Are You Above Average Team 2

Predictions

Name	Predicted Screen Time (minutes)	Actual Screen Time (minutes)
Jacqui	240	253
Kira	210	197
Shannon	180	255

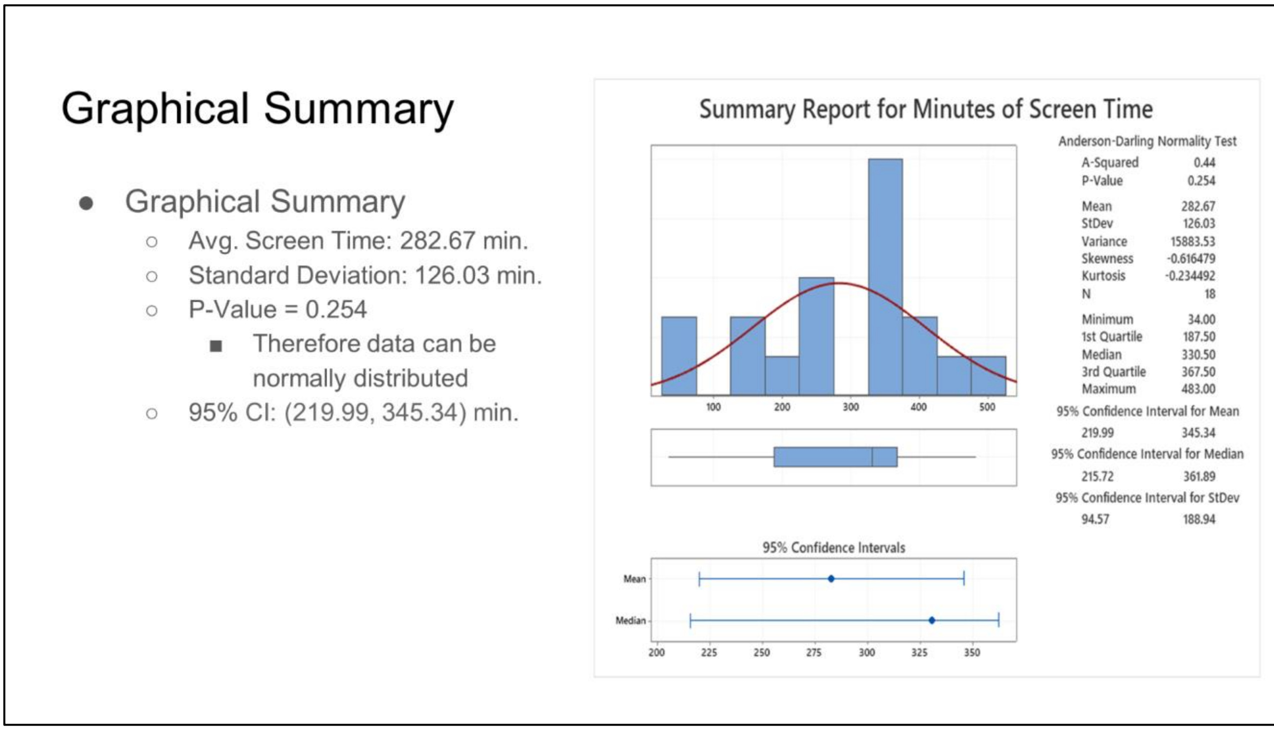
- Predicted Sample Size: 60 Students
- Actual Sample Size: 18 Students

-We predicted our screen time by guessing how much time we think we spend on our phone. We found our actual screen time using the built in screen time function in smartphones.
-Our predicted sample size was produced from us thinking about how large the college of engineering is and then guessing what a reasonable sampling of that group would be. We overestimated, as the actual sample size was about 3 or 4 times smaller than our predicted sample size.
-We found our actual sample size using the Sample Size for Hypothesis Test Comparing One Population Mean to a Given Value Table.

Sampling and Data Collection

- Cluster Sampling
  - Chose our class and last semester’s class as clusters
  - Within clusters used 1 in k sampling
- Collected Data (minutes):
  - 34, 165, 359, 341, 400, 336, 375, 253, 348, 159, 325, 195, 483, 41, 235, 246, 365, 428

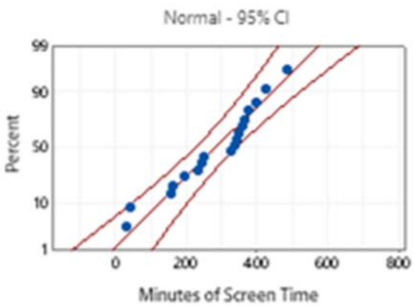
-We decided to go with cluster sampling Cluster Sampling to pick from our class and last semester’s class, then within the classes 1 in k sampling to pick students.
- We chose these forms of sampling, because due to the current situation it would be very difficult to collect data from simple random sampling, stratified sampling, and 1 in k sampling. We also feel that the two clusters we chose (our class, and last semester's class) represent our college well.
- Within the classes we chose 1 in k sampling, because we wanted to have a more systematic version of random sampling. For the 1 in k sampling within our class we chose every 3 students and within last semester's class we chose every 5 students.
- From these sampling techniques we collected our data.



-We plugged the data we collected into minitab and created a graphical summary.
- From the graphical summary we were able to find the average screen time, standard deviation, P-Value, and Confidence intervals of the data.
- We found that the average screen time was 282.67 minutes and the standard deviation was 126.03 minutes.
- We found the P-Value to be 0.254, since this P-Value is greater than 0.05, the data can be normally distributed.
- We found the 95% Confidence interval to be (215.72, 361.89) minutes.

Probability Model

- We chose a normal distribution
  - Normal and Box-Cox Transformation had the highest P-Values
  - Normal is easier to explain than Box-Cox
  - Shape: 126.02988 Location: 282.66667



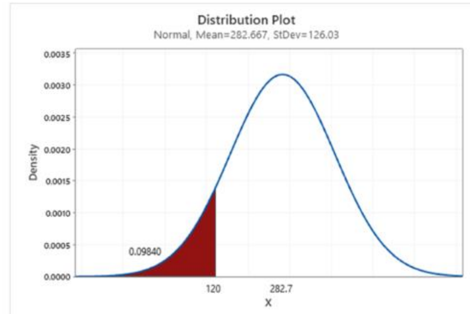
Goodness of Fit Test

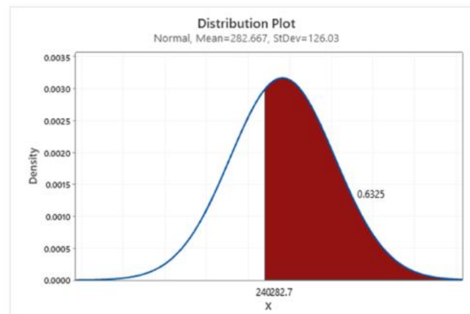
Distribution	AD	P	LRT P
Normal	0.443	0.254	
Box-Cox Transformation	0.443	0.254	
Lognormal	1.690	<0.005	
3-Parameter Lognormal	0.465	*	0.001
Exponential	2.556	<0.003	
2-Parameter Exponential	2.302	<0.010	0.110
Weibull	0.834	0.026	
3-Parameter Weibull	0.248	>0.500	0.060
Smallest Extreme Value	0.247	>0.250	
Largest Extreme Value	0.834	0.026	
Gamma	1.195	<0.005	
3-Parameter Gamma	2.360	*	0.092
Logistic	0.426	0.243	
Loglogistic	1.171	<0.005	
3-Parameter Loglogistic	0.430	*	0.004

-We chose a normal distribution as our probability model.
-We ran a Distribution Identification in Minitab and found that the distribution with the highest P-Value were the Normal Distribution and the Box-Cox Transformation tied at a P-Value of 0.254.
- We chose the Normal Distribution over the Box-Cox Transformation, because a normal distribution is easier to explain.
- We then found the shape and location of the normal distribution to be 126.03 and 282.67 respectively.

Distribution plot

- From Observed Data:
  - Less than 120 min. - 11.11%
  - More than 4 hours - 55.56%
- From Probability Model:
  - Less than 120 min. - 9.84%
  - More than 4 hours - 63.23%





- From the shape and location found we created a Normal Distribution plot
- From the plot we were able to find the percent below 120 minutes and the percent above 4 hours
- With the observed data we collected, we counted how many were below 120 minutes and divided that by our sample size to find the percent below 120 minutes
- We did the same thing with the data above 4 hours