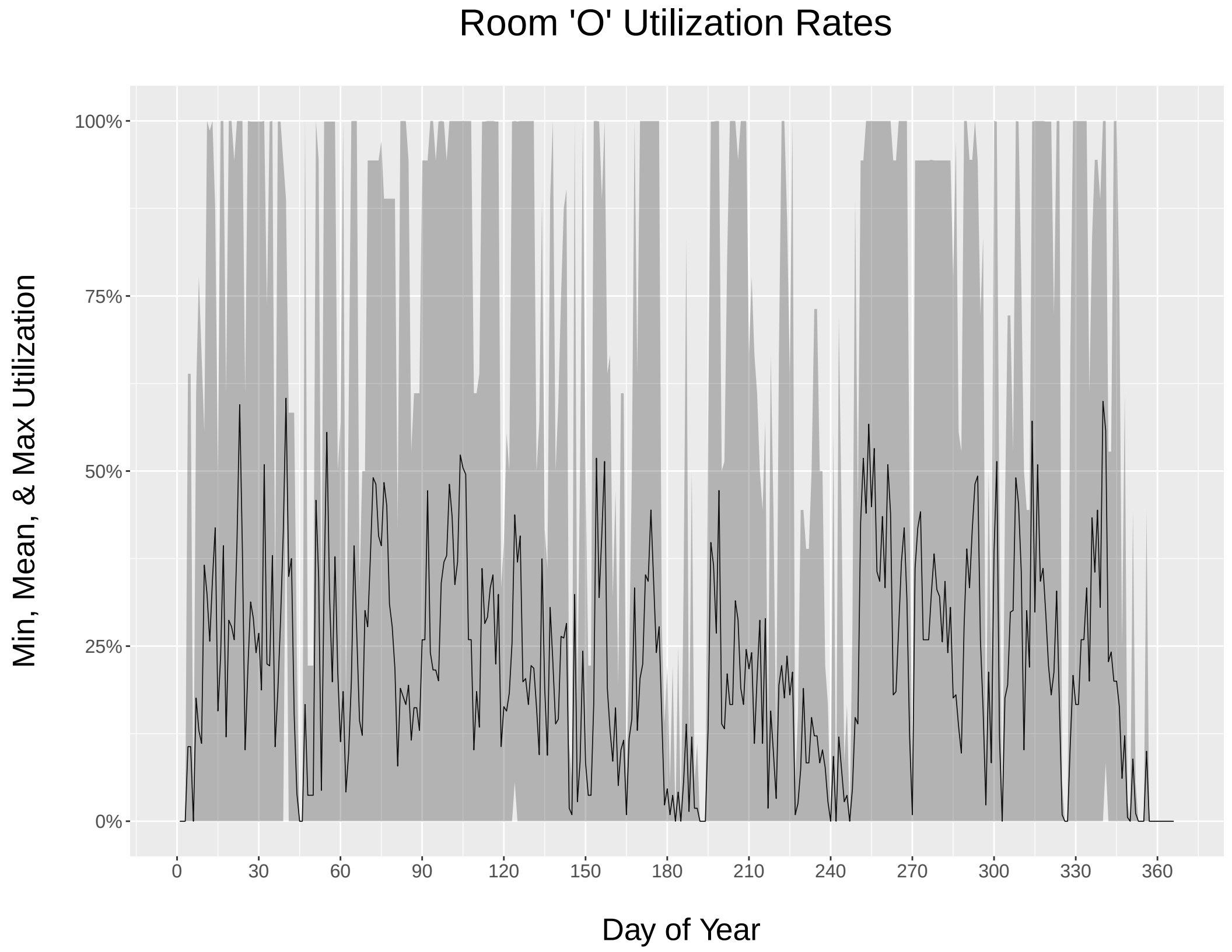

Room 'J' Utilization Rates
Min, Mean, & Max Utilization
100%
75%
50%
25%
0%
0
30
60
90
120
150
180
210
240
270
300
330
360
Day of Year

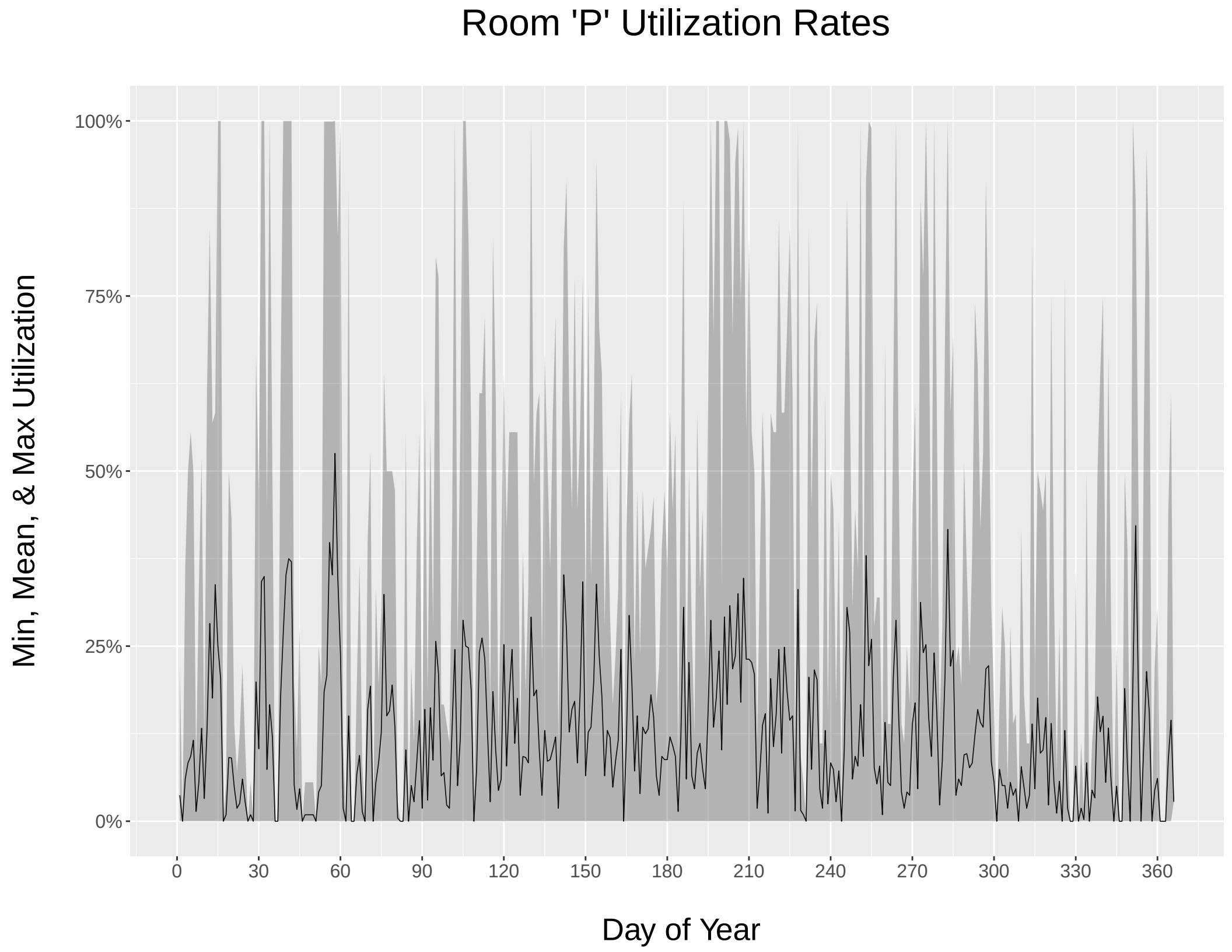

Room 'K' Utilization Rates
Min, Mean, & Max Utilization
100%
75%
50%
25%
0%
0
30
60
90
120
150
180
210
240
270
300
330
360
Day of Year

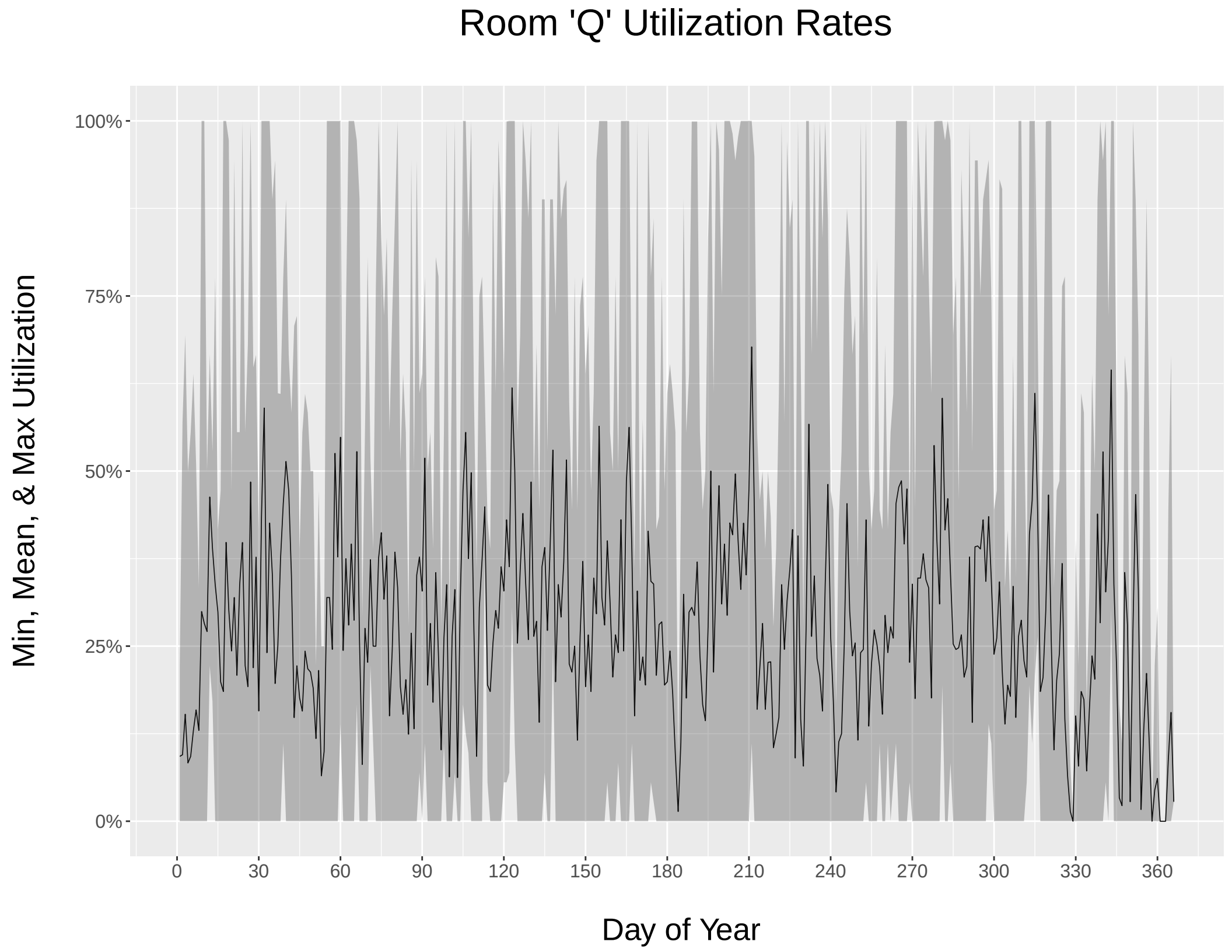

Room 'L' Utilization Rates
Min, Mean, & Max Utilization
100%
75%
50%
25%
0%
0
30
60
90
120
150
180
210
240
270
300
330
360
Day of Year

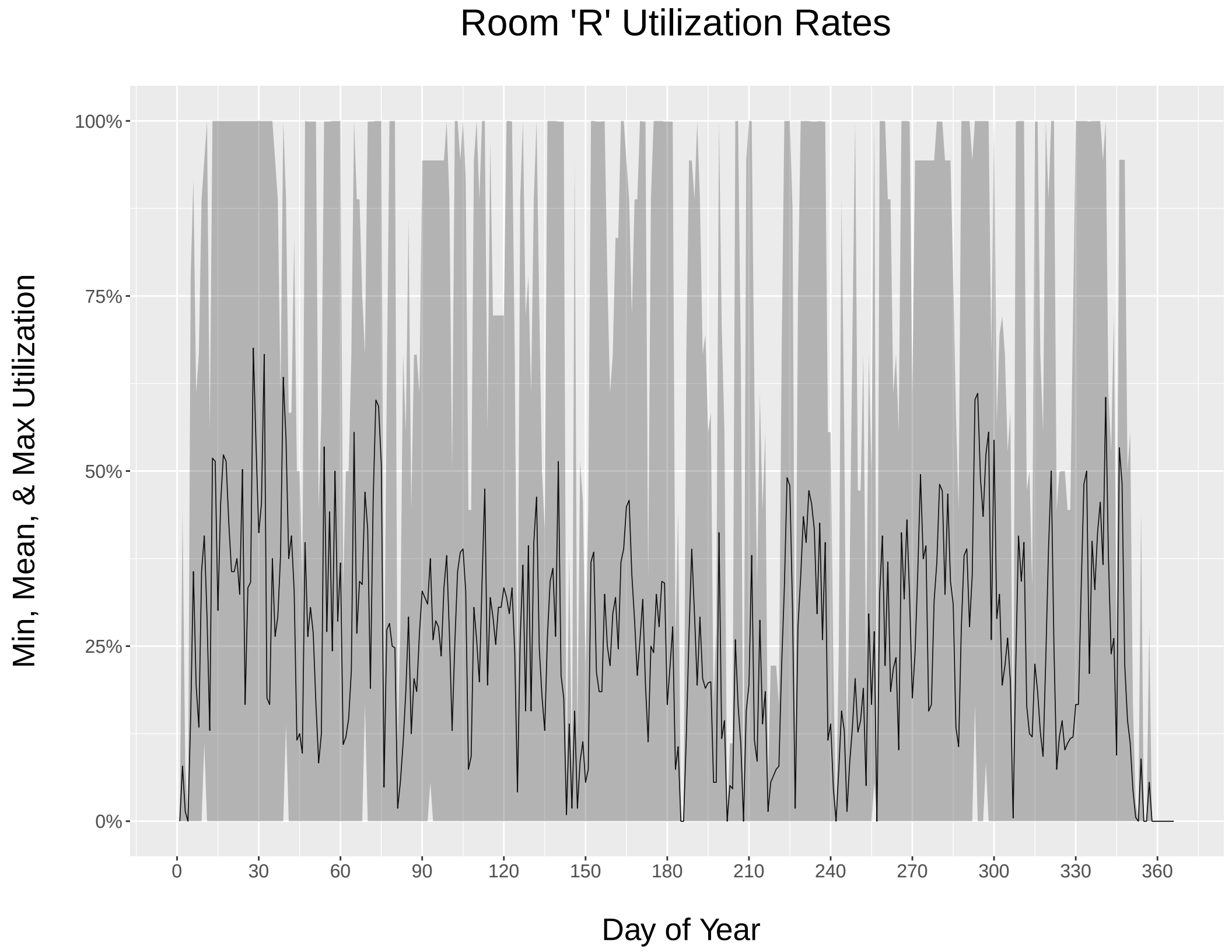

Room 'M' Utilization Rates
Min, Mean, & Max Utilization
100%
75%
50%
25%
0%
0
30
60
90
120
150
180
210
240
270
300
330
360
Day of Year

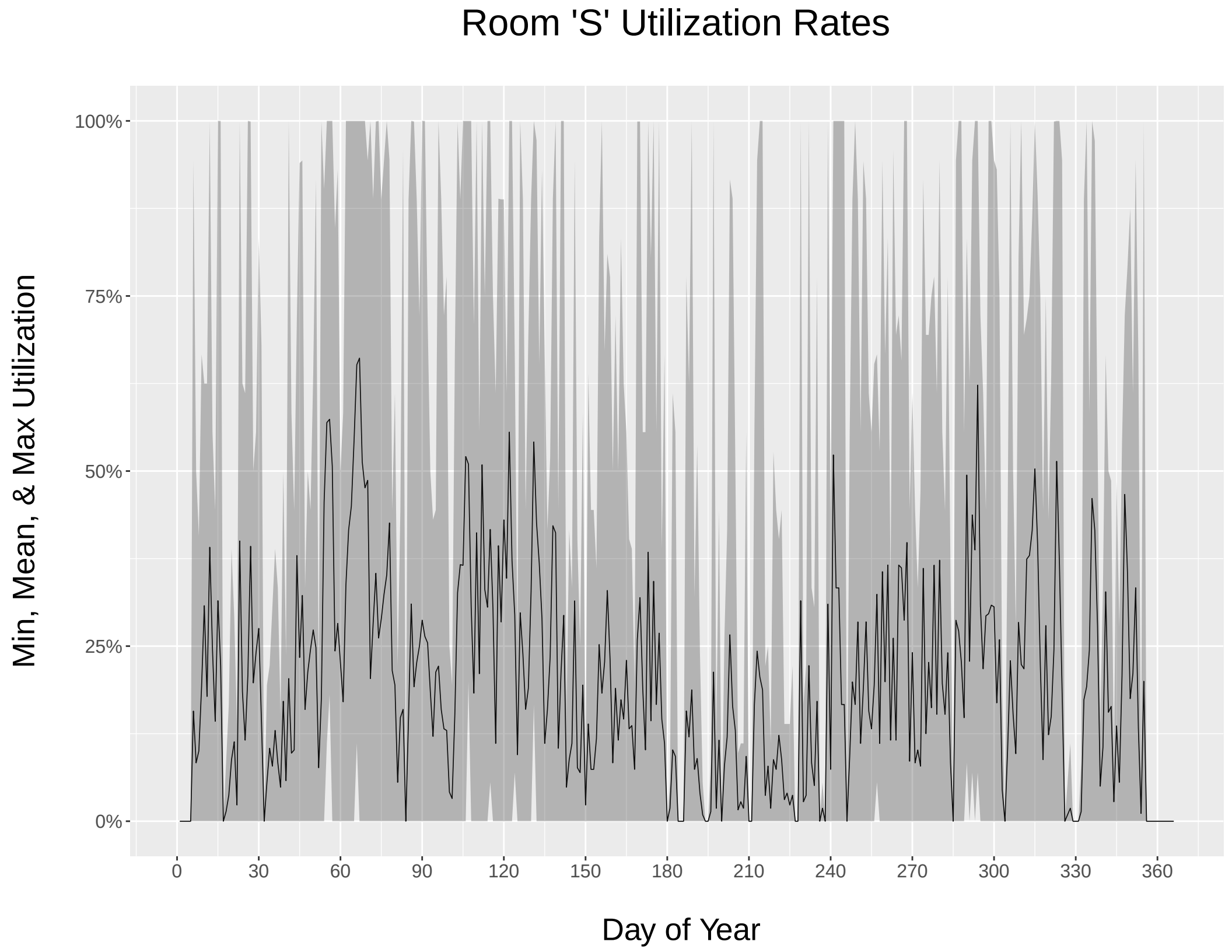

Room 'N' Utilization Rates
Min, Mean, & Max Utilization
100%
75%
50%
25%
0%
0
30
60
90
120
150
180
210
240
270
300
330
360
Day of Year

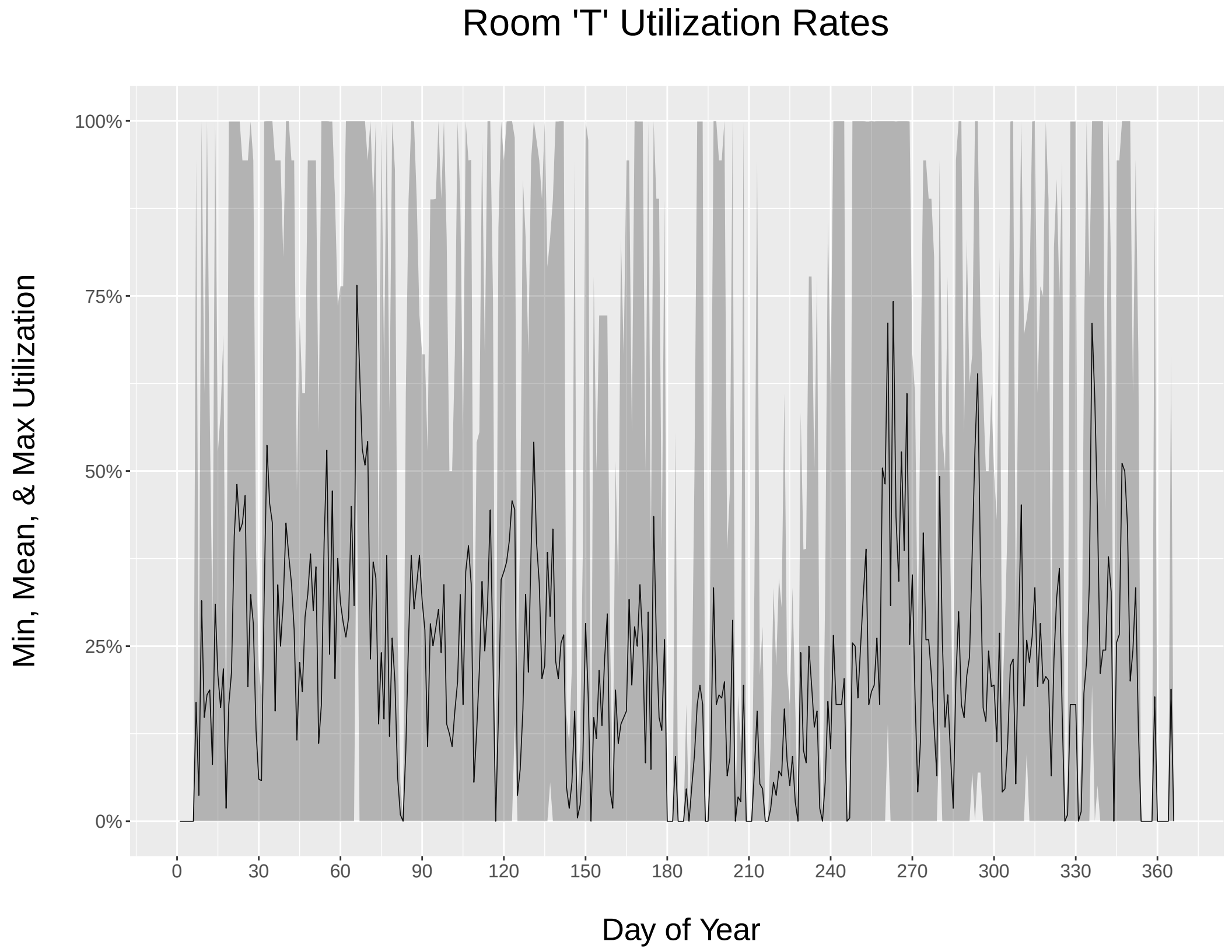

Room 'O' Utilization Rates
Min, Mean, & Max Utilization
100%
75%
50%
25%
0%
0
30
60
90
120
150
180
210
240
270
300
330
360
Day of Year

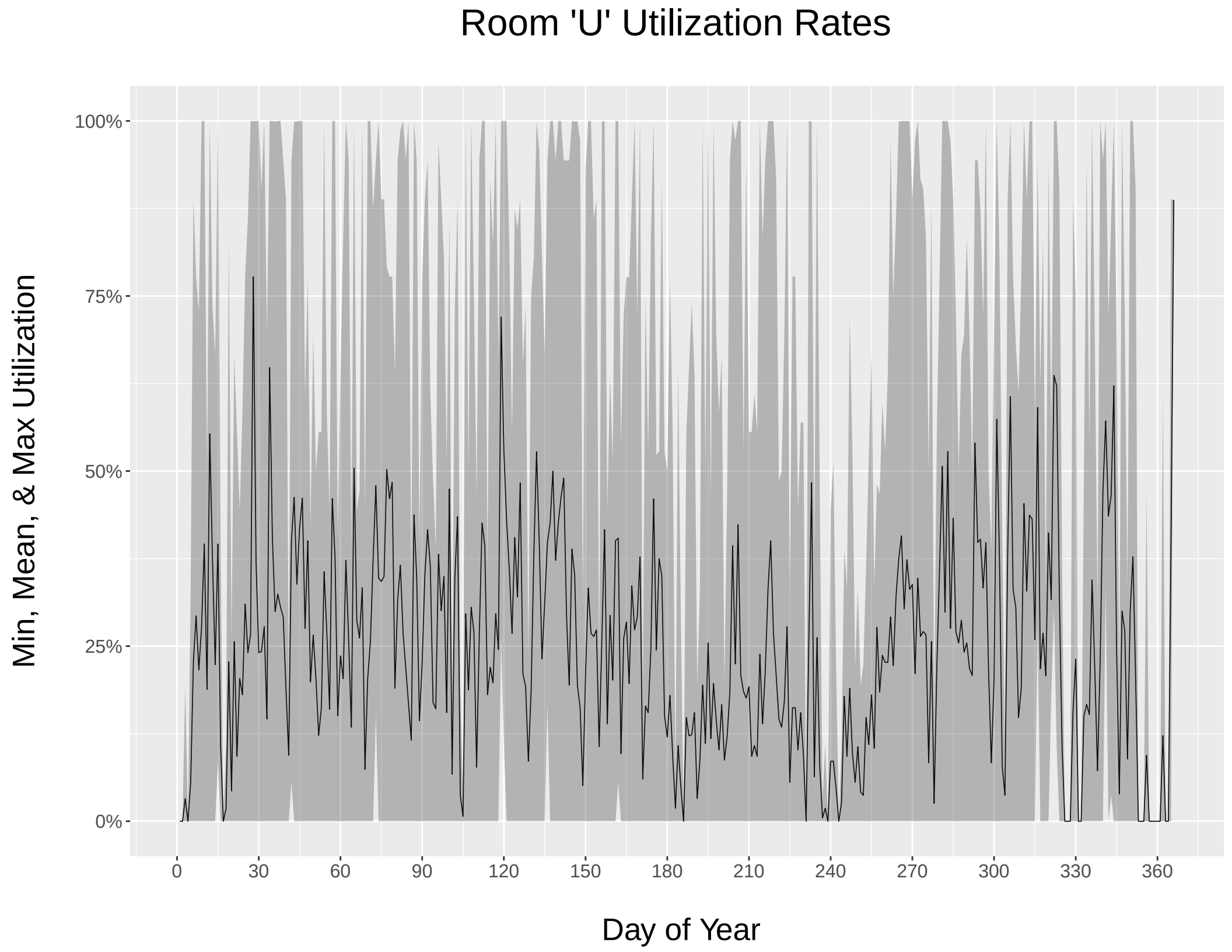

Room 'P' Utilization Rates
Min, Mean, & Max Utilization
100%
75%
50%
25%
0%
0
30
60
90
120
150
180
210
240
270
300
330
360
Day of Year

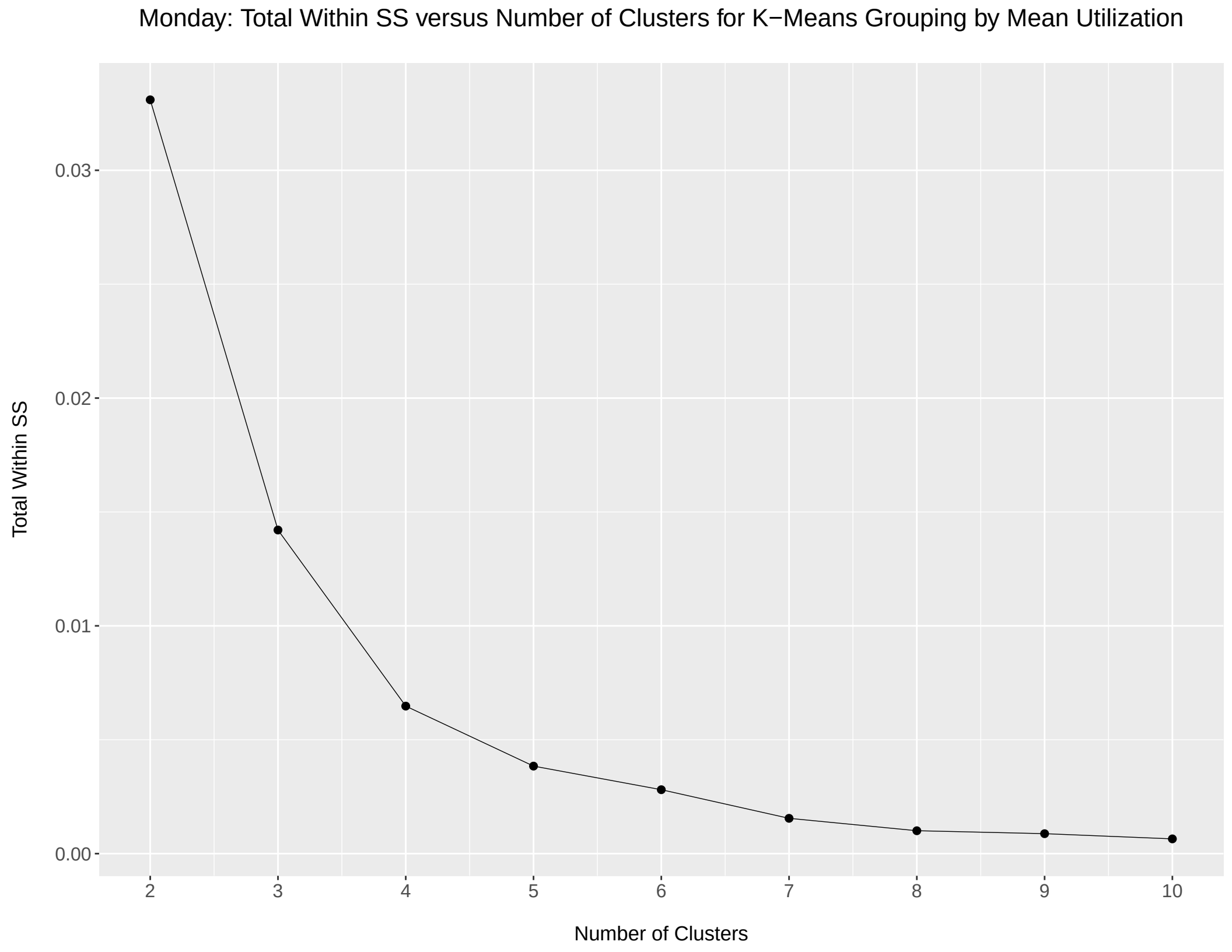

Room 'Q' Utilization Rates
Min, Mean, & Max Utilization
100%
75%
50%
25%
0%
0
30
60
90
120
150
180
210
240
270
300
330
360
Day of Year

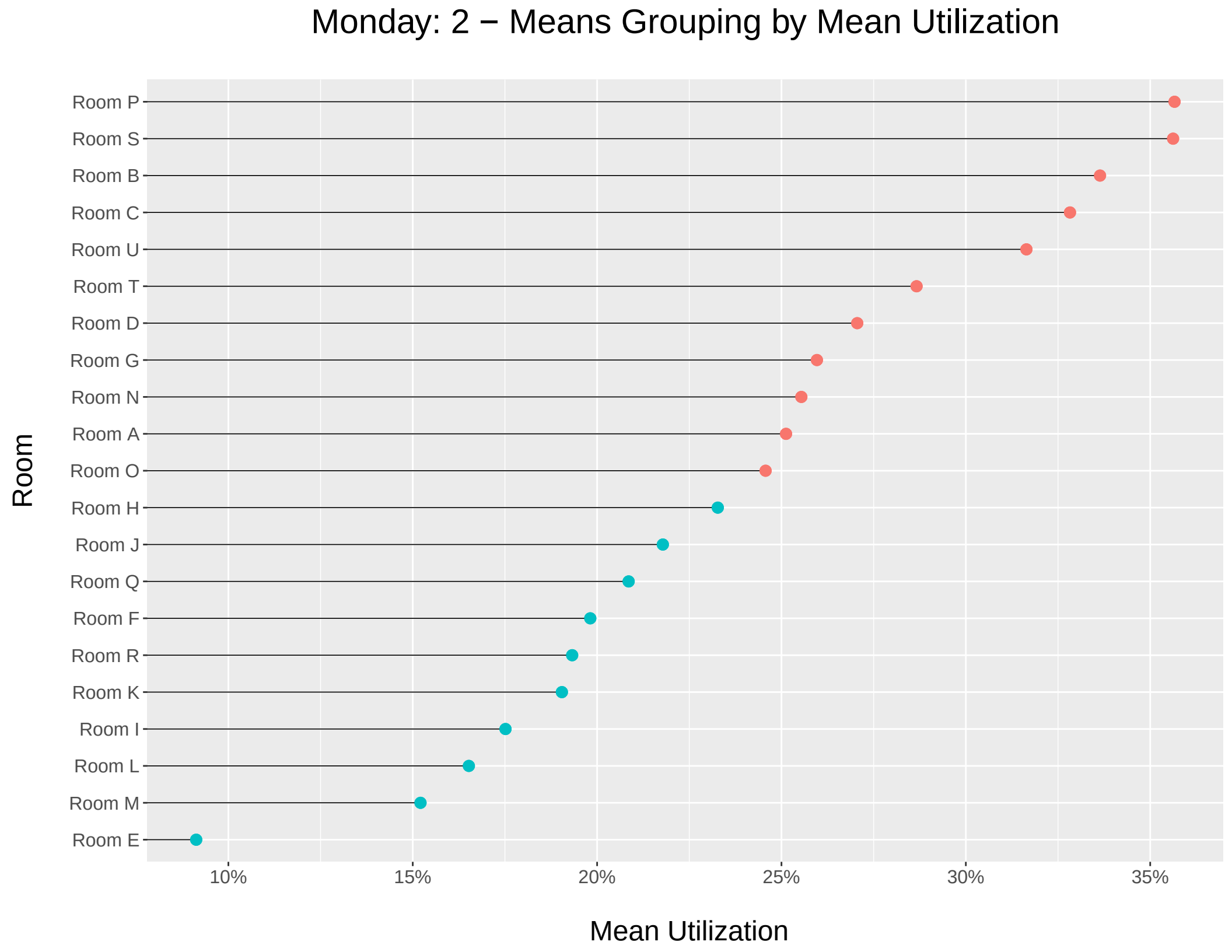

Room 'R' Utilization Rates
Min, Mean, & Max Utilization
100%
75%
50%
25%
0%
0
30
60
90
120
150
180
210
240
270
300
330
360
Day of Year

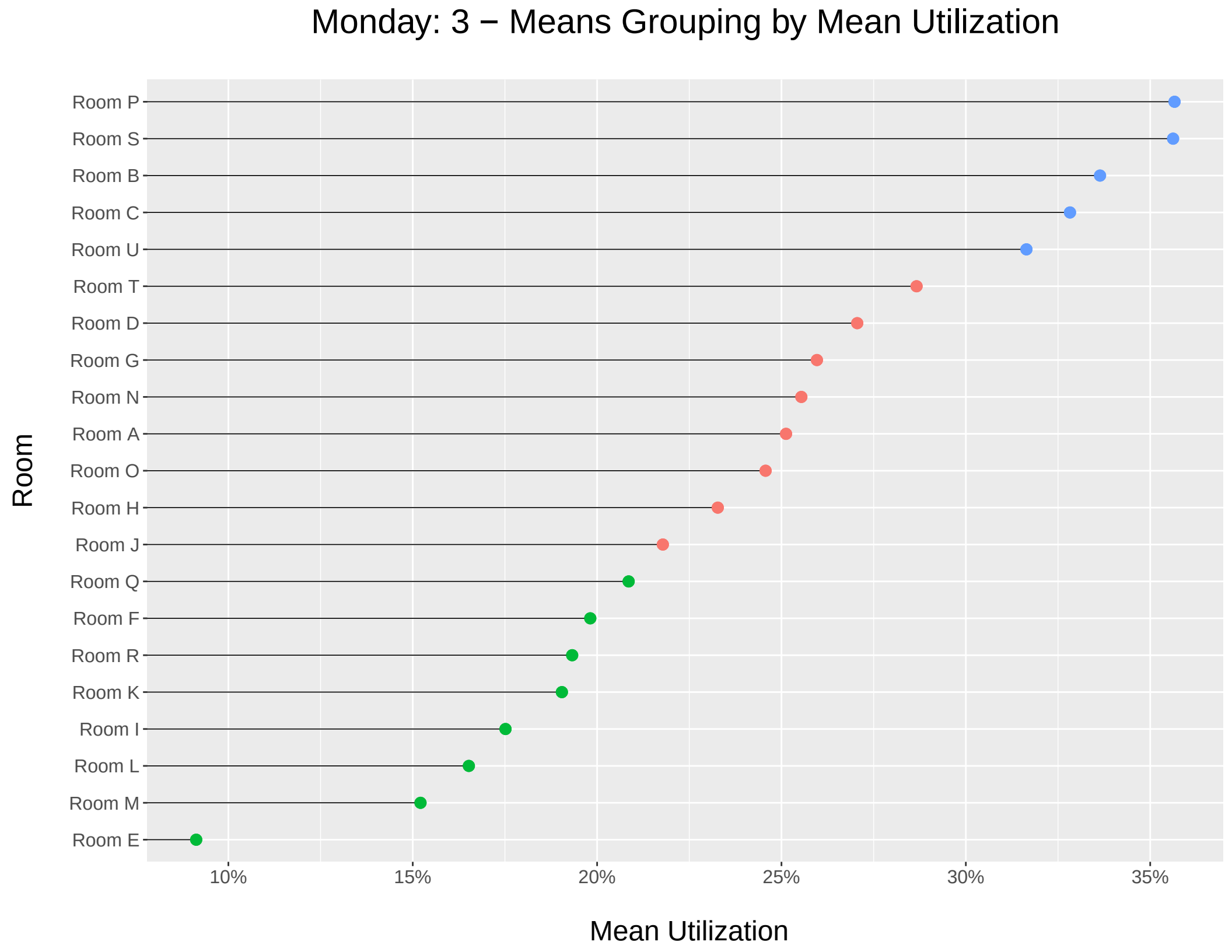

Room 'S' Utilization Rates
Min, Mean, & Max Utilization
100%
75%
50%
25%
0%
0
30
60
90
120
150
180
210
240
270
300
330
360
Day of Year

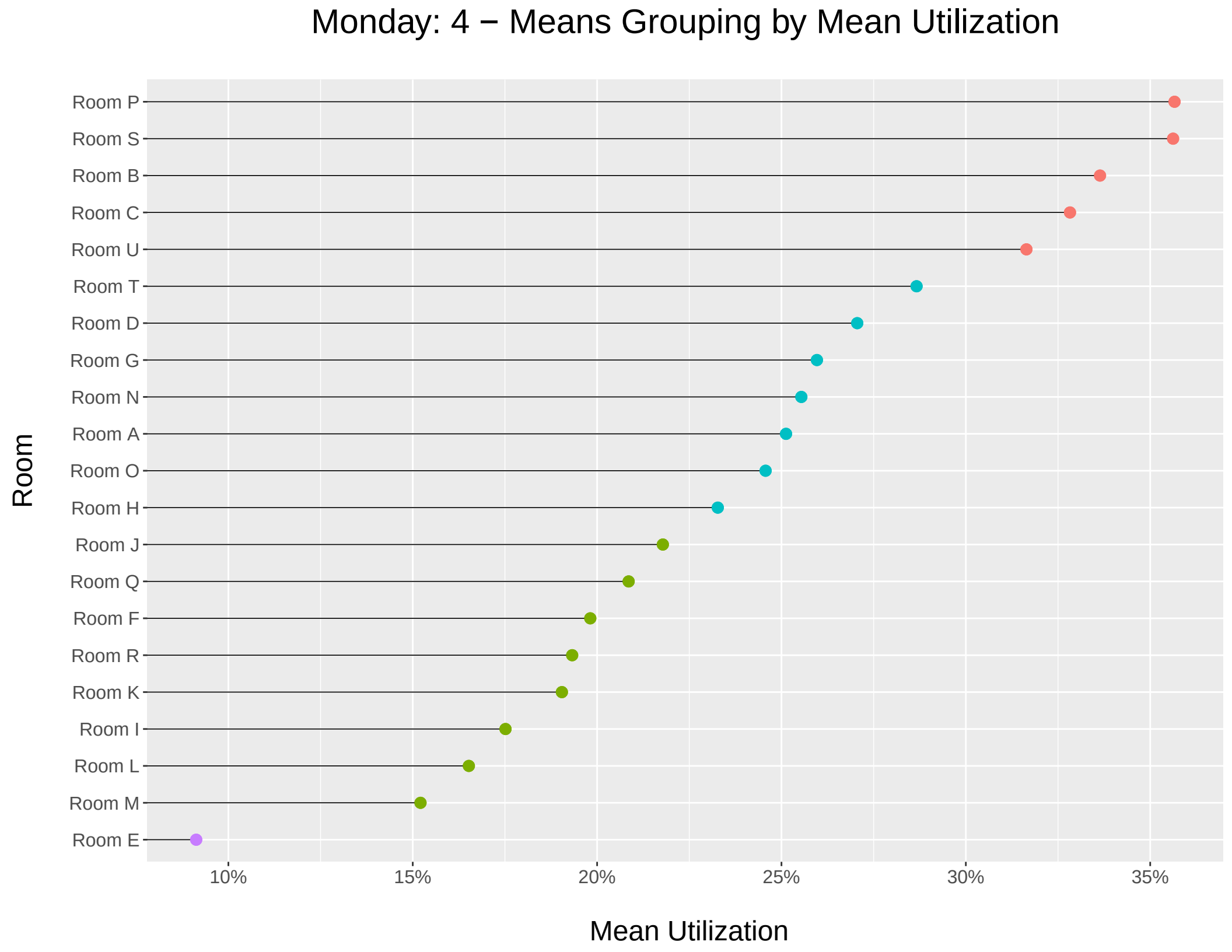

Room 'T' Utilization Rates
Min, Mean, & Max Utilization
100%
75%
50%
25%
0%
0
30
60
90
120
150
180
210
240
270
300
330
360
Day of Year

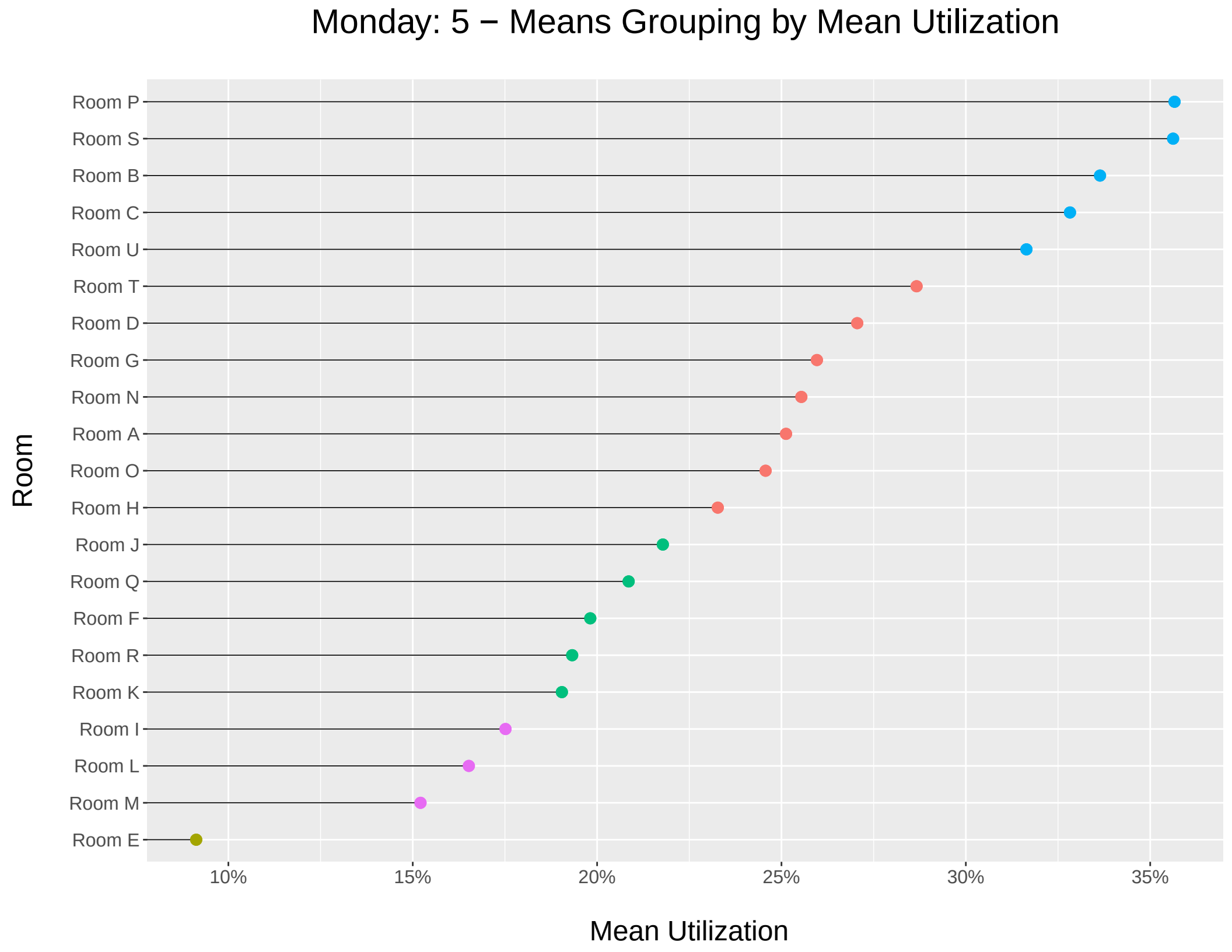

Room 'U' Utilization Rates
Min, Mean, & Max Utilization
100%
75%
50%
25%
0%
0
30
60
90
120
150
180
210
240
270
300
330
360
Day of Year

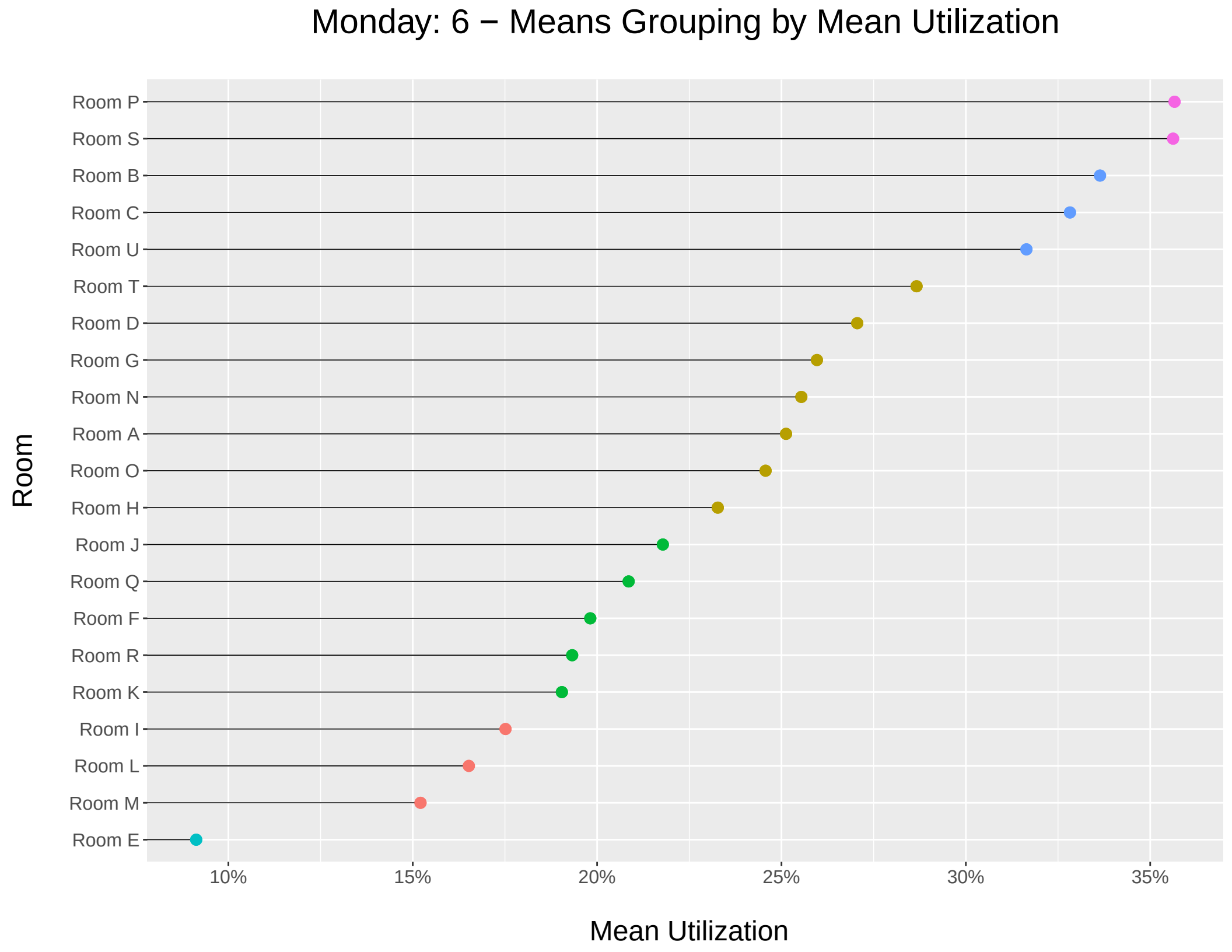

Monday: Total Within SS versus Number of Clusters for K−Means Grouping by Mean Utilization
Total Within SS
0.03
0.02
0.01
0.00
2
3
4
5
6
7
8
9
10
Number of Clusters

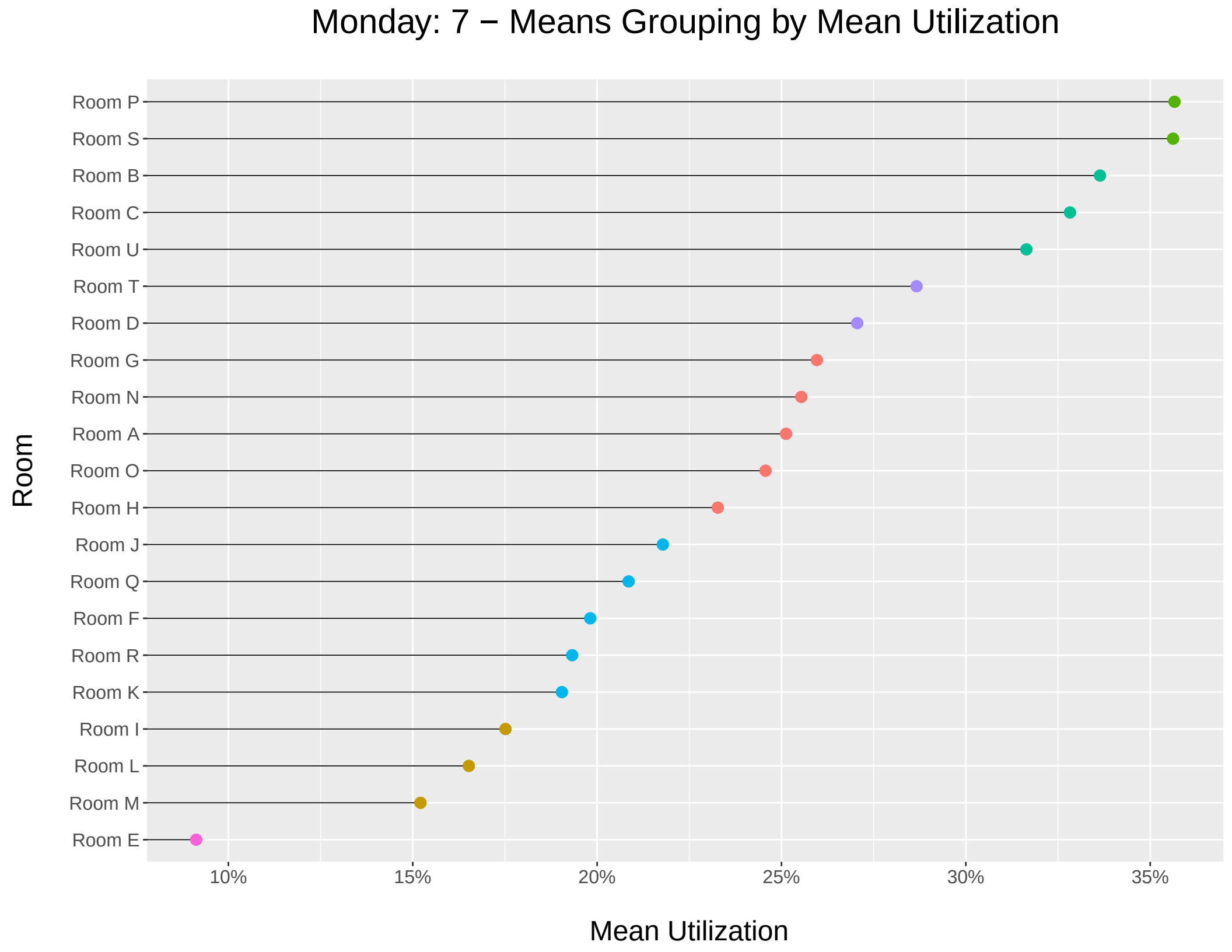

Monday: 2 − Means Grouping by Mean Utilization
Room
Room P
Room S
Room B
Room C
Room U
Room T
Room D
Room G
Room N
Room A
Room O
Room H
Room J
Room Q
Room F
Room R
Room K
Room I
Room L
Room M
Room E
10%
15%
20%
25%
30%
35%
Mean Utilization

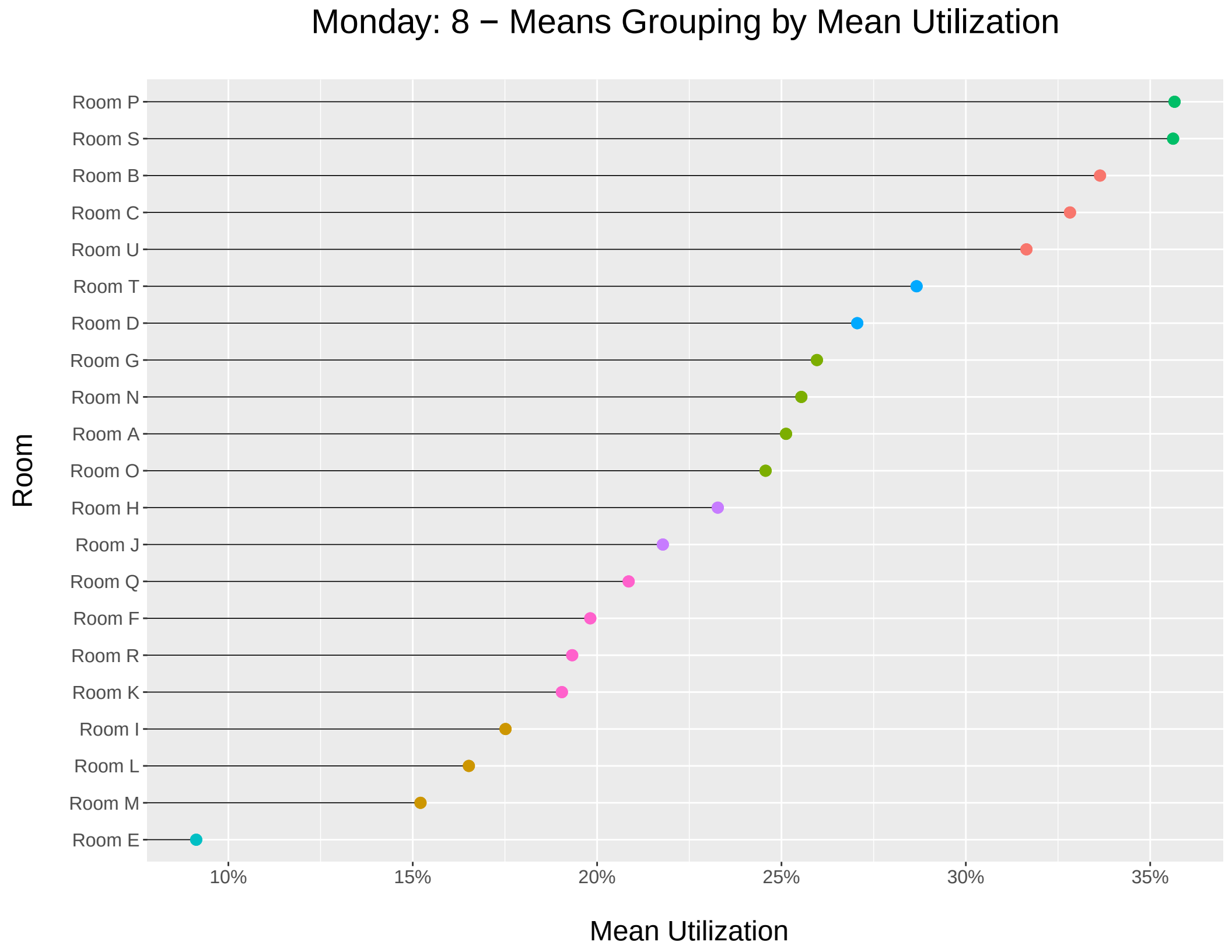

Monday: 3 − Means Grouping by Mean Utilization
Room P
Room S
Room B
Room C
Room U
Room T
Room D
Room G
Room N
Room A
Room O
Room H
Room J
Room Q
Room F
Room R
Room K
Room I
Room L
Room M
Room E
Room
10%
15%
20%
25%
30%
35%
Mean Utilization

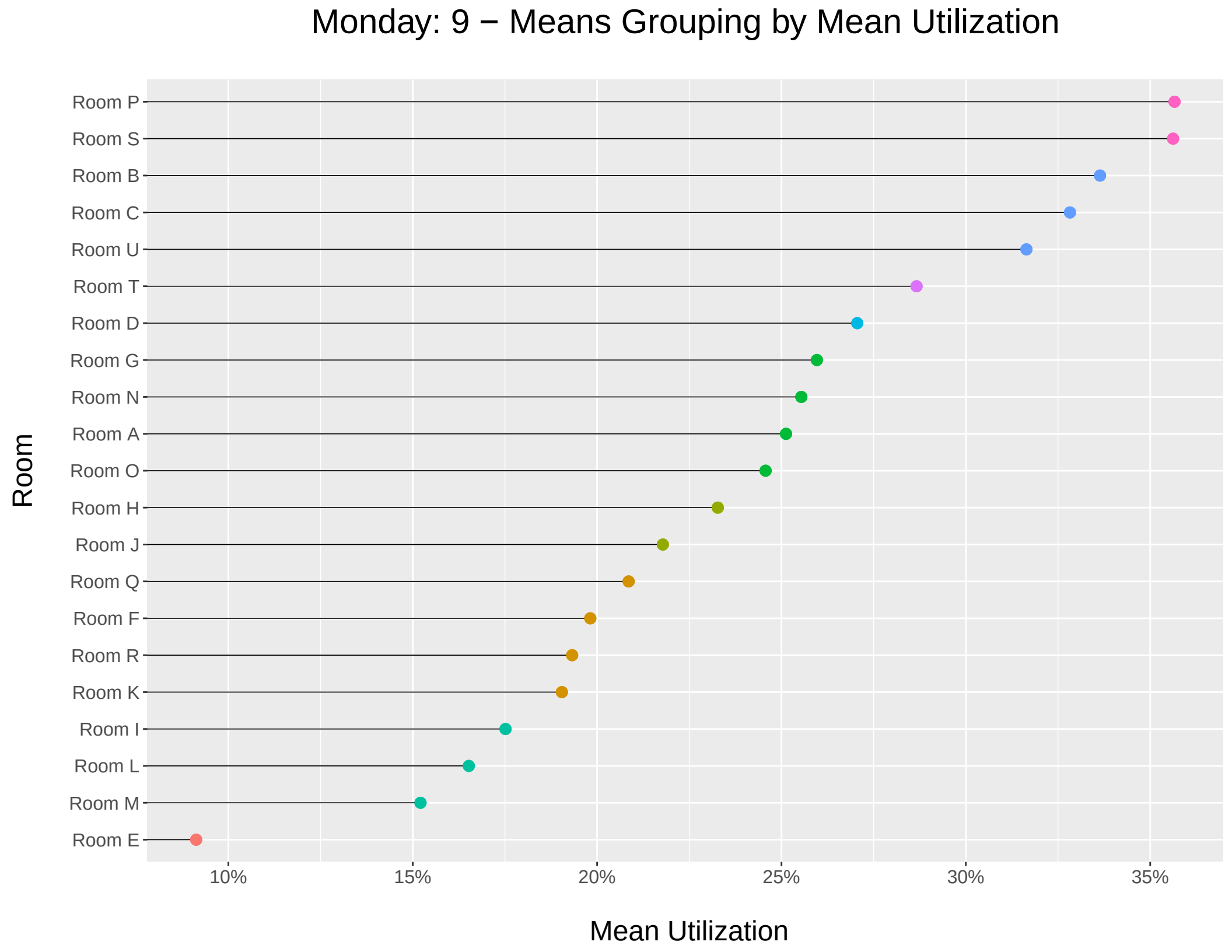

Monday: 4 − Means Grouping by Mean Utilization
Room
Room P
Room S
Room B
Room C
Room U
Room T
Room D
Room G
Room N
Room A
Room O
Room H
Room J
Room Q
Room F
Room R
Room K
Room I
Room L
Room M
Room E
10%
15%
20%
25%
30%
35%
Mean Utilization

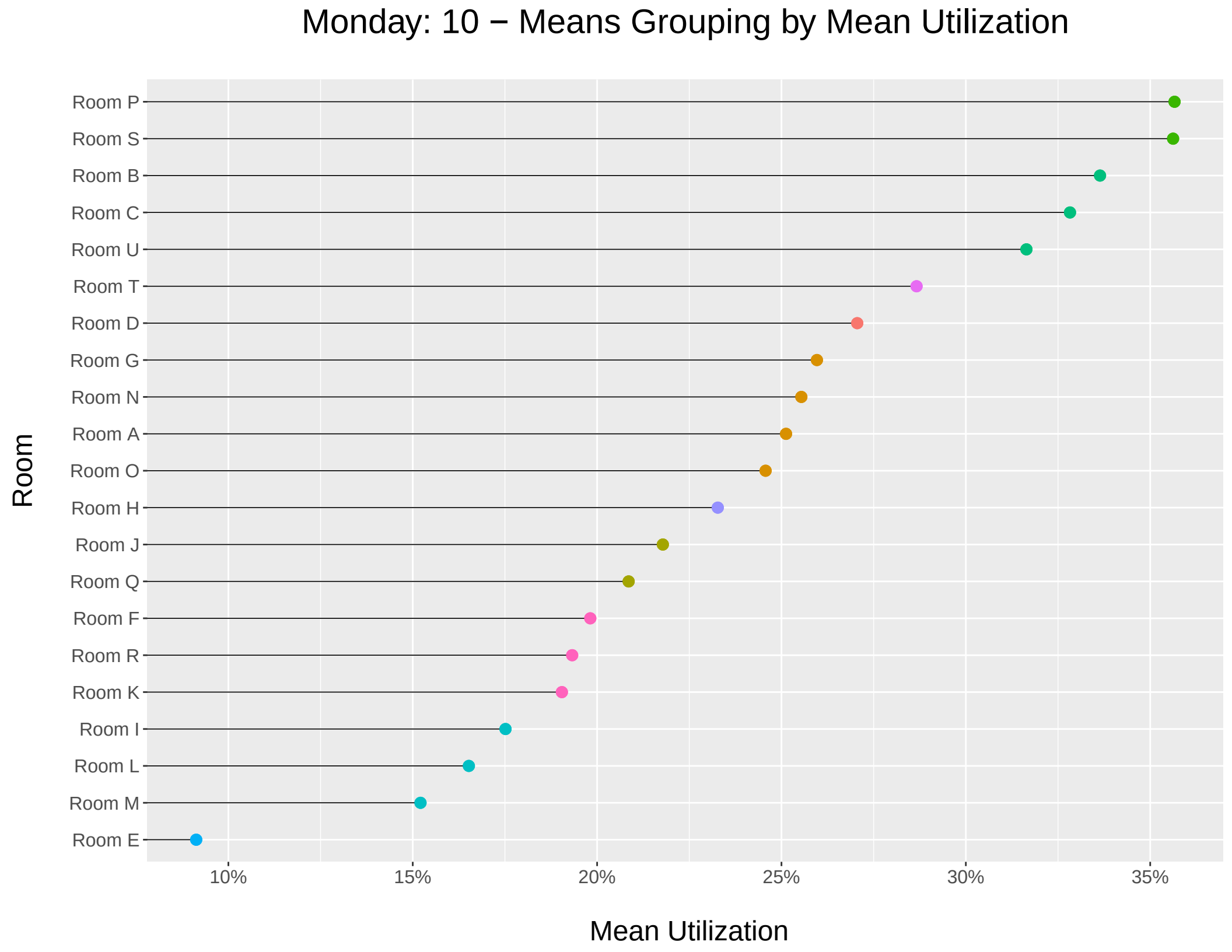

Monday: 5 − Means Grouping by Mean Utilization
Room
Room P
Room S
Room B
Room C
Room U
Room T
Room D
Room G
Room N
Room A
Room O
Room H
Room J
Room Q
Room F
Room R
Room K
Room I
Room L
Room M
Room E
10%
15%
20%
25%
30%
35%
Mean Utilization

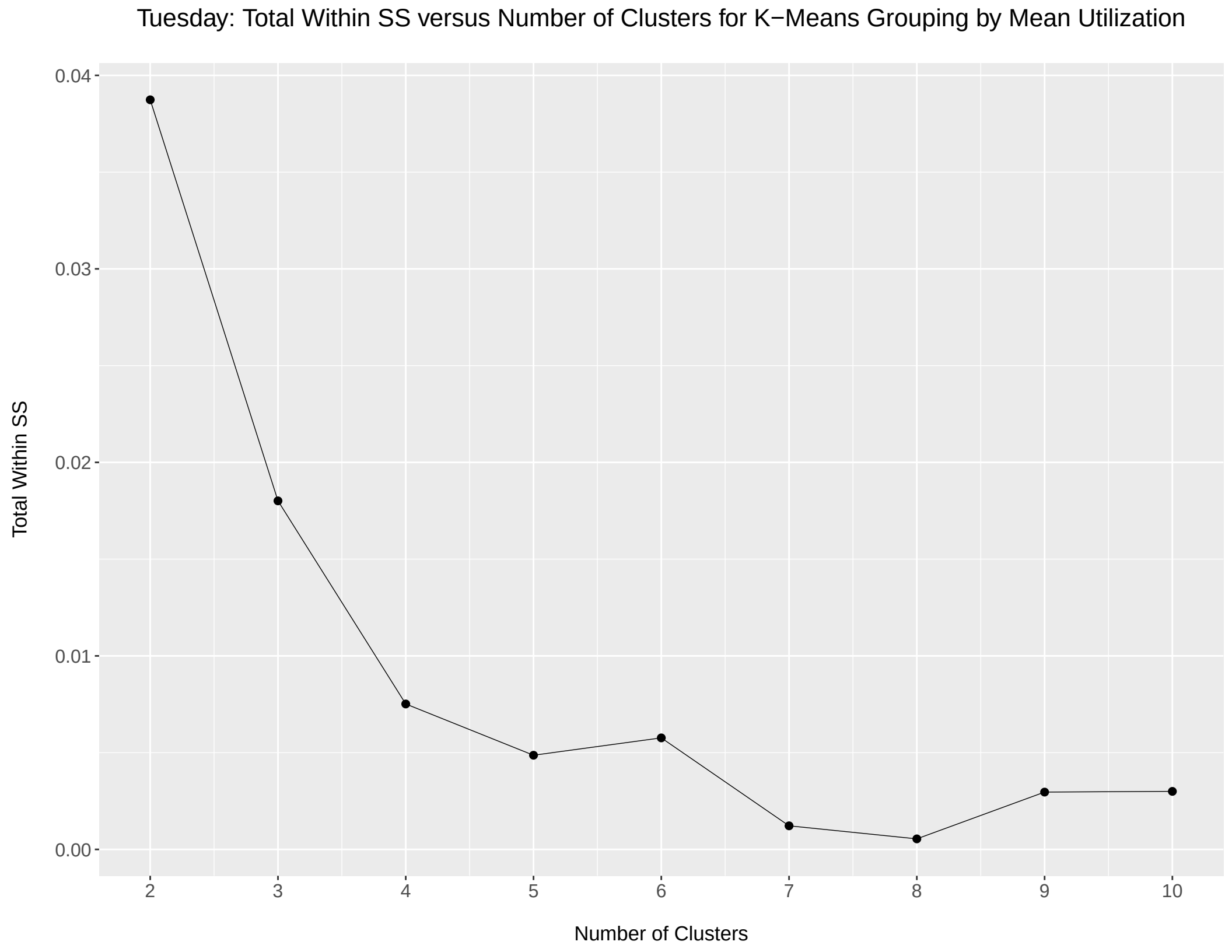

Monday: 6 − Means Grouping by Mean Utilization
Room
Room P
Room S
Room B
Room C
Room U
Room T
Room D
Room G
Room N
Room A
Room O
Room H
Room J
Room Q
Room F
Room R
Room K
Room I
Room L
Room M
Room E
10%
15%
20%
25%
30%
35%
Mean Utilization

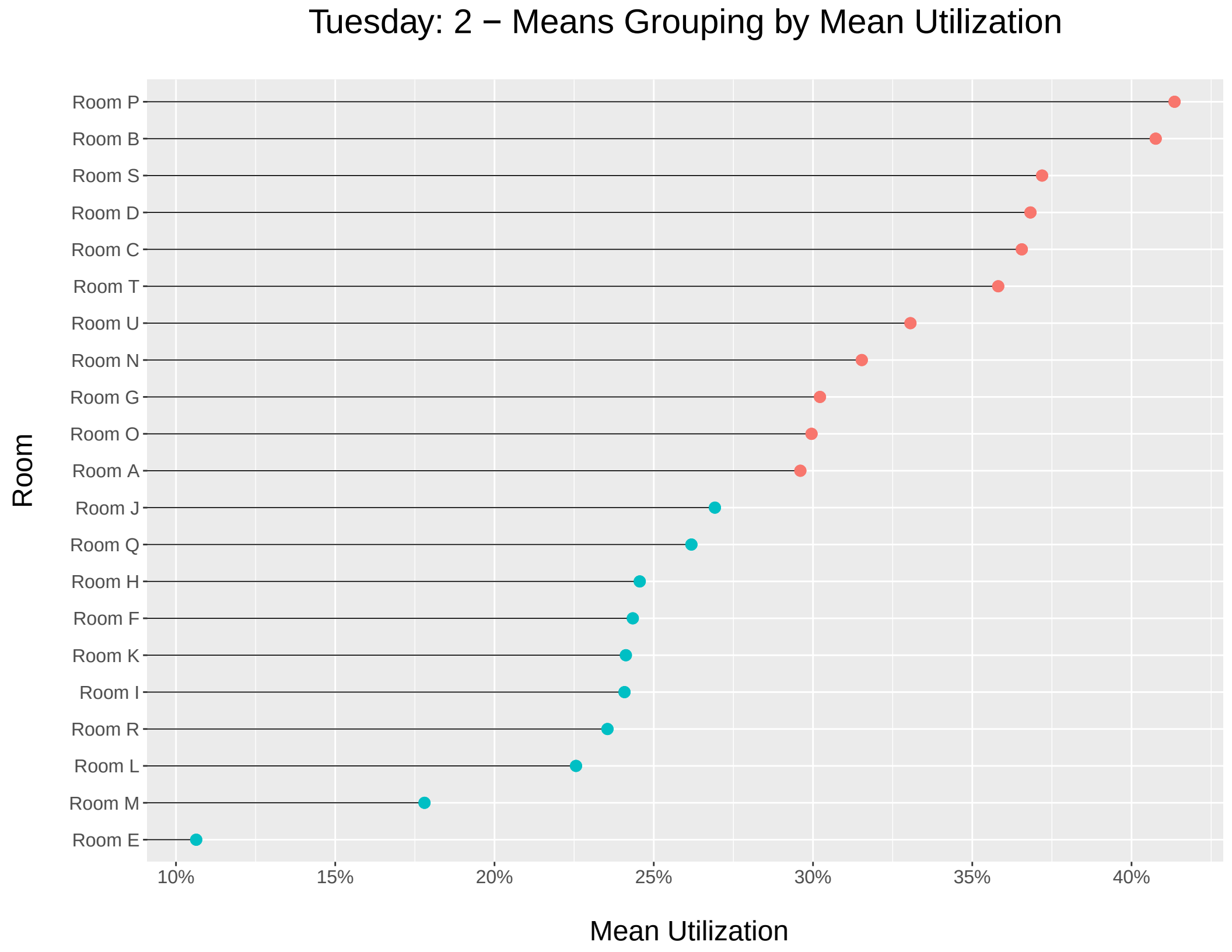

Monday: 7 − Means Grouping by Mean Utilization
Room P
Room S
Room B
Room C
Room U
Room T
Room D
Room G
Room N
Room A
Room O
Room H
Room J
Room Q
Room F
Room R
Room K
Room I
Room L
Room M
Room E
Room
10%
15%
20%
25%
30%
35%
Mean Utilization

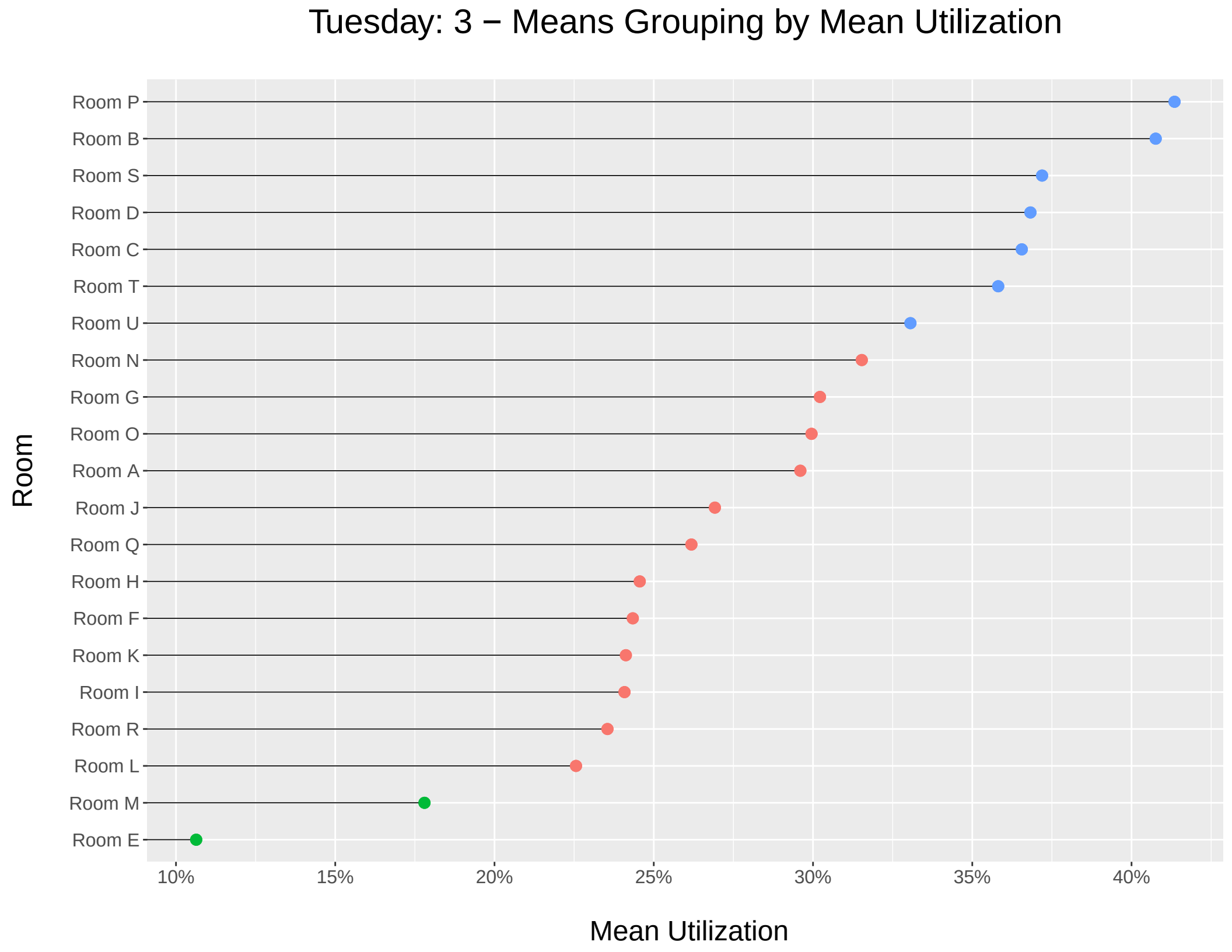

Monday: 8 − Means Grouping by Mean Utilization
Room
Room P
Room S
Room B
Room C
Room U
Room T
Room D
Room G
Room N
Room A
Room O
Room H
Room J
Room Q
Room F
Room R
Room K
Room I
Room L
Room M
Room E
10%
15%
20%
25%
30%
35%
Mean Utilization

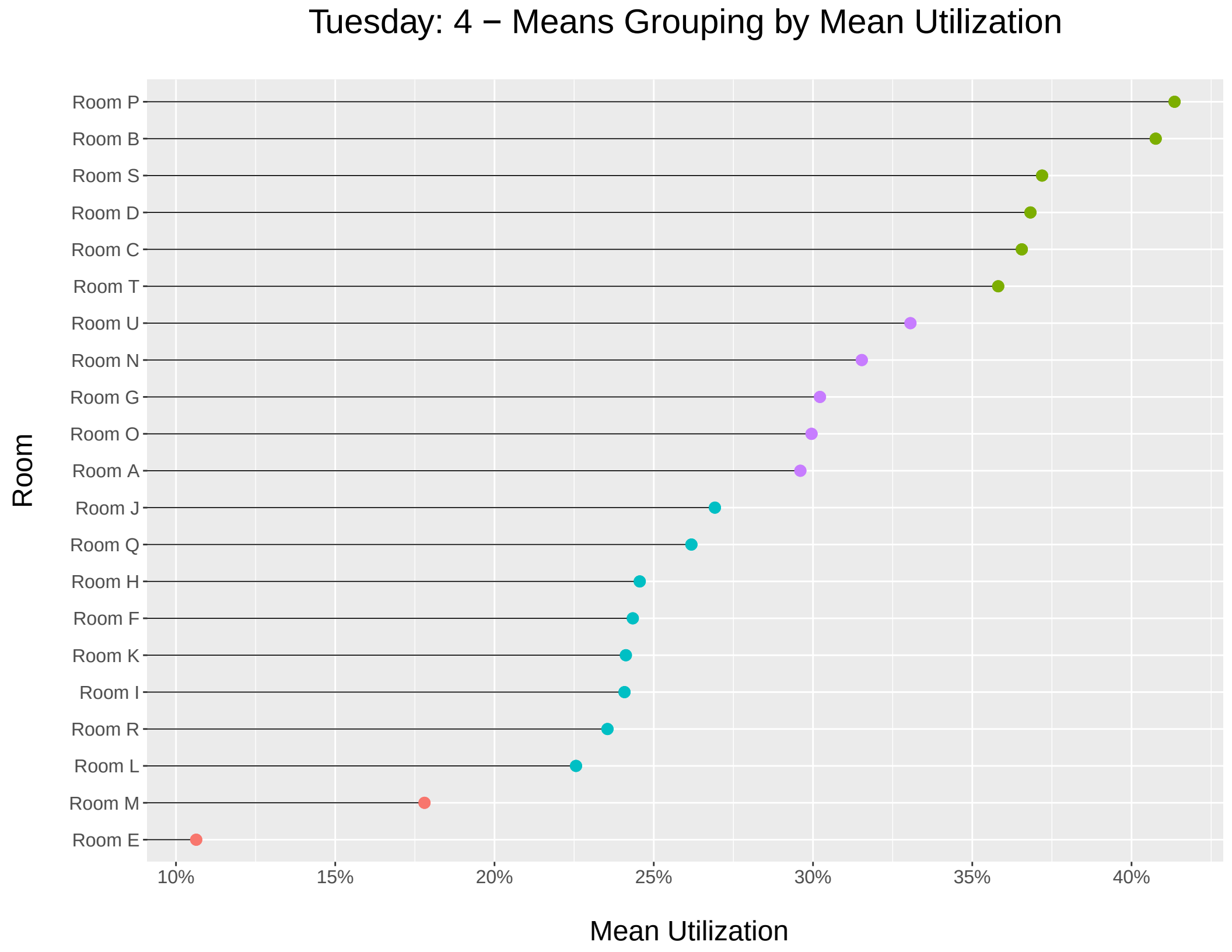

Monday: 9 − Means Grouping by Mean Utilization
Room
Room P
Room S
Room B
Room C
Room U
Room T
Room D
Room G
Room N
Room A
Room O
Room H
Room J
Room Q
Room F
Room R
Room K
Room I
Room L
Room M
Room E
10%
15%
20%
25%
30%
35%
Mean Utilization

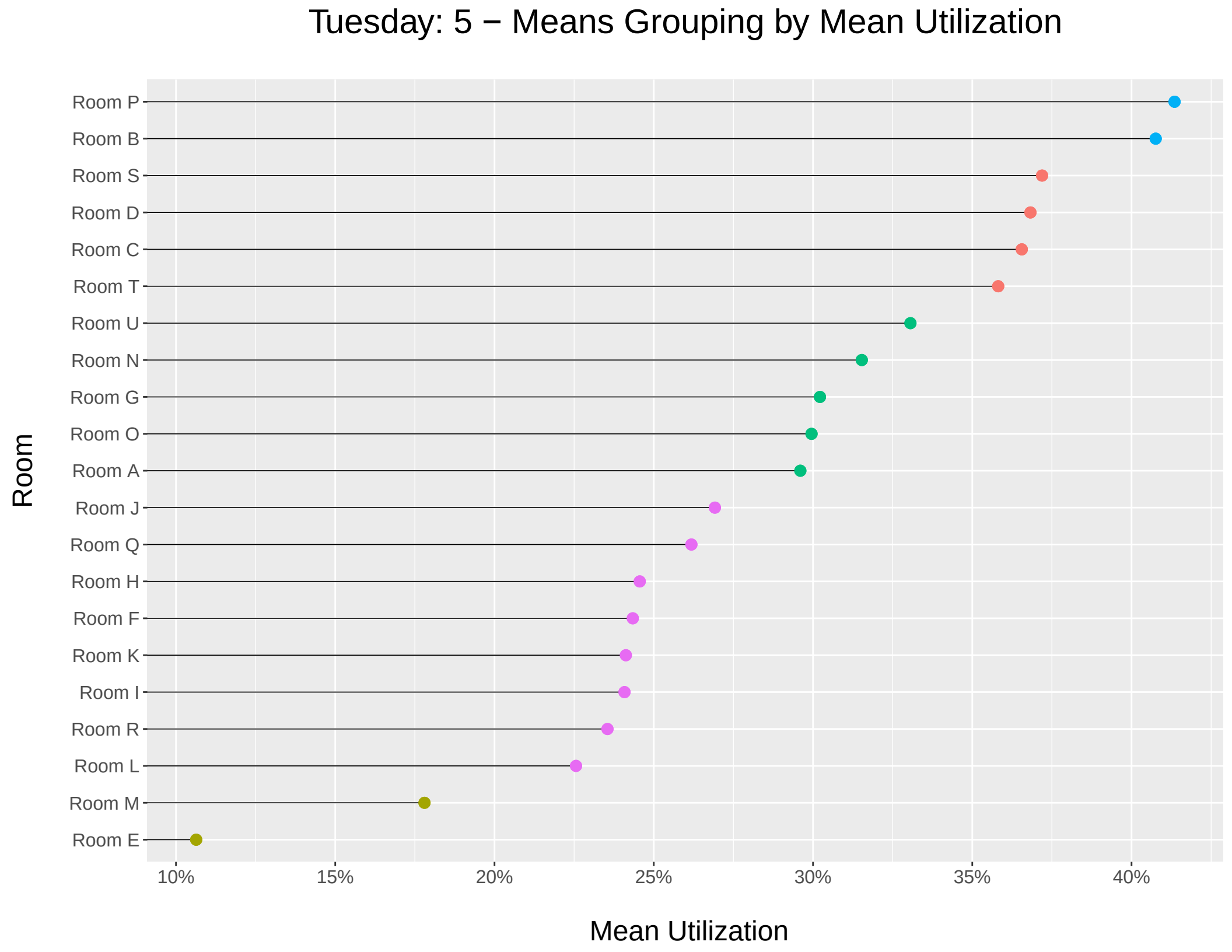

Monday: 10 − Means Grouping by Mean Utilization
Room
Room P
Room S
Room B
Room C
Room U
Room T
Room D
Room G
Room N
Room A
Room O
Room H
Room J
Room Q
Room F
Room R
Room K
Room I
Room L
Room M
Room E
10%
15%
20%
25%
30%
35%
Mean Utilization

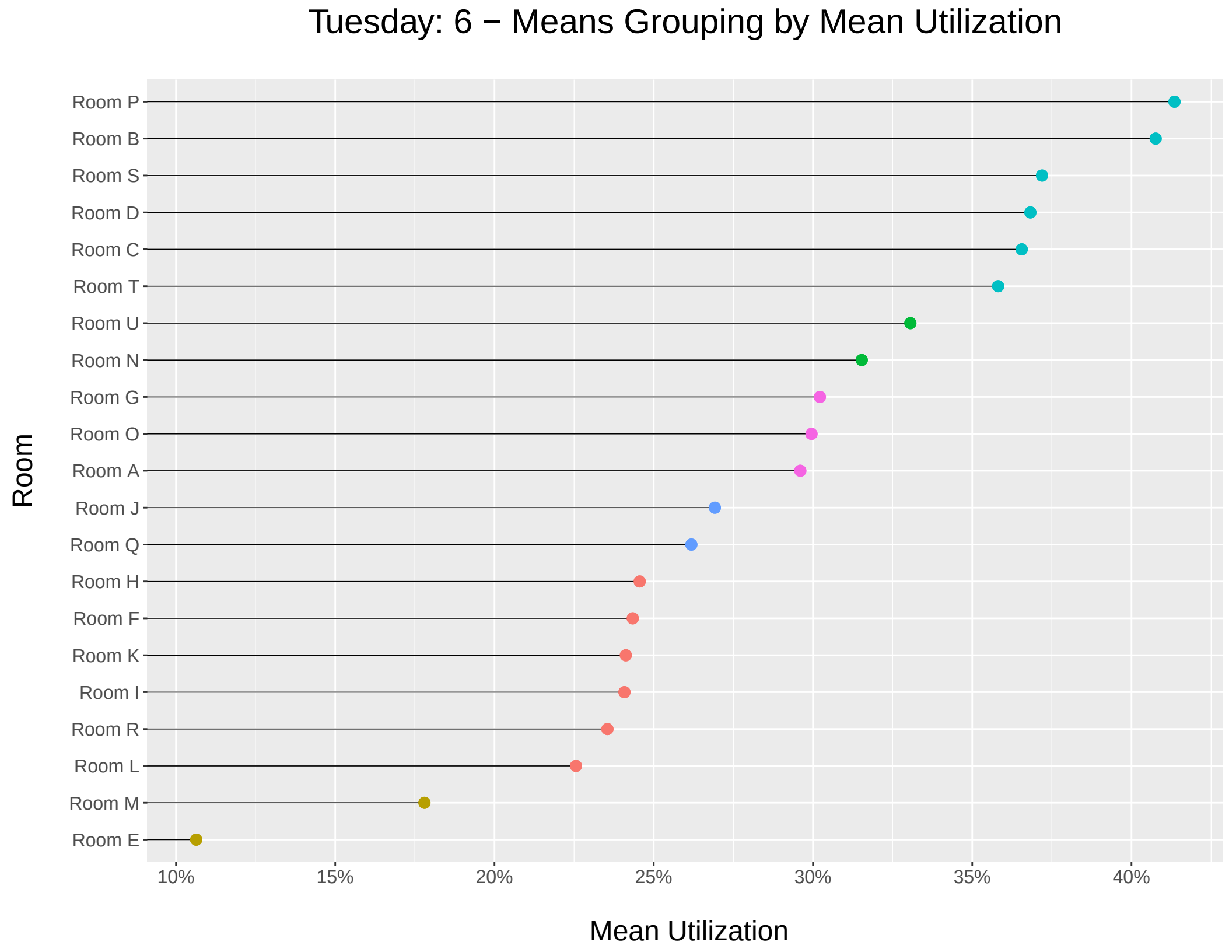

Tuesday: Total Within SS versus Number of Clusters for K−Means Grouping by Mean Utilization
Total Within SS
0.04
0.03
0.02
0.01
0.00
2
3
4
5
6
7
8
9
10
Number of Clusters

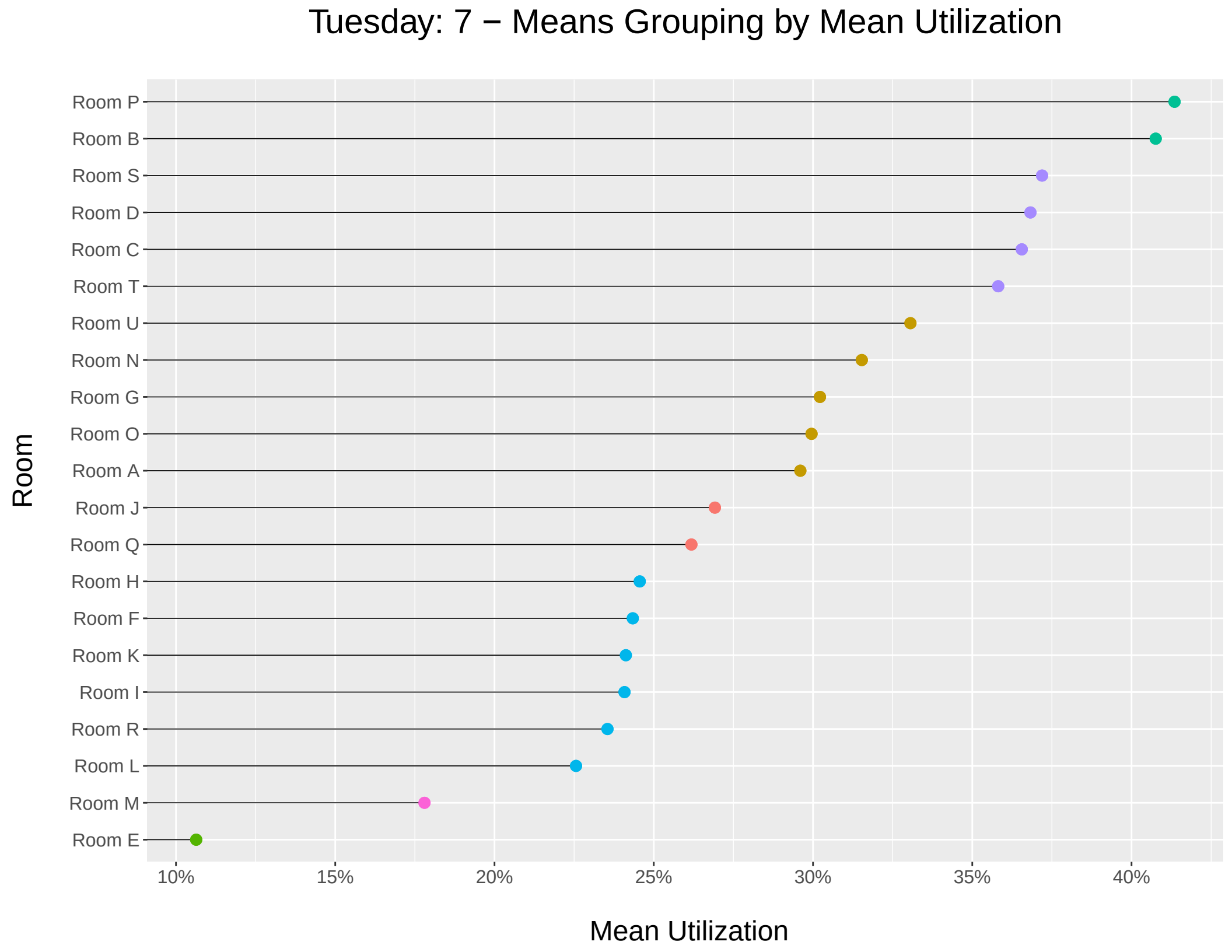

Tuesday: 2 − Means Grouping by Mean Utilization
Room P
Room B
Room S
Room D
Room C
Room T
Room U
Room N
Room G
Room O
Room A
Room J
Room Q
Room H
Room F
Room K
Room I
Room R
Room L
Room M
Room E
Room
10%
15%
20%
25%
30%
35%
40%
Mean Utilization

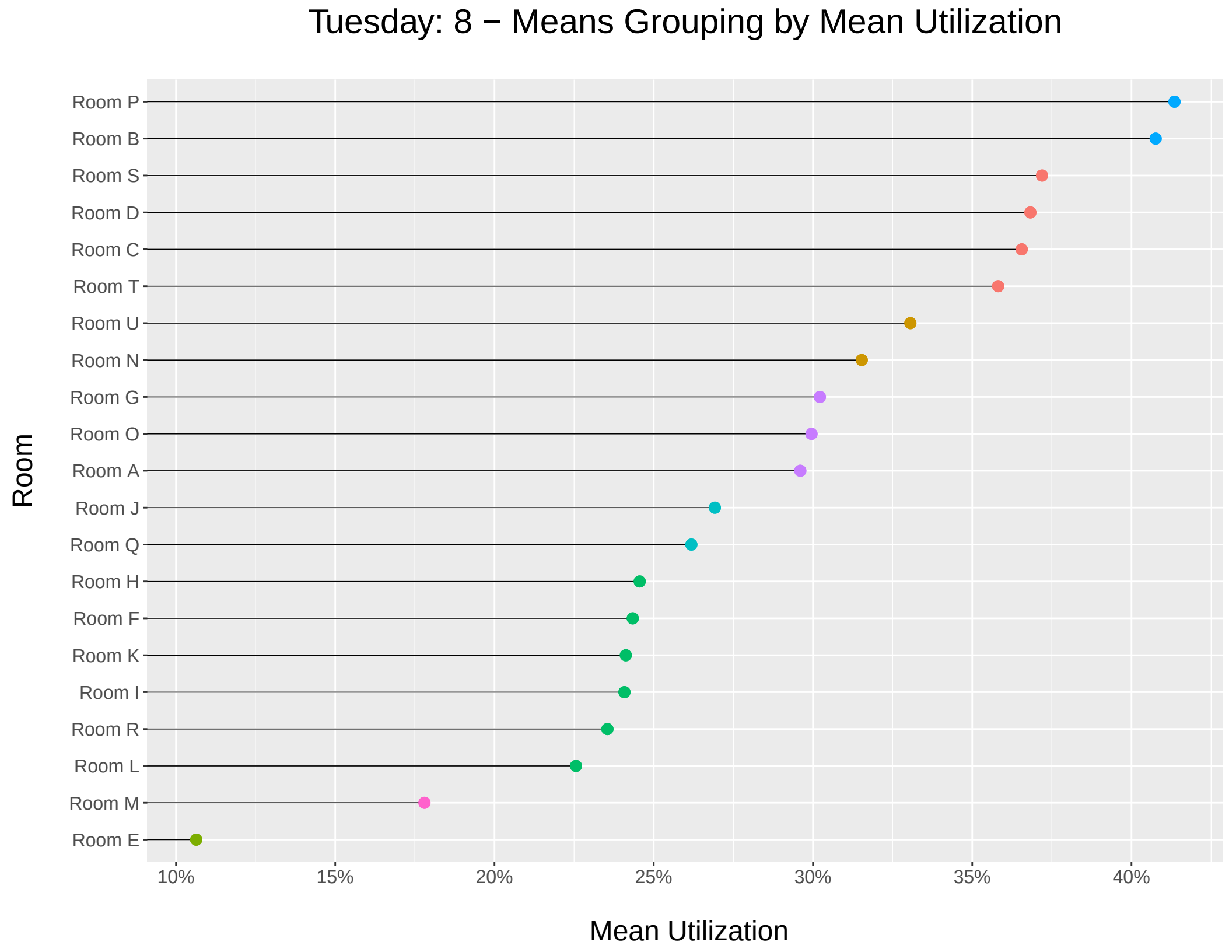

Tuesday: 3 − Means Grouping by Mean Utilization
Room P
Room B
Room S
Room D
Room C
Room T
Room U
Room N
Room G
Room O
Room A
Room J
Room Q
Room H
Room F
Room K
Room I
Room R
Room L
Room M
Room E
Room
10%
15%
20%
25%
30%
35%
40%
Mean Utilization

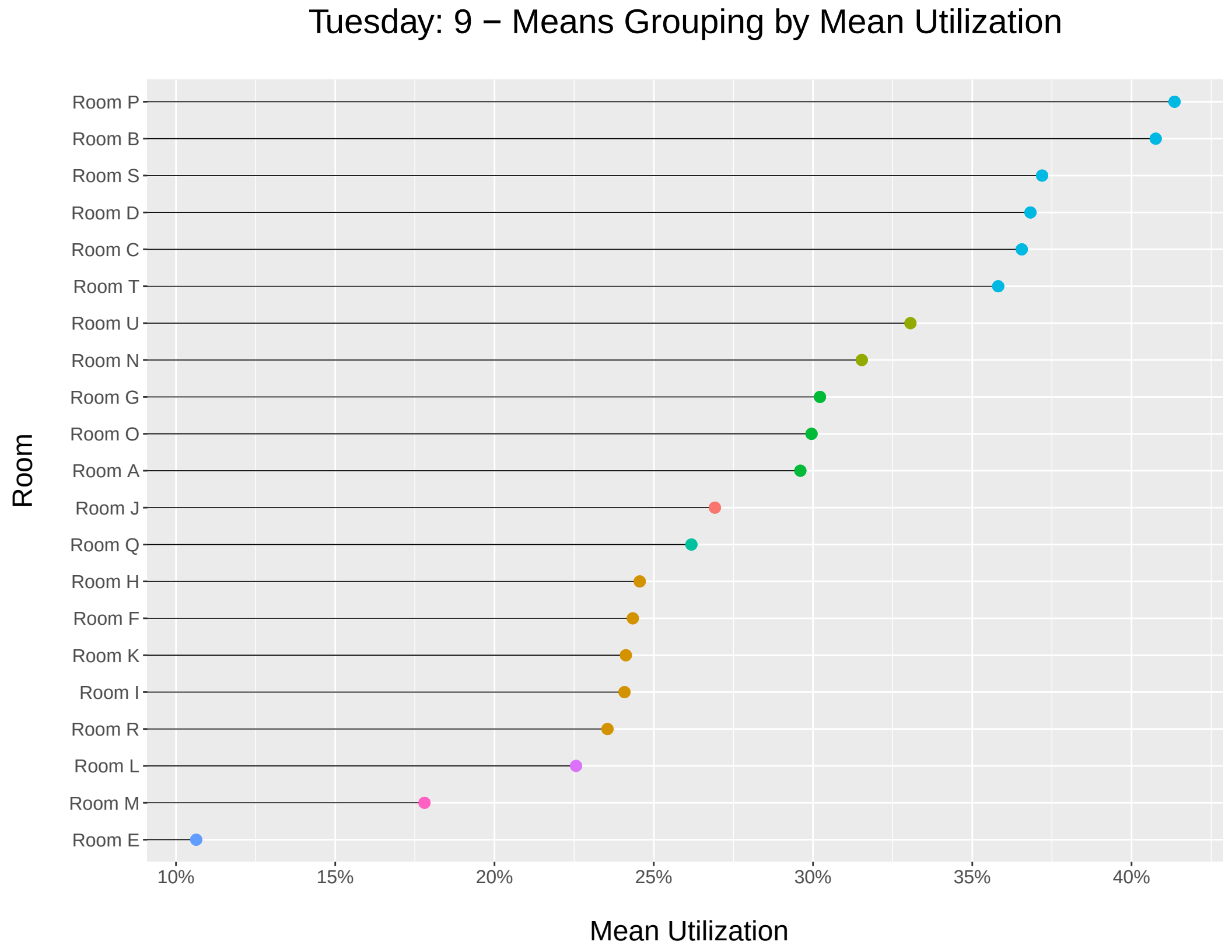

Tuesday: 4 − Means Grouping by Mean Utilization
Room P
Room B
Room S
Room D
Room C
Room T
Room U
Room N
Room G
Room O
Room A
Room J
Room Q
Room H
Room F
Room K
Room I
Room R
Room L
Room M
Room E
Room
10%
15%
20%
25%
30%
35%
40%
Mean Utilization


Tuesday: 5 − Means Grouping by Mean Utilization
Room P
Room B
Room S
Room D
Room C
Room T
Room U
Room N
Room G
Room O
Room A
Room J
Room Q
Room H
Room F
Room K
Room I
Room R
Room L
Room M
Room E
Room
10%
15%
20%
25%
30%
35%
40%
Mean Utilization


Tuesday: 6 − Means Grouping by Mean Utilization
Room P
Room B
Room S
Room D
Room C
Room T
Room U
Room N
Room G
Room O
Room A
Room J
Room Q
Room H
Room F
Room K
Room I
Room R
Room L
Room M
Room E
Room
10%
15%
20%
25%
30%
35%
40%
Mean Utilization


Tuesday: 7 − Means Grouping by Mean Utilization
Room
Room P
Room B
Room S
Room D
Room C
Room T
Room U
Room N
Room G
Room O
Room A
Room J
Room Q
Room H
Room F
Room K
Room I
Room R
Room L
Room M
Room E
10%
15%
20%
25%
30%
35%
40%
Mean Utilization


Tuesday: 8 − Means Grouping by Mean Utilization
Room P
Room B
Room S
Room D
Room C
Room T
Room U
Room N
Room G
Room O
Room A
Room J
Room Q
Room H
Room F
Room K
Room I
Room R
Room L
Room M
Room E
Room
10%
15%
20%
25%
30%
35%
40%
Mean Utilization


Tuesday: 9 − Means Grouping by Mean Utilization
Room
Room P
Room B
Room S
Room D
Room C
Room T
Room U
Room N
Room G
Room O
Room A
Room J
Room Q
Room H
Room F
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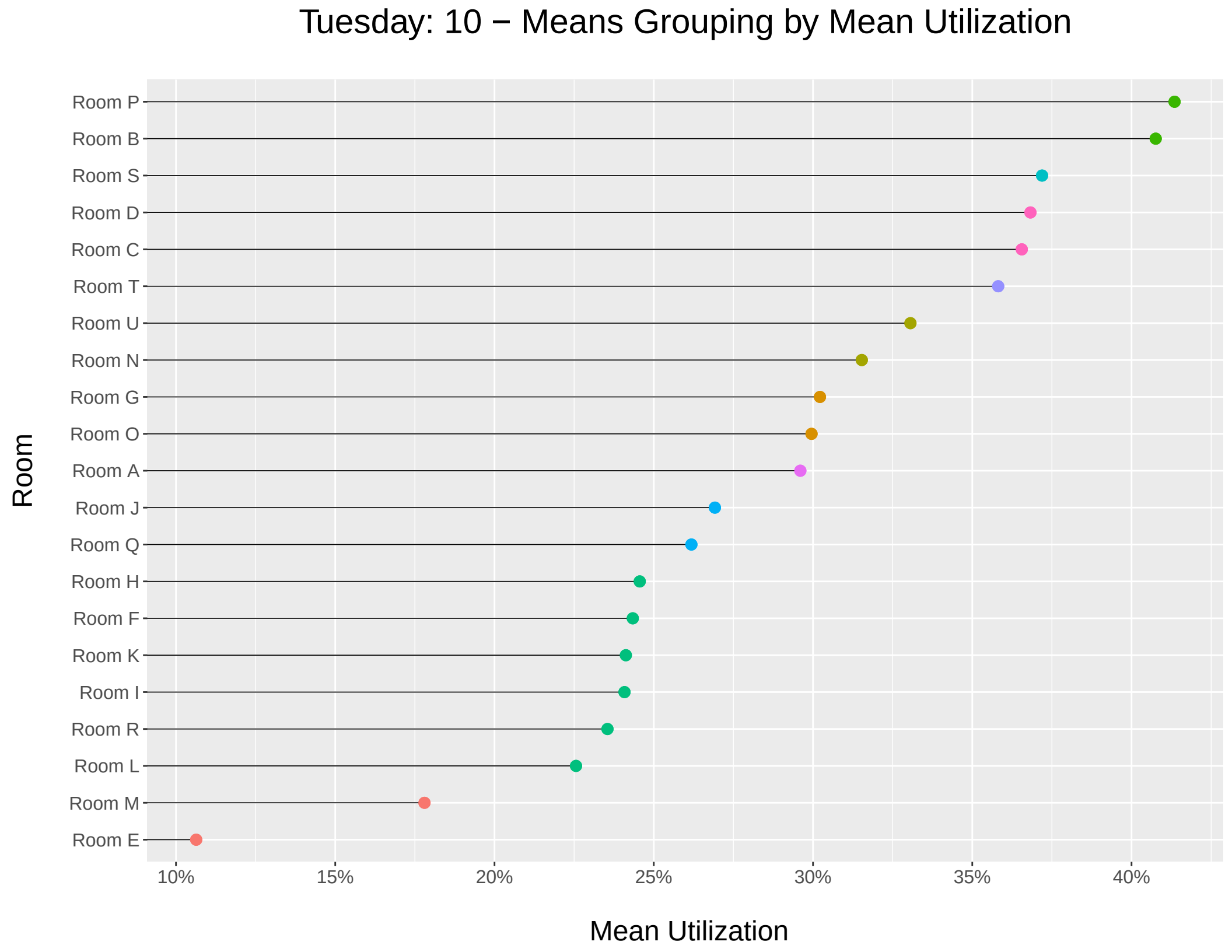
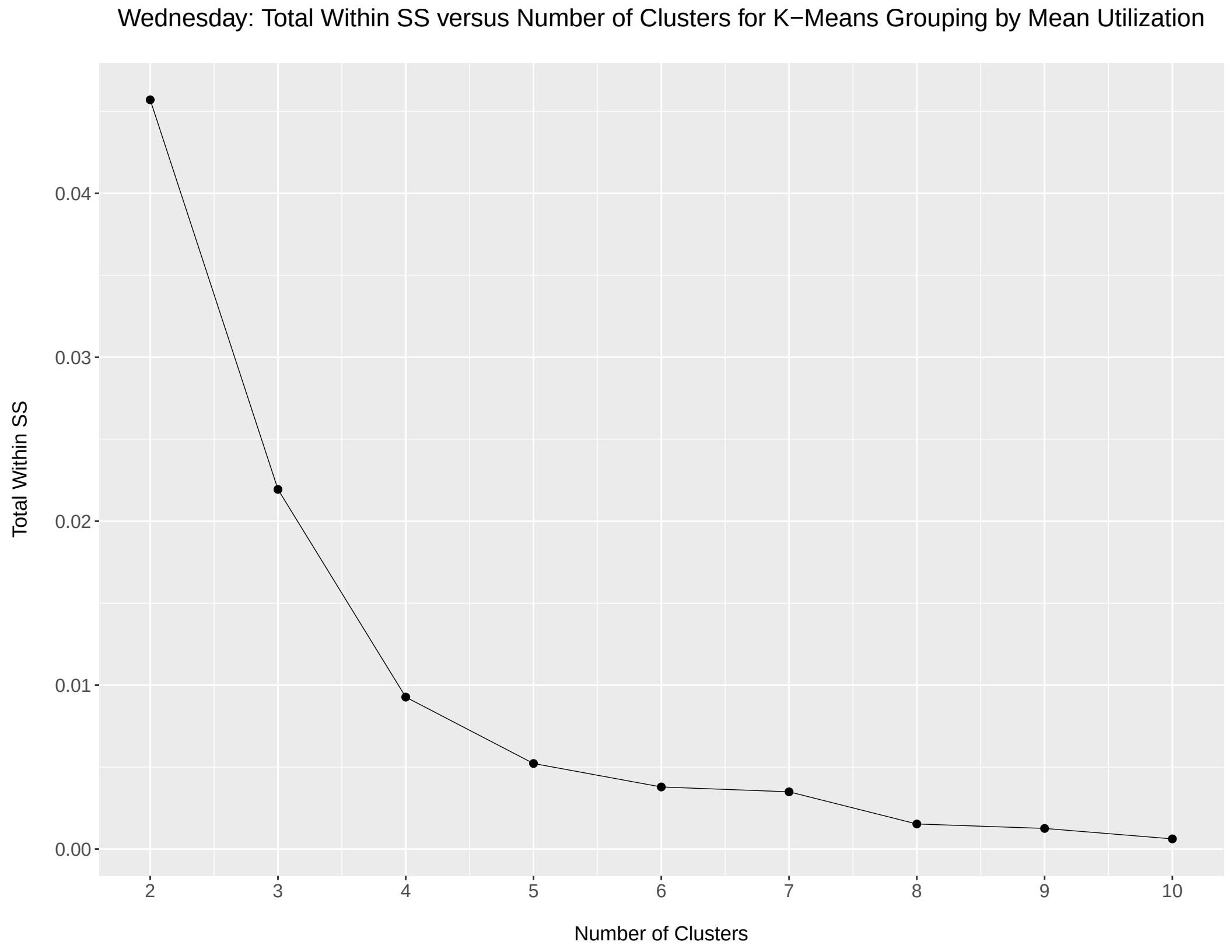
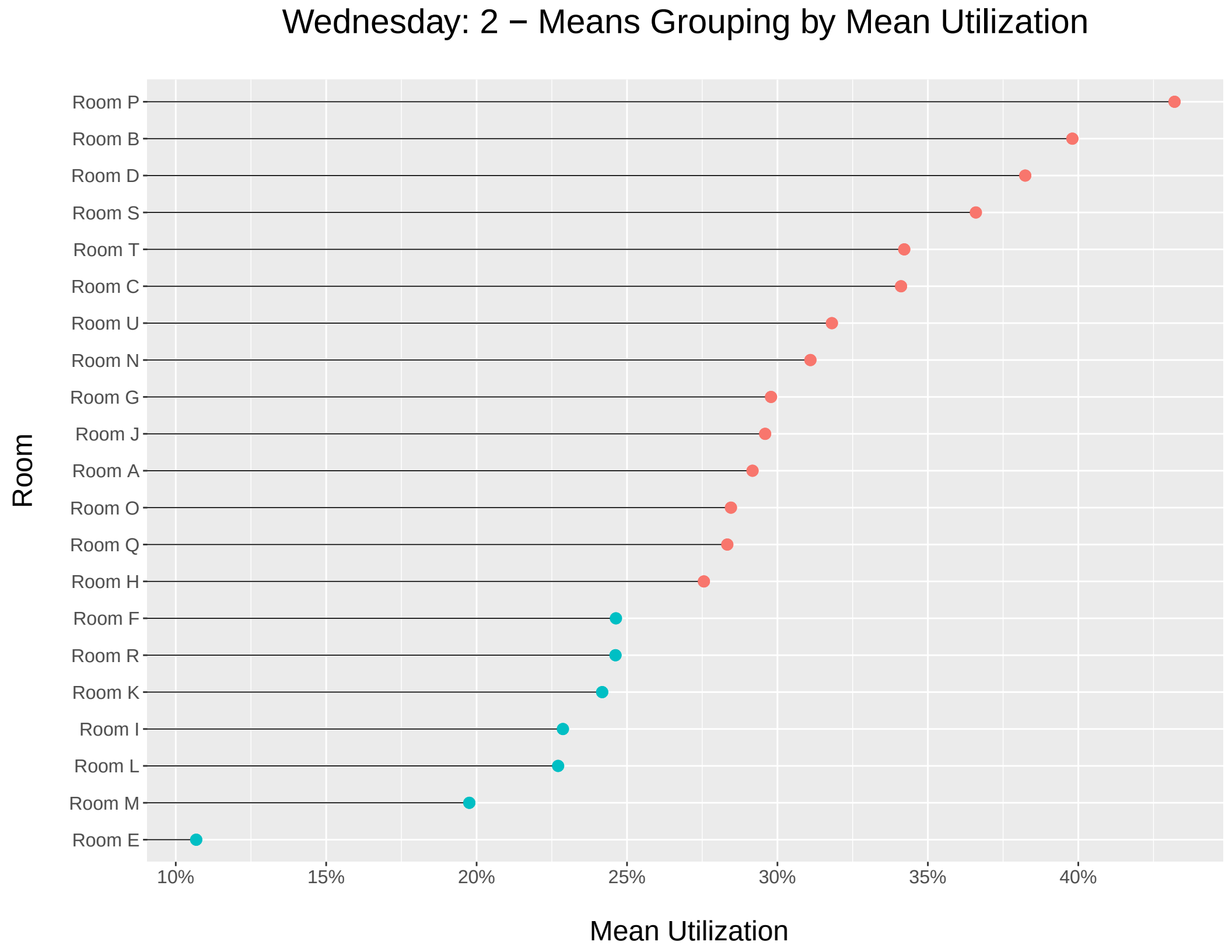
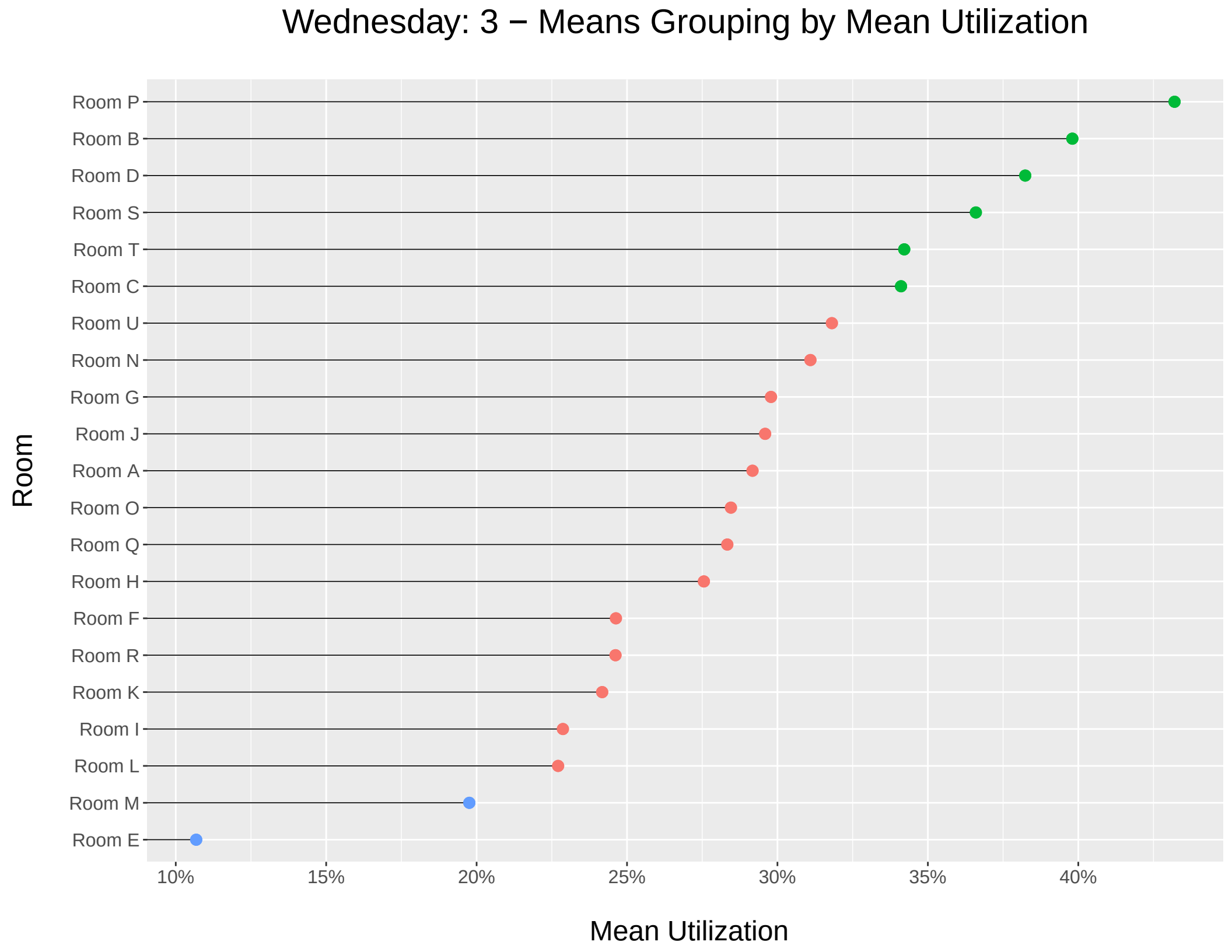
Room R
Room L
Room M
Room E
10%
15%
20%
25%
30%
35%
40%
Mean Utilization


Tuesday: 10 − Means Grouping by Mean Utilization
Room
Room P
Room B
Room S
Room D
Room C
Room T
Room U
Room N
Room G
Room O
Room A
Room J
Room Q
Room H
Room F
Room K
Room I
Room R
Room L
Room M
Room E
10%
15%
20%
25%
30%
35%
40%
Mean Utilization


Wednesday: Total Within SS versus Number of Clusters for K−Means Grouping by Mean Utilization
Total Within SS
0.04
0.03
0.02
0.01
0.00
2
3
4
5
6
7
8
9
10
Number of Clusters


Wednesday: 2 − Means Grouping by Mean Utilization
Room P
Room B
Room D
Room S
Room T
Room C
Room U
Room N
Room G
Room J
Room A
Room O
Room Q
Room H
Room F
Room R
Room K
Room I
Room L
Room M
Room E
Room
10%
15%
20%
25%
30%
35%
40%
Mean Utilization


Wednesday: 3 − Means Grouping by Mean Utilization
Room P
Room B
Room D
Room S
Room T
Room C
Room U
Room N
Room G
Room J
Room A
Room O
Room Q
Room H
Room F
Room R
Room K
Room I
Room L
Room M
Room E
Room
10%
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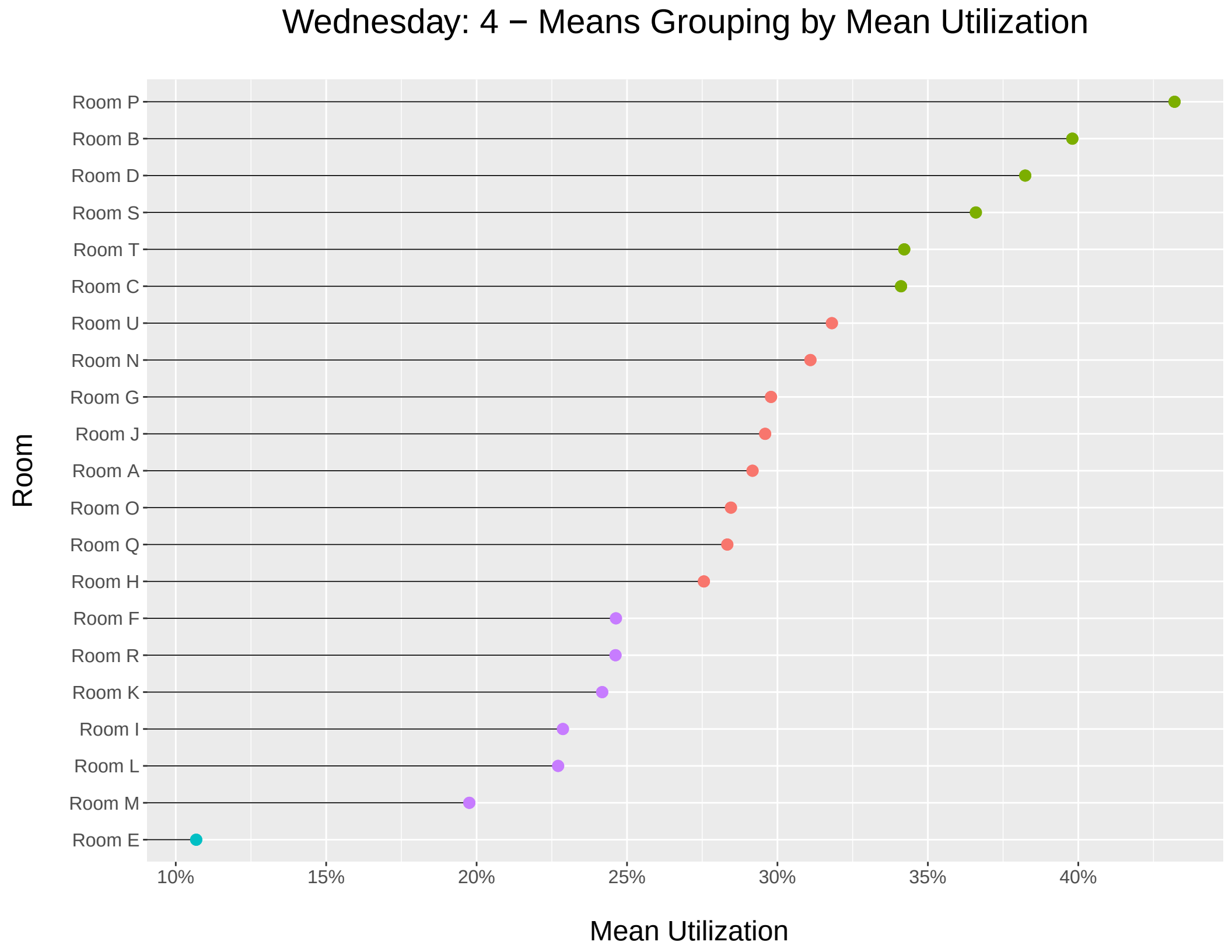
20%
25%
30%
35%
40%
Mean Utilization


Wednesday: 4 − Means Grouping by Mean Utilization
Room P
Room B
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Room C
Room U
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Room A
Room O
Room Q
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Room L
Room M
Room E
Room
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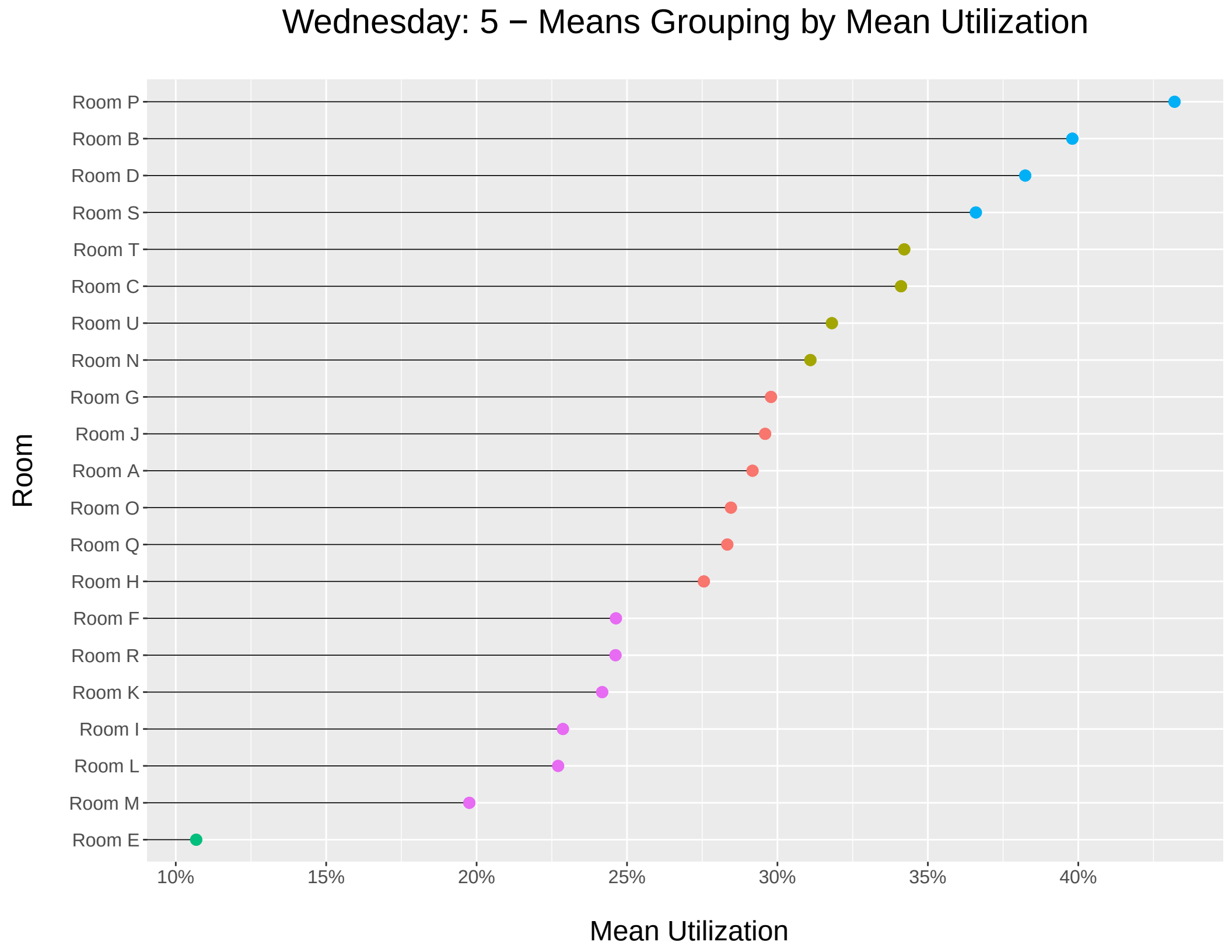
20%
25%
30%
35%
40%
Mean Utilization


Wednesday: 5 − Means Grouping by Mean Utilization
Room P
Room B
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Room T
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Room U
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Room O
Room Q
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Room E
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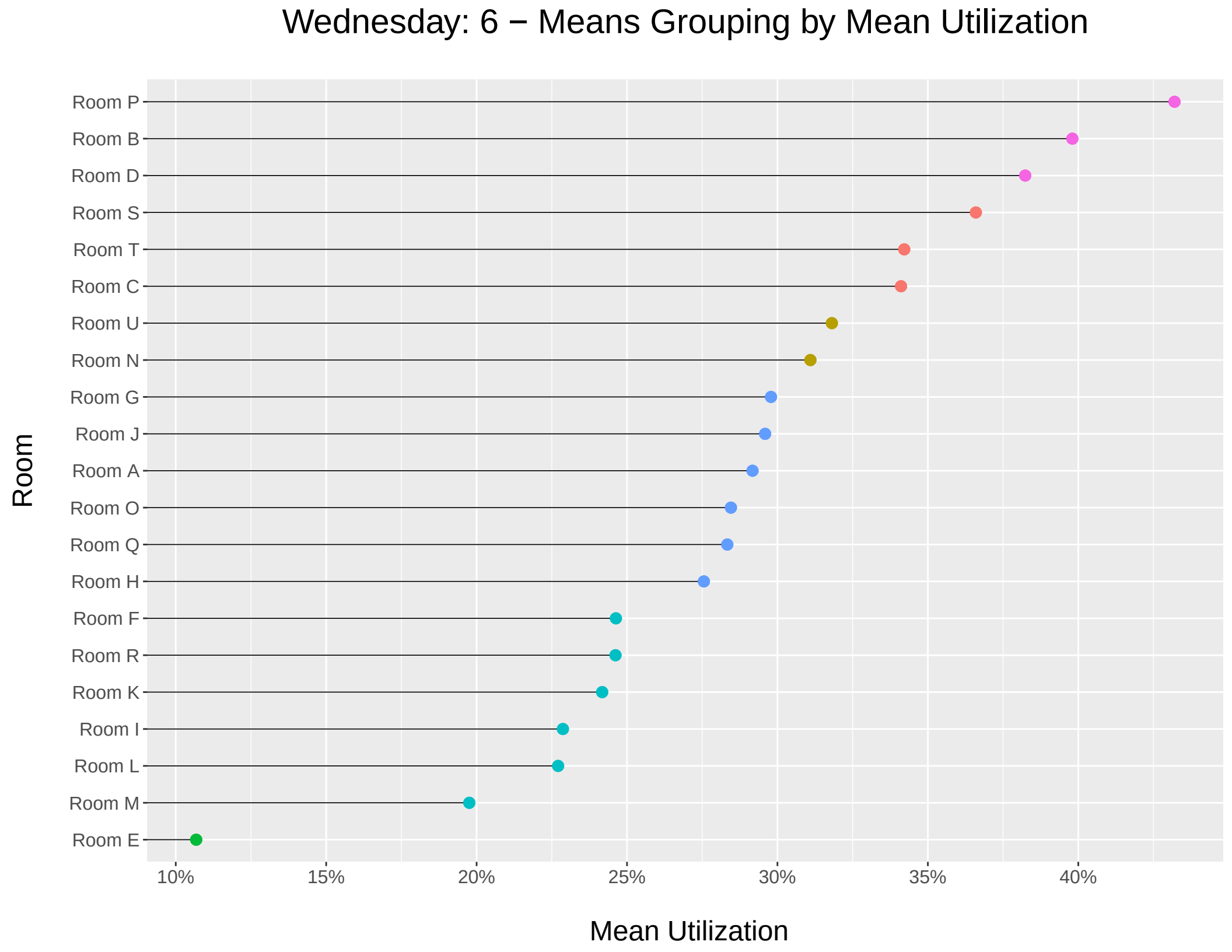
Mean Utilization


Wednesday: 6 − Means Grouping by Mean Utilization
Room P
Room B
Room D
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Room O
Room Q
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Room E
Room
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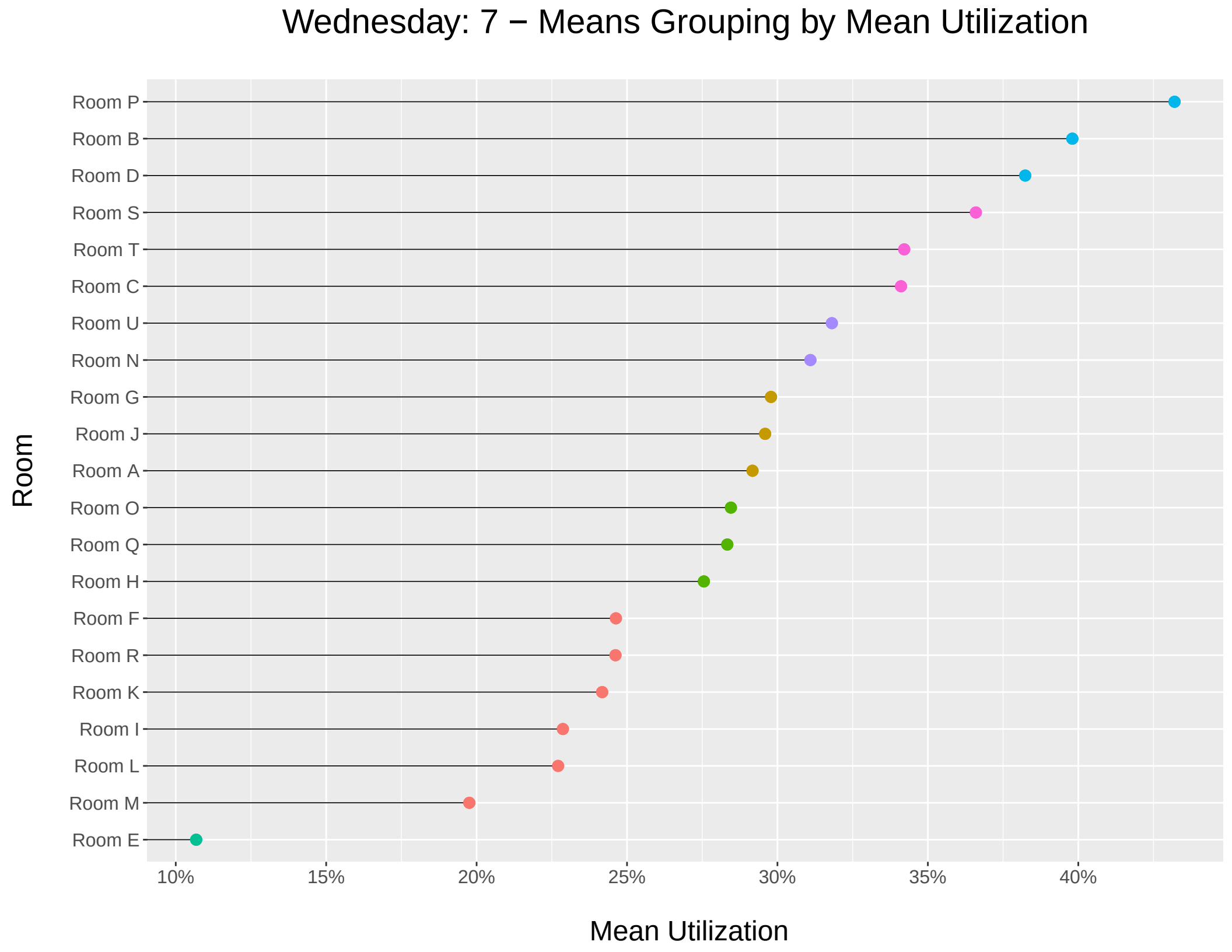
Mean Utilization


Wednesday: 7 − Means Grouping by Mean Utilization
Room P
Room B
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Room U
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Room A
Room O
Room Q
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Room E
Room
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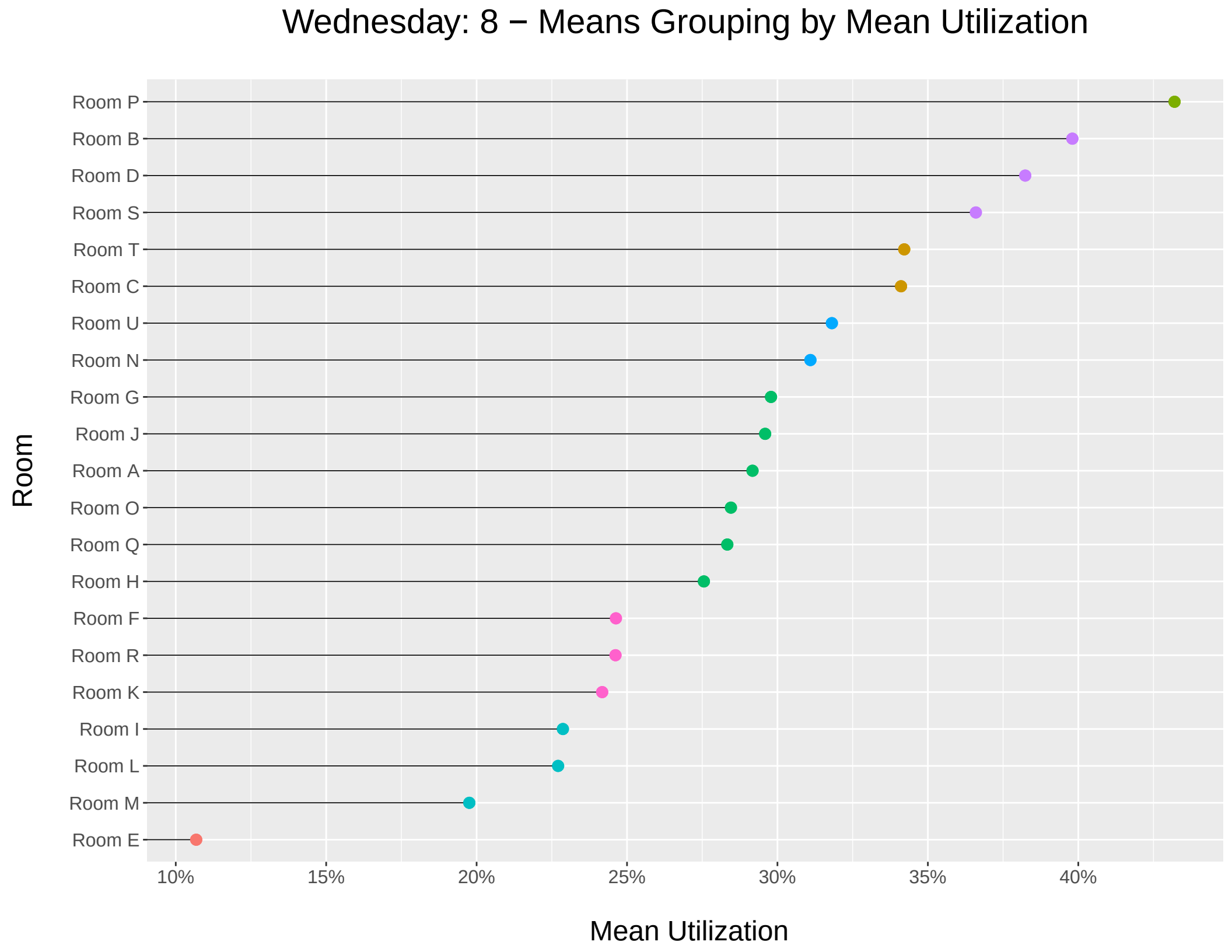
Mean Utilization


Wednesday: 8 − Means Grouping by Mean Utilization
Room P
Room B
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Room O
Room Q
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Room E
Room
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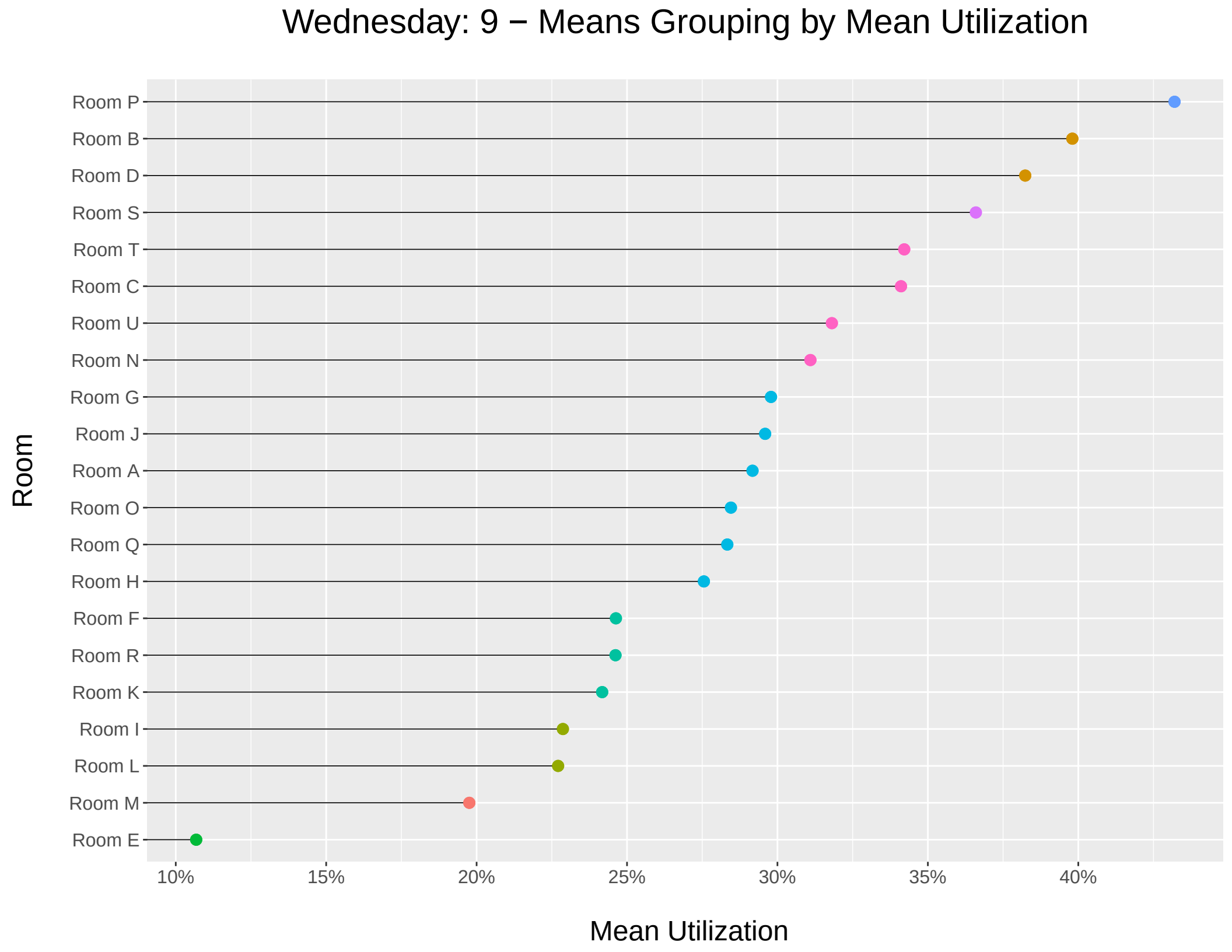
25%
30%
35%
40%
Mean Utilization


Wednesday: 9 − Means Grouping by Mean Utilization
Room P
Room B
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Room O
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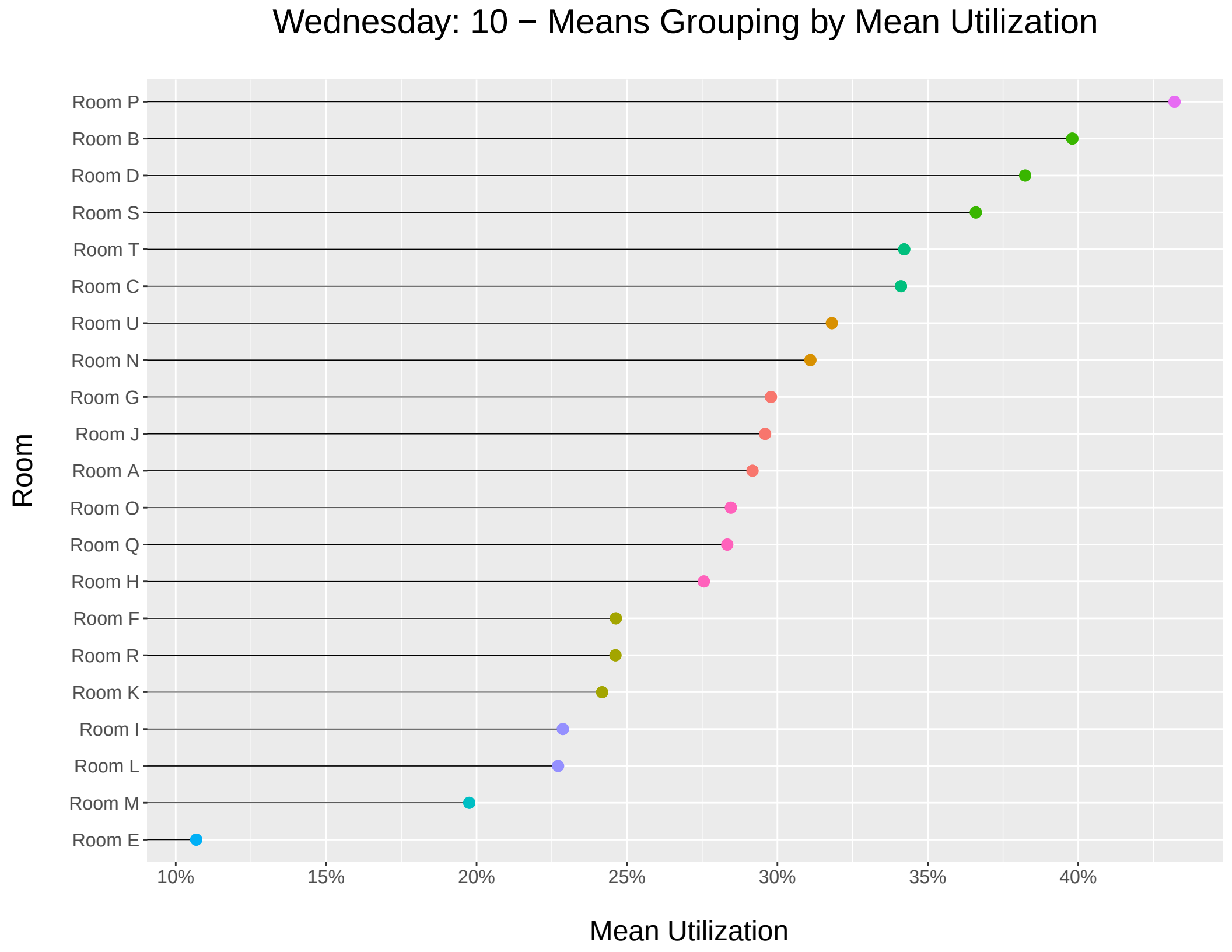
Mean Utilization


Wednesday: 10 − Means Grouping by Mean Utilization
Room P
Room B
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Room O
Room Q
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Room M
Room E
Room
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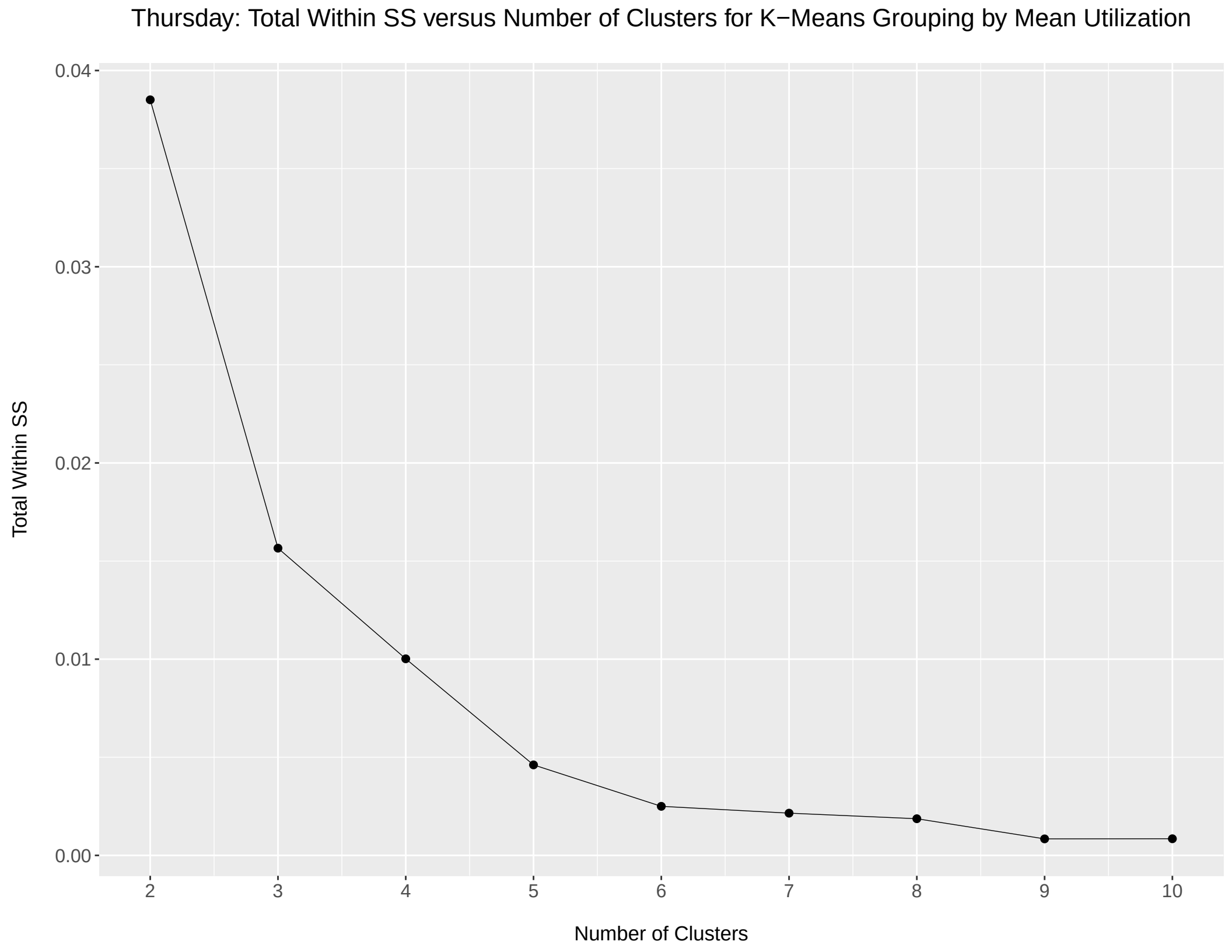
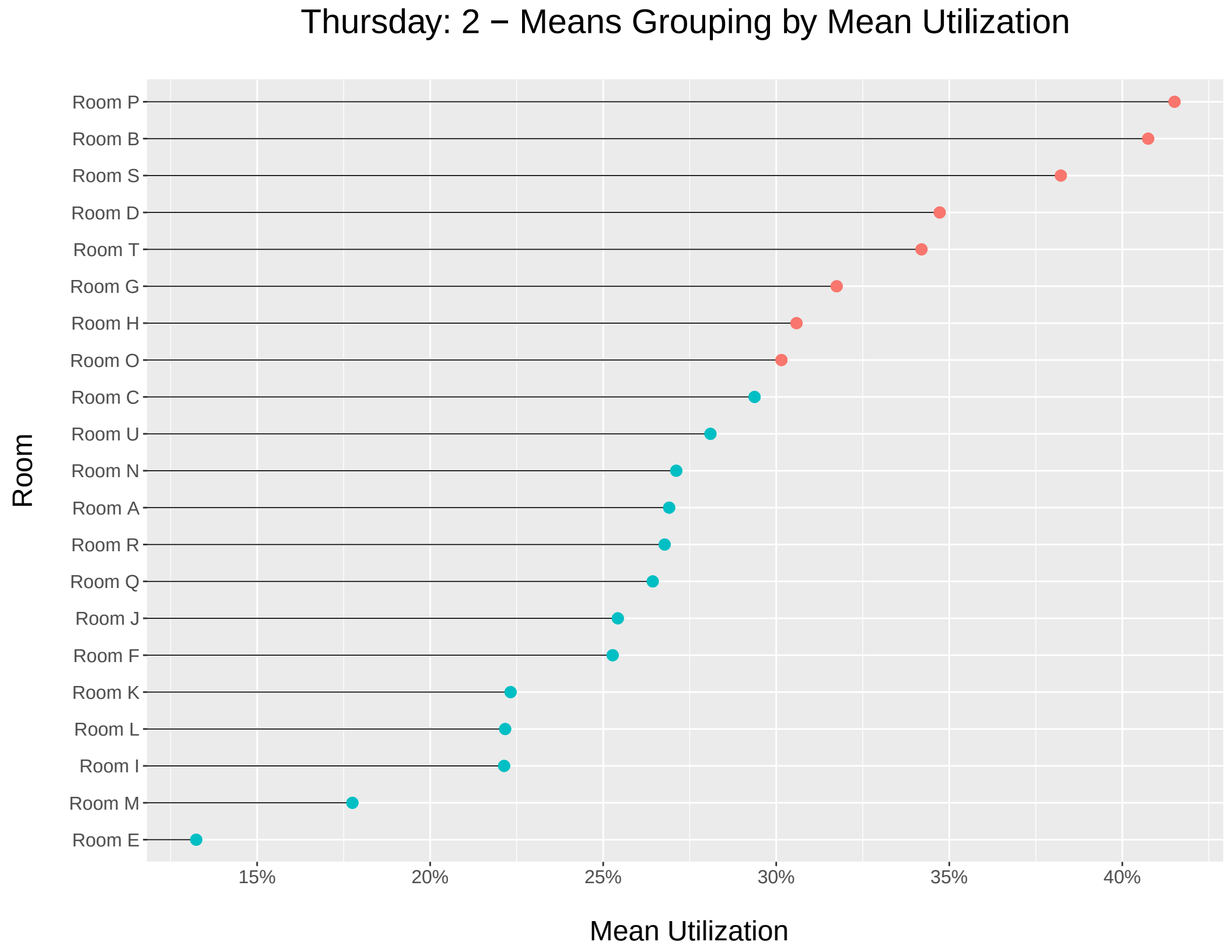
30%
35%
40%
Mean Utilization


Thursday: Total Within SS versus Number of Clusters for K−Means Grouping by Mean Utilization
Total Within SS
0.04
0.03
0.02
0.01
0.00
2
3
4
5
6
7
8
9
10
Number of Clusters


Thursday: 2 − Means Grouping by Mean Utilization
Room P
Room B
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Room E
Room
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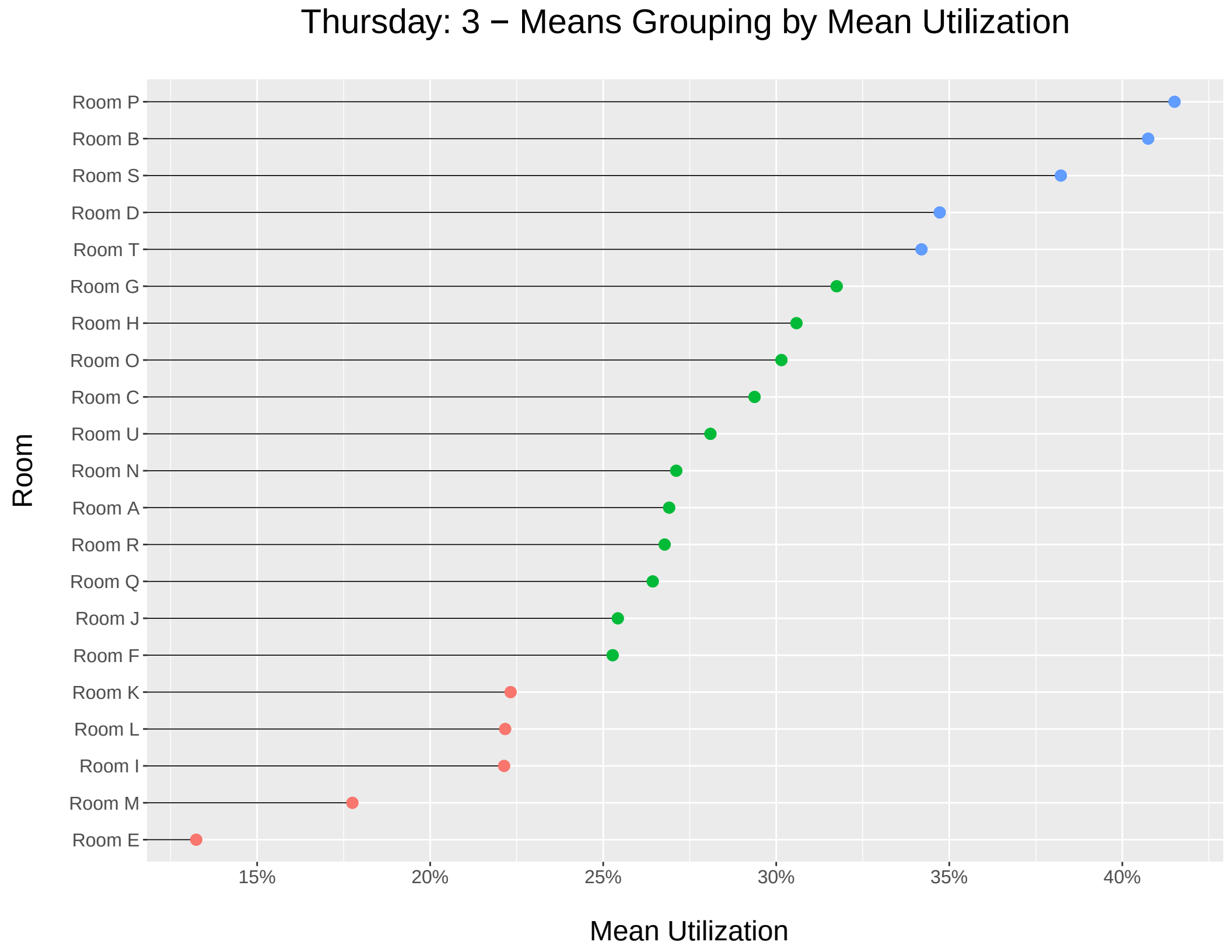
35%
40%
Mean Utilization


Thursday: 3 − Means Grouping by Mean Utilization
Room P
Room B
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Room M
Room E
Room
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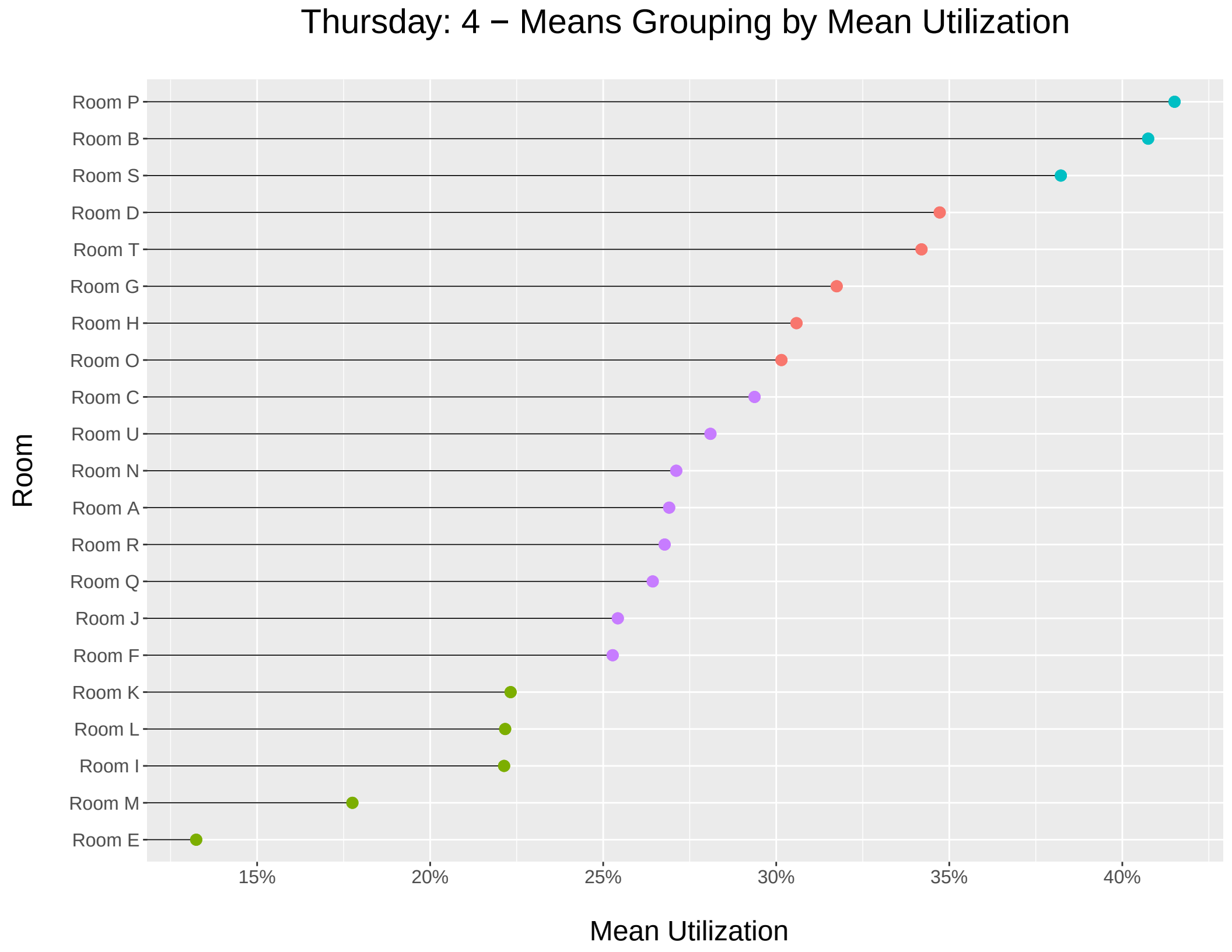
35%
40%
Mean Utilization


Thursday: 4 − Means Grouping by Mean Utilization
Room P
Room B
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Room E
Room
15%
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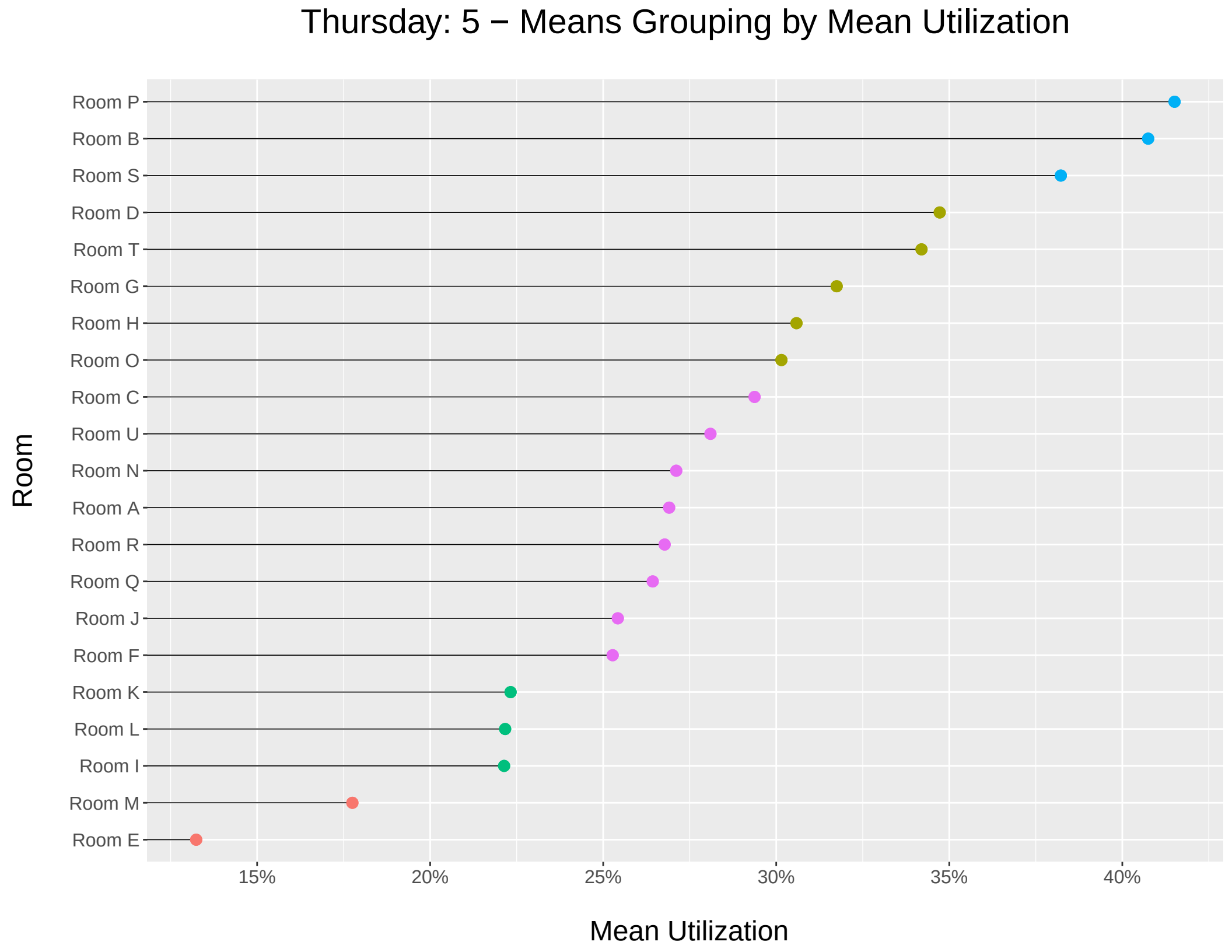
35%
40%
Mean Utilization


Thursday: 5 − Means Grouping by Mean Utilization
Room P
Room B
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Room A
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Room I
Room M
Room E
Room
15%
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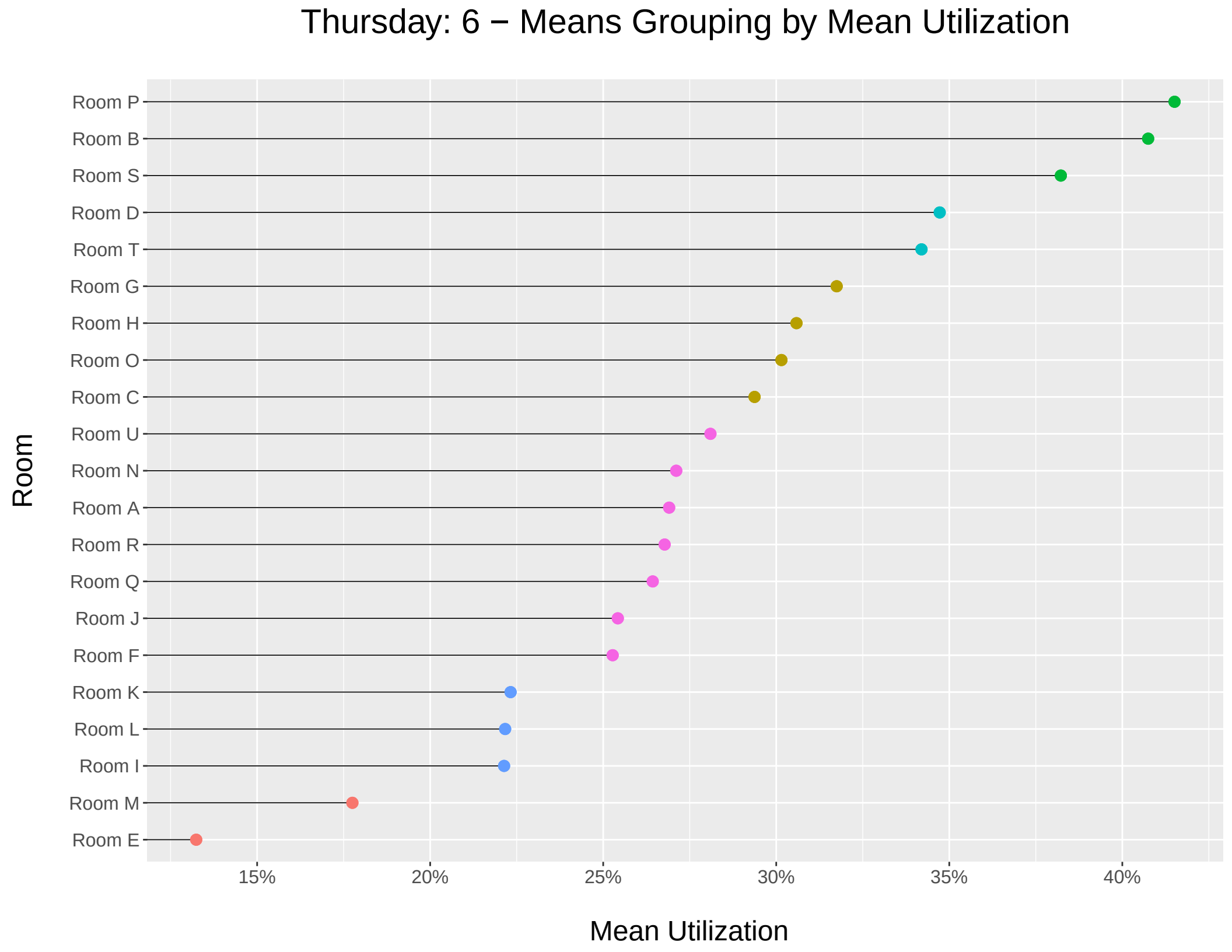
Mean Utilization


Thursday: 6 − Means Grouping by Mean Utilization
Room P
Room B
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Room A
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Room I
Room M
Room E
Room
15%
20%
25%
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35%
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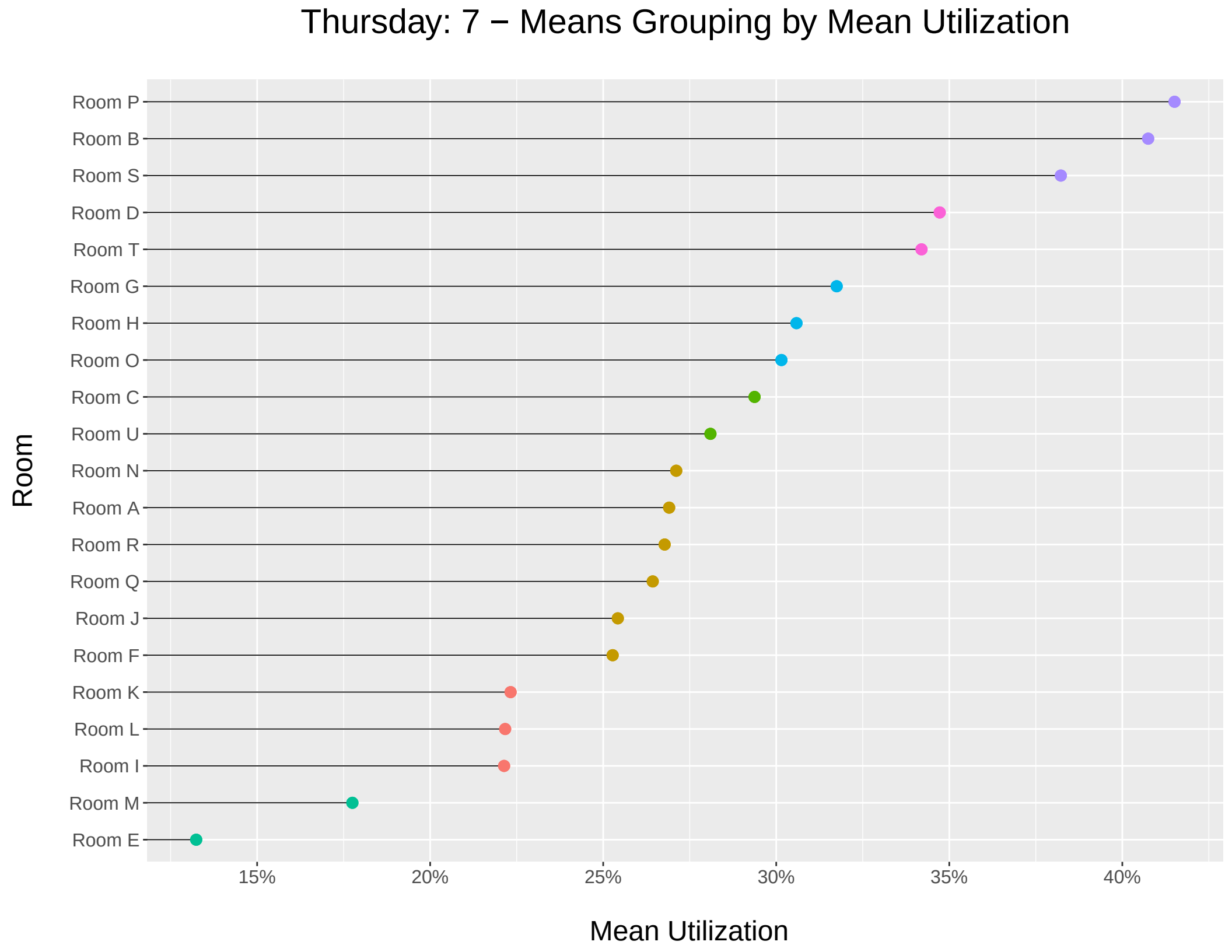
Mean Utilization


Thursday: 7 − Means Grouping by Mean Utilization
Room P
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Room A
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Room F
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Room L
Room I
Room M
Room E
Room
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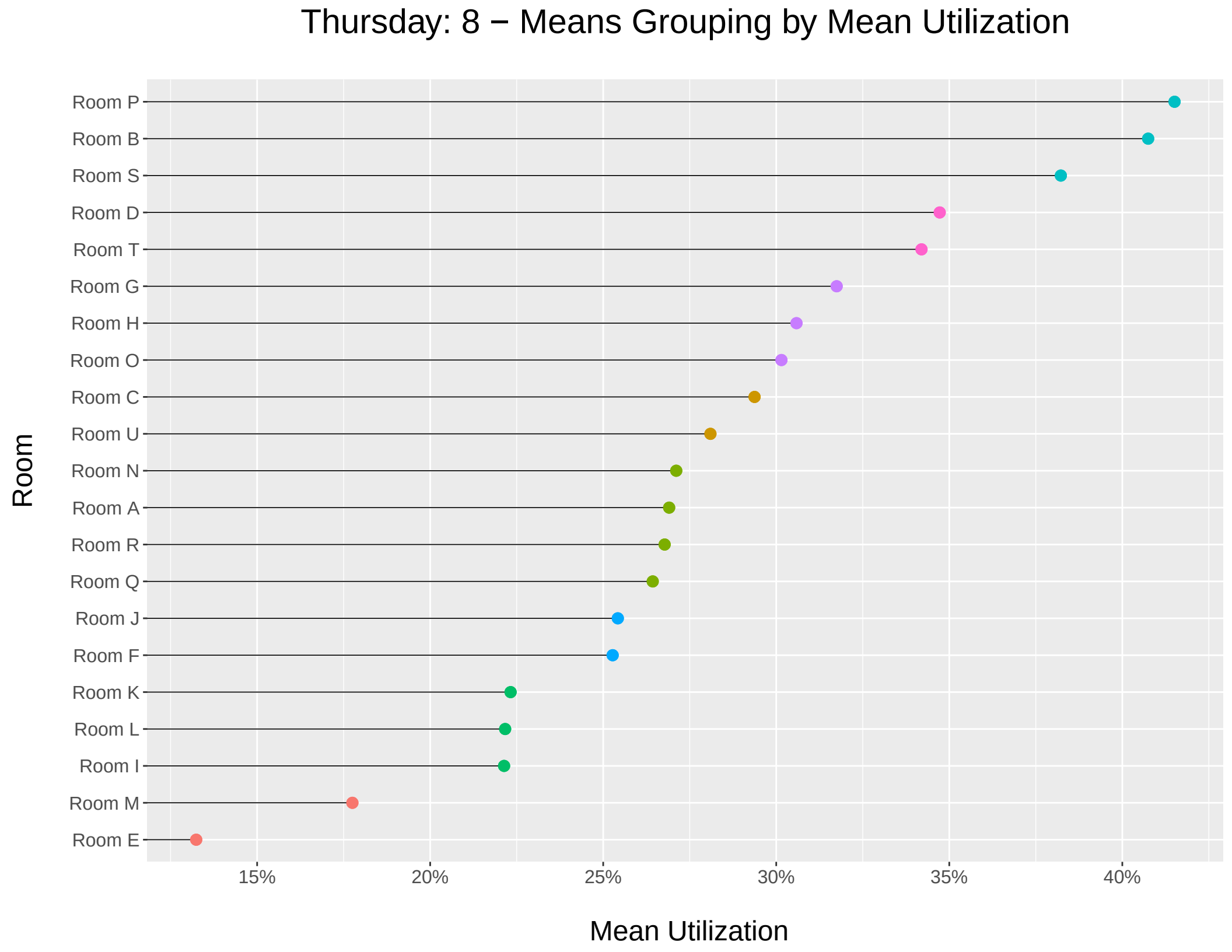
20%
25%
30%
35%
40%
Mean Utilization


Thursday: 8 − Means Grouping by Mean Utilization
Room P
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Room A
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Room I
Room M
Room E
Room
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25%
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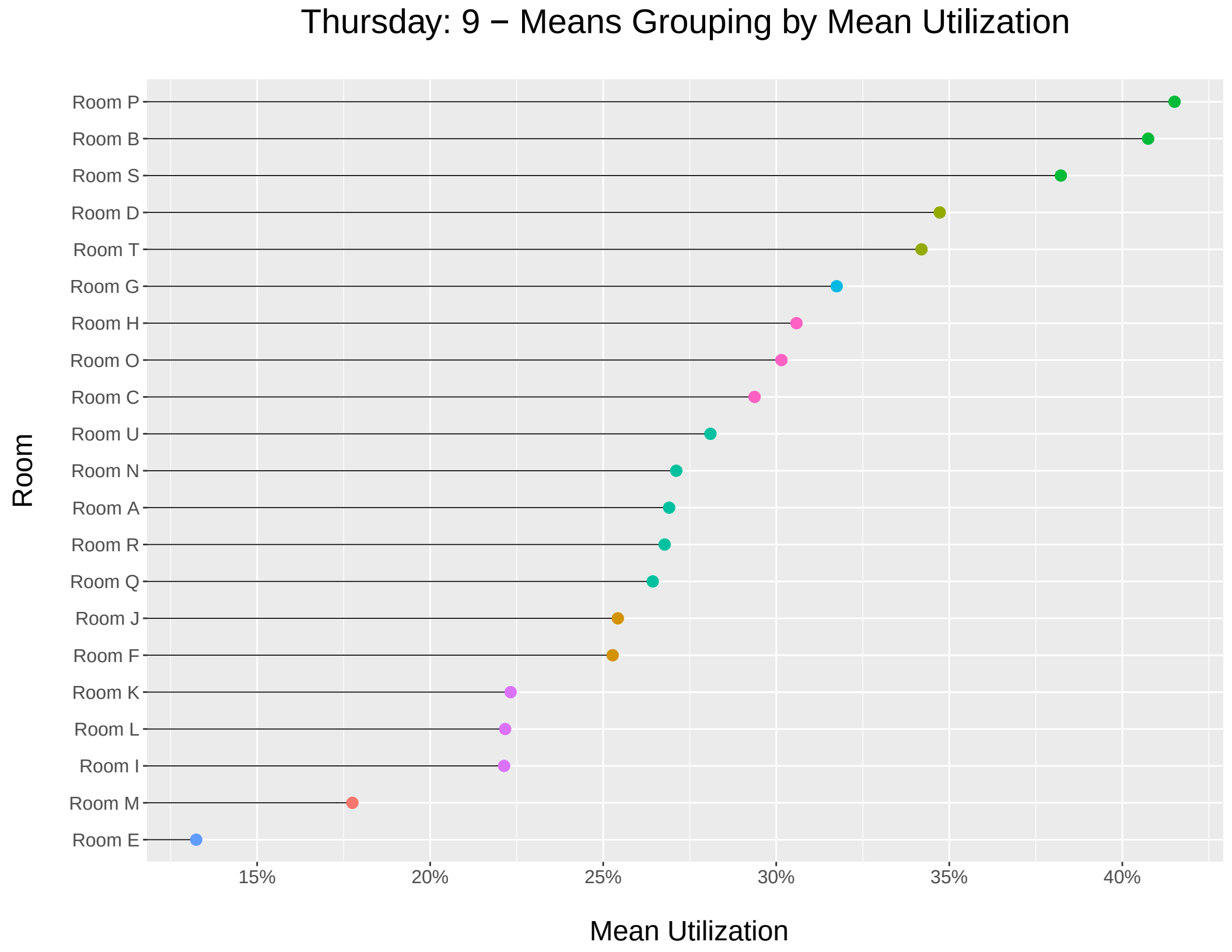
35%
40%
Mean Utilization


Thursday: 9 − Means Grouping by Mean Utilization
Room P
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Room M
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Room
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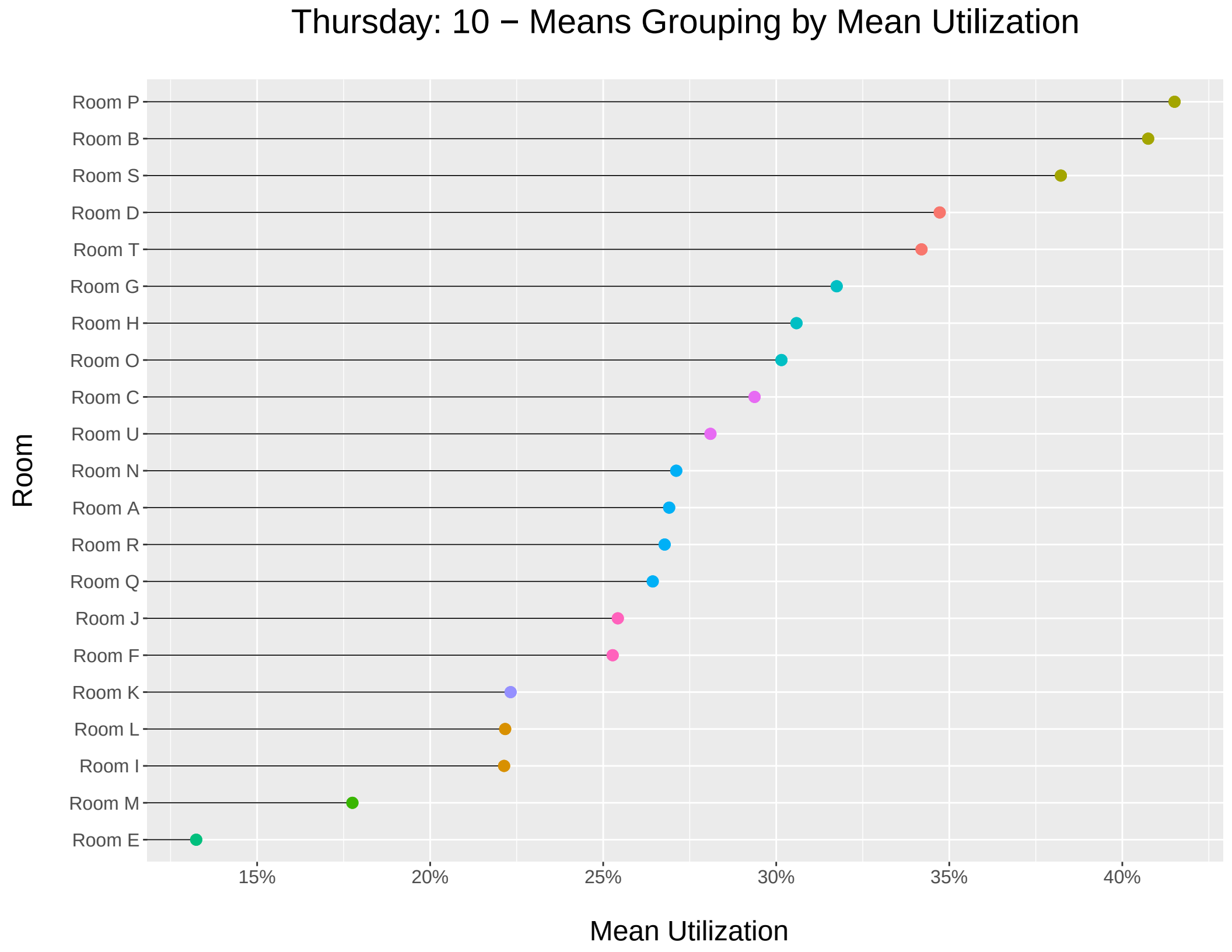
35%
40%
Mean Utilization


Thursday: 10 − Means Grouping by Mean Utilization
Room P
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Room N
Room A
Room R
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Room L
Room I
Room M
Room E
Room
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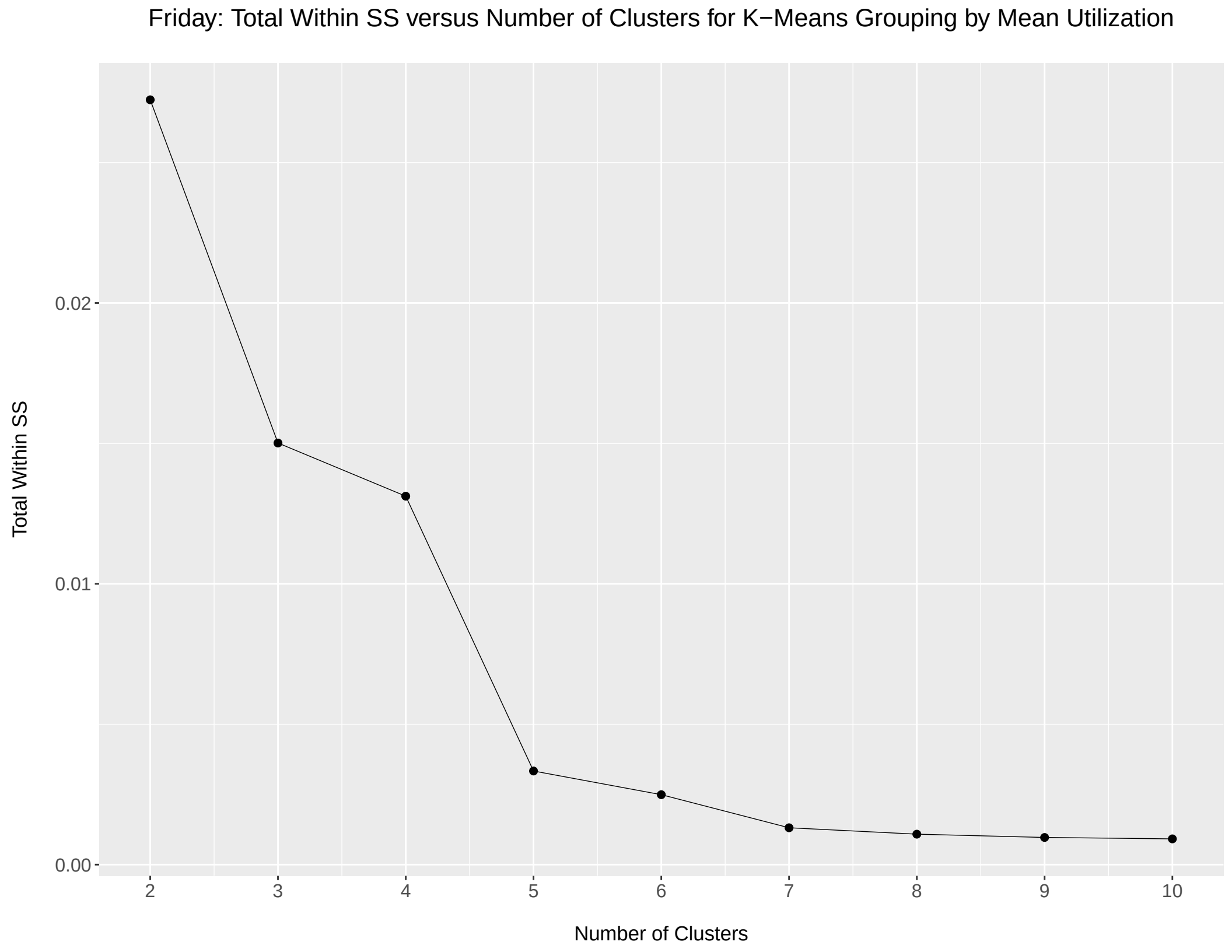
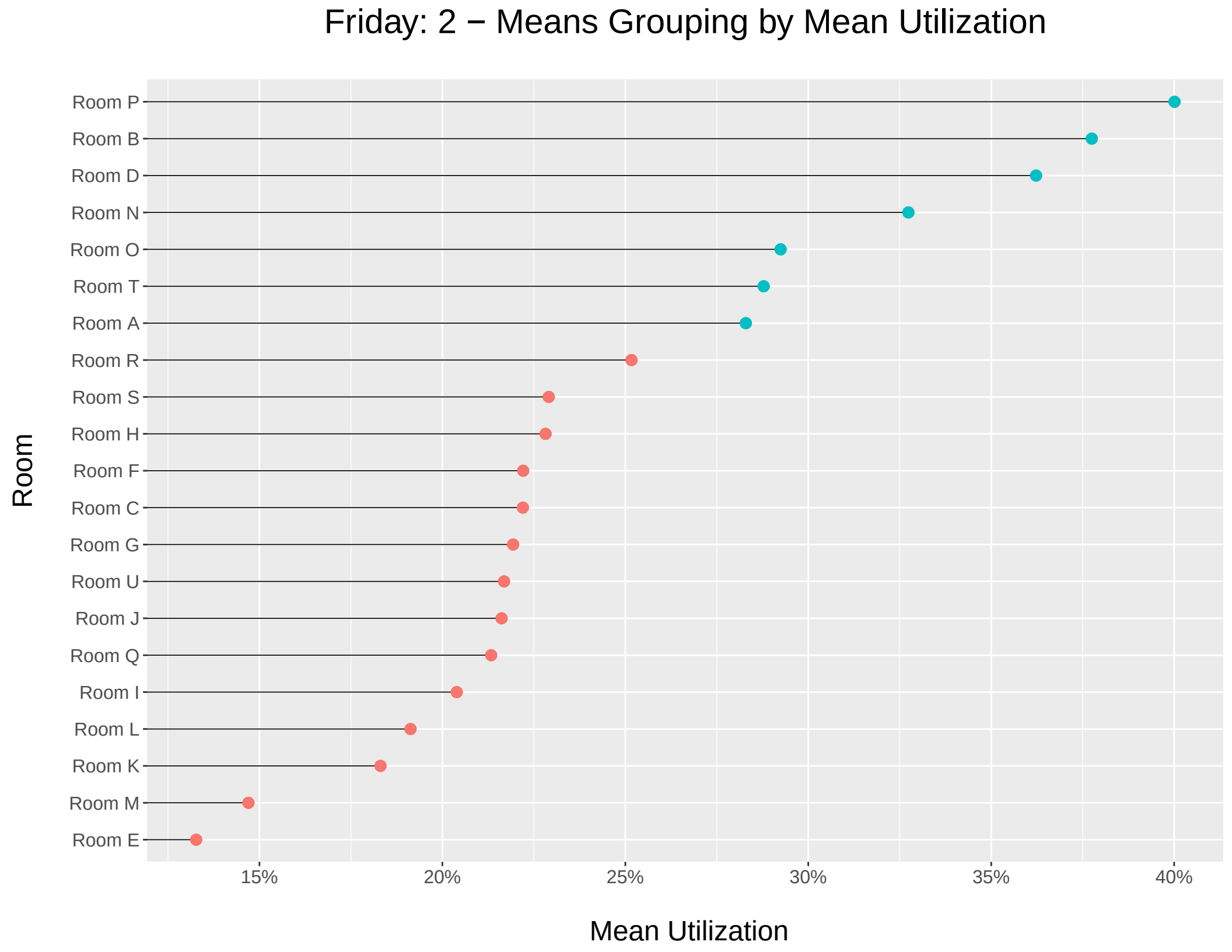
35%
40%
Mean Utilization


Friday: Total Within SS versus Number of Clusters for K−Means Grouping by Mean Utilization
Total Within SS
0.02
0.01
0.00
2
3
4
5
6
7
8
9
10
Number of Clusters


Friday: 2 − Means Grouping by Mean Utilization
Room P
Room B
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Room C
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Room M
Room E
Room
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35%
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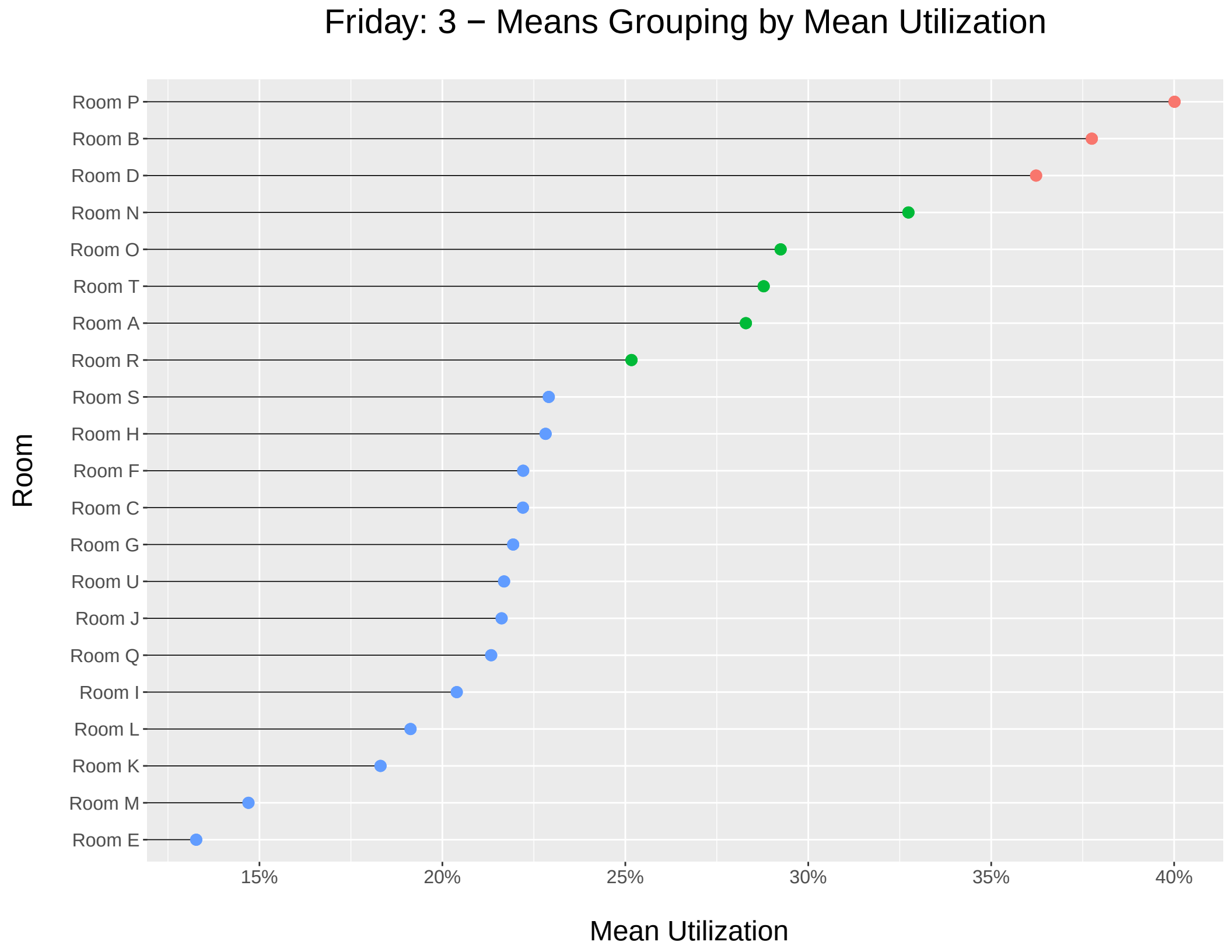
Mean Utilization


Friday: 3 − Means Grouping by Mean Utilization
Room P
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Room E
Room
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35%
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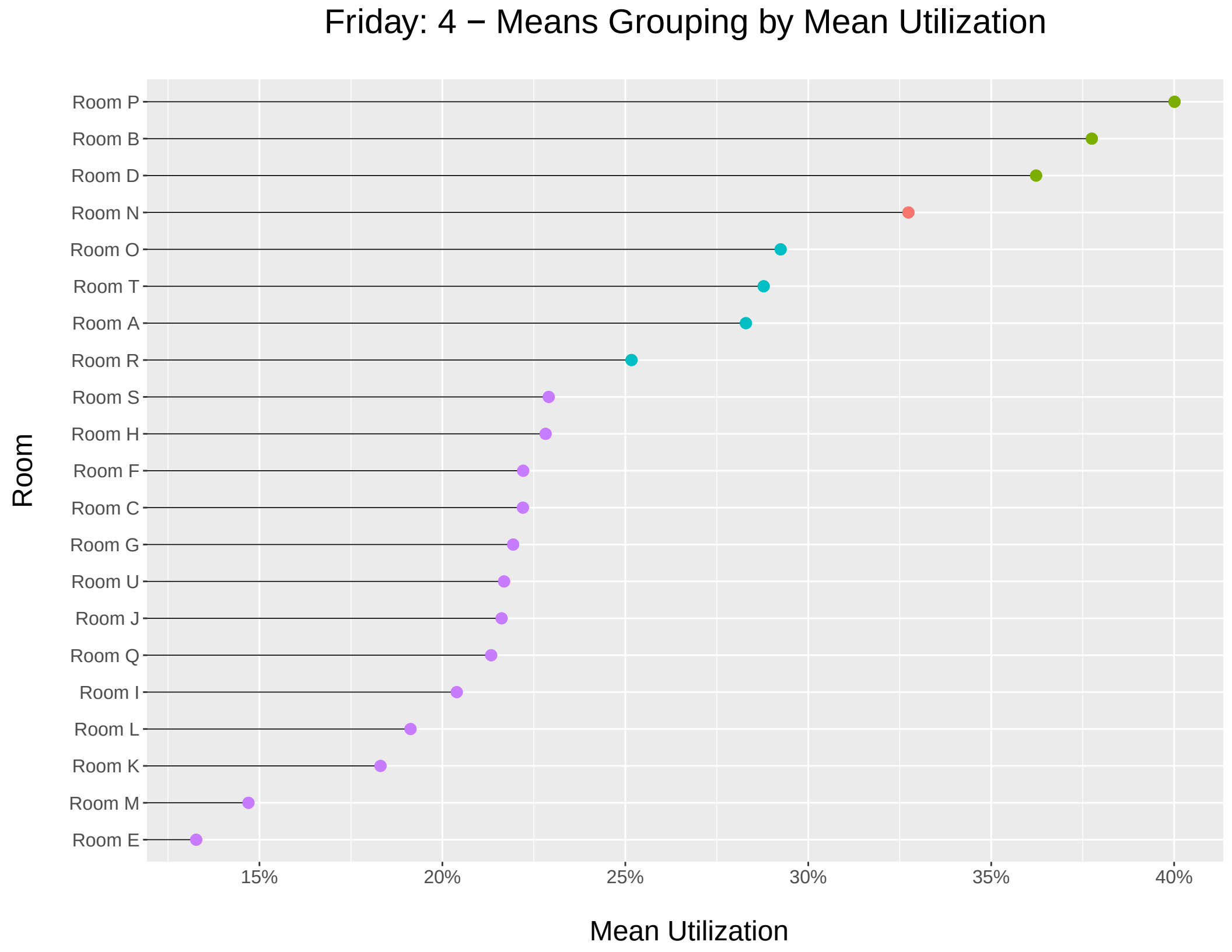
Mean Utilization


Friday: 4 − Means Grouping by Mean Utilization
Room P
Room B
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Room M
Room E
Room
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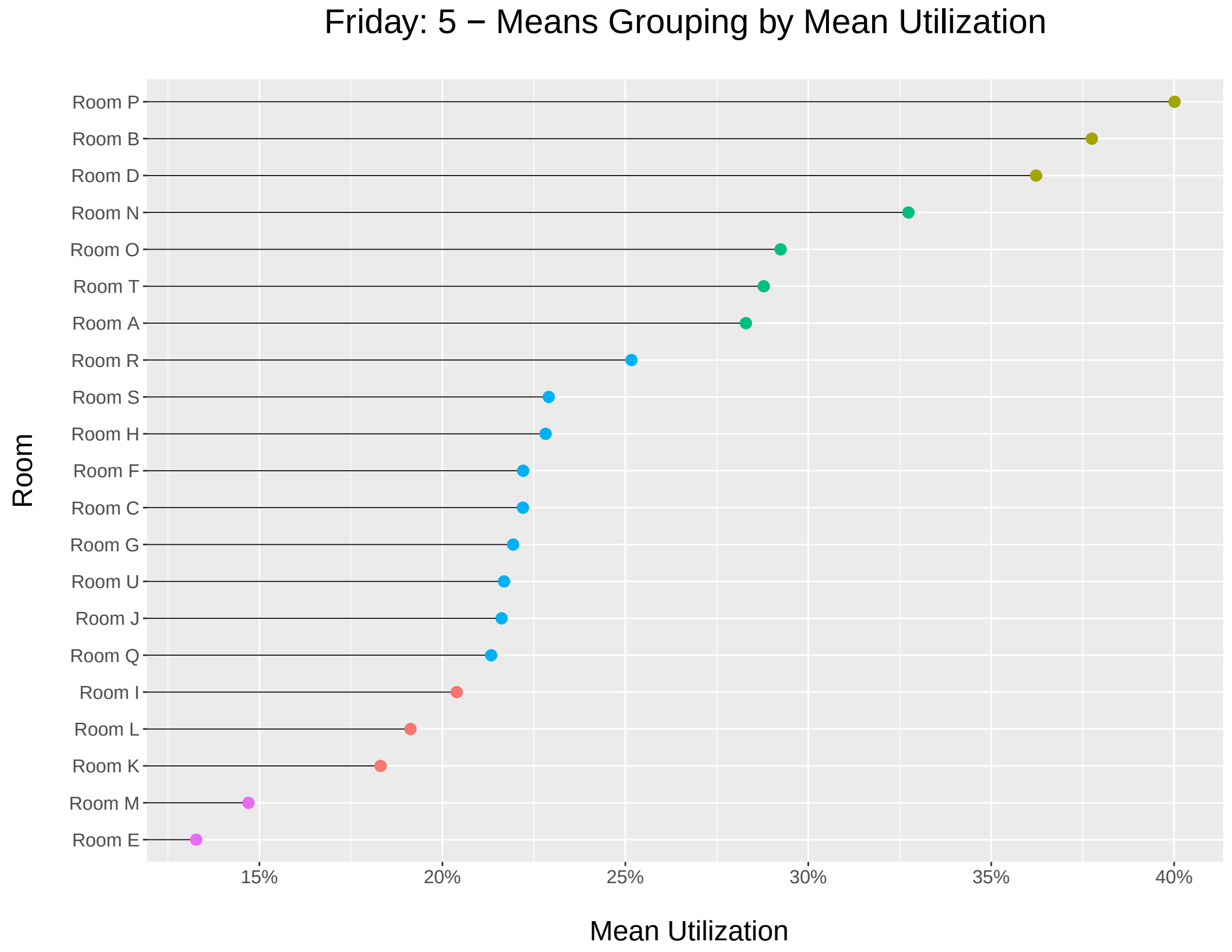
Mean Utilization


Friday: 5 − Means Grouping by Mean Utilization
Room P
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Room
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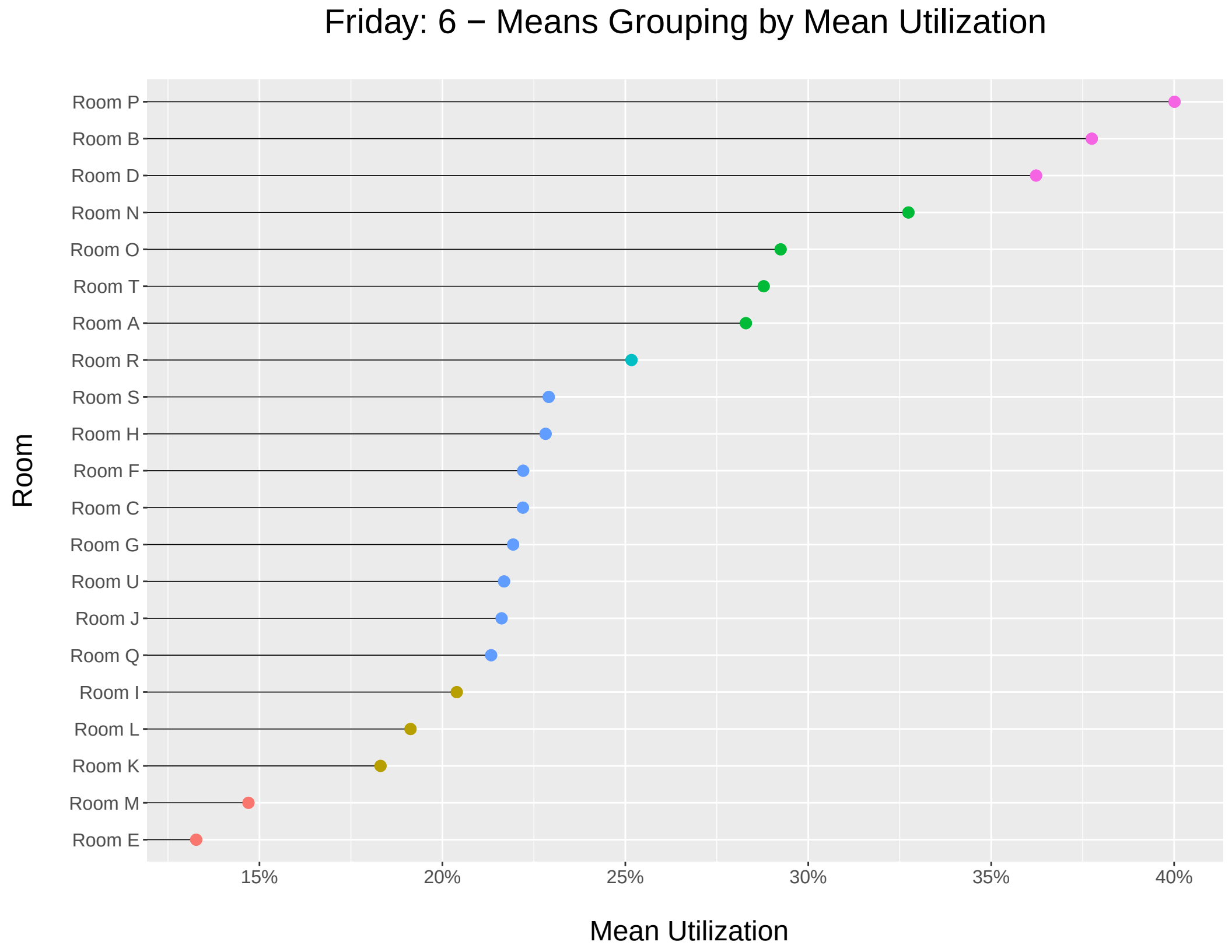
Mean Utilization


Friday: 6 − Means Grouping by Mean Utilization
Room P
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Room M
Room E
Room
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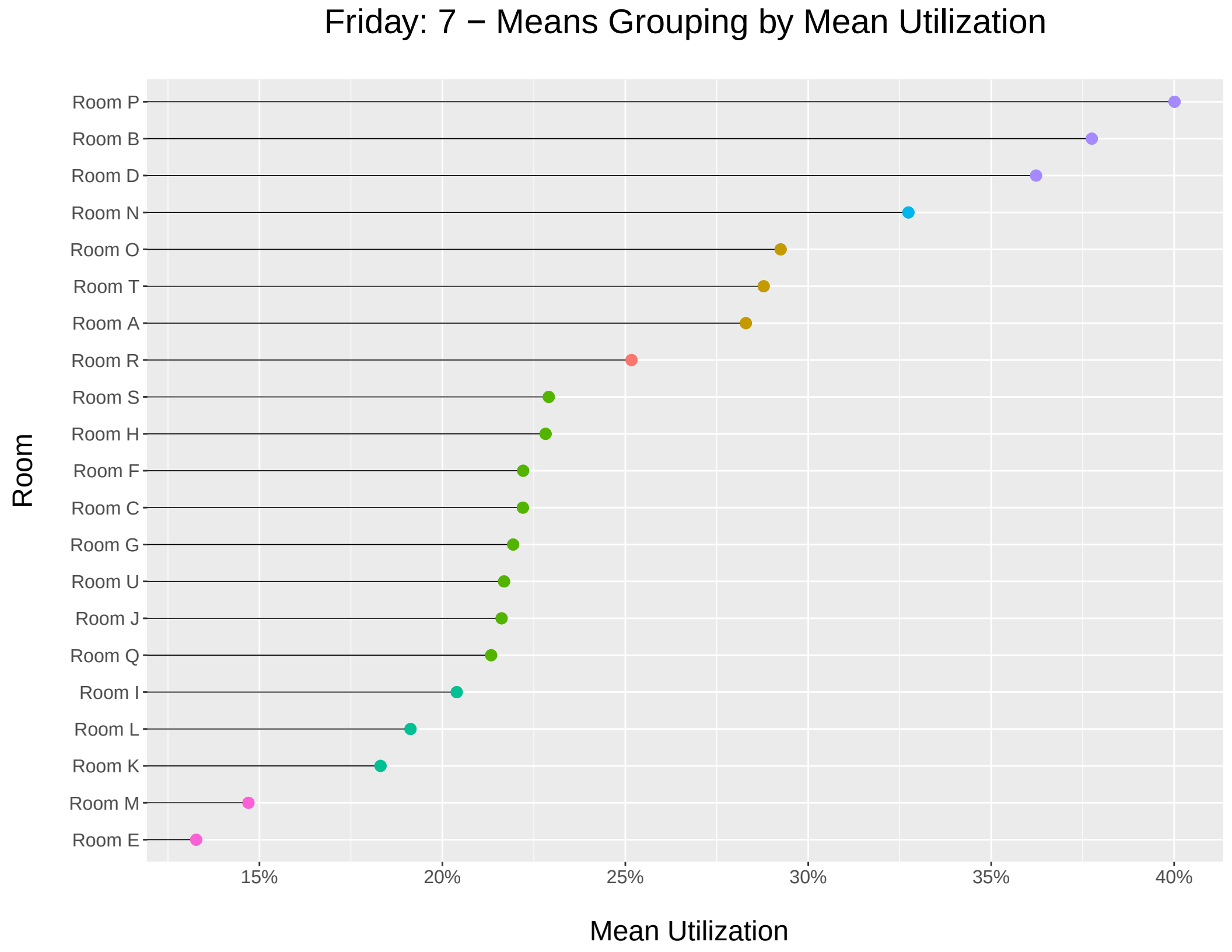
35%
40%
Mean Utilization


Friday: 7 − Means Grouping by Mean Utilization
Room P
Room B
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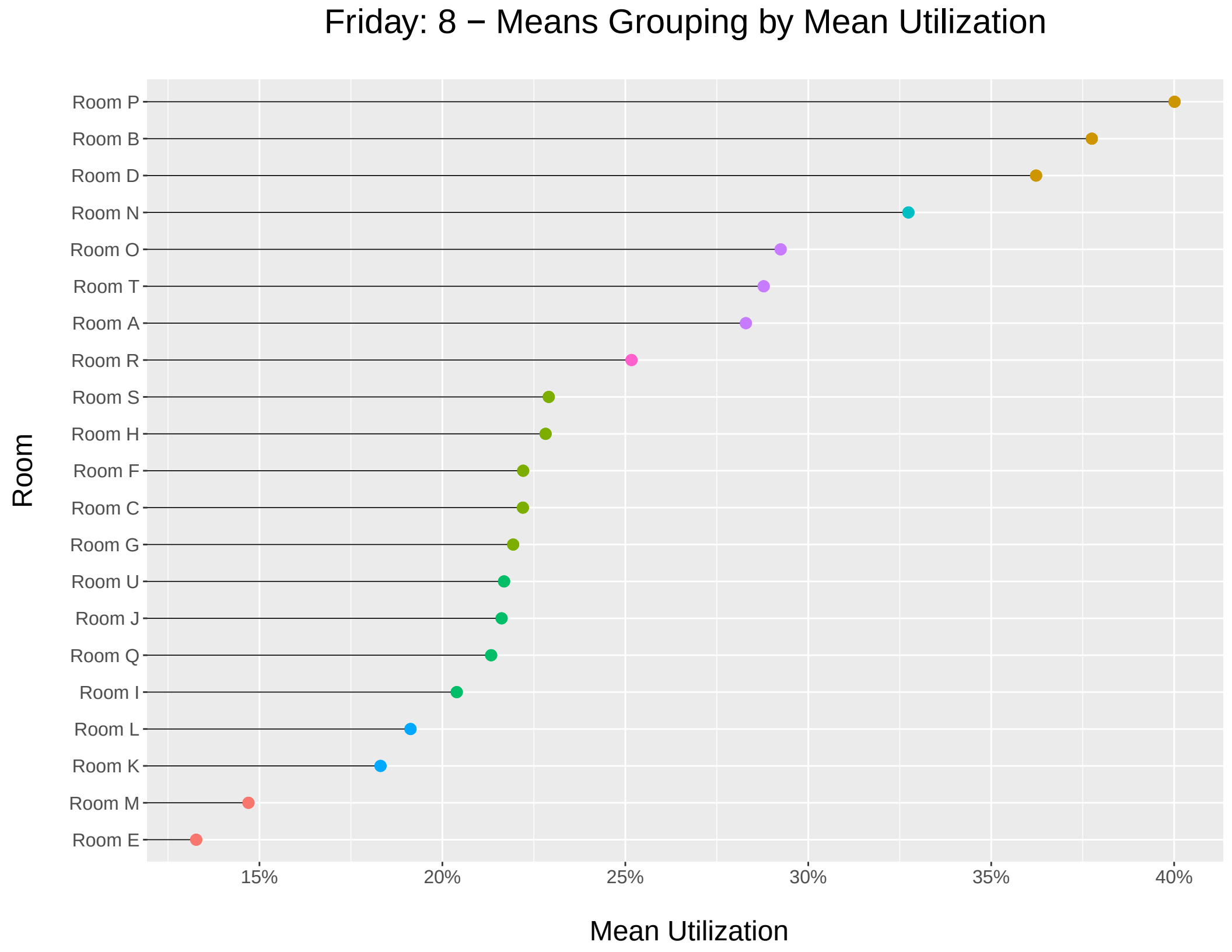
Room Q
Room I
Room L
Room K
Room M
Room E
Room
15%
20%
25%
30%
35%
40%
Mean Utilization


Friday: 8 − Means Grouping by Mean Utilization
Room P
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Room K
Room M
Room E
Room
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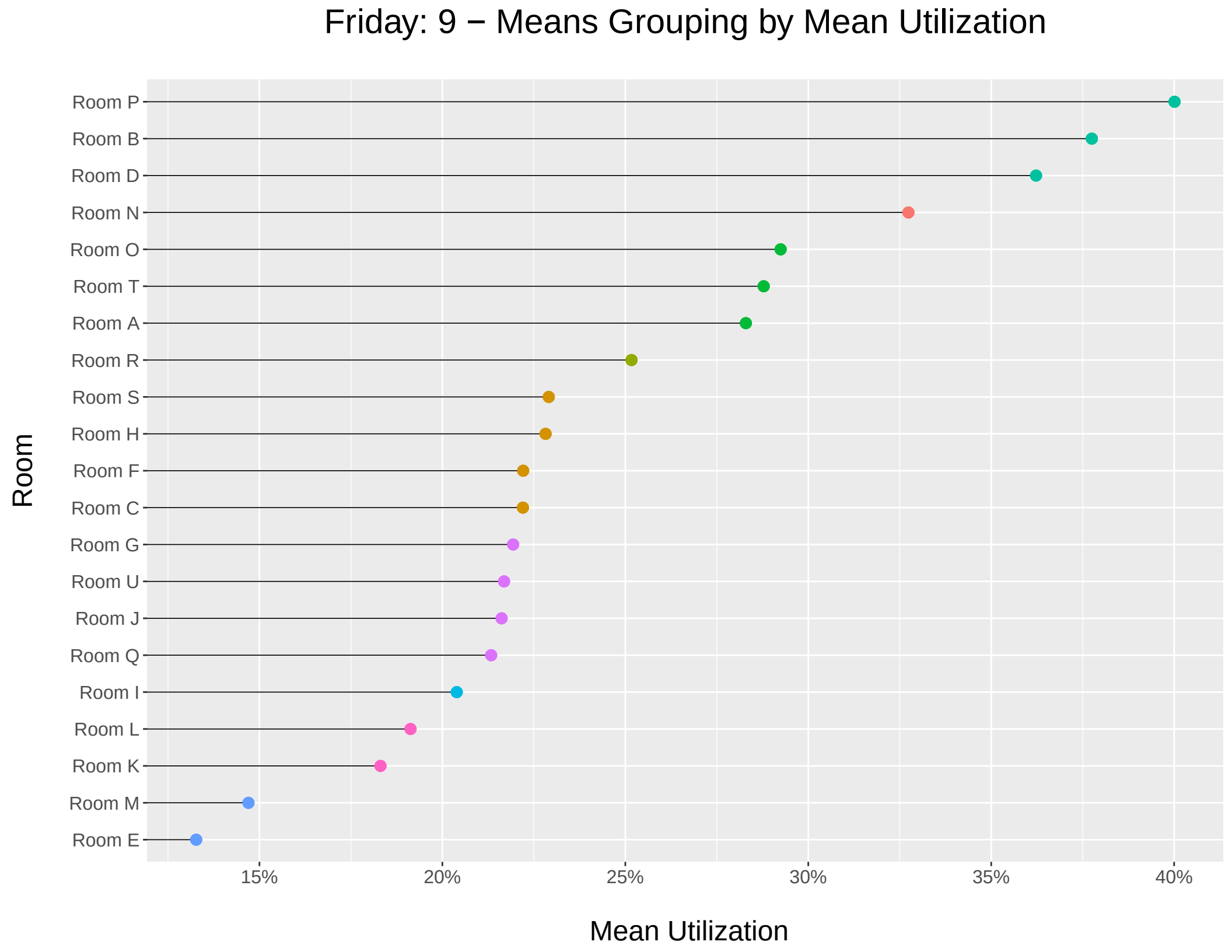
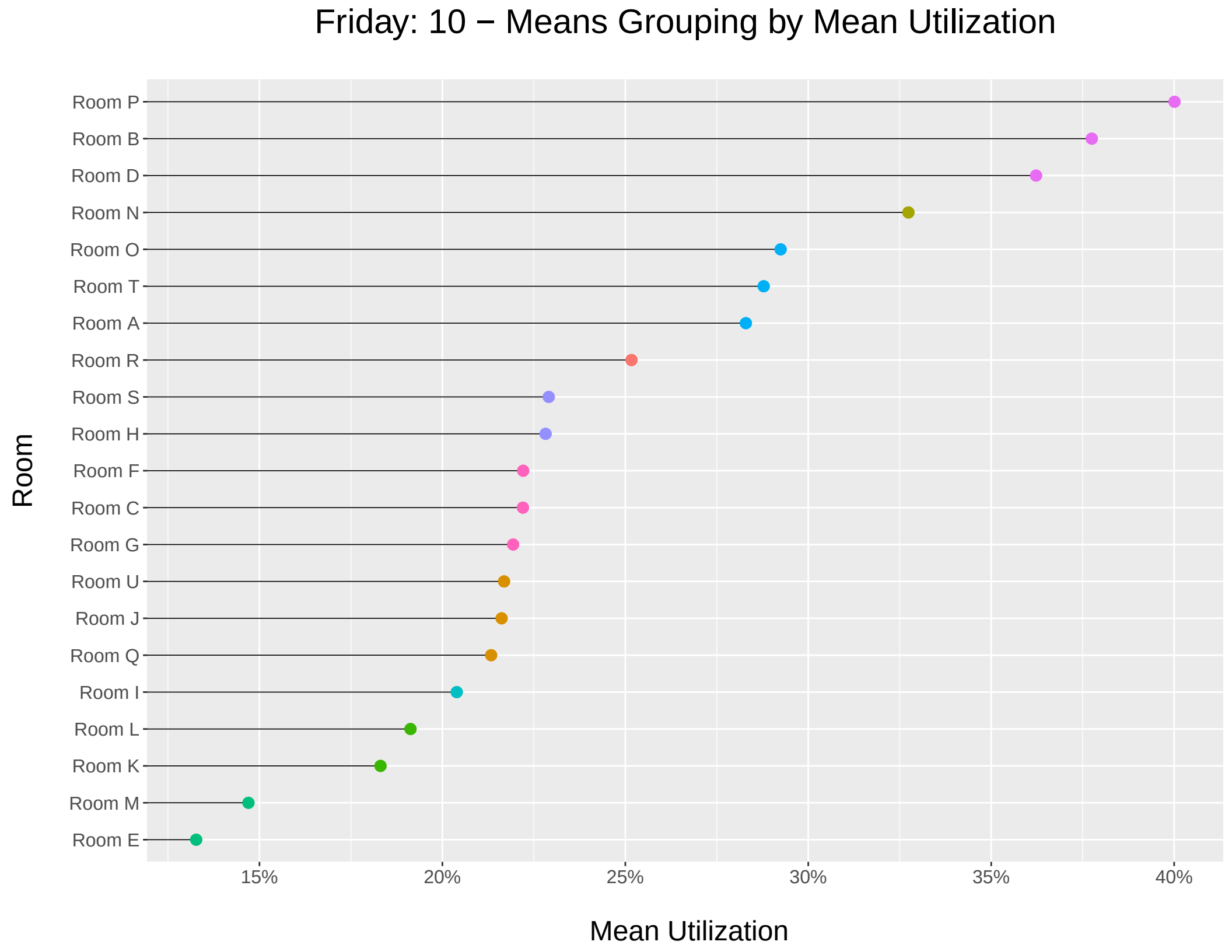
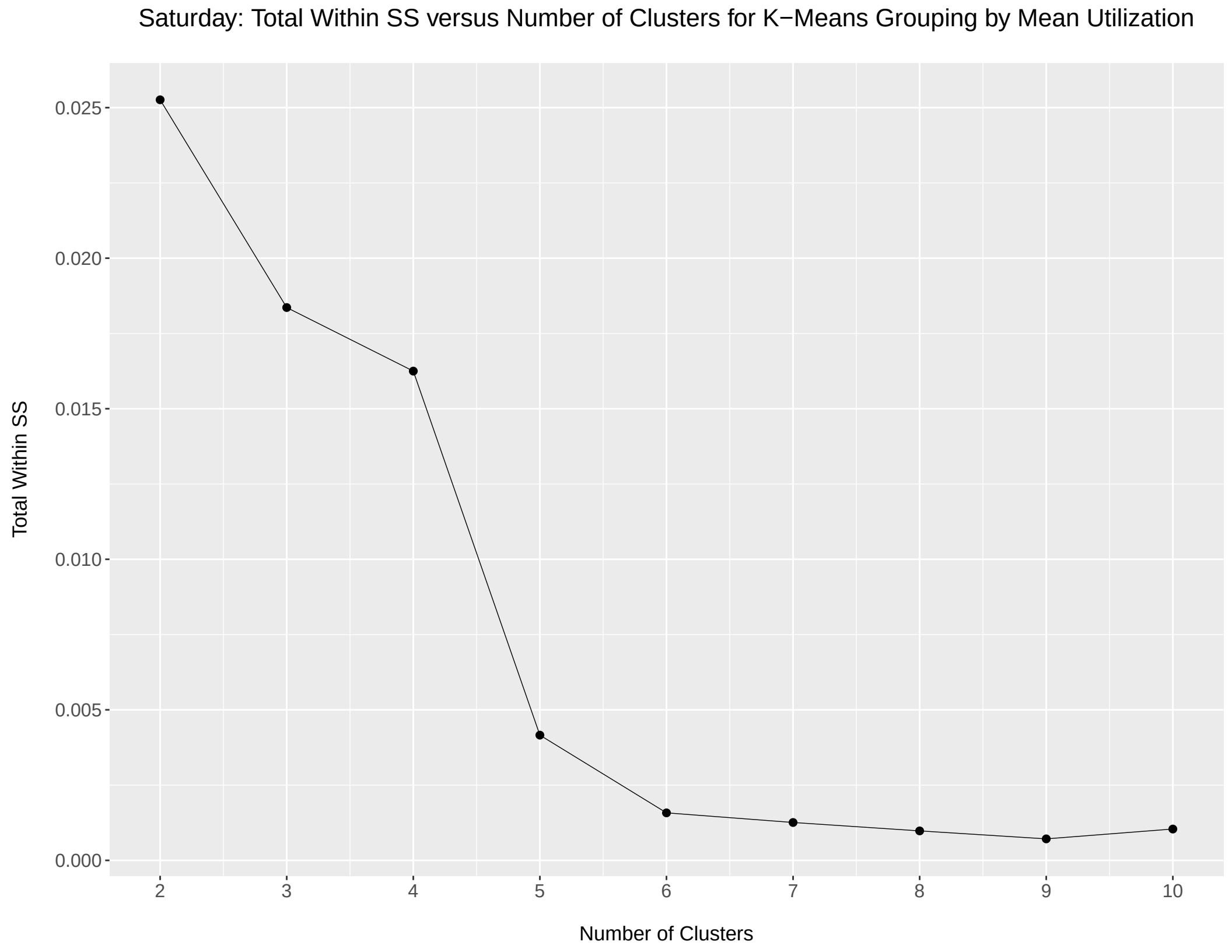
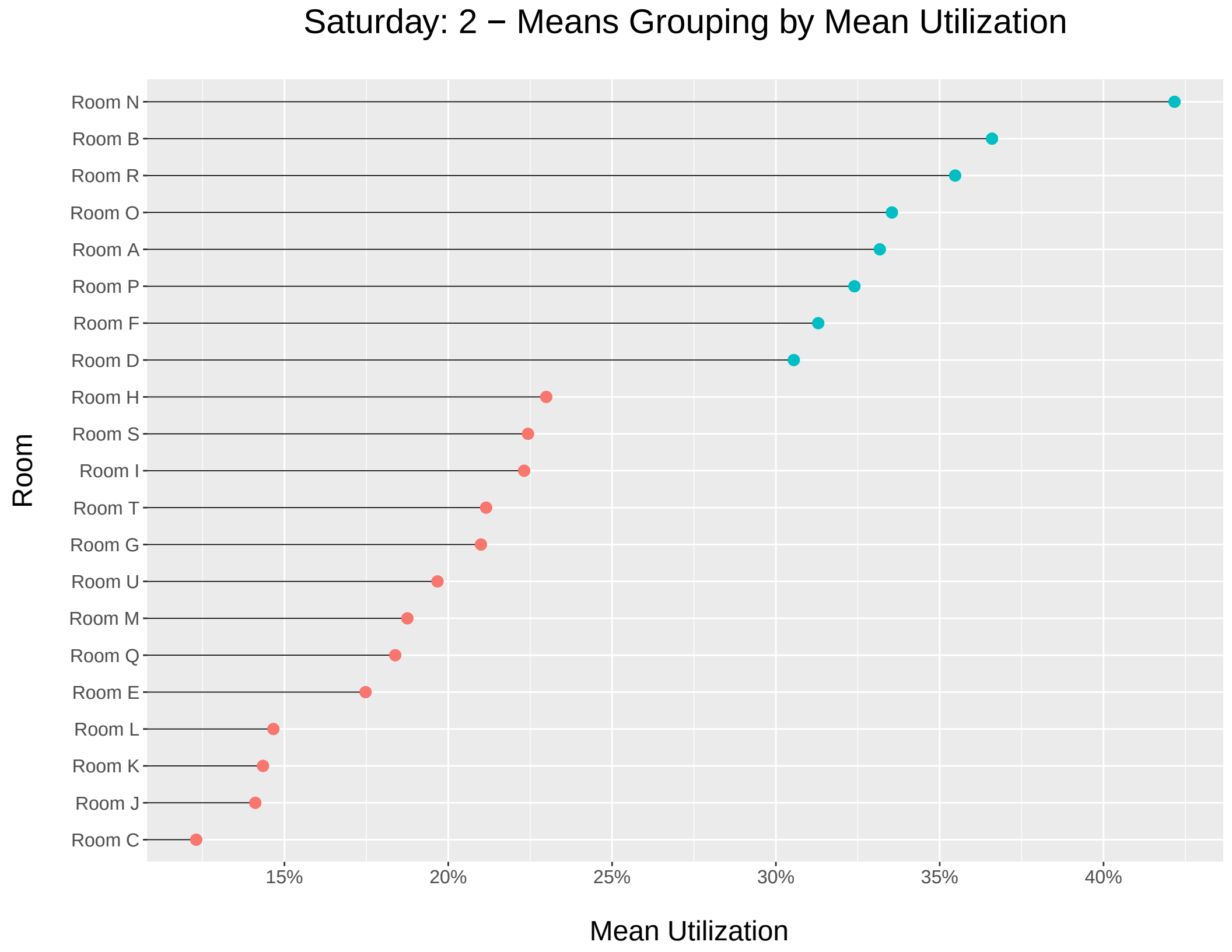
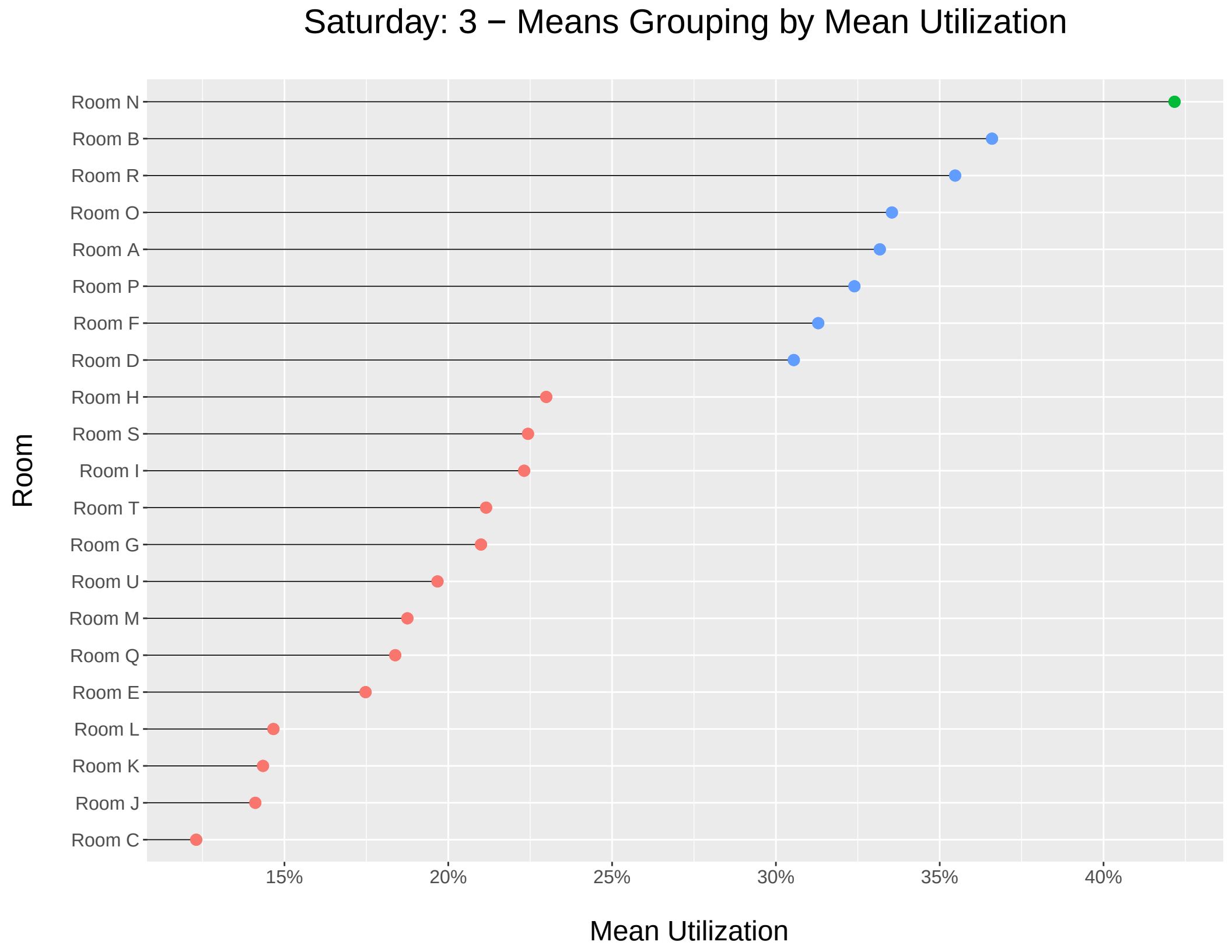
35%
40%
Mean Utilization

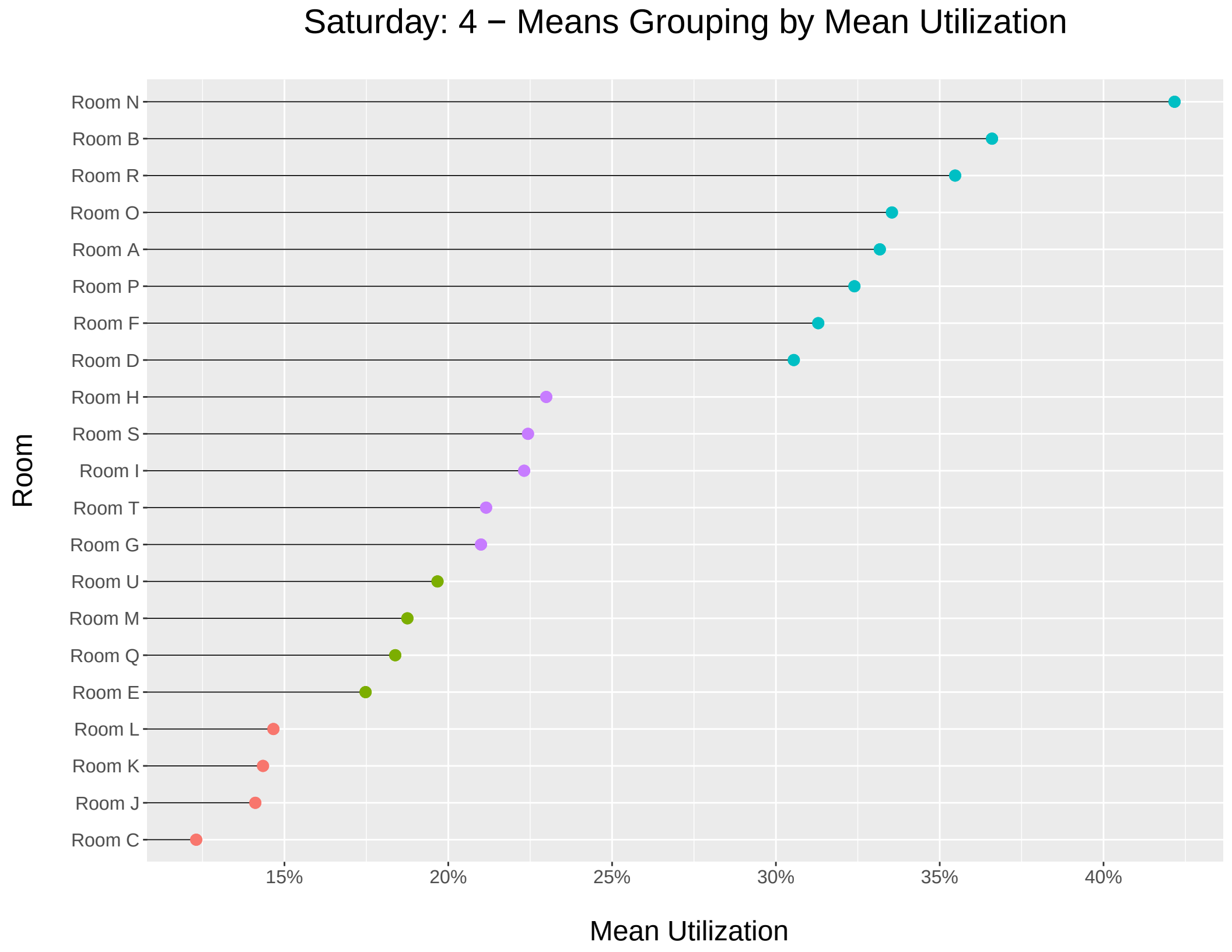

Friday: 9 − Means Grouping by Mean Utilization
Room P
Room B
Room D
Room N
Room O
Room T
Room A
Room R
Room S
Room H
Room F
Room C
Room G
Room U
Room J
Room Q
Room I
Room L
Room K
Room M
Room E
Room
15%
20%
25%
30%
35%
40%
Mean Utilization

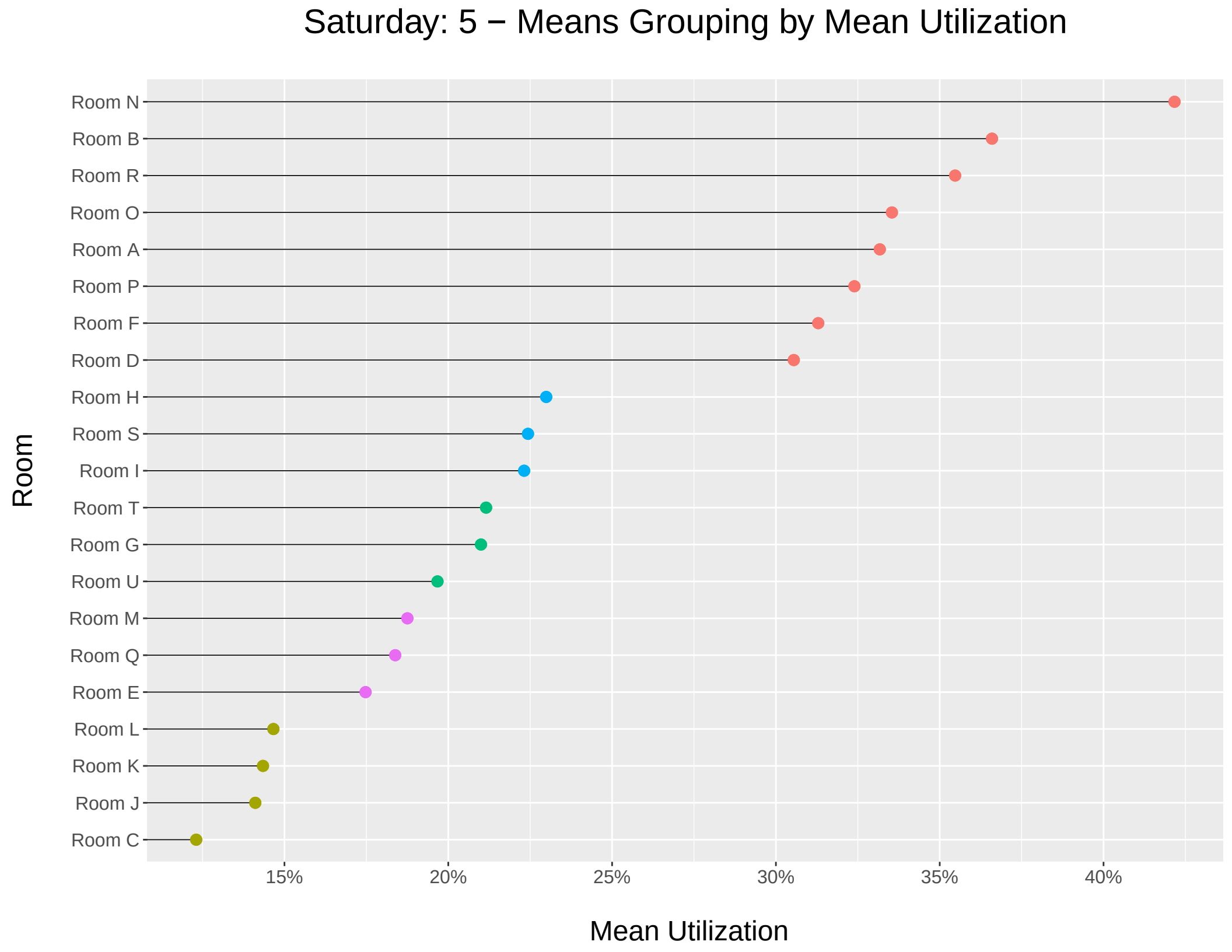

Friday: 10 − Means Grouping by Mean Utilization
Room
Room P
Room B
Room D
Room N
Room O
Room T
Room A
Room R
Room S
Room H
Room F
Room C
Room G
Room U
Room J
Room Q
Room I
Room L
Room K
Room M
Room E
15%
20%
25%
30%
35%
40%
Mean Utilization

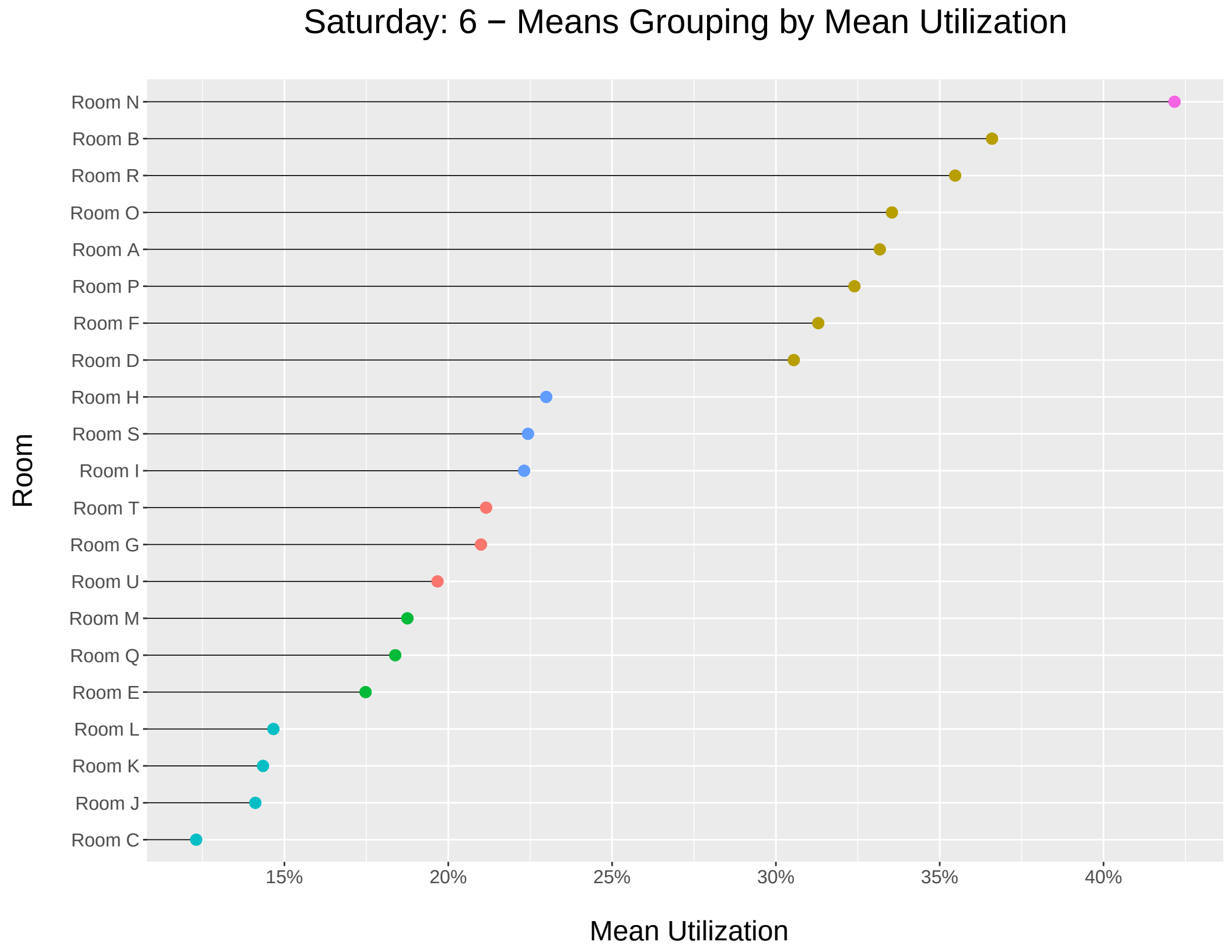

Saturday: Total Within SS versus Number of Clusters for K−Means Grouping by Mean Utilization
Total Within SS
0.025
0.020
0.015
0.010
0.005
0.000
2
3
4
5
6
7
8
9
10
Number of Clusters

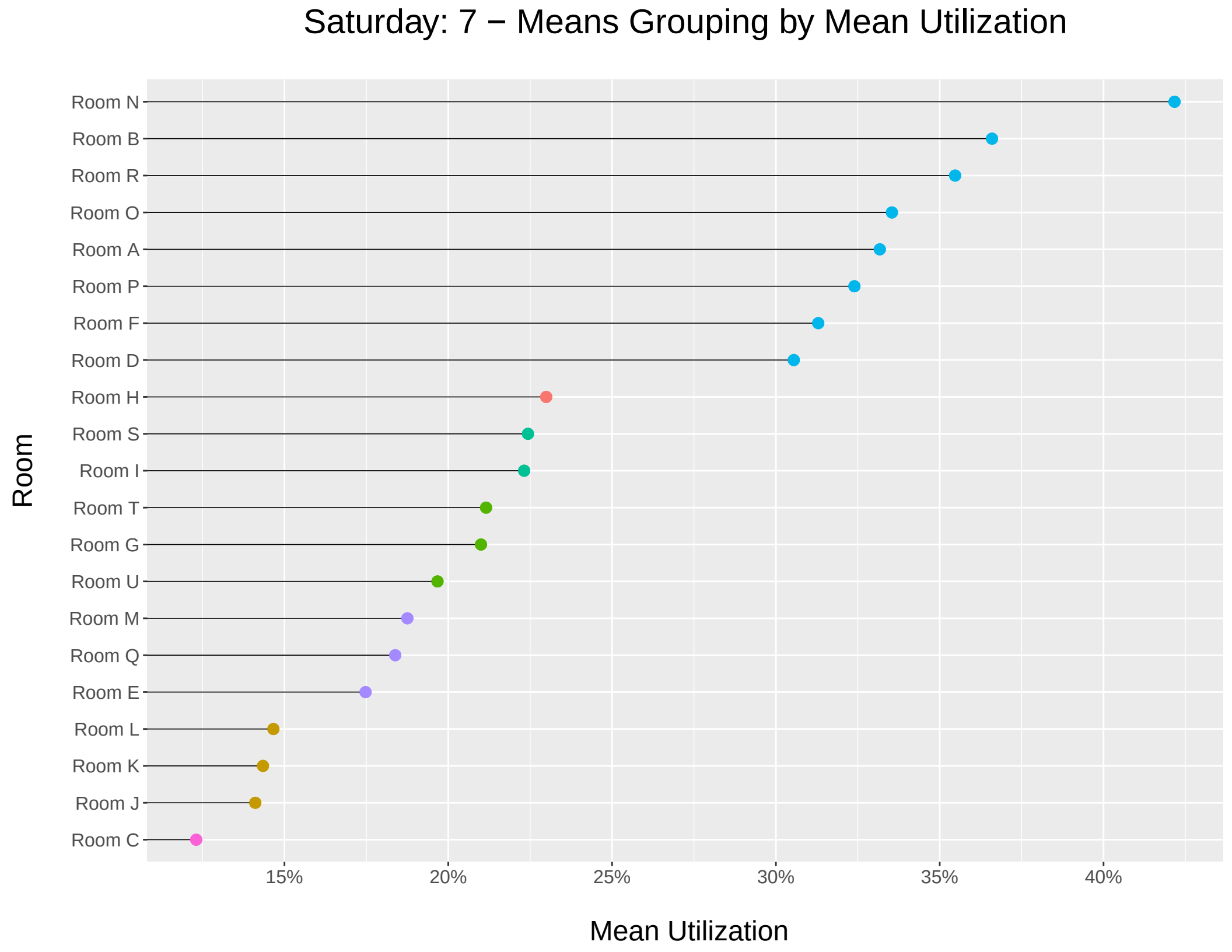

Saturday: 2 − Means Grouping by Mean Utilization
Room N
Room B
Room R
Room O
Room A
Room P
Room F
Room D
Room H
Room S
Room I
Room T
Room G
Room U
Room M
Room Q
Room E
Room L
Room K
Room J
Room C
Room
15%
20%
25%
30%
35%
40%
Mean Utilization

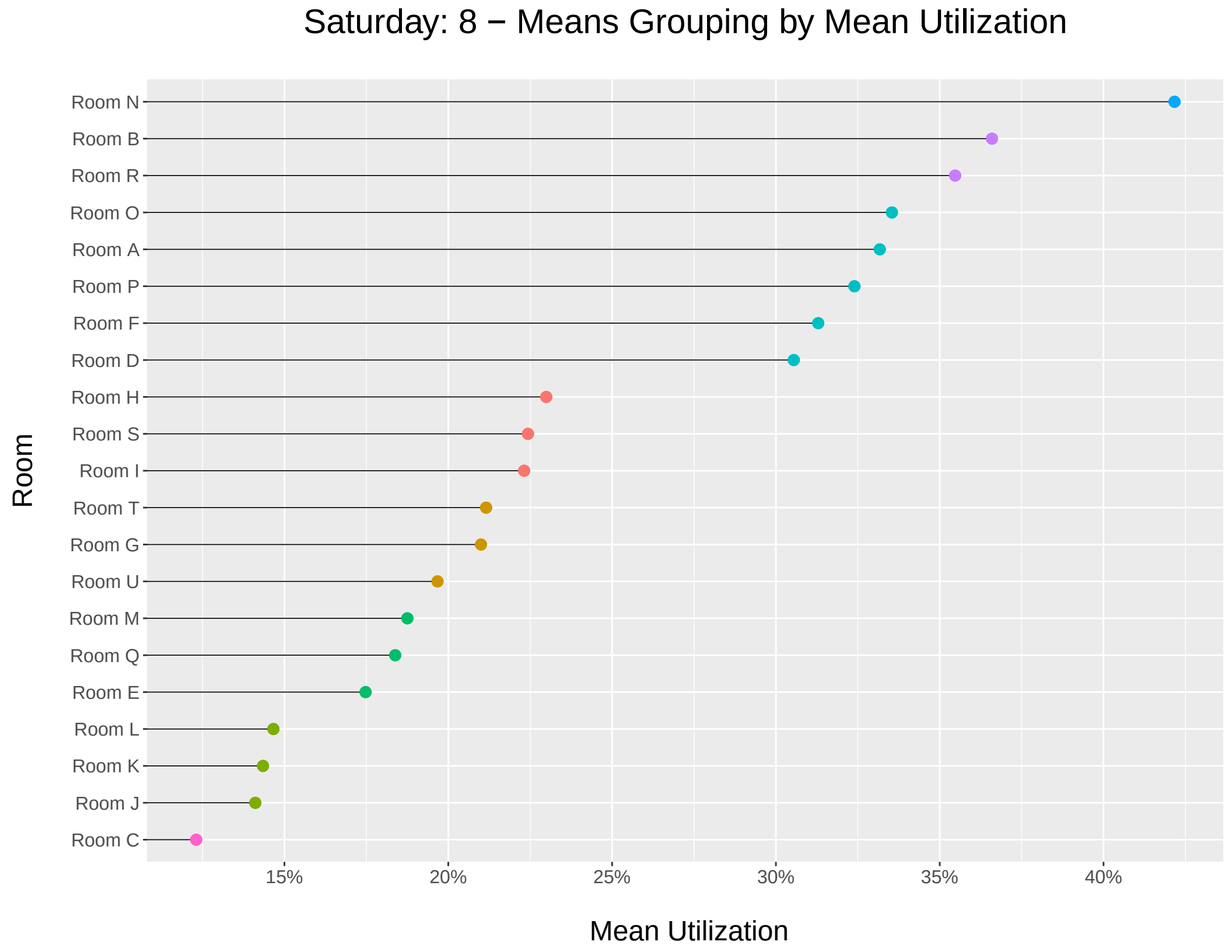

Saturday: 3 − Means Grouping by Mean Utilization
Room N
Room B
Room R
Room O
Room A
Room P
Room F
Room D
Room H
Room S
Room I
Room T
Room G
Room U
Room M
Room Q
Room E
Room L
Room K
Room J
Room C
Room
15%
20%
25%
30%
35%
40%
Mean Utilization

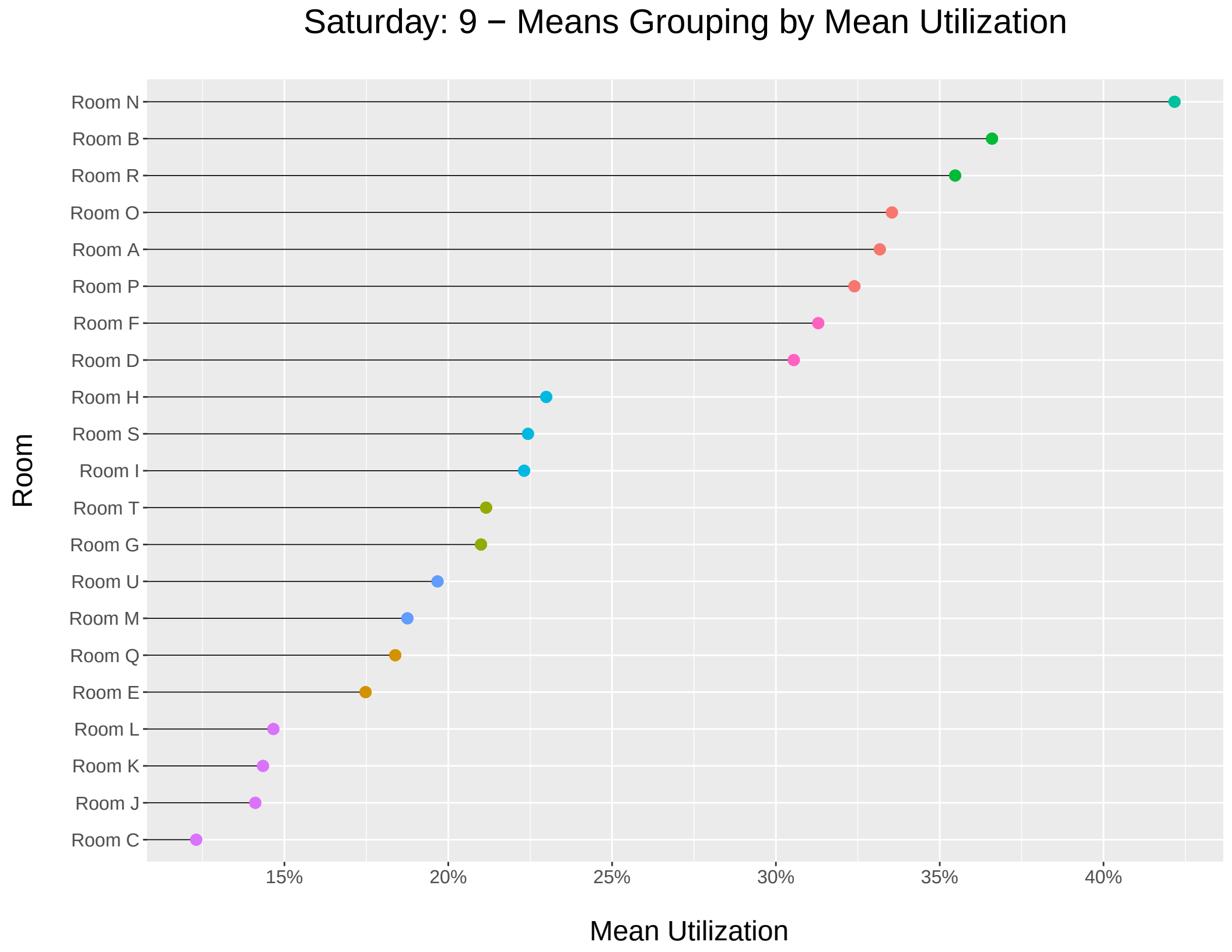

Saturday: 4 − Means Grouping by Mean Utilization
Room N
Room B
Room R
Room O
Room A
Room P
Room F
Room D
Room H
Room S
Room I
Room T
Room G
Room U
Room M
Room Q
Room E
Room L
Room K
Room J
Room C
Room
15%
20%
25%
30%
35%
40%
Mean Utilization

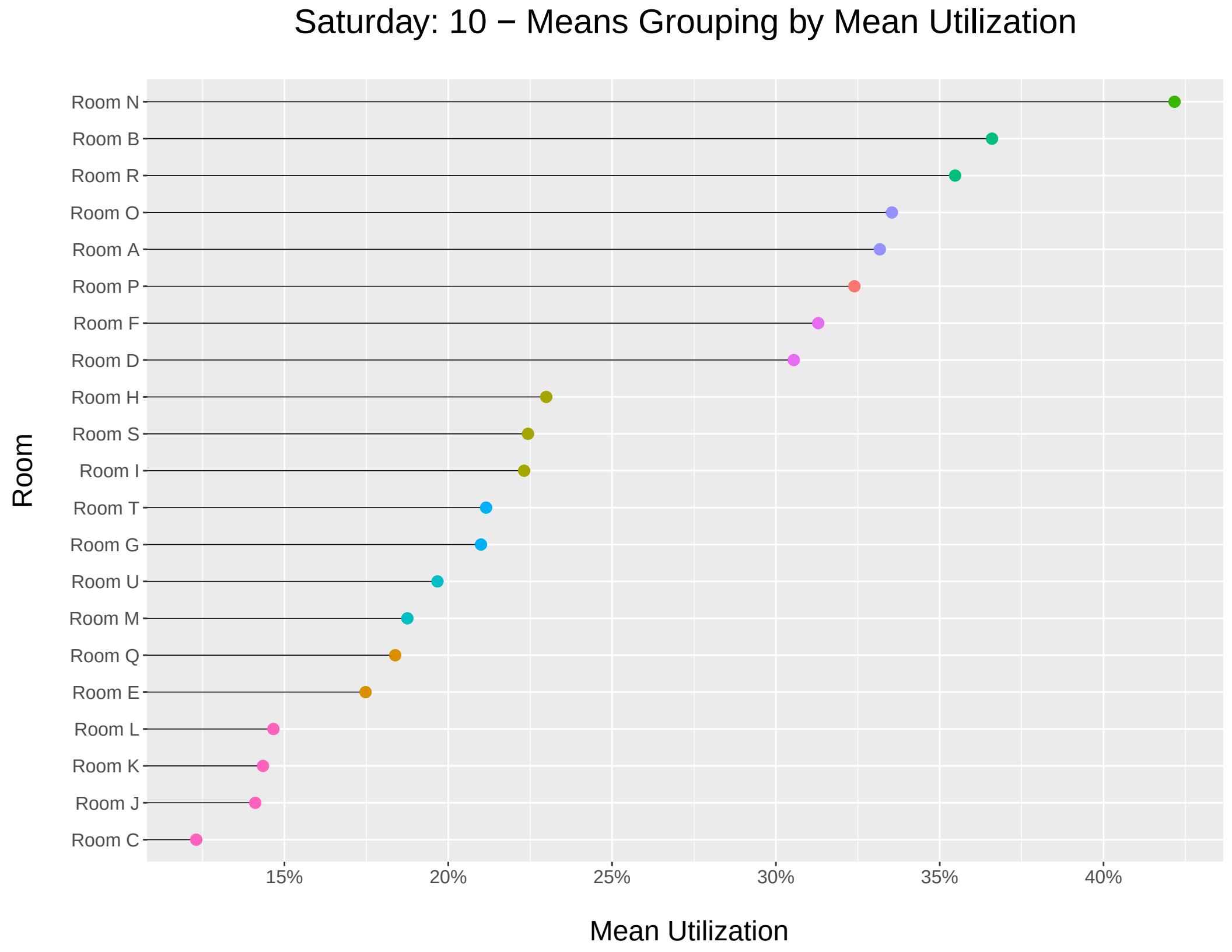

Saturday: 5 − Means Grouping by Mean Utilization
Room N
Room B
Room R
Room O
Room A
Room P
Room F
Room D
Room H
Room S
Room I
Room T
Room G
Room U
Room M
Room Q
Room E
Room L
Room K
Room J
Room C
Room
15%
20%
25%
30%
35%
40%
Mean Utilization

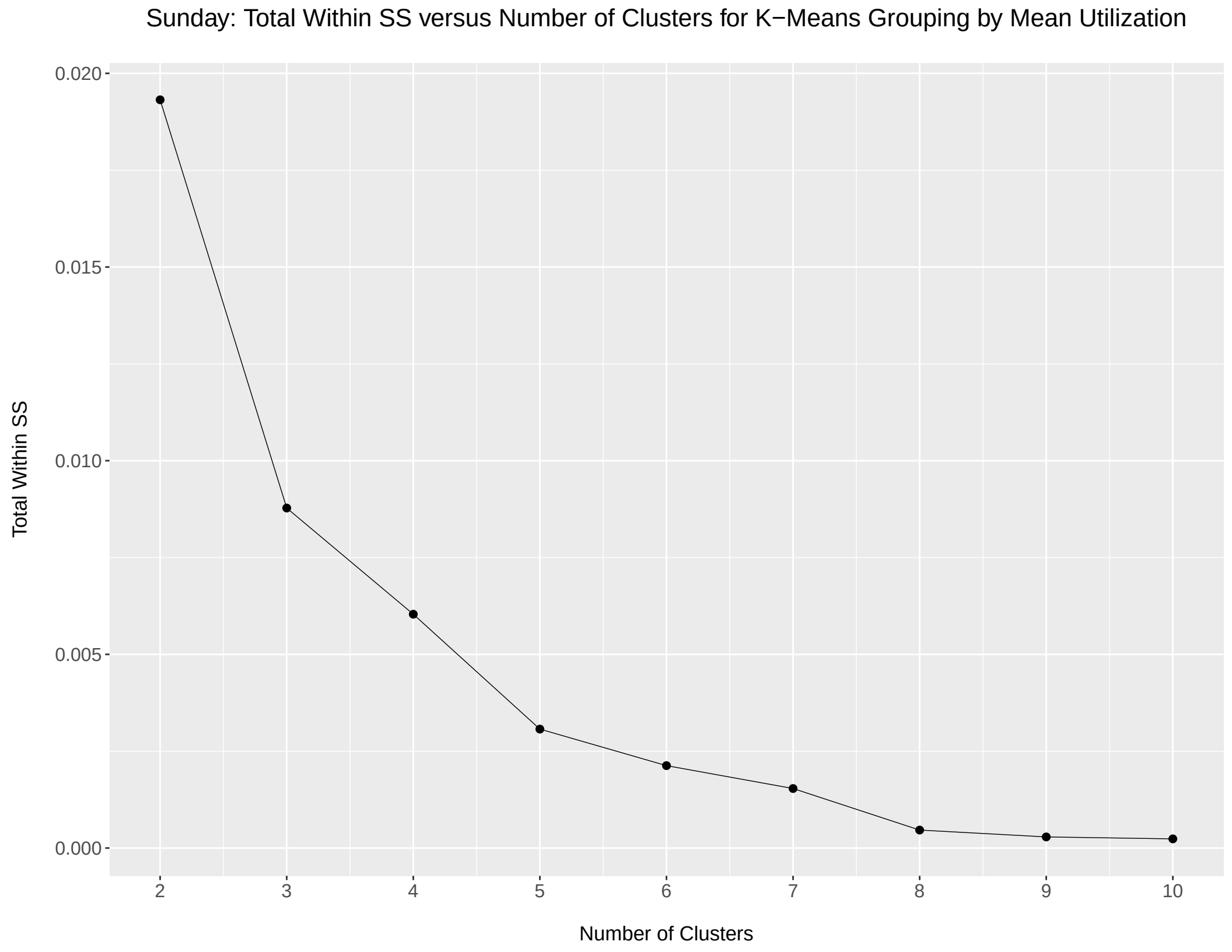

Saturday: 6 − Means Grouping by Mean Utilization
Room N
Room B
Room R
Room O
Room A
Room P
Room F
Room D
Room H
Room S
Room I
Room T
Room G
Room U
Room M
Room Q
Room E
Room L
Room K
Room J
Room C
Room
15%
20%
25%
30%
35%
40%
Mean Utilization

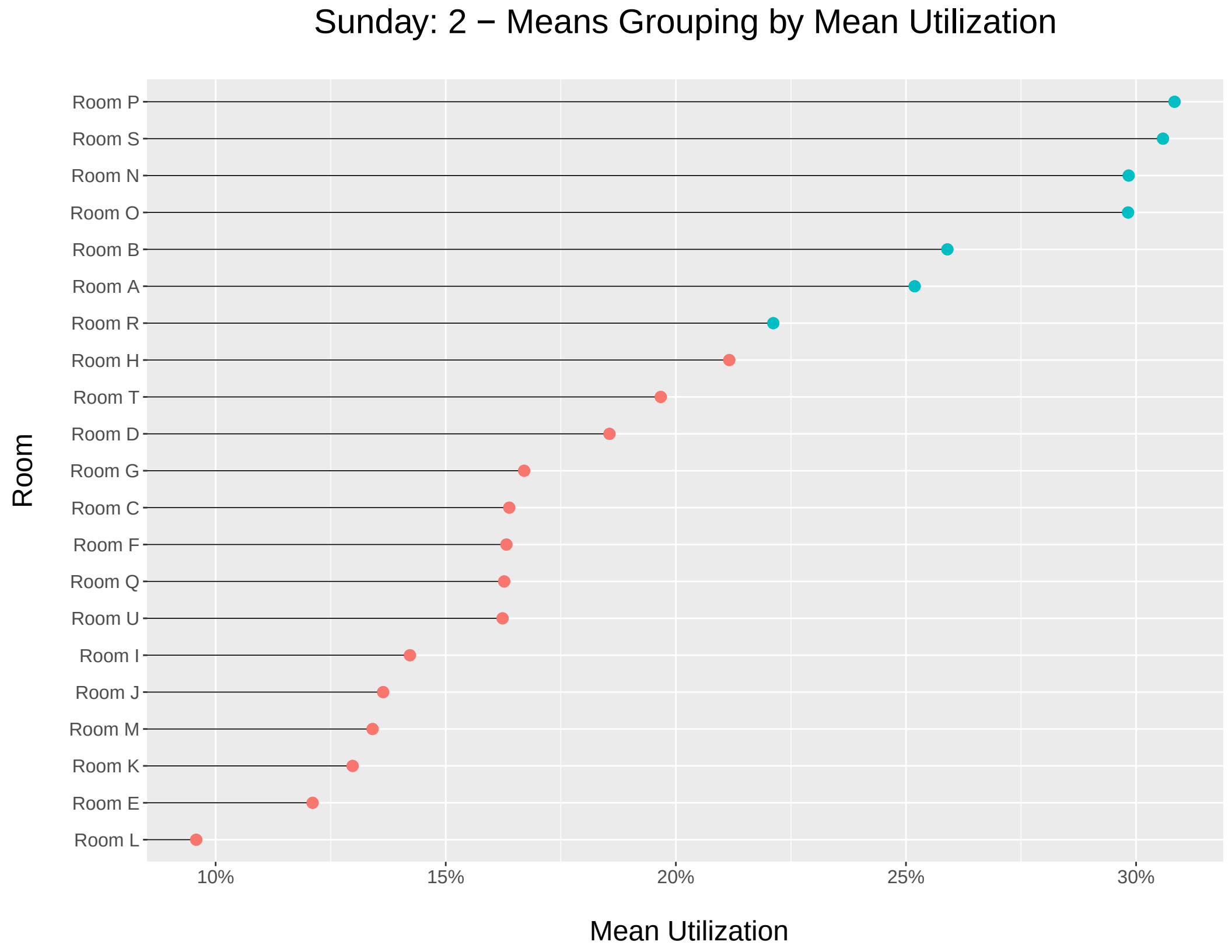

Saturday: 7 − Means Grouping by Mean Utilization
Room N
Room B
Room R
Room O
Room A
Room P
Room F
Room D
Room H
Room S
Room I
Room T
Room G
Room U
Room M
Room Q
Room E
Room L
Room K
Room J
Room C
Room
15%
20%
25%
30%
35%
40%
Mean Utilization

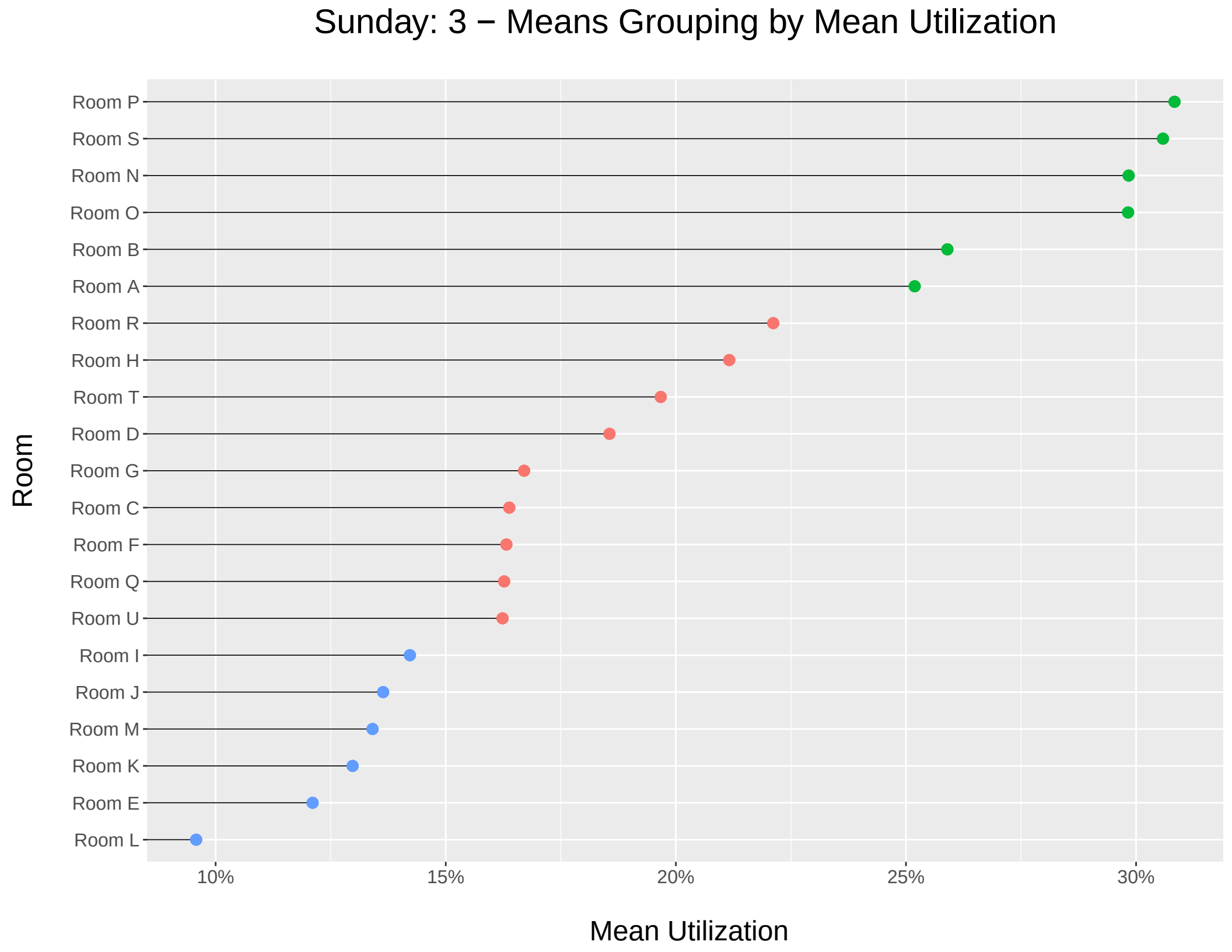

Saturday: 8 − Means Grouping by Mean Utilization
Room N
Room B
Room R
Room O
Room A
Room P
Room F
Room D
Room H
Room S
Room I
Room T
Room G
Room U
Room M
Room Q
Room E
Room L
Room K
Room J
Room C
Room
15%
20%
25%
30%
35%
40%
Mean Utilization

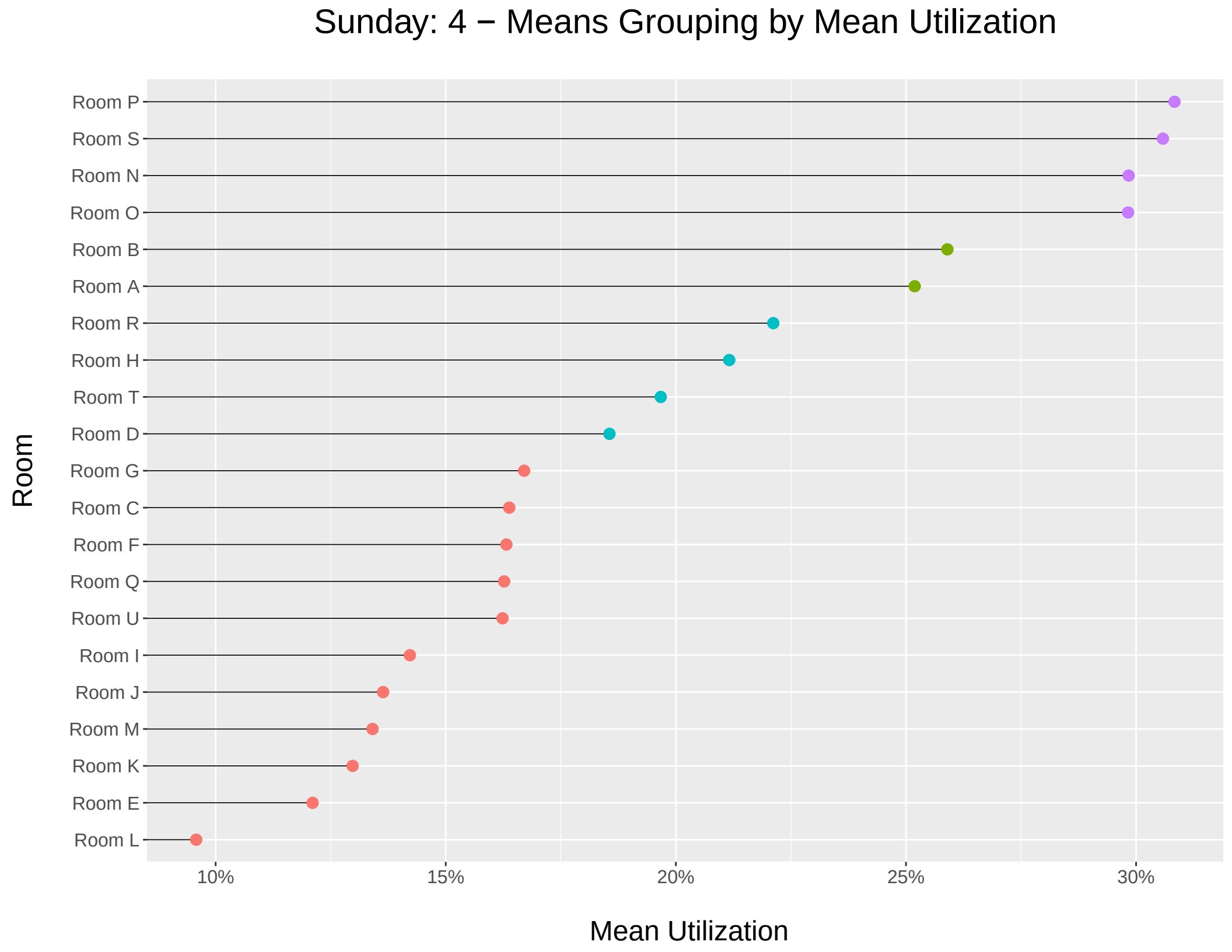

Saturday: 9 − Means Grouping by Mean Utilization
Room N
Room B
Room R
Room O
Room A
Room P
Room F
Room D
Room H
Room S
Room I
Room T
Room G
Room U
Room M
Room Q
Room E
Room L
Room K
Room J
Room C
Room
15%
20%
25%
30%
35%
40%
Mean Utilization

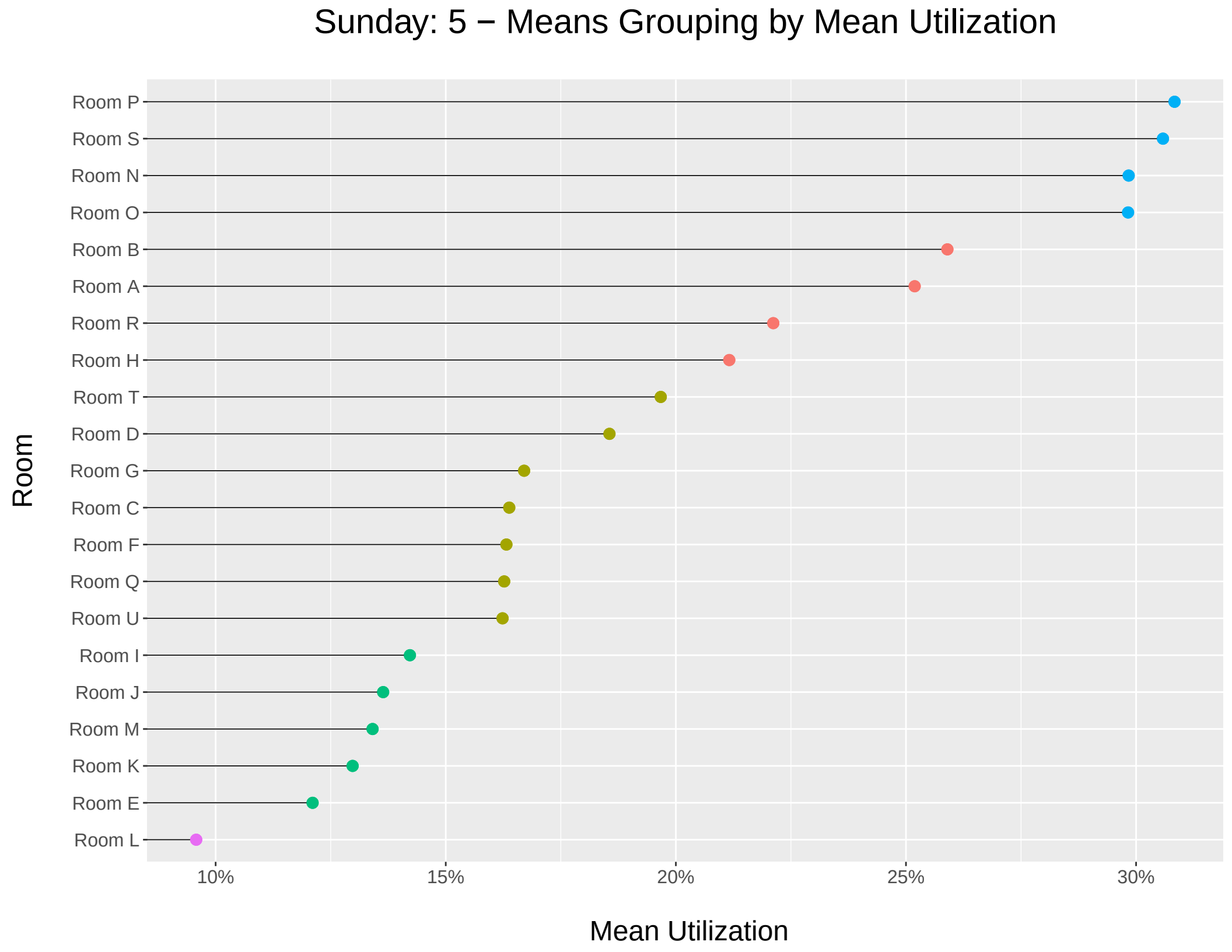

Saturday: 10 − Means Grouping by Mean Utilization
Room N
Room B
Room R
Room O
Room A
Room P
Room F
Room D
Room H
Room S
Room I
Room T
Room G
Room U
Room M
Room Q
Room E
Room L
Room K
Room J
Room C
Room
15%
20%
25%
30%
35%
40%
Mean Utilization

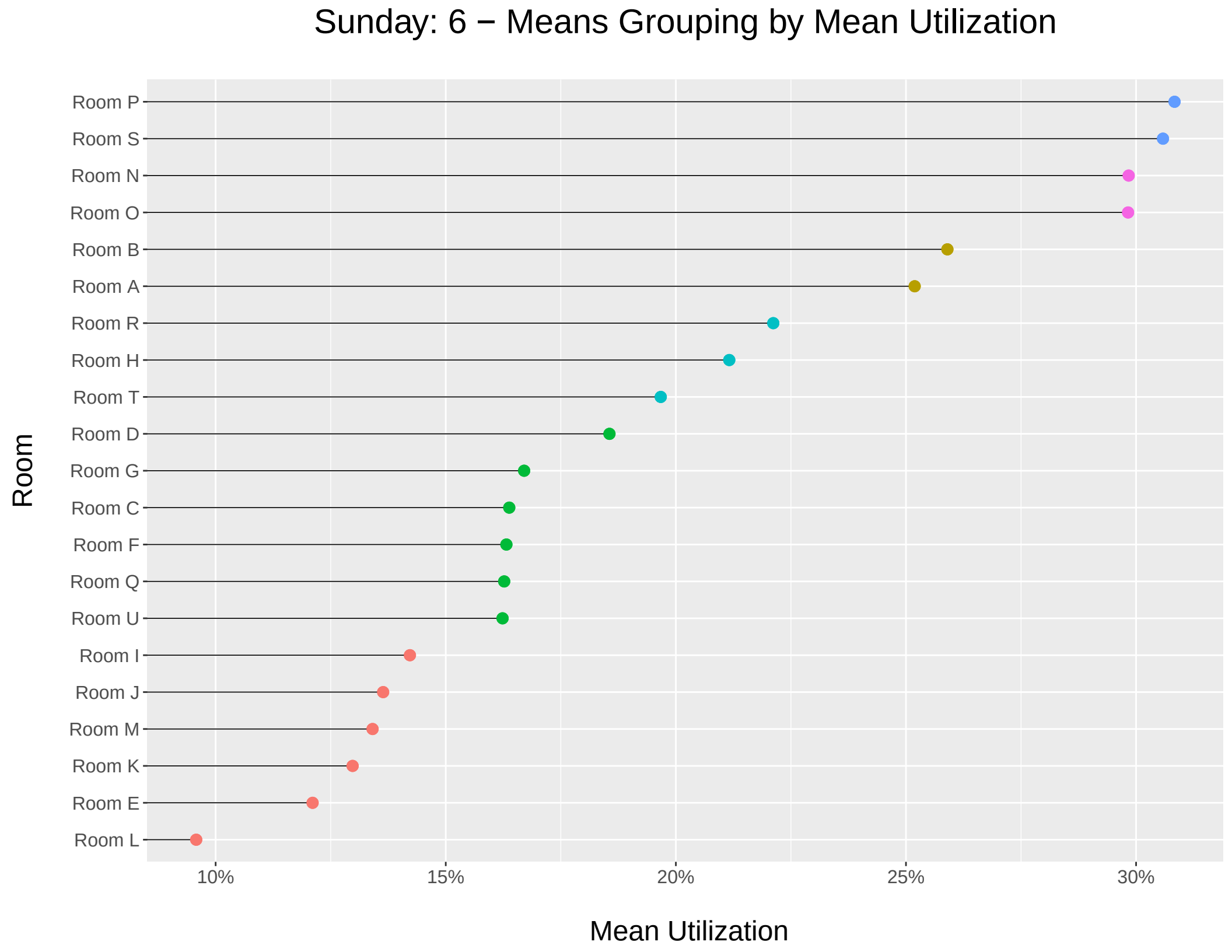

Sunday: Total Within SS versus Number of Clusters for K−Means Grouping by Mean Utilization
Total Within SS
0.020
0.015
0.010
0.005
0.000
2
3
4
5
6
7
8
9
10
Number of Clusters

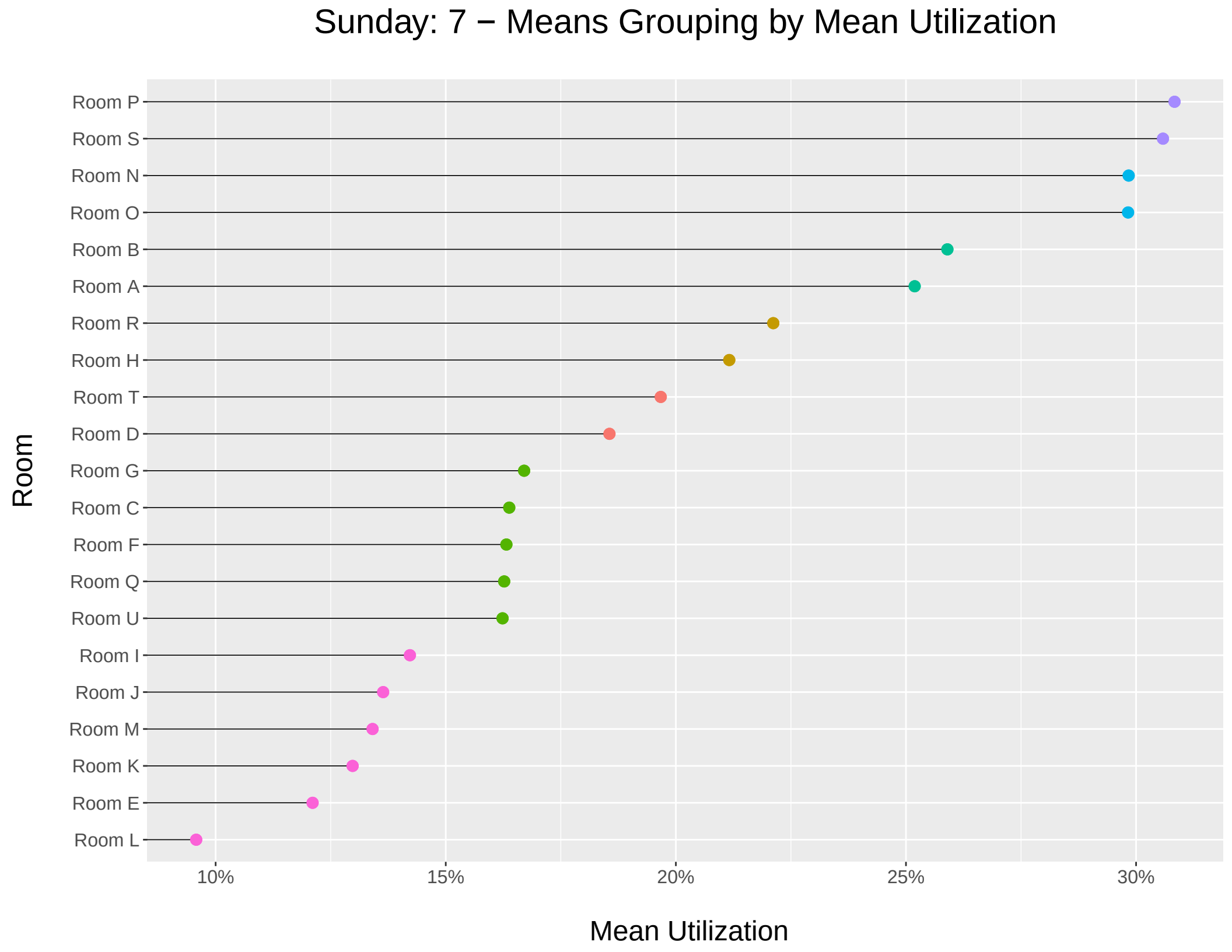

Sunday: 2 − Means Grouping by Mean Utilization
Room
Room P
Room S
Room N
Room O
Room B
Room A
Room R
Room H
Room T
Room D
Room G
Room C
Room F
Room Q
Room U
Room I
Room J
Room M
Room K
Room E
Room L
10%
15%
20%
25%
30%
Mean Utilization

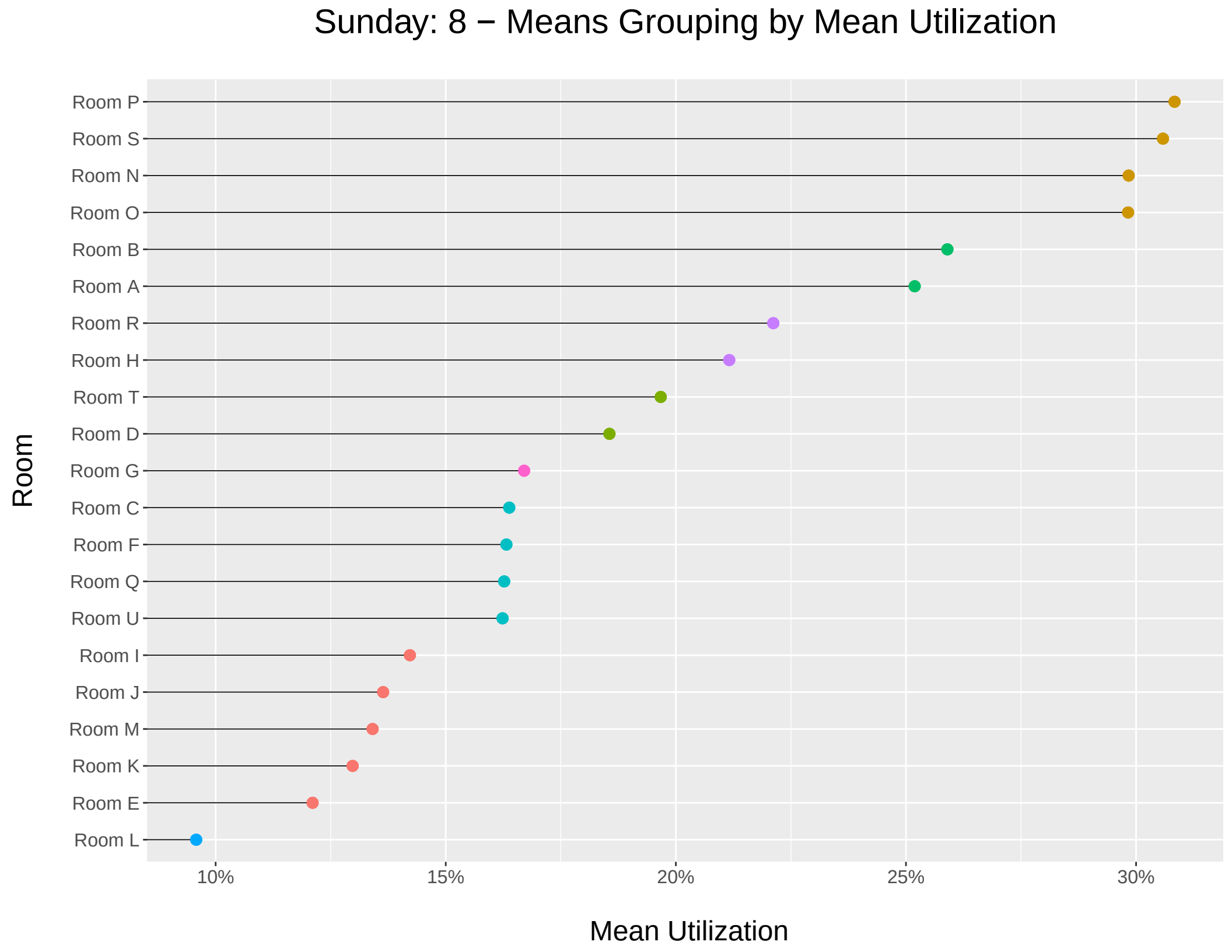

Sunday: 3 − Means Grouping by Mean Utilization
Room
Room P
Room S
Room N
Room O
Room B
Room A
Room R
Room H
Room T
Room D
Room G
Room C
Room F
Room Q
Room U
Room I
Room J
Room M
Room K
Room E
Room L
10%
15%
20%
25%
30%
Mean Utilization

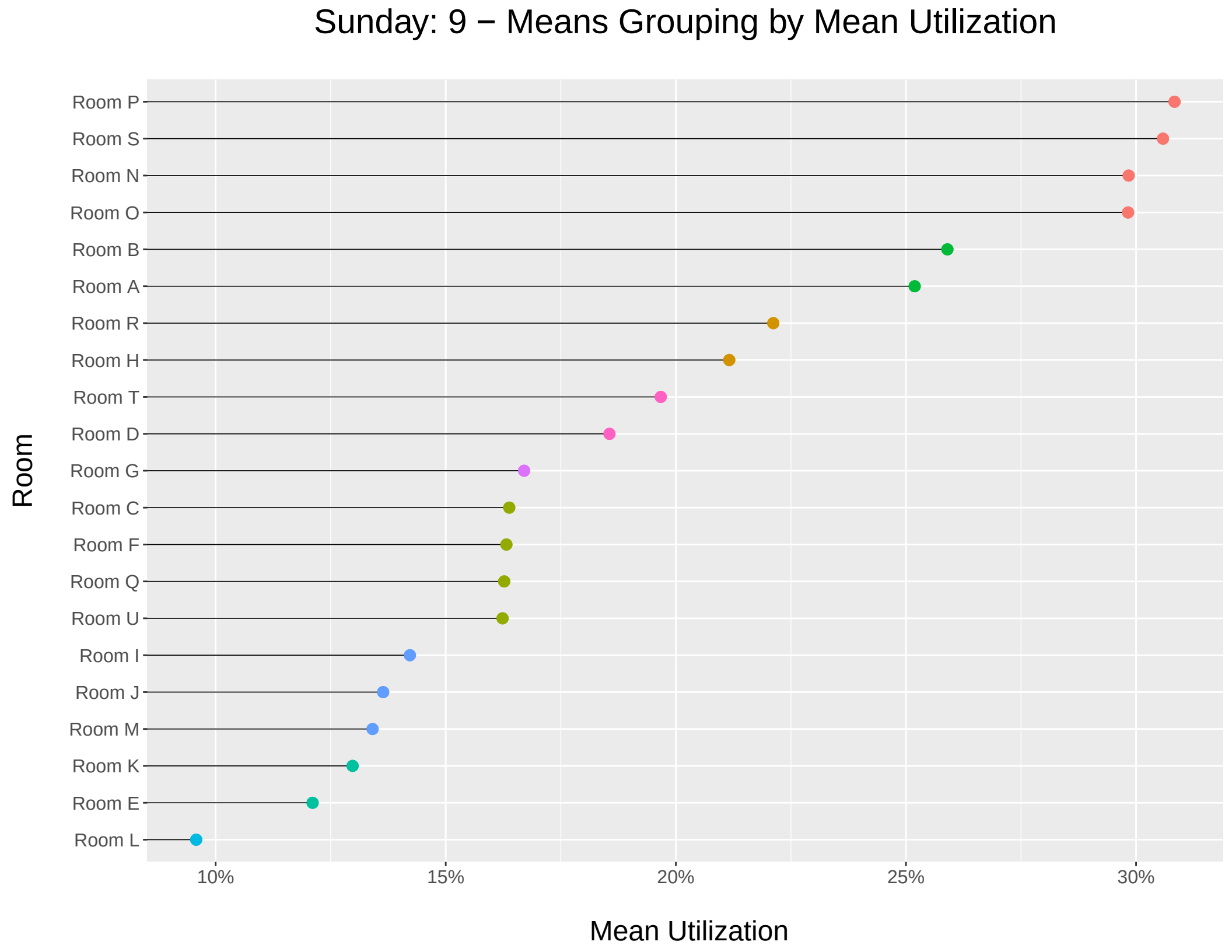

Sunday: 4 − Means Grouping by Mean Utilization
Room
Room P
Room S
Room N
Room O
Room B
Room A
Room R
Room H
Room T
Room D
Room G
Room C
Room F
Room Q
Room U
Room I
Room J
Room M
Room K
Room E
Room L
10%
15%
20%
25%
30%
Mean Utilization

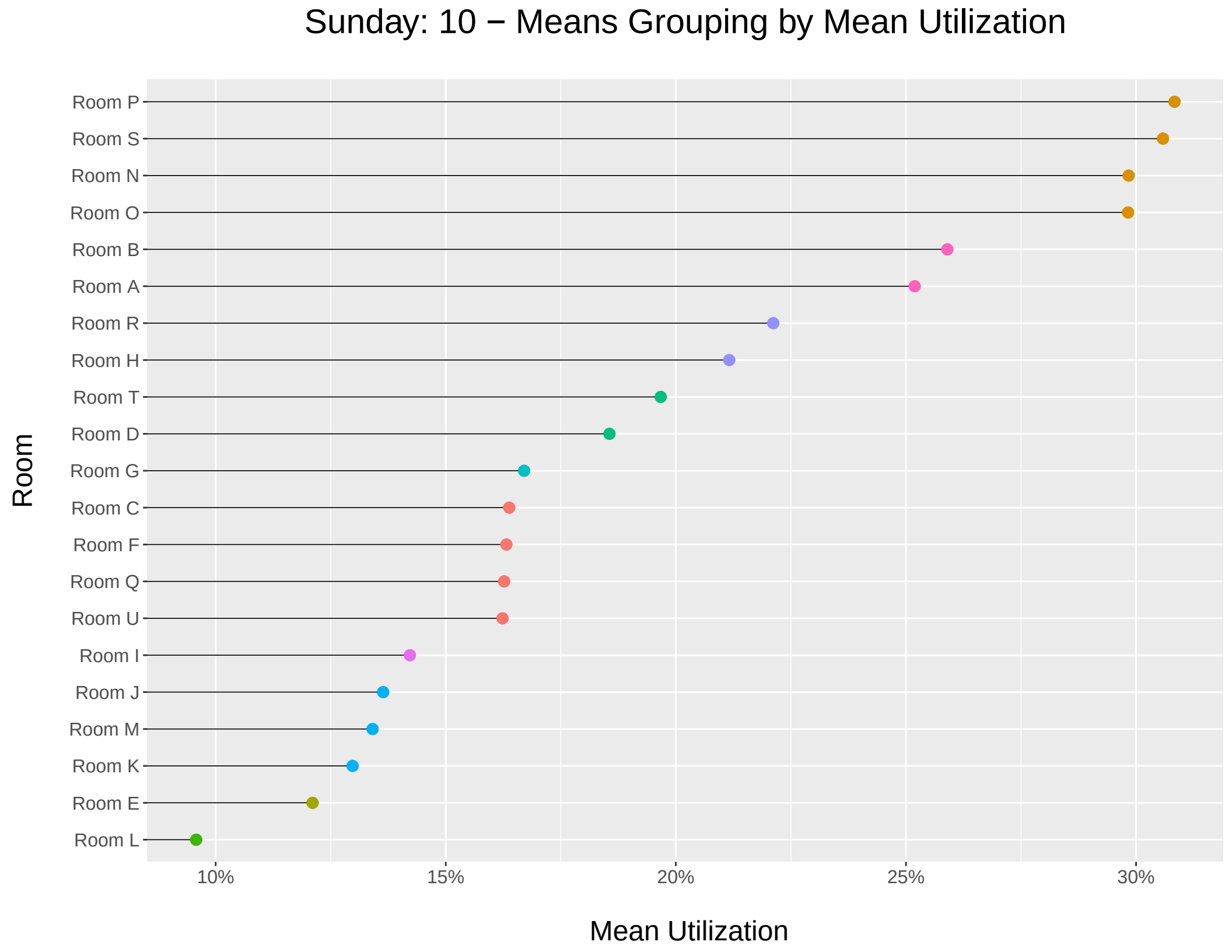

Sunday: 5 − Means Grouping by Mean Utilization
Room
Room P
Room S
Room N
Room O
Room B
Room A
Room R
Room H
Room T
Room D
Room G
Room C
Room F
Room Q
Room U
Room I
Room J
Room M
Room K
Room E
Room L
10%
15%
20%
25%
30%
Mean Utilization

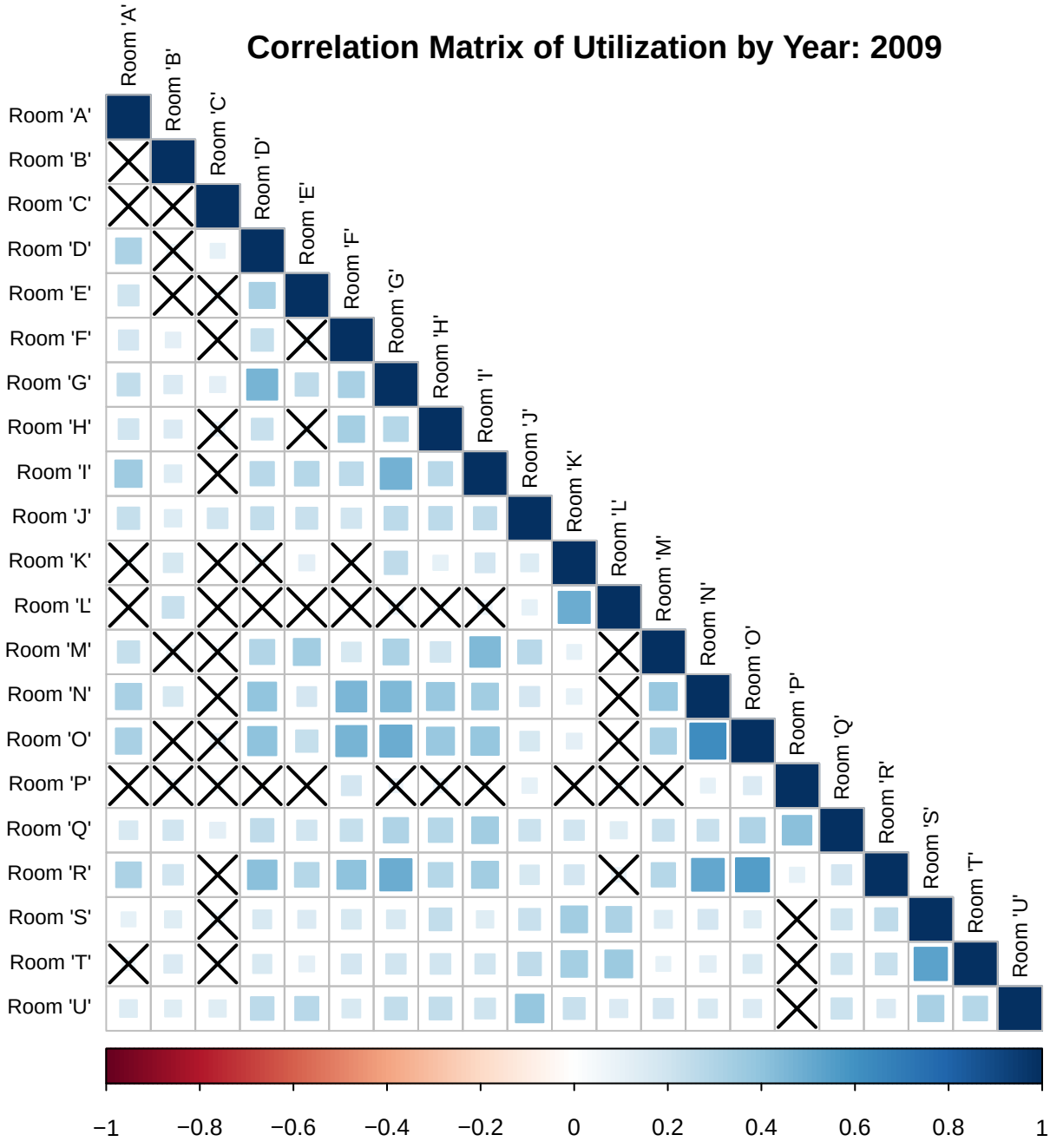

Sunday: 6 − Means Grouping by Mean Utilization
Room
Room P
Room S
Room N
Room O
Room B
Room A
Room R
Room H
Room T
Room D
Room G
Room C
Room F
Room Q
Room U
Room I
Room J
Room M
Room K
Room E
Room L
10%
15%
20%
25%
30%
Mean Utilization

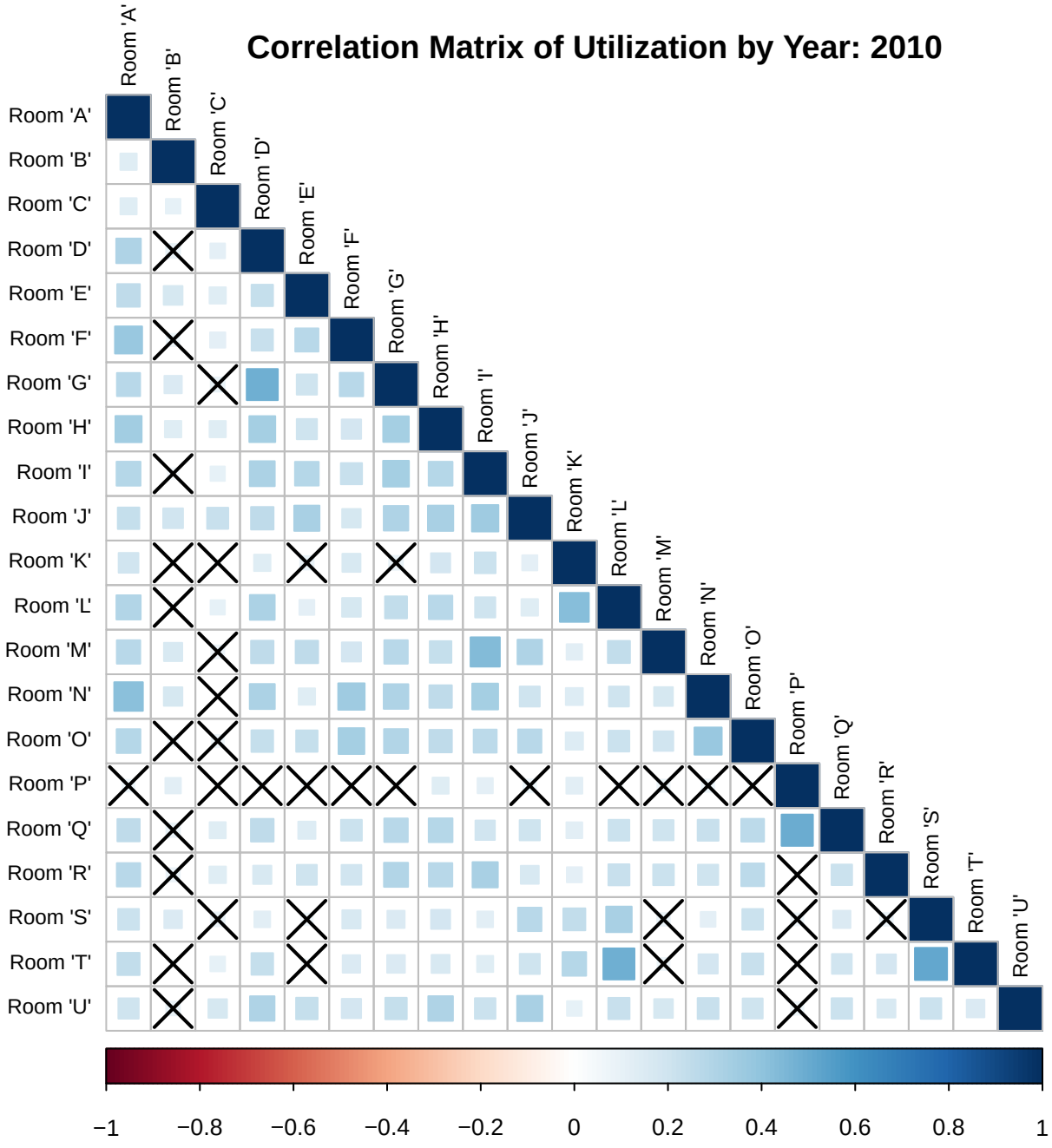

Sunday: 7 − Means Grouping by Mean Utilization
Room
Room P
Room S
Room N
Room O
Room B
Room A
Room R
Room H
Room T
Room D
Room G
Room C
Room F
Room Q
Room U
Room I
Room J
Room M
Room K
Room E
Room L
10%
15%
20%
25%
30%
Mean Utilization

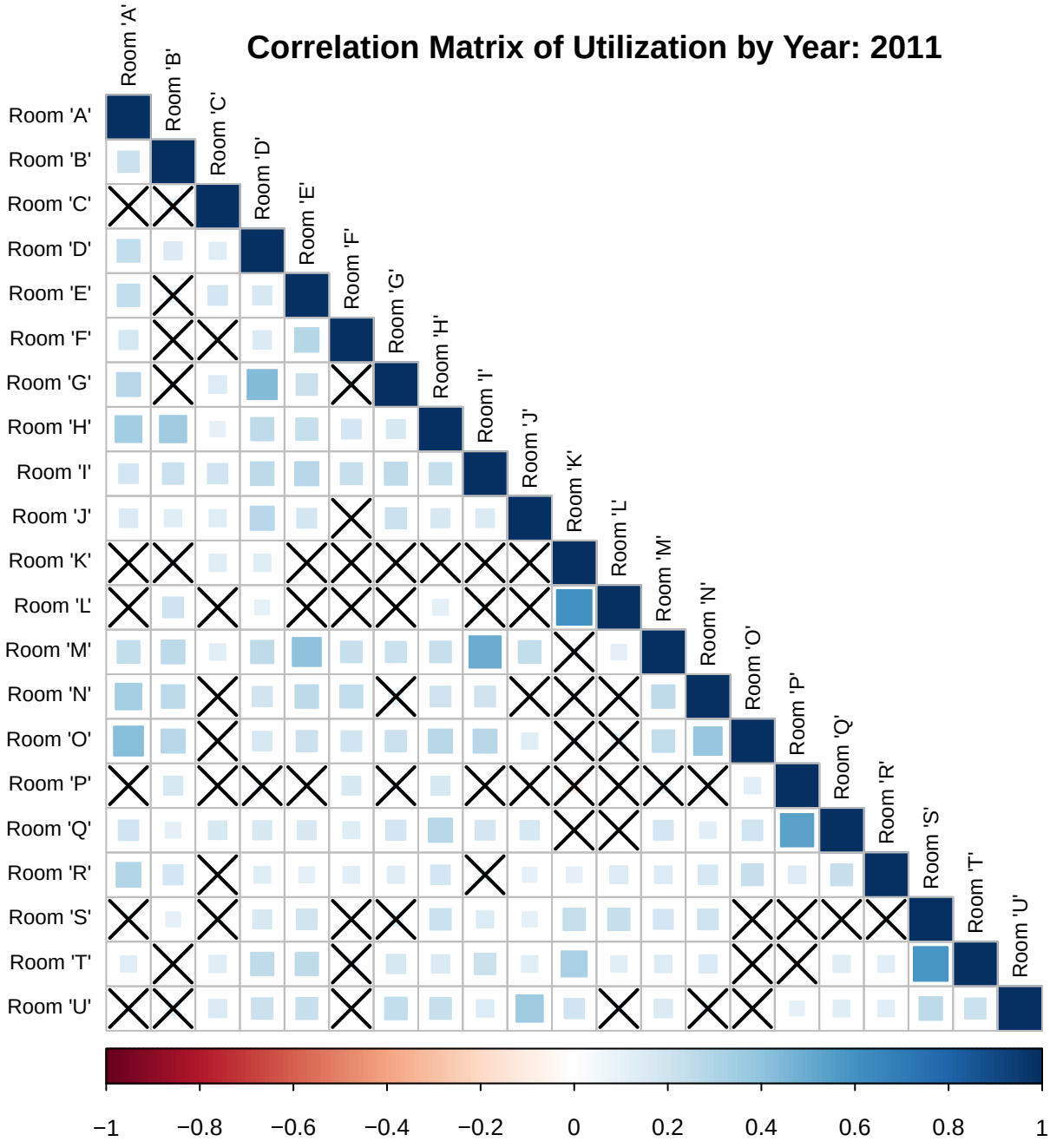

Sunday: 8 − Means Grouping by Mean Utilization
Room
Room P
Room S
Room N
Room O
Room B
Room A
Room R
Room H
Room T
Room D
Room G
Room C
Room F
Room Q
Room U
Room I
Room J
Room M
Room K
Room E
Room L
10%
15%
20%
25%
30%
Mean Utilization

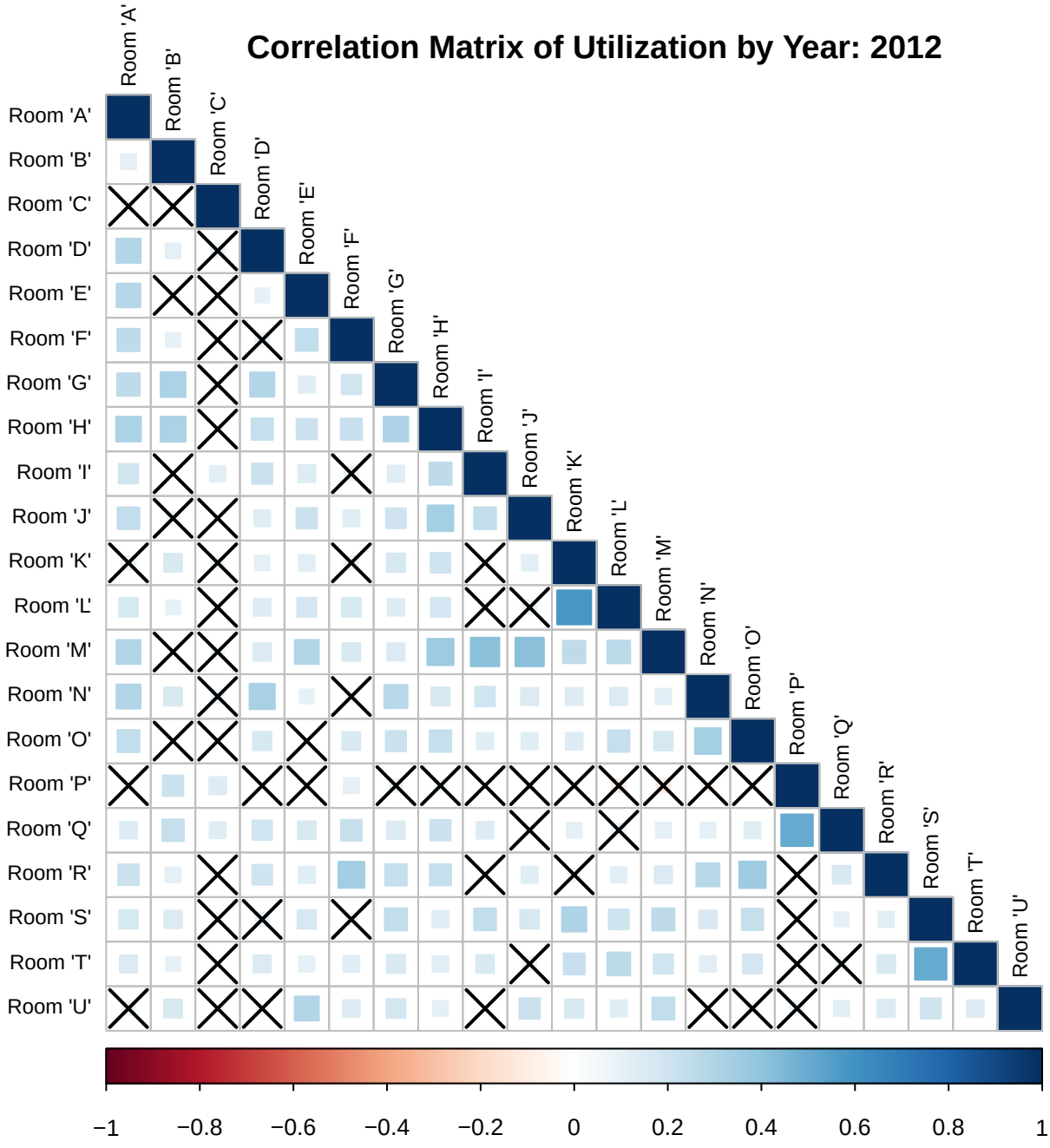

Sunday: 9 − Means Grouping by Mean Utilization
Room
Room P
Room S
Room N
Room O
Room B
Room A
Room R
Room H
Room T
Room D
Room G
Room C
Room F
Room Q
Room U
Room I
Room J
Room M
Room K
Room E
Room L
10%
15%
20%
25%
30%
Mean Utilization

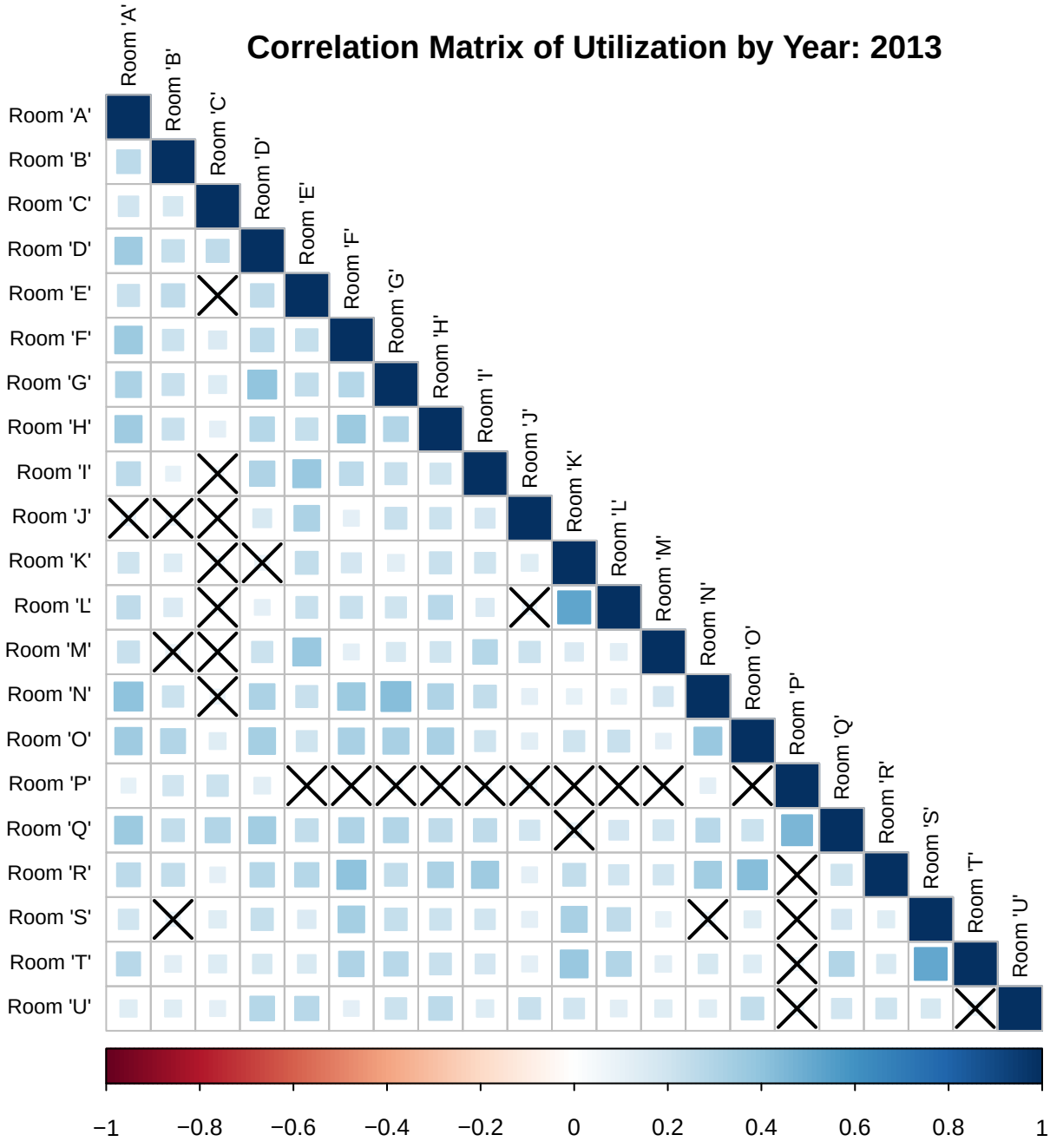

Sunday: 10 − Means Grouping by Mean Utilization
Room
Room P
Room S
Room N
Room O
Room B
Room A
Room R
Room H
Room T
Room D
Room G
Room C
Room F
Room Q
Room U
Room I
Room J
Room M
Room K
Room E
Room L
10%
15%
20%
25%
30%
Mean Utilization

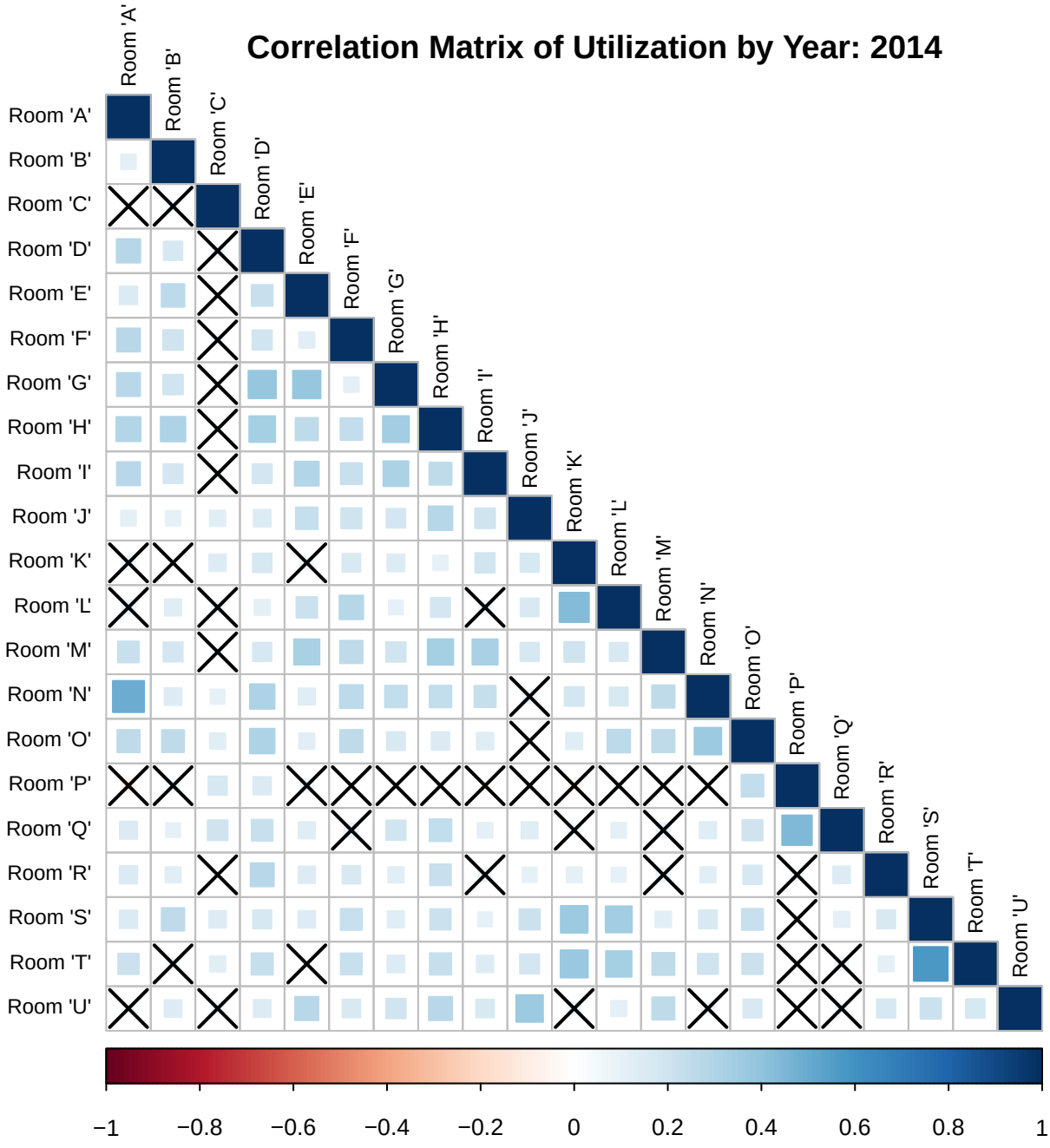

Correlation Matrix of Utilization by Year: 2009
Room 'A'
Room 'B'
Room 'C'
Room 'D'
Room 'E'
Room 'F'
Room 'G'
Room 'H'
Room 'I'
Room 'J'
Room 'K'
Room 'L'
Room 'M'
Room 'N'
Room 'O'
Room 'P'
Room 'Q'
Room 'R'
Room 'S'
Room 'T'
Room 'U'
−1
−0.8
−0.6
−0.4
−0.2
0
0.2
0.4
0.6
0.8
1


Correlation Matrix of Utilization by Year: 2010
Room 'A'
Room 'B'
Room 'C'
Room 'D'
Room 'E'
Room 'F'
Room 'G'
Room 'H'
Room 'I'
Room 'J'
Room 'K'
Room 'L'
Room 'M'
Room 'N'
Room 'O'
Room 'P'
Room 'Q'
Room 'R'
Room 'S'
Room 'T'
Room 'U'
−1
−0.8
−0.6
−0.4
−0.2
0
0.2
0.4
0.6
0.8
1


Correlation Matrix of Utilization by Year: 2011
Room 'A'
Room 'B'
Room 'C'
Room 'D'
Room 'E'
Room 'F'
Room 'G'
Room 'H'
Room 'I'
Room 'J'
Room 'K'
Room 'L'
Room 'M'
Room 'N'
Room 'O'
Room 'P'
Room 'Q'
Room 'R'
Room 'S'
Room 'T'
Room 'U'
−1
−0.8
−0.6
−0.4
−0.2
0
0.2
0.4
0.6
0.8
1


Correlation Matrix of Utilization by Year: 2012
Room 'A'
Room 'B'
Room 'C'
Room 'D'
Room 'E'
Room 'F'
Room 'G'
Room 'H'
Room 'I'
Room 'J'
Room 'K'
Room 'L'
Room 'M'
Room 'N'
Room 'O'
Room 'P'
Room 'Q'
Room 'R'
Room 'S'
Room 'T'
Room 'U'
−1
−0.8
−0.6
−0.4
−0.2
0
0.2
0.4
0.6
0.8
1


Correlation Matrix of Utilization by Year: 2013
Room 'A'
Room 'B'
Room 'C'
Room 'D'
Room 'E'
Room 'F'
Room 'G'
Room 'H'
Room 'I'
Room 'J'
Room 'K'
Room 'L'
Room 'M'
Room 'N'
Room 'O'
Room 'P'
Room 'Q'
Room 'R'
Room 'S'
Room 'T'
Room 'U'
−1
−0.8
−0.6
−0.4
−0.2
0
0.2
0.4
0.6
0.8
1


Correlation Matrix of Utilization by Year: 2014
Room 'A'
Room 'B'
Room 'C'
Room 'D'
Room 'E'
Room 'F'
Room 'G'
Room 'H'
Room 'I'
Room 'J'
Room 'K'
Room 'L'
Room 'M'
Room 'N'
Room 'O'
Room 'P'
Room 'Q'
Room 'R'
Room 'S'
Room 'T'
Room 'U'
−1
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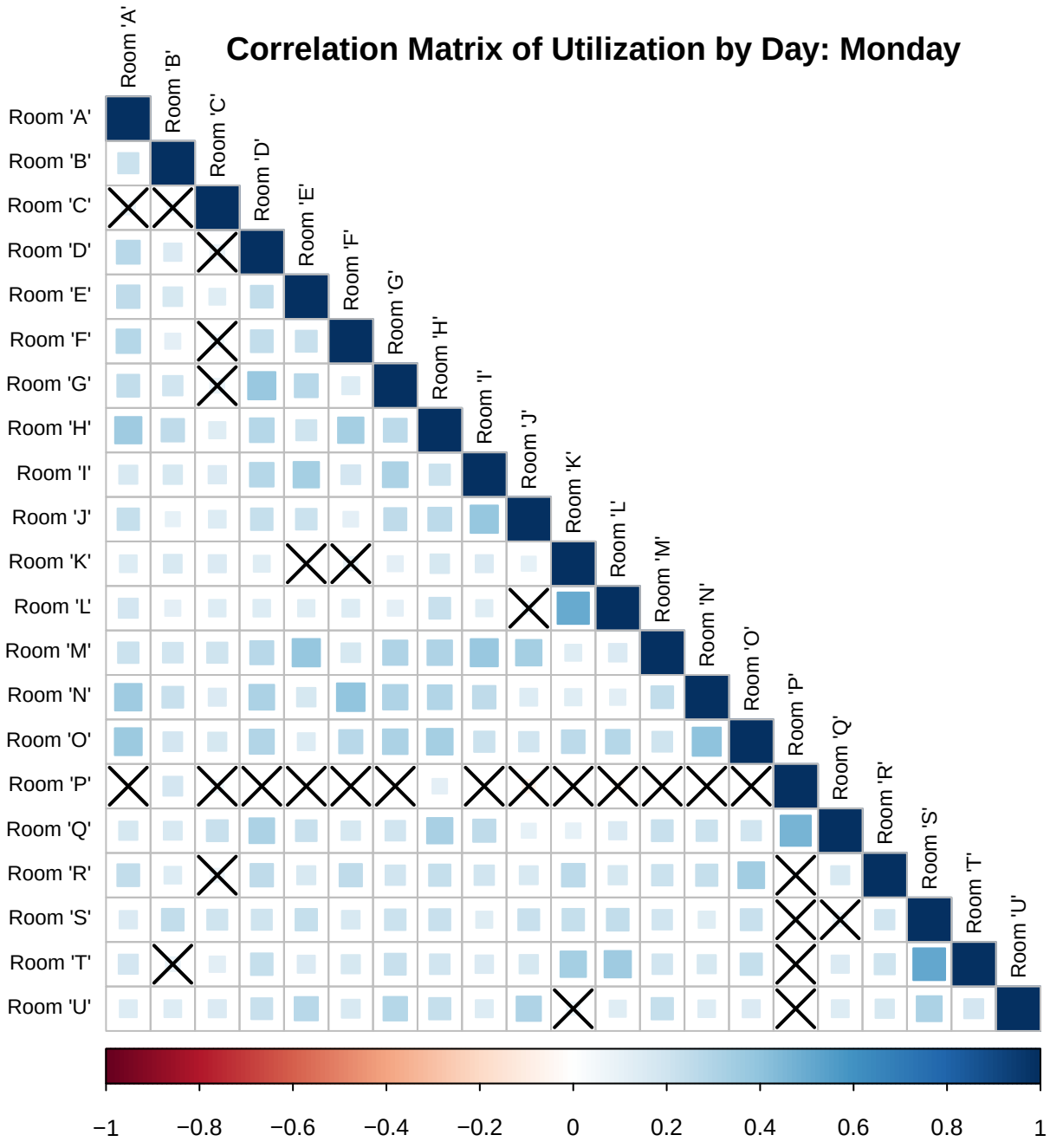
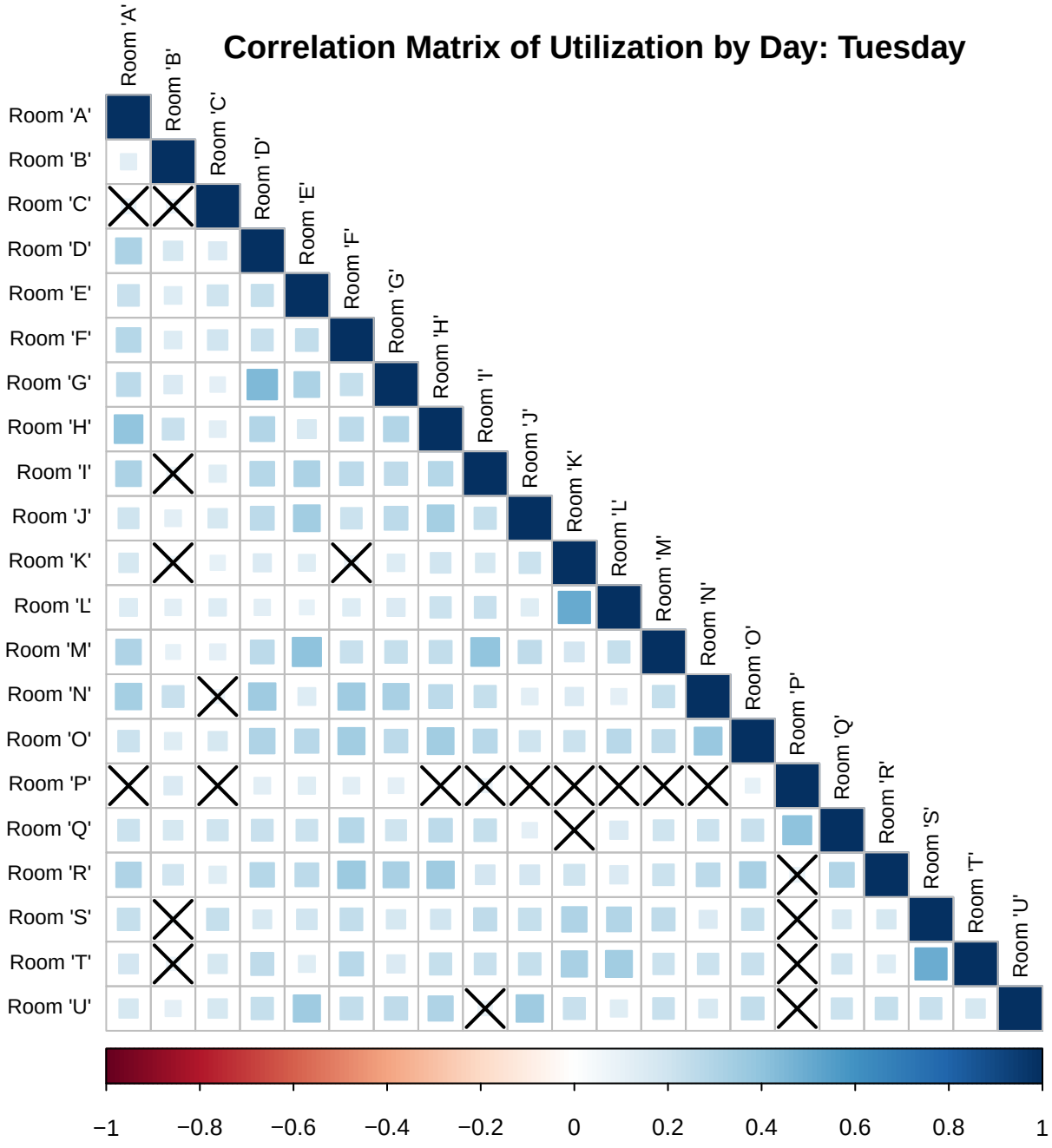
−0.6
−0.4
−0.2
0
0.2
0.4
0.6
0.8
1


Correlation Matrix of Utilization by Day: Monday
Room 'A'
Room 'B'
Room 'C'
Room 'D'
Room 'E'
Room 'F'
Room 'G'
Room 'H'
Room 'I'
Room 'J'
Room 'K'
Room 'L'
Room 'M'
Room 'N'
Room 'O'
Room 'P'
Room 'Q'
Room 'R'
Room 'S'
Room 'T'
Room 'U'
−1
−0.8
−0.6
−0.4
−0.2
0
0.2
0.4
0.6
0.8
1


Correlation Matrix of Utilization by Day: Tuesday
Room 'A'
Room 'B'
Room 'C'
Room 'D'
Room 'E'
Room 'F'
Room 'G'
Room 'H'
Room 'I'
Room 'J'
Room 'K'
Room 'L'
Room 'M'
Room 'N'
Room 'O'
Room 'P'
Room 'Q'
Room 'R'
Room 'S'
Room 'T'
Room 'U'
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0.8
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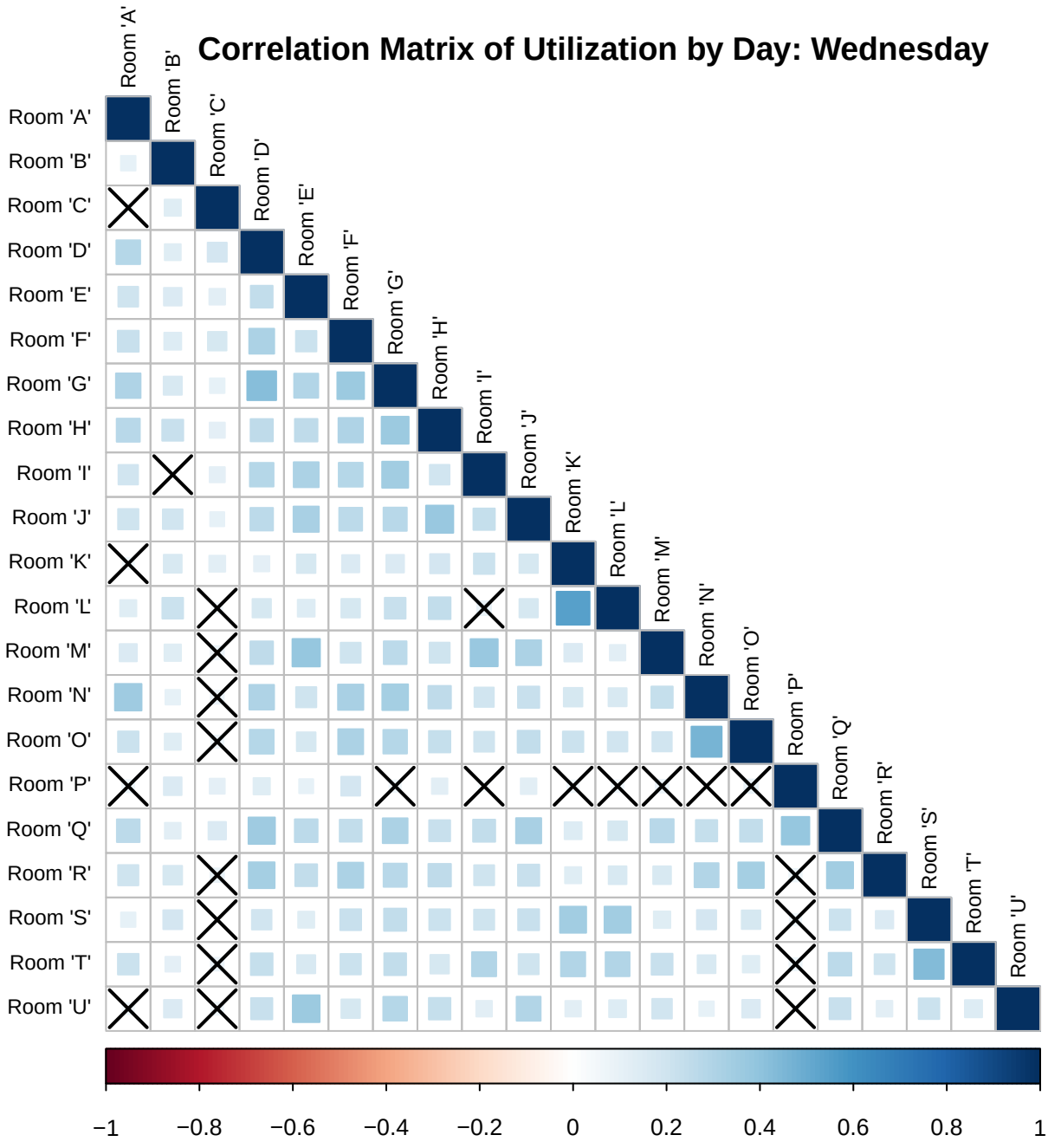
Correlation Matrix of Utilization by Day: Wednesday
Room 'A'
Room 'B'
Room 'C'
Room 'D'
Room 'E'
Room 'F'
Room 'G'
Room 'H'
Room 'I'
Room 'J'
Room 'K'
Room 'L'
Room 'M'
Room 'N'
Room 'O'
Room 'P'
Room 'Q'
Room 'R'
Room 'S'
Room 'T'
Room 'U'
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−0.4
−0.2
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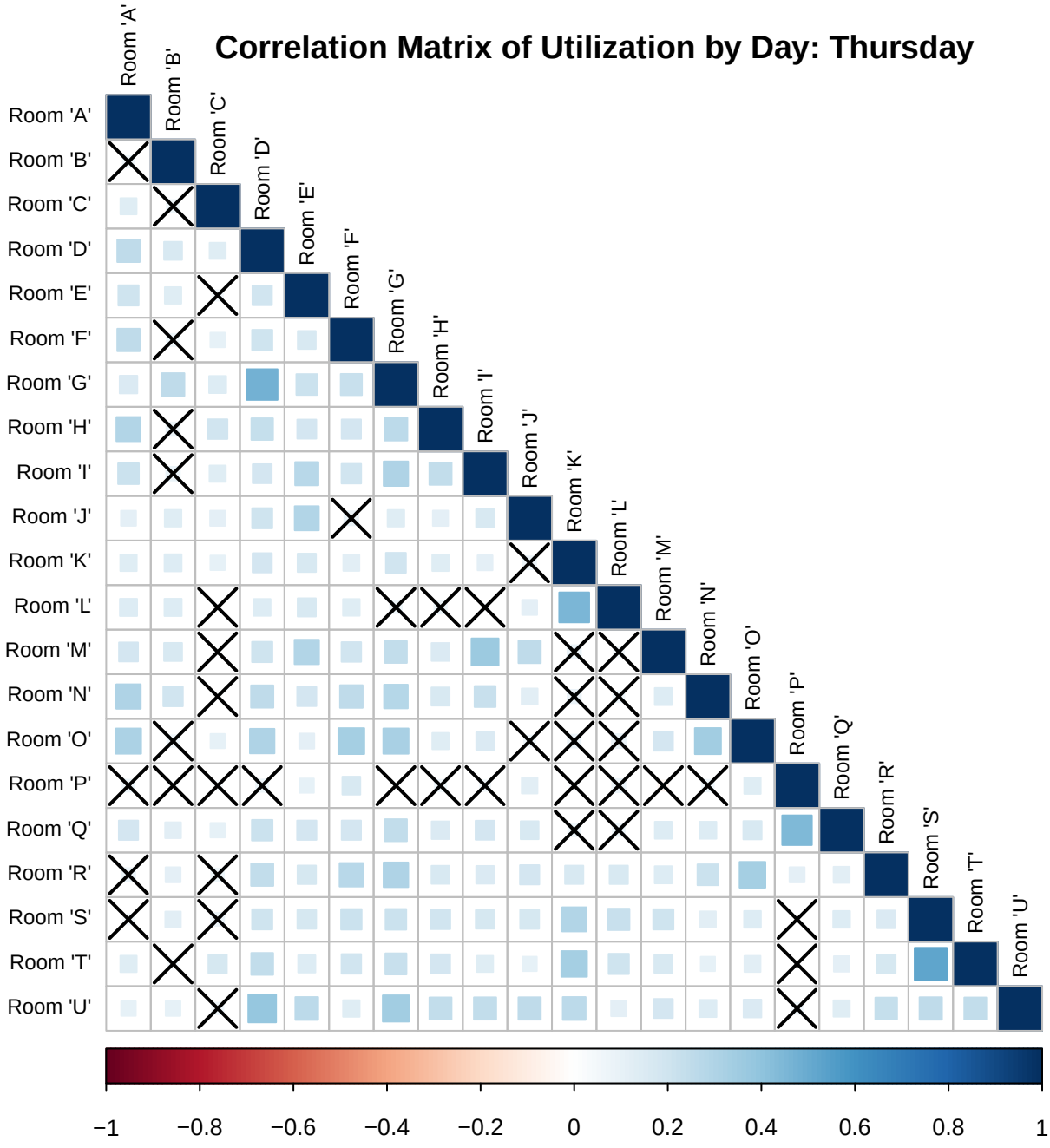
0.8
1


Correlation Matrix of Utilization by Day: Thursday
Room 'A'
Room 'B'
Room 'C'
Room 'D'
Room 'E'
Room 'F'
Room 'G'
Room 'H'
Room 'I'
Room 'J'
Room 'K'
Room 'L'
Room 'M'
Room 'N'
Room 'O'
Room 'P'
Room 'Q'
Room 'R'
Room 'S'
Room 'T'
Room 'U'
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−0.6
−0.4
−0.2
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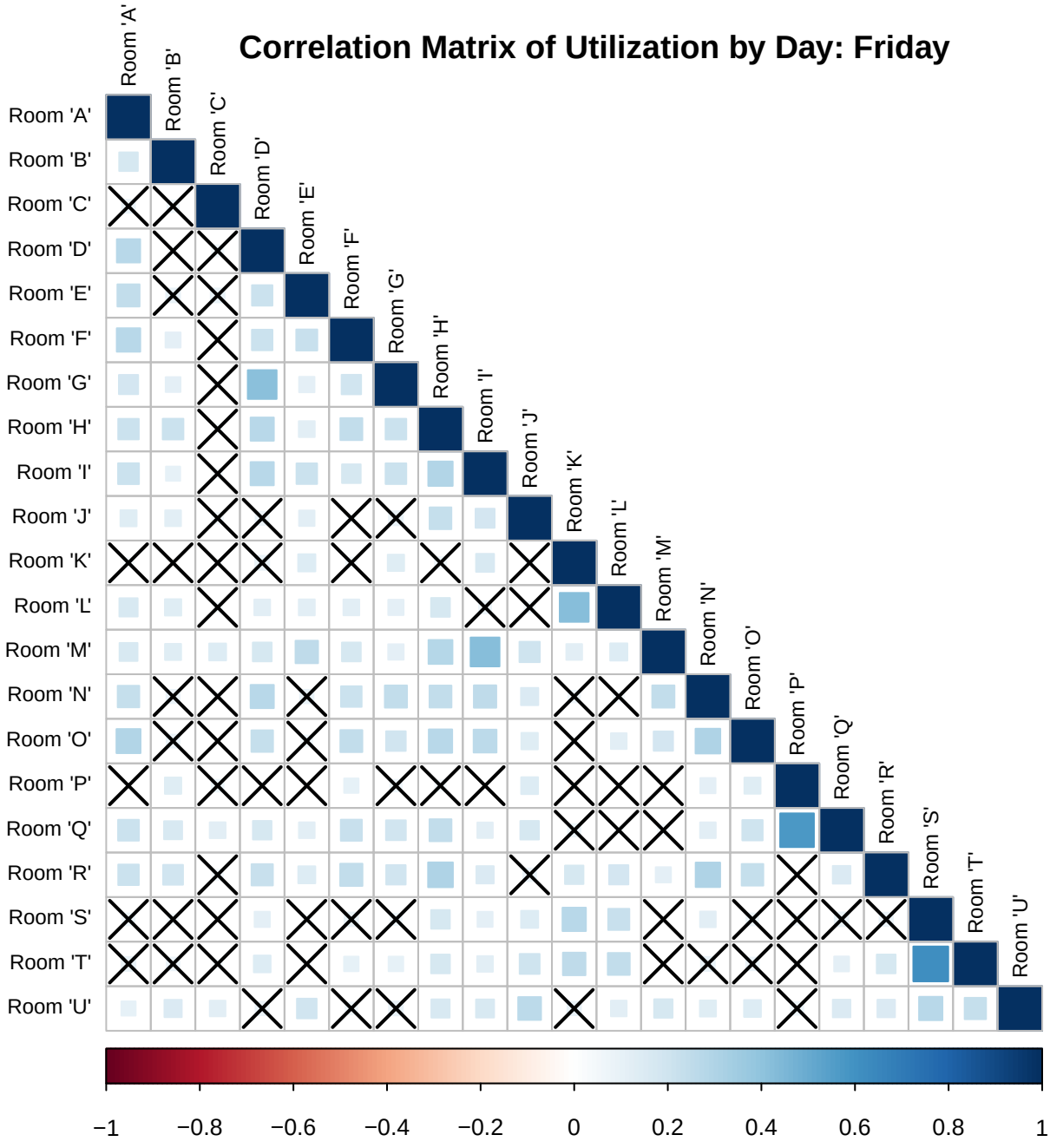
0.6
0.8
1


Correlation Matrix of Utilization by Day: Friday
Room 'A'
Room 'B'
Room 'C'
Room 'D'
Room 'E'
Room 'F'
Room 'G'
Room 'H'
Room 'I'
Room 'J'
Room 'K'
Room 'L'
Room 'M'
Room 'N'
Room 'O'
Room 'P'
Room 'Q'
Room 'R'
Room 'S'
Room 'T'
Room 'U'
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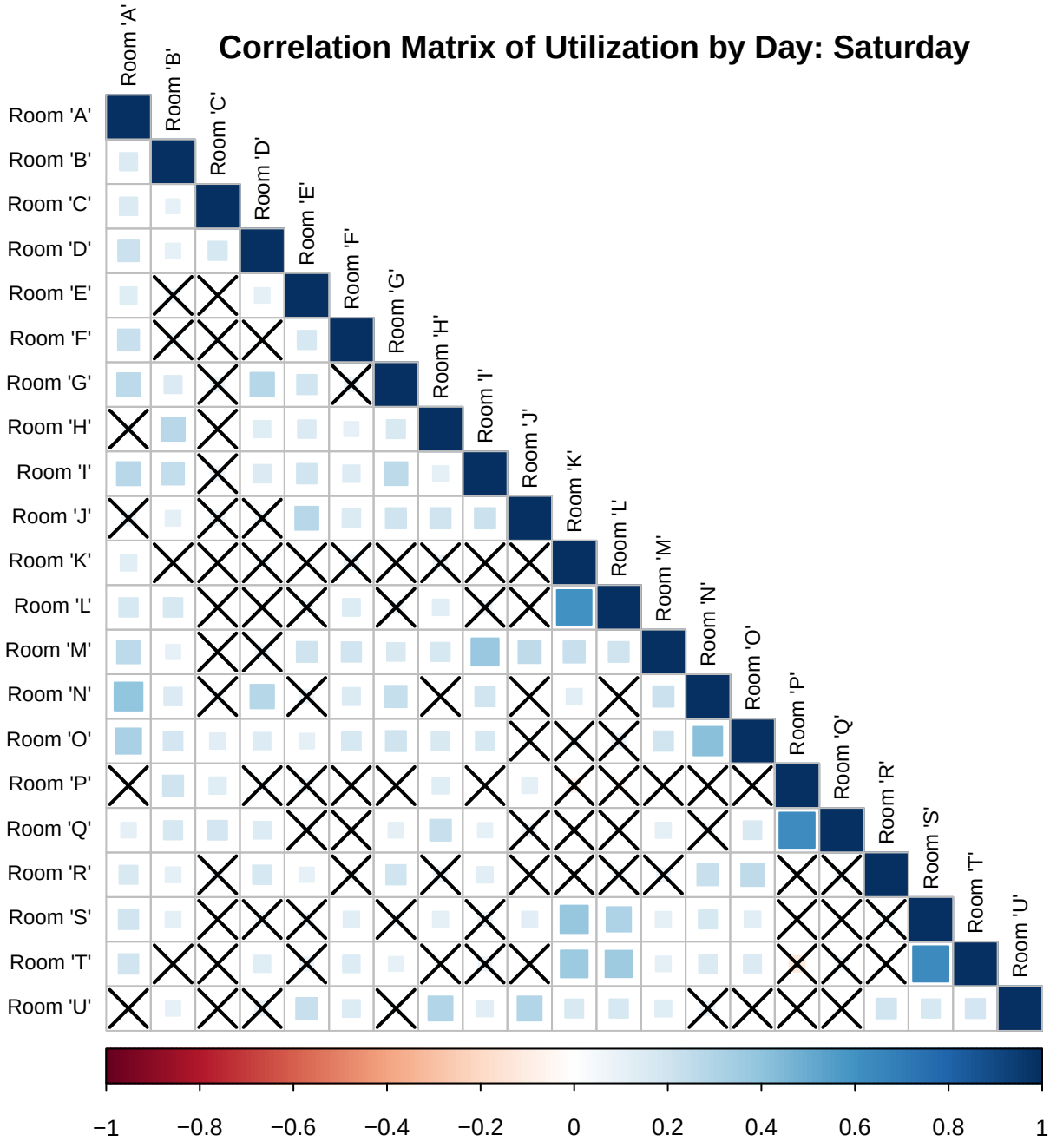
0.8
1


Correlation Matrix of Utilization by Day: Saturday
Room 'A'
Room 'B'
Room 'C'
Room 'D'
Room 'E'
Room 'F'
Room 'G'
Room 'H'
Room 'I'
Room 'J'
Room 'K'
Room 'L'
Room 'M'
Room 'N'
Room 'O'
Room 'P'
Room 'Q'
Room 'R'
Room 'S'
Room 'T'
Room 'U'
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−0.2
0
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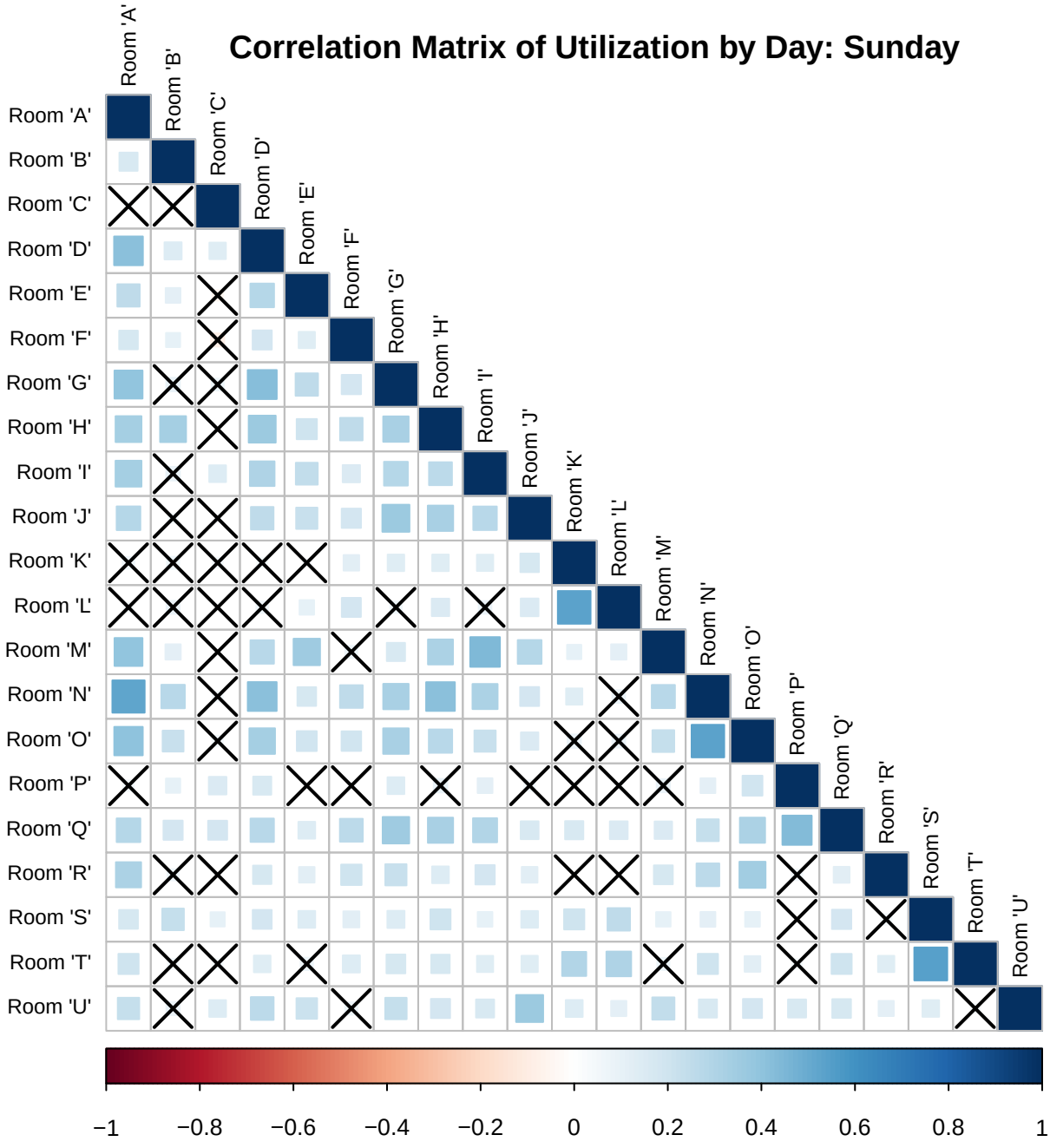
0.4
0.6
0.8
1


Correlation Matrix of Utilization by Day: Sunday
Room 'A'
Room 'B'
Room 'C'
Room 'D'
Room 'E'
Room 'F'
Room 'G'
Room 'H'
Room 'I'
Room 'J'
Room 'K'
Room 'L'
Room 'M'
Room 'N'
Room 'O'
Room 'P'
Room 'Q'
Room 'R'
Room 'S'
Room 'T'
Room 'U'
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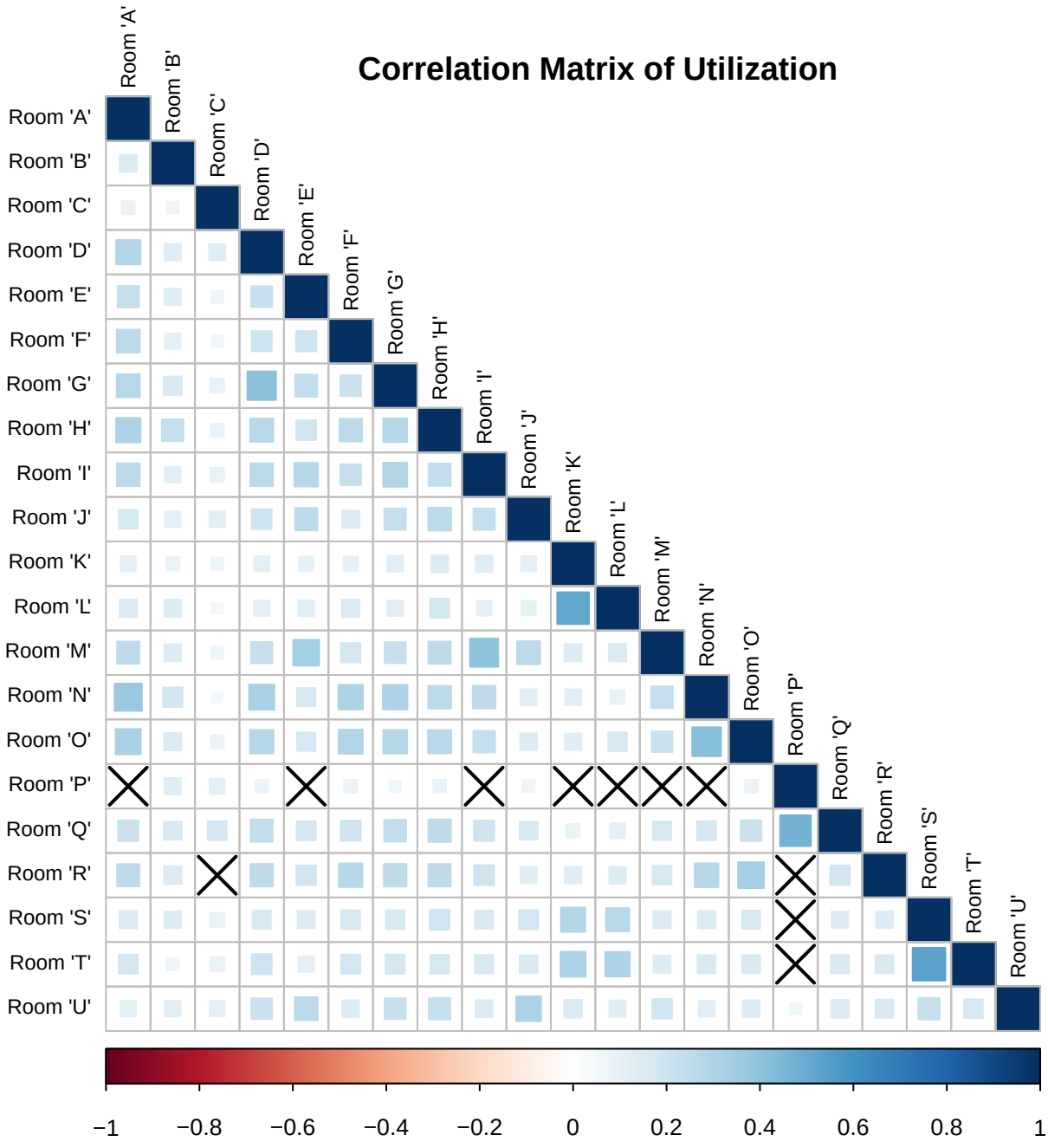
−0.4
−0.2
0
0.2
0.4
0.6
0.8
1


Correlation Matrix of Utilization
Room 'A'
Room 'B'
Room 'C'
Room 'D'
Room 'E'
Room 'F'
Room 'G'
Room 'H'
Room 'I'
Room 'J'
Room 'K'
Room 'L'
Room 'M'
Room 'N'
Room 'O'
Room 'P'
Room 'Q'
Room 'R'
Room 'S'
Room 'T'
Room 'U'
−1
−0.8
−0.6
−0.4
−0.2
0
0.2
0.4
0.6
0.8
1