```
import random

dataset = [random.randint(1, 100) for _ in range(60)]

print(dataset)
```

```
[28, 13, 79, 1, 41, 30, 98, 28, 8, 96, 60, 83, 24, 26, 74, 80, 63, 79,
84, 13, 20, 40, 58, 21, 69, 52, 1, 7, 3, 30, 69, 14, 55, 11, 13, 3, 6,
2, 81, 61, 72, 13, 36, 69, 50, 21, 37, 71, 91, 42, 43, 10, 99, 22, 60,
25, 11, 38, 55, 100]
```

```
dataset=sorted(dataset)
dataset
```

```
[1,
 1,
 2,
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```

```
 55,
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 71,
 72,
 74,
 79,
 79,
 80,
 81,
 83,
 84,
 91,
 96,
 98,
 99,
 100]

bins3 = [dataset[i:i+3] for i in range(0, len(dataset), 3)]
bins4 = [dataset[i:i+4] for i in range(0, len(dataset), 4)]
bins5 = [dataset[i:i+5] for i in range(0, len(dataset), 5)]

print(bins3)
print(bins4)
print(bins5)

[[1, 1, 2], [3, 3, 6], [7, 8, 10], [11, 11, 13], [13, 13, 13], [14,
20, 21], [21, 22, 24], [25, 26, 28], [28, 30, 30], [36, 37, 38], [40,
41, 42], [43, 50, 52], [55, 55, 58], [60, 60, 61], [63, 69, 69], [69,
71, 72], [74, 79, 79], [80, 81, 83], [84, 91, 96], [98, 99, 100]]
[[1, 1, 2, 3], [3, 6, 7, 8], [10, 11, 11, 13], [13, 13, 13, 14], [20,
21, 21, 22], [24, 25, 26, 28], [28, 30, 30, 36], [37, 38, 40, 41],
[42, 43, 50, 52], [55, 55, 58, 60], [60, 61, 63, 69], [69, 69, 71,
72], [74, 79, 79, 80], [81, 83, 84, 91], [96, 98, 99, 100]]
[[1, 1, 2, 3, 3], [6, 7, 8, 10, 11], [11, 13, 13, 13, 13], [14, 20,
21, 21, 22], [24, 25, 26, 28, 28], [30, 30, 36, 37, 38], [40, 41, 42,
43, 50], [52, 55, 55, 58, 60], [60, 61, 63, 69, 69], [69, 71, 72, 74,
79], [79, 80, 81, 83, 84], [91, 96, 98, 99, 100]]

sbin3=[]
sbin4=[]
sbin5=[]
smoothend_bins=[sbin3,sbin4,sbin5]
```

```
j=0
for bins in [bins3,bins4,bins5]:
    for i in range(len(bins)):
        mean=round(((sum(bins[i]))/len(bins[i])),2)
        sbin=[mean]*len(bins[i])
        smoothend_bins[j].append(sbin)
    j+=1
print("Bins Smoothened by Mean: ")
for sbin in smoothend_bins:
    print(sbin)
```

```
Bins Smoothened by Mean:
[[1.33, 1.33, 1.33], [4.0, 4.0, 4.0], [8.33, 8.33, 8.33], [11.67,
11.67, 11.67], [13.0, 13.0, 13.0], [18.33, 18.33, 18.33], [22.33,
22.33, 22.33], [26.33, 26.33, 26.33], [29.33, 29.33, 29.33], [37.0,
37.0, 37.0], [41.0, 41.0, 41.0], [48.33, 48.33, 48.33], [56.0, 56.0,
56.0], [60.33, 60.33, 60.33], [67.0, 67.0, 67.0], [70.67, 70.67,
70.67], [77.33, 77.33, 77.33], [81.33, 81.33, 81.33], [90.33, 90.33,
90.33], [99.0, 99.0, 99.0]]
[[1.75, 1.75, 1.75, 1.75], [6.0, 6.0, 6.0, 6.0], [11.25, 11.25, 11.25,
11.25], [13.25, 13.25, 13.25, 13.25], [21.0, 21.0, 21.0, 21.0],
[25.75, 25.75, 25.75, 25.75], [31.0, 31.0, 31.0, 31.0], [39.0, 39.0,
39.0, 39.0], [46.75, 46.75, 46.75, 46.75], [57.0, 57.0, 57.0, 57.0],
[63.25, 63.25, 63.25, 63.25], [70.25, 70.25, 70.25, 70.25], [78.0,
78.0, 78.0, 78.0], [84.75, 84.75, 84.75, 84.75], [98.25, 98.25, 98.25,
98.25]]
[[2.0, 2.0, 2.0, 2.0, 2.0], [8.4, 8.4, 8.4, 8.4, 8.4], [12.6, 12.6,
12.6, 12.6, 12.6], [19.6, 19.6, 19.6, 19.6, 19.6], [26.2, 26.2, 26.2,
26.2, 26.2], [34.2, 34.2, 34.2, 34.2, 34.2], [43.2, 43.2, 43.2, 43.2,
43.2], [56.0, 56.0, 56.0, 56.0, 56.0], [64.4, 64.4, 64.4, 64.4, 64.4],
[73.0, 73.0, 73.0, 73.0, 73.0], [81.4, 81.4, 81.4, 81.4, 81.4], [96.8,
96.8, 96.8, 96.8, 96.8]]
```

```
import statistics
sbin3median=[]
sbin4median=[]
sbin5median=[]
smoothend_binsMedian=[sbin3median,sbin4median,sbin5median]
j=0
for bins in [bins3,bins4,bins5]:
    for i in range(len(bins)):
        median=statistics.median(bins[i])
        sbin=[median]*len(bins[i])
        smoothend_binsMedian[j].append(sbin)
    j+=1

print("Bins Smoothened by Median: ")
for sbin in smoothend_binsMedian:
    print(sbin)
```

```
Bins Smoothened by Median:
[[1, 1, 1], [3, 3, 3], [8, 8, 8], [11, 11, 11], [13, 13, 13], [20, 20,
20], [22, 22, 22], [26, 26, 26], [30, 30, 30], [37, 37, 37], [41, 41,
41], [50, 50, 50], [55, 55, 55], [60, 60, 60], [69, 69, 69], [71, 71,
71], [79, 79, 79], [81, 81, 81], [91, 91, 91], [99, 99, 99]]
[[1.5, 1.5, 1.5, 1.5], [6.5, 6.5, 6.5, 6.5], [11.0, 11.0, 11.0, 11.0],
[13.0, 13.0, 13.0, 13.0], [21.0, 21.0, 21.0, 21.0], [25.5, 25.5, 25.5,
25.5], [30.0, 30.0, 30.0, 30.0], [39.0, 39.0, 39.0, 39.0], [46.5,
46.5, 46.5, 46.5], [56.5, 56.5, 56.5, 56.5], [62.0, 62.0, 62.0, 62.0],
[70.0, 70.0, 70.0, 70.0], [79.0, 79.0, 79.0, 79.0], [83.5, 83.5, 83.5,
83.5], [98.5, 98.5, 98.5, 98.5]]
[[2, 2, 2, 2, 2], [8, 8, 8, 8, 8], [13, 13, 13, 13, 13], [21, 21, 21,
21, 21], [26, 26, 26, 26, 26], [36, 36, 36, 36, 36], [42, 42, 42, 42,
42], [55, 55, 55, 55, 55], [63, 63, 63, 63, 63], [72, 72, 72, 72, 72],
[81, 81, 81, 81, 81], [98, 98, 98, 98, 98]]
```

```
sbin3bound=[]
sbin4bound=[]
sbin5bound=[]
smoothend_binsbound=[sbin3bound,sbin4bound,sbin5bound]
j=0
for bins in [bins3,bins4,bins5]:
    for i in range(len(bins)):
        maxn=max(bins[i])
        minn=min(bins[i])
        for k in range(len(bins[i])):
            if(bins[i][k]<maxn/2):
                bins[i][k]=minn
            else:
                bins[i][k]=maxn
        smoothend_binsbound[j].append(bins[i])
    j+=1

print("Bins Smoothened by Boundary: ")
for sbin in smoothend_binsbound:
    print(sbin)
```

```
Bins Smoothened by Boundary:
[[2, 2, 2], [6, 6, 6], [10, 10, 10], [13, 13, 13], [13, 13, 13], [21,
21, 21], [24, 24, 24], [28, 28, 28], [30, 30, 30], [38, 38, 38], [42,
42, 42], [52, 52, 52], [58, 58, 58], [61, 61, 61], [69, 69, 69], [72,
72, 72], [79, 79, 79], [83, 83, 83], [96, 96, 96], [100, 100, 100]]
[[1, 1, 3, 3], [3, 8, 8, 8], [13, 13, 13, 13], [14, 14, 14, 14], [22,
22, 22, 22], [28, 28, 28, 28], [36, 36, 36, 36], [41, 41, 41, 41],
[52, 52, 52, 52], [60, 60, 60, 60], [69, 69, 69, 69], [72, 72, 72,
72], [80, 80, 80, 80], [91, 91, 91, 91], [100, 100, 100, 100]]
[[1, 1, 3, 3, 3], [11, 11, 11, 11, 11], [13, 13, 13, 13, 13], [22, 22,
22, 22, 22], [28, 28, 28, 28, 28], [38, 38, 38, 38, 38], [50, 50, 50,
50, 50], [60, 60, 60, 60, 60], [69, 69, 69, 69, 69], [79, 79, 79, 79,
79], [84, 84, 84, 84, 84], [100, 100, 100, 100, 100]]
```

```
dataset
```

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[1,
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74,
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79,
80,
81,
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84,
91,
96,
98,
99,
100]
```