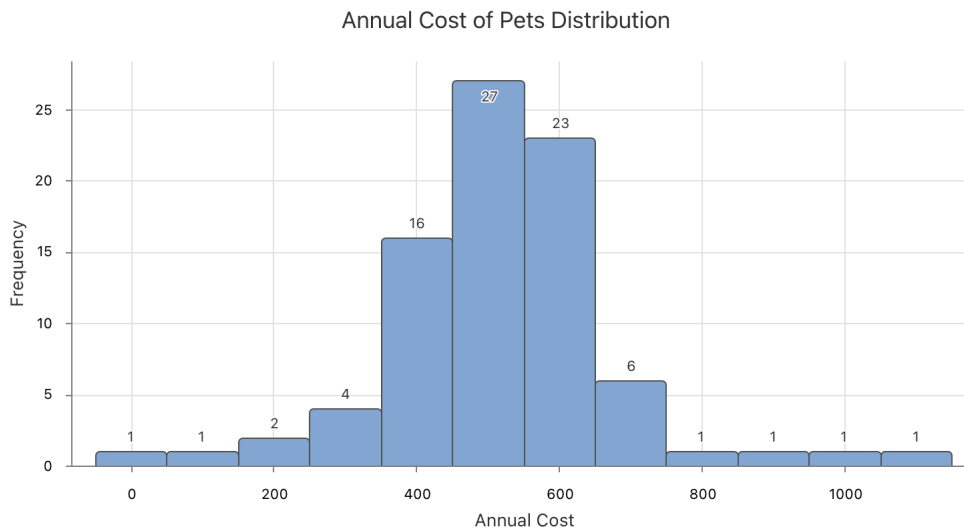


Project Report 2

1) a)



b)

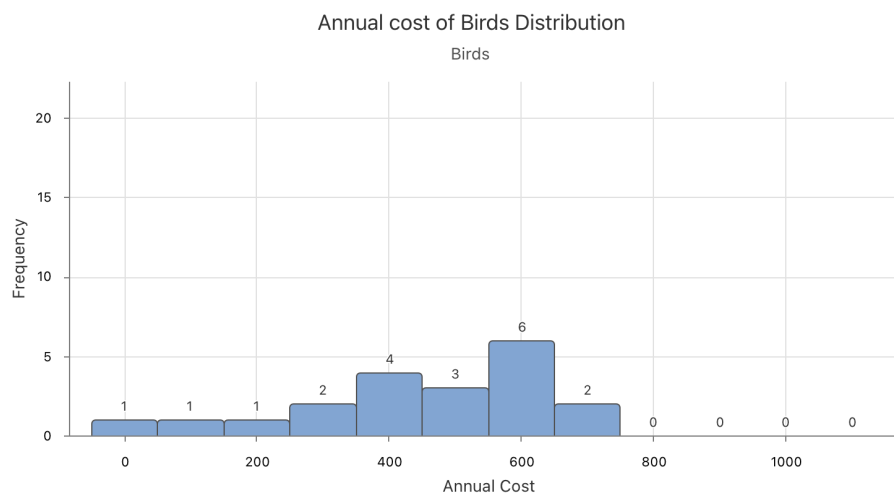
Statistics

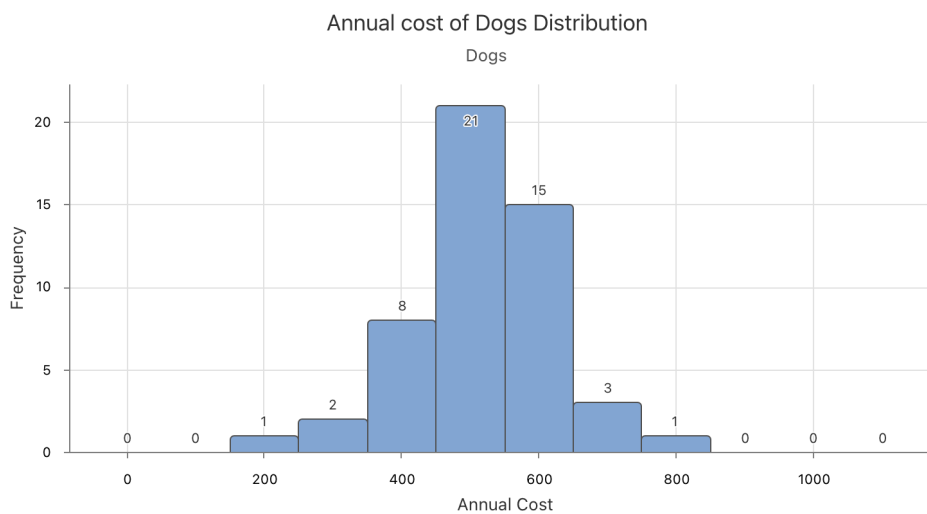
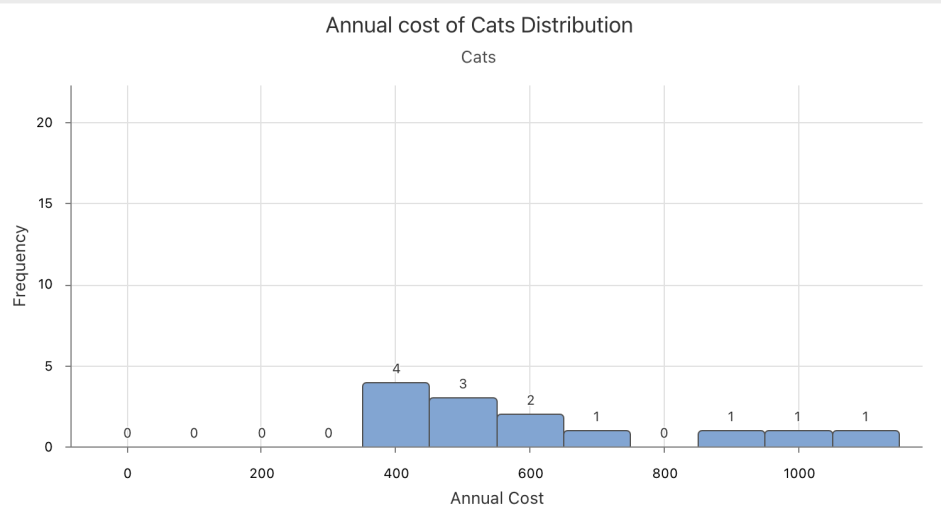
Variable	N	N*	Mean	SE Mean	StDev	Minimum	Q1	Median	Q3	Maximum
Annual_cost	84	0	513.083	17.4546	159.974	20	432.25	506.5	601.75	1051

c) 95% CI for μ : 478.4 547.8

d) The annual cost of pets is somewhat concentrated around the mean of 513.08, with a wide range of values from 20 to 1051. The 95% confidence interval for the population mean cost is between 478.4 and 547.8, meaning we can be pretty confident the actual mean falls within this range

2) a)





b)

Statistics

Variable	Pet_type	N	N*	Mean	SE Mean	StDev	Minimum	Q1	Median	Q3	Maximum
Annual_cost	Bird	20	0	455.25	44.0872	197.164	20	314	460	610	745
	Cat	13	0	606.462	63.0801	227.438	356	428	538	779	1051
	Dog	51	0	511.961	15.1393	108.116	205	455	510	586	830

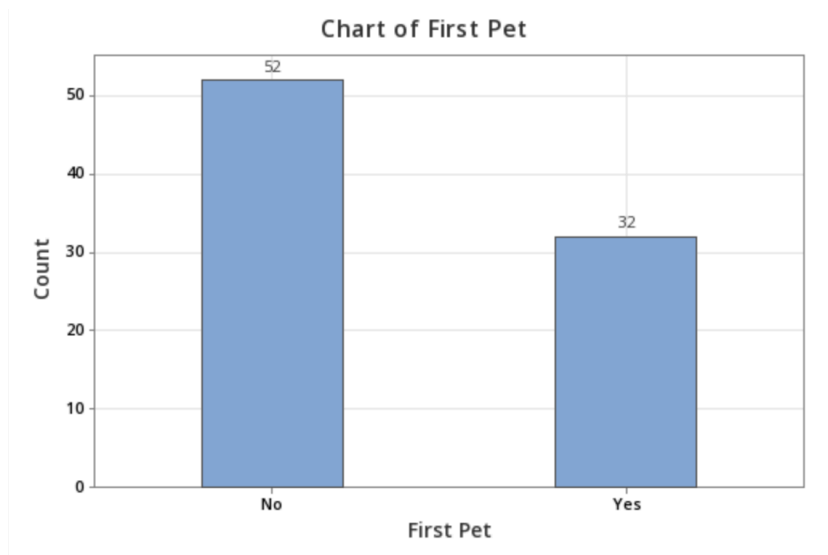
c) 95% CI for Birds μ : 363.0 547.5

95% CI for Cats μ : 469.0 743.9

95% CI for Dogs μ : 481.6 542.4

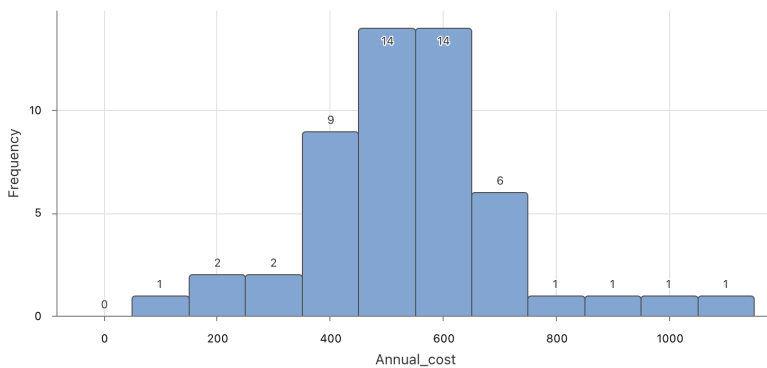
d) Cats appear to be the most expensive pets, with a mean annual cost of 606.46 and a wider variability, shown by a standard deviation of 227.44 and a 95% confidence interval of 469.0 to 743.9. In contrast, dogs have a more consistent cost, with a mean of 511.96, a narrower 95% confidence interval of 481.6 to 542.4, and a standard deviation of 108.12. Birds, on the other hand, have the lowest average cost, with a mean of 455.25, a 95% confidence interval of 363.0 to 547.5, and a standard deviation of 197.16.

3) a)



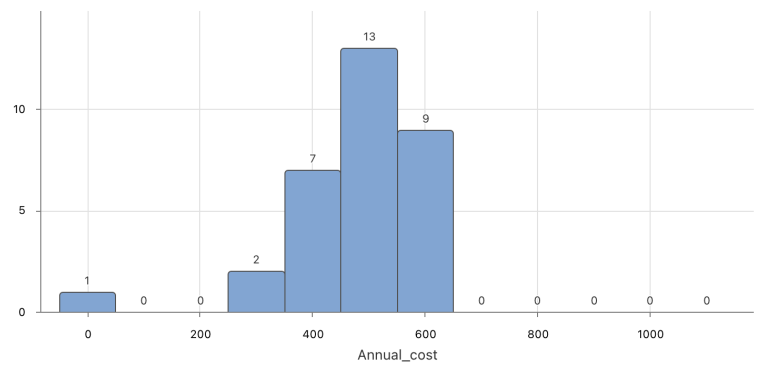
Annual Cost Distribution of Seasoned Pet Owners

First Pet = No



Annual Cost Distribution of First Time Pet Owners

First Pet = Yes



b)

Statistics

Variable	First_pet	N	N*	Mean	SE Mean	StDev	Minimum	Q1	Median	Q3	Maximum
Annual_cost	No	52	0	538.769	24.1784	174.353	114	441	531	629.5	1051
	Yes	32	0	471.344	22.0818	124.913	20	426	472.5	580	626

c) First pet = No

Descriptive Statistics

N	Mean	StDev	SE Mean	95% CI for μ
52	538.8	174.4	24.2	(490.2, 587.3)

μ : population mean of Annual_cost

First pet = Yes

Descriptive Statistics

N	Mean	StDev	SE Mean	95% CI for μ
32	471.3	124.9	22.1	(426.3, 516.4)

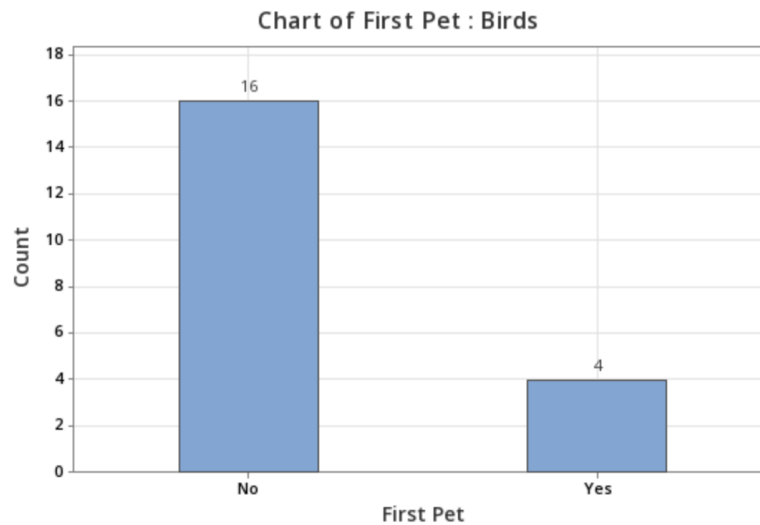
μ : population mean of Annual_cost

Estimation for Difference

Difference	95% CI for Difference
67.4	(2.2, 132.6)

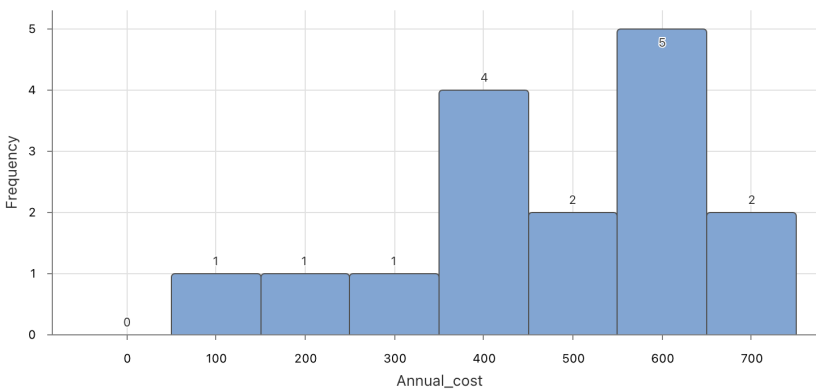
d) 32 out of 84 of pet owners are first-time pet owners. The average annual cost for first-time pet owners is 471.3, which is lower than the average annual cost for seasoned (had more than one pet) pet owners, which is 538.8. Additionally, there is a notable difference of 67.4 in the mean annual costs between the two groups, with a 95% confidence interval for the difference ranging from 2.2 to 132.6, suggesting that seasoned pet owners tend to spend more on average than first-time pet owners.

4) a)



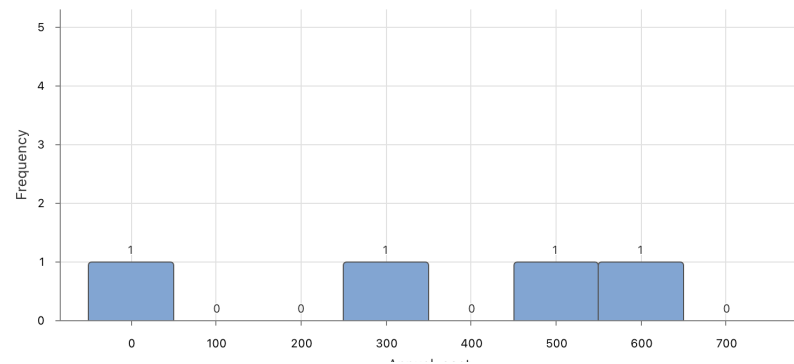
Annual Cost Distribution of Seasoned Bird Owners

First Pet = No



Annual Cost Distribution of First Time Bird Owners

First Pet = Yes



b)

Statistics

Variable	First_pet	N	N*	Mean	SE Mean	StDev	Minimum	Q1	Median	Q3	Maximum
Annual_cost	No	16	0	483.5	44.6738	178.695	114	391.75	470.5	621.25	745
	Yes	4	0	342.25	127.728	255.457	20	83.75	368	575	613

c) It would not be appropriate to calculate the interval for this data set of bird owners because the sample size is only 20. Having such a sample size will lead to inaccurate data especially since it is not distributed evenly.

d) For bird owners, the majority, 80%, are seasoned pet owners, with only 4 out of 20 being first-time bird owners. The average annual cost for seasoned bird owners is 483.5, while for first-time bird owners, it is a lot lower at 342.25. However, the small sample size of first-time bird owners is only 4 and the large standard deviation of 255.46 make it inappropriate to draw strong conclusions or calculate a reliable confidence interval.