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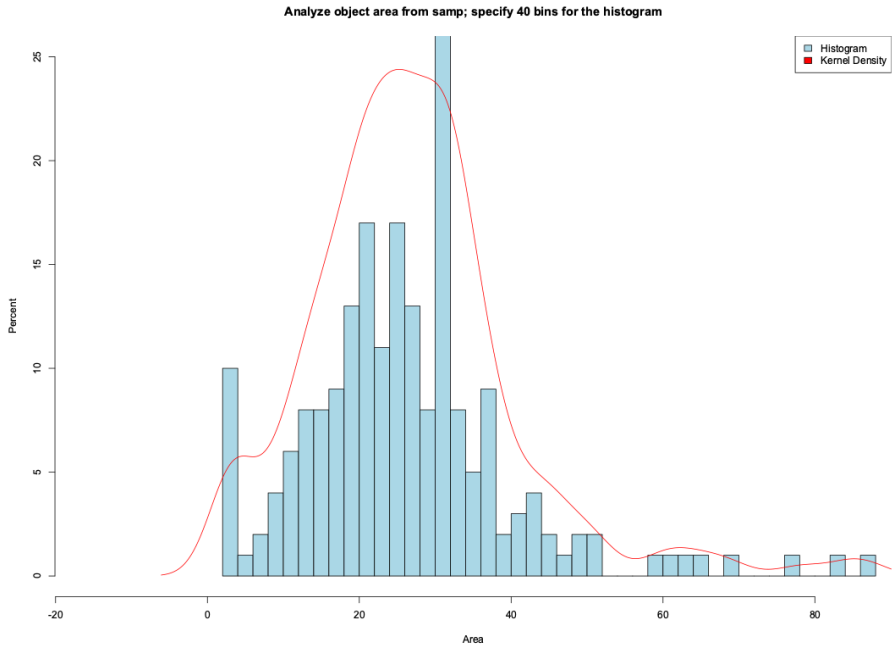
5 February 2023

STAT 522 HW3

A. Select an SRS of size 200 from the population in file shapespop.sas7bdat or shapespop.csv.
    a. What is the sampling weight for each sampled object?
    100
    b. Save your sample for possible exercises in later chapters

B. Obtain a histogram of the areas for the objects in the sample.



C. Using the sample, estimate the average area for objects in the bin. Give a 95% CI. What is the estimate of the total area covered by all objects in the bin?

    a. Interpret your sample mean estimate and the confidence interval for the mean

i. The sample mean estimate is **29.485**
ii. CI for the mean estimate is **[27.44918, 31.52082]**
iii. **95% CI did not cross 0, meaning the sample mean is not 0.**

b. Interpret your sample total estimate and the confidence interval for the total
i. The sample total estimate is **589700**
ii. The CI for the total estimate is **[548983.7, 630416.3]**
iii. **95% CI did not cross 0, meaning the sample total estimate is not 0.**

D. Using the sample, estimate the total number of gray objects in the population, along with the 95% CI.
a. Does the CI contain the population quantity?
i. The estimate is **7400**
ii. The CI for the estimate is **[6056.958, 8743.042]**
iii. **Yes, the CI includes the population quantity, 7000.**

E. Using the sample, estimate the total number of circles in the population, along with the 95% CI.
a. Does the CI contain the population quantity?
i. The estimate is **4200**
ii. The CI for the estimate is **[3066.97, 5333.03]**
iii. **Yes, the CI includes the population quantity, 5000.**