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# This is the handout for the workshop

# Introduction to Data Analysis & Visualization with R.

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1. install.packages("ggplot2")
2. library(ggplot2)
3. data(diamonds)
4. head(diamonds)
5. View(diamonds)
6. summary(diamonds)
7. help(diamonds)
8. p <- ggplot(diamonds, aes(x=clarity, fill=cut))
9. p + geom\_bar() + labs(title="Counts of diamond clarities filled by cut count")
10. p <- ggplot(diamonds, aes(color))
11. p + geom\_bar()
12. reorder\_size <- function(x) {
13. factor(x, levels = names(sort(table(x))))
14. }
15. ggplot(diamonds, aes(reorder\_size(color))) + geom\_bar() + labs(title="Diamonds color count filled by cut count")
16. ggplot(diamonds, aes(x=carat, y=price)) + geom\_point()
17. ggplot(diamonds, aes(x=carat, y=price, color=clarity)) + geom\_point()
18. ggplot(diamonds, aes(x=carat, y=price, color=color)) + geom\_point()
19. ggplot(diamonds, aes(x=carat, y=price, color=cut)) + geom\_point()
20. ggplot(diamonds, aes(x=carat, y=price, color=clarity, size=cut)) + geom\_point()
21. ggplot(diamonds, aes(x=carat, y=price, color=clarity, shape=cut)) + geom\_point()
22. ggplot(diamonds, aes(x=carat, y=price)) + geom\_point() + geom\_smooth()
23. ggplot(diamonds, aes(x=carat, y=price)) + geom\_point() + geom\_smooth(se=FALSE)
24. ggplot(diamonds, aes(x=carat, y=price)) + geom\_point() + geom\_smooth(se=FALSE, method="lm")
25. ggplot(diamonds, aes(x=carat, y=price, color=clarity)) + geom\_point() + geom\_smooth(se=FALSE)
26. ggplot(diamonds, aes(x=carat, y=price, color=clarity)) + geom\_smooth(se=FALSE) + labs(title="Smoothing trends of diamond carat prices by clarity of diamond")
27. data("mtcars")
28. head(mtcars)
29. View(mtcars)
30. summary(mtcars)
31. help(mtcars)
32. mtcars$mpg
33. t.test(mpg ~ am, data=mtcars)
34. tt = t.test(mpg ~ am, data=mtcars)
35. tt
36. tt$p.value
37. tt$conf.int
38. ggplot(mtcars, aes(x=wt, y=mpg)) + geom\_point()
39. mtcars$mpg
40. mtcars$wt
41. cor.test(mtcars$mpg, mtcars$wt)
42. ct = cor.test(mtcars$mpg, mtcars$wt)
43. ct
44. ct$p.value
45. ct$estimate
46. ct$conf.int
47. fit = lm(mpg ~ wt, mtcars)
48. summary(fit)
49. coef(summary(fit))
50. co = coef(summary(fit))
51. co[, 1]
52. co[, 4]
53. predict(fit)
54. summary(fit)
55. 37.2851 + (-5.3445) \* 4.5
56. newcar = data.frame(wt=4.5)
57. predict(fit, newcar)
58. ggplot(mtcars, aes(wt, mpg)) + geom\_point() + geom\_smooth(method="lm")