

# Leafs

*Kaisa Roggeveen, Scott Graham*

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## Introduction

## Data

## Measurement Process

## Data Creation

Type	Length	Width
Cherry	11.5	5.9
Cherry	16.7	9.1
Cherry	10.4	4.9
Cherry	18.1	8.4
Cherry	19.3	6.5
Cherry	12.2	8.0
Cherry	10.3	5.3
Cherry	9.9	4.3
Cherry	9.6	6.8
Cherry	19.2	10.4
Cherry	12.8	6.2
Cherry	12.1	8.3
Cherry	12.5	6.2
Cherry	8.3	4.3
Cherry	6.9	4.5
Cherry	9.2	5.5
Pear	5.3	3.1
Pear	6.9	6.2
Pear	9.2	8.9
Pear	8.5	7.5
Pear	8.2	4.1
Pear	5.7	4.0
Pear	5.8	5.1
Pear	16.8	9.9
Pear	6.1	5.9
Pear	8.9	4.1
Pear	6.4	4.4
Pear	18.8	15.2

Type	Length	Width
Cherry:16	Min. : 5.300	Min. : 3.100
Pear :12	1st Qu.: 7.875	1st Qu.: 4.475
NA	Median : 9.750	Median : 6.050

Type	Length	Width
NA	Mean :10.914	Mean : 6.536
NA	3rd Qu.:12.575	3rd Qu.: 8.075
NA	Max. :19.300	Max. :15.200

## Classification Procedure

Training Data

New Data

Observation Space

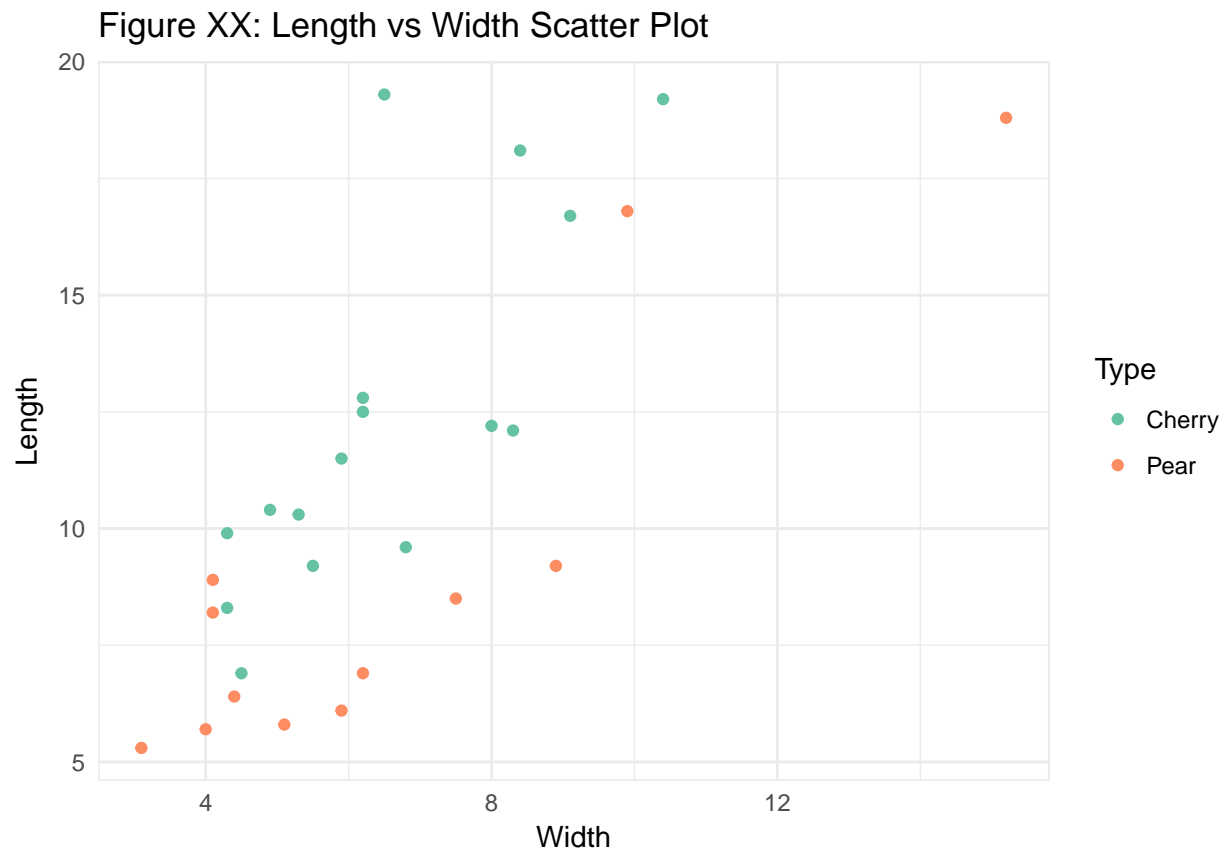


Figure XX: Length vs Width Scatter Plot

Overlaid with the Contour Plot



Figure XX: Length vs Width Scatter Plot

Overlaid with a Contour Plot of that Type

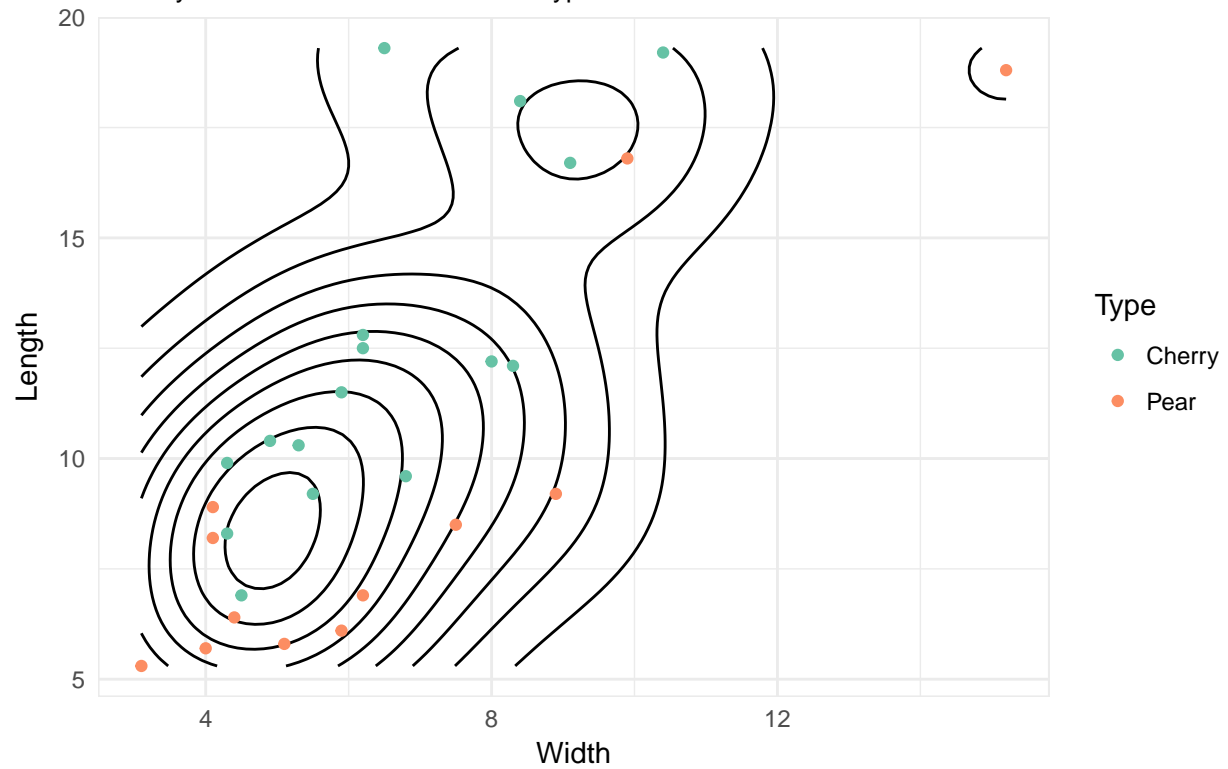


Figure XX: Length vs Width Scatter Plot

Overlaid with the Convex Hull of that Type

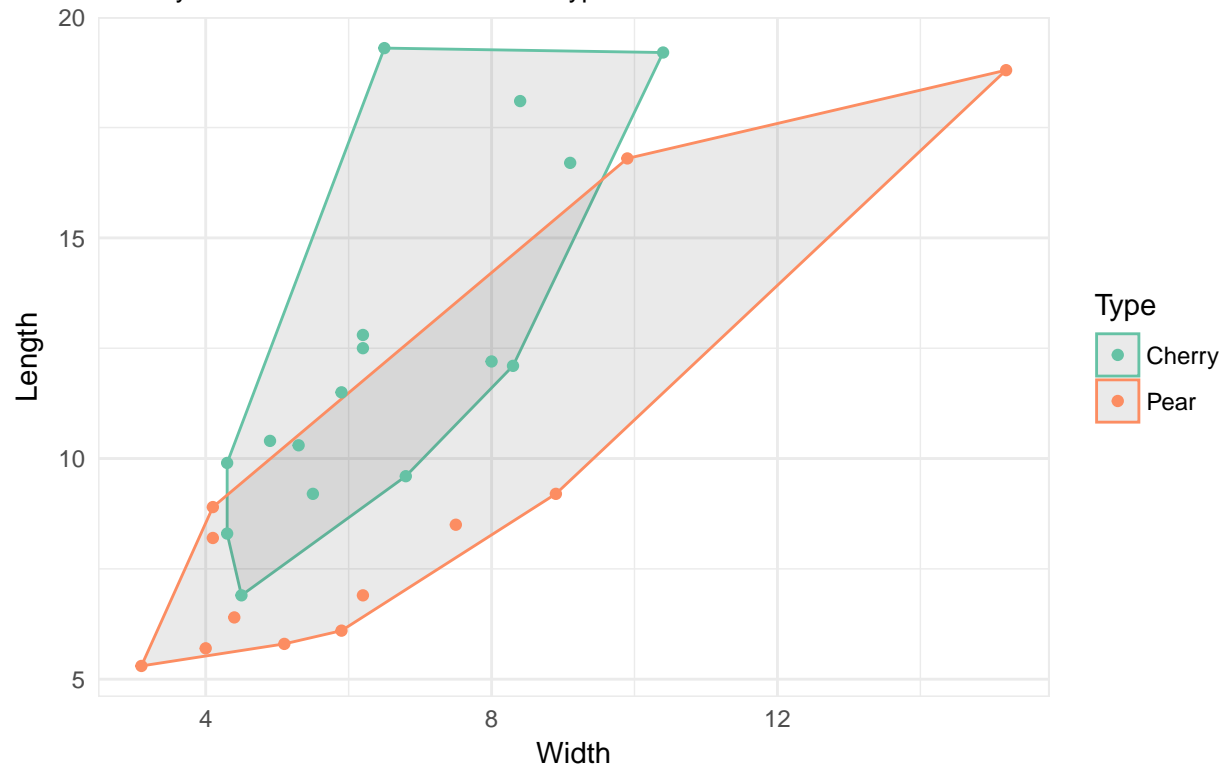


Figure XX: Density Plot

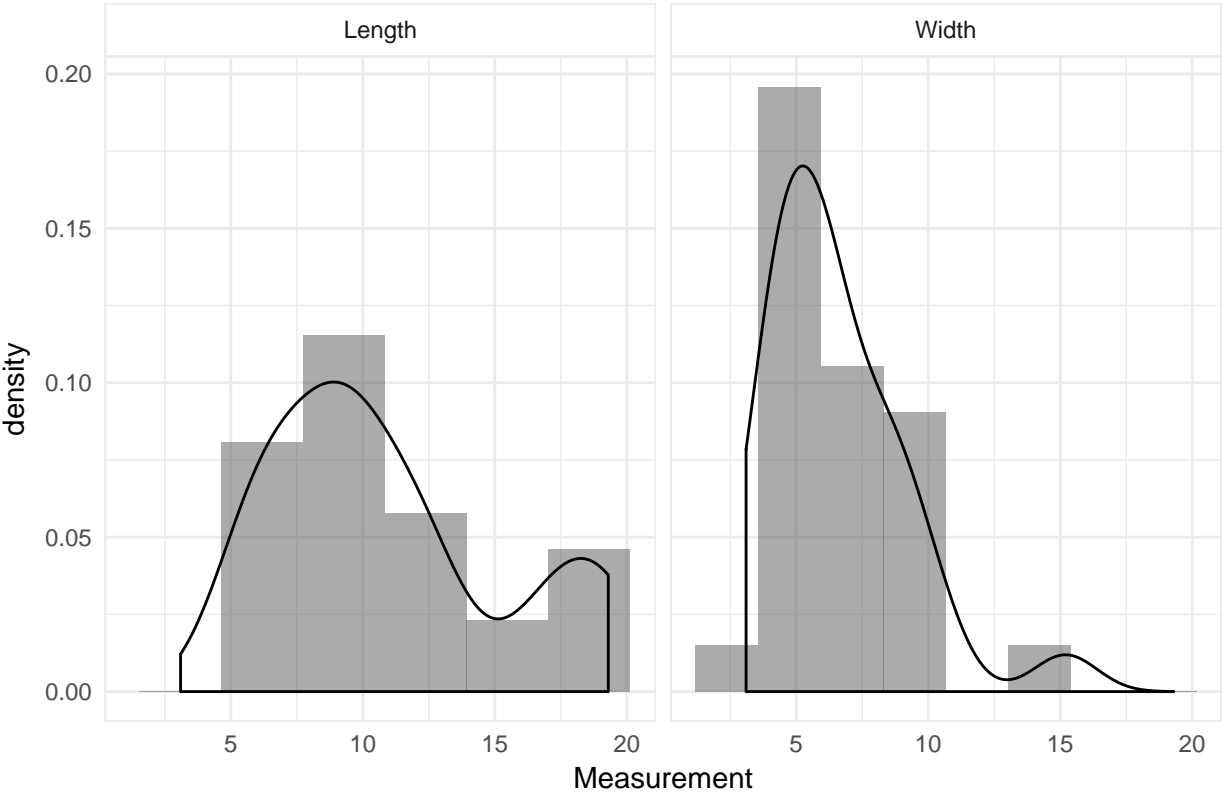
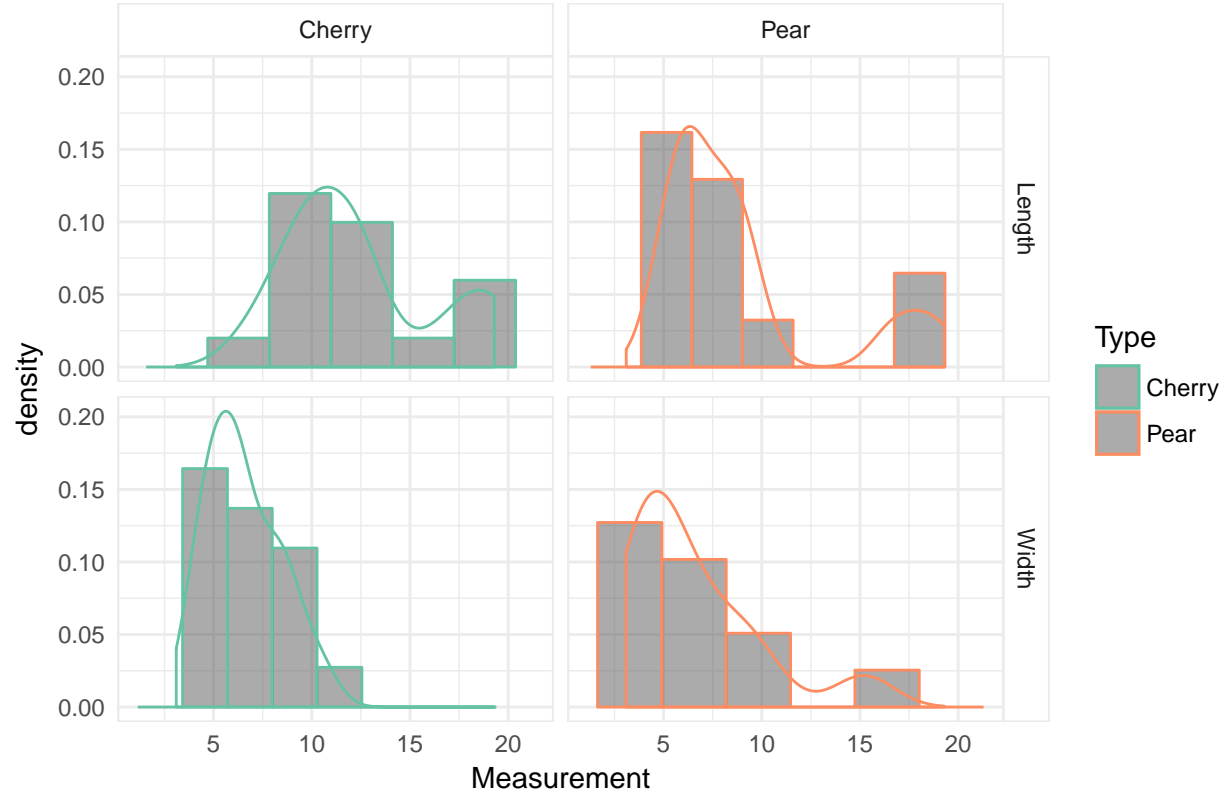


Figure XX: Density Plot by Type



## Covariance Matrix

Table 3: Shared Covariance Matrix

	Length	Width
Length	19.422011	8.476508
Width	8.476508	6.685344

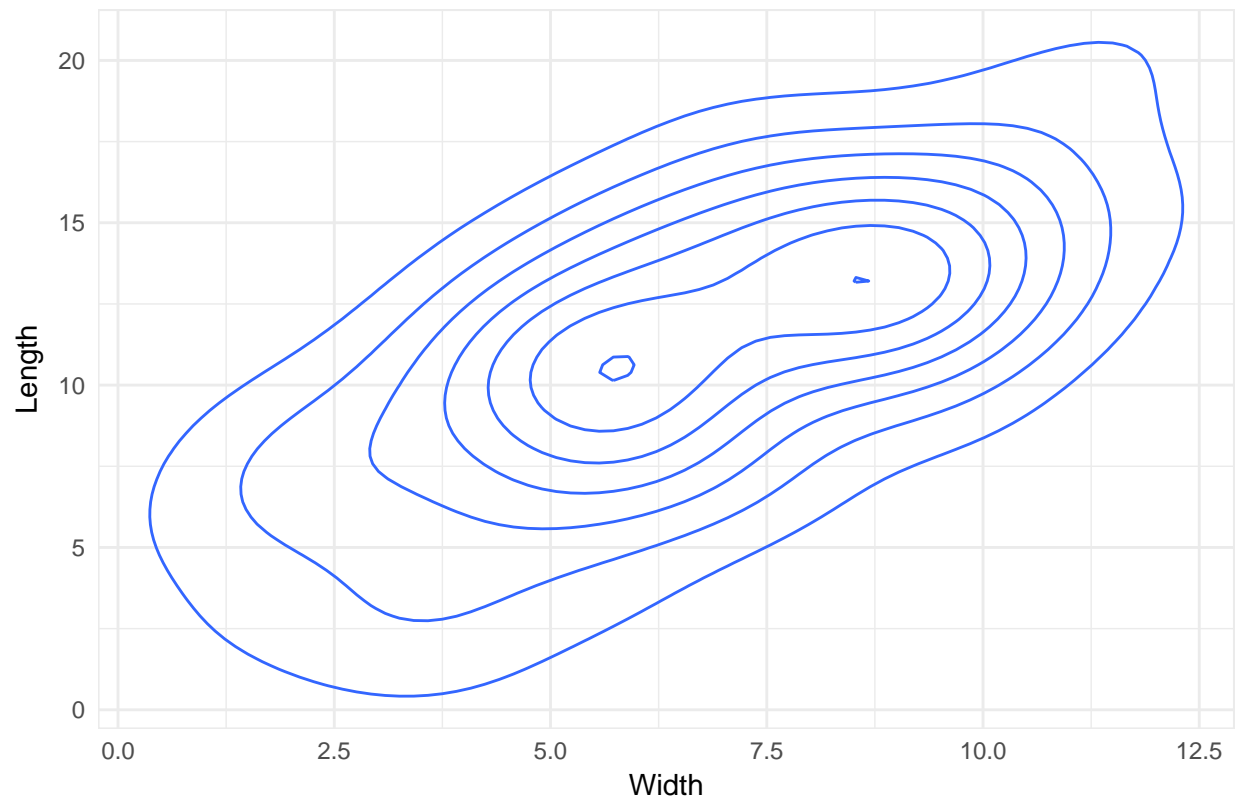
Table 4: Cherry Covariance Matrix

	Length	Width
Length	15.047833	5.443833
Width	5.443833	3.357167

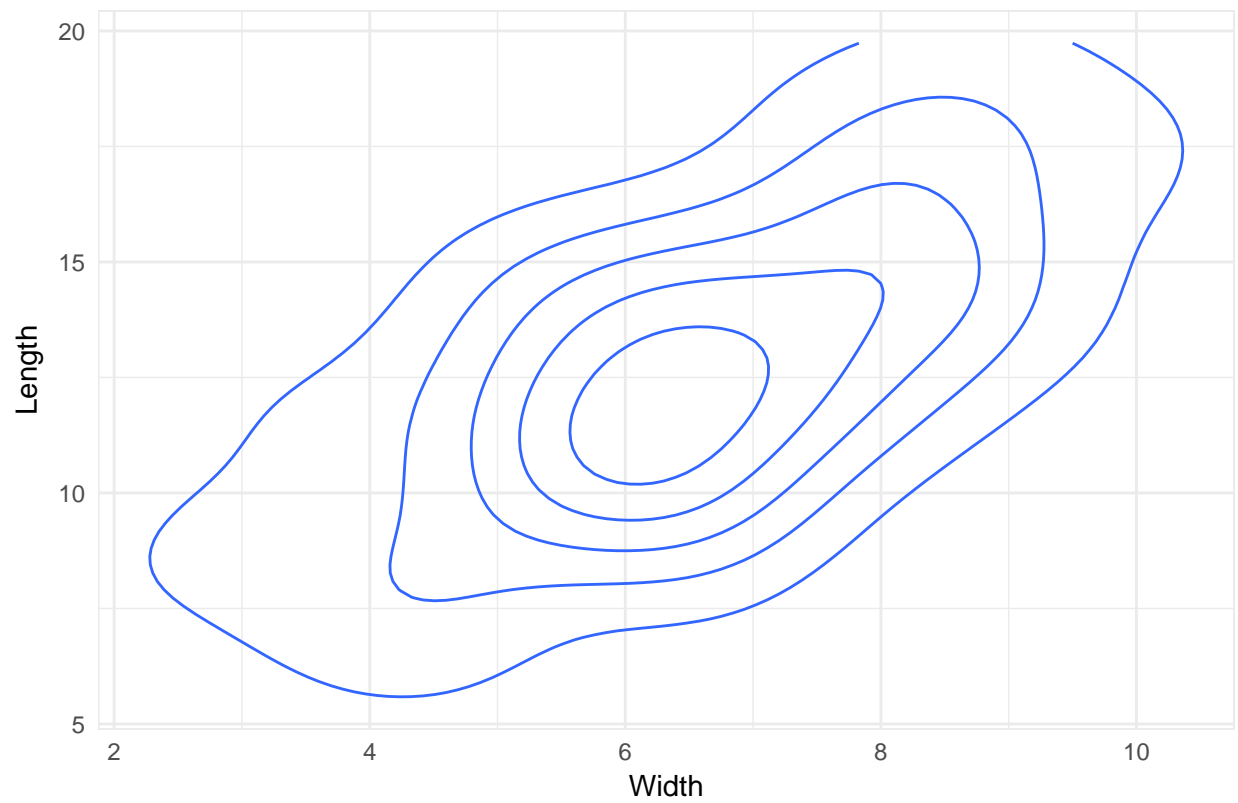
Table 5: Pear Covariance Matrix

	Length	Width
Length	19.27788	13.37333
Width	13.37333	11.83152

Simulated Data (All)

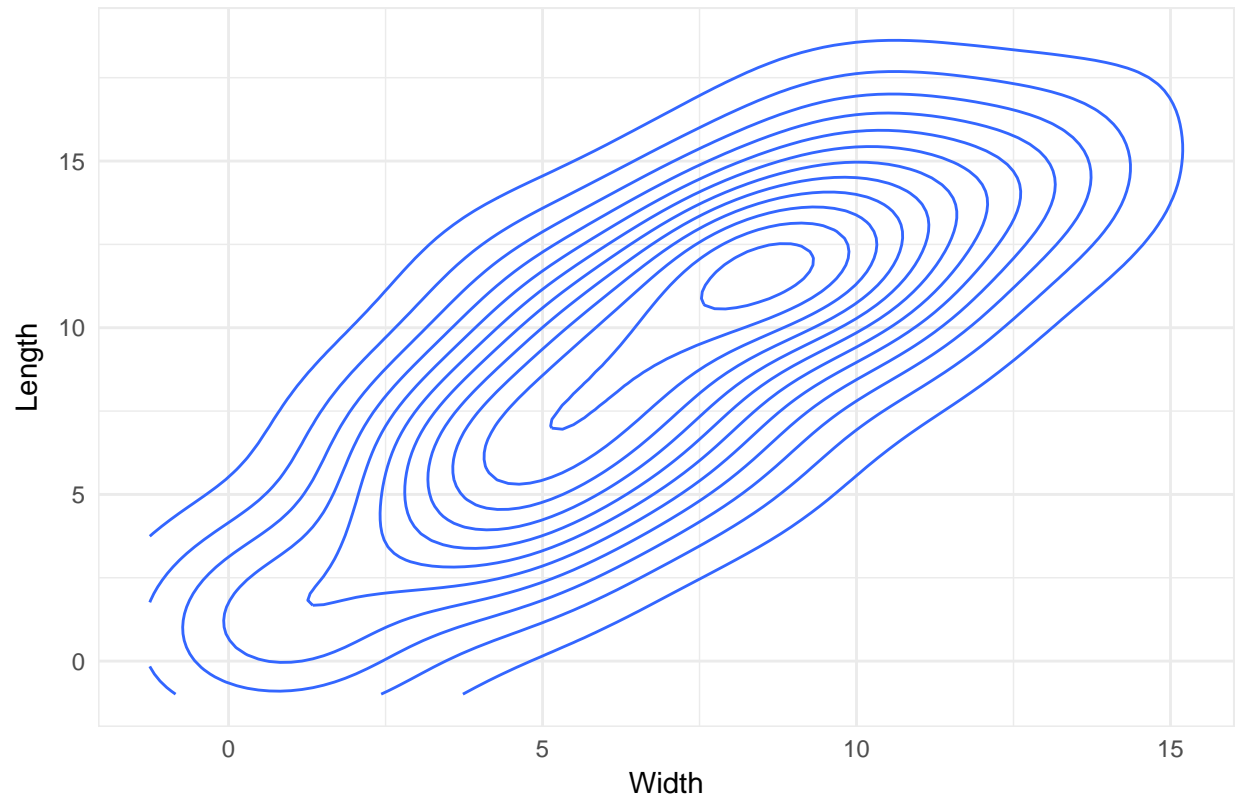


Simulated Data (Cherry)





Simulated Data (Pear)



Number	Length	Width
1	8.2	3.2
2	5.2	3.8
3	7.6	4.0

Length	Width	Density
6.9000	4.3	0.0124
7.6592	4.3	0.0163
8.1653	4.3	0.0186

Length	Width	Density
5.3000	3.1000	0.0179
7.5041	3.1000	0.0168
8.3306	3.1000	0.0135
5.3000	3.8408	0.0216
7.5041	3.8408	0.0213
8.3306	3.8408	0.0169
5.3000	4.0878	0.0223
7.5041	4.0878	0.0224
8.3306	4.0878	0.0177

## Conclusion