Assignment 1 R Training

1. produce a vector of numbers 1 upto 20

   - write a function to test if a number is even
   - subset all even numbers
   - subset all odd numbers

2. Fit a univariate linear model from iris data set using Petal.Length as Y and Sepal.Width as X

   - Access the model output using str

   - get fitted values from resulting object

   - get residuals from the resulting lm object
   - plot a histogram from resulting

3. See haemoglobin values below

   - haemoglobin <- c(9, "8.9", 9.4, 12.6, 12.6, 12.8, 14, 13.9, 14.4, 13.6,

   7.7, 7.7, 7.8, 11.5, 11.7, NA, 10.5, 10.5, 10.4, NA,

   12.5, 11.8, 10.4, 10.1, NA, NA, 10.8, 10.8, 10.7,

   10.8, 10.2, 11.6, 11.6, 8.7, 8.7, NA, NA, 12.1,

   11.8, 10.1, "10.1", 9.7, "10.6", 10.9, 8.4, 8.4,

   9.2, 9.5, "9.4")

   - Write a function that standardizes them using the formula below haemoglobin_adj = haemoglobin - 0.8
   - find mean, median of haemoglobin_adj & haemoglobin

4. See vector below

   - sex_num <- c(2, 2, 1, 1, 2, 1, 2, 1, 1, 1, 2, 2, 1, 1, 2, 1, 1, 2, 2, 2)
   - Convert this to a factor given 1=Male and 2 = Female
   - Find the proportions of Females

5. See the dates vectors below and convert them to date format

   dob <_ c("Jan/23/21", "Apr/23/21", "Apr/22/21", "Feb/04/21", "Apr/13/21",

   "Feb/05/21", "Feb/23/21", "Jan/20/21", "Mar/01/21", "Feb/01/21")

   adm_date <- c("16/11/2021", "30/10/2021", "23/10/2021", "20/10/2021", "08/12/2021", "02/01/2022", "21/10/2021", "13/12/2021", "03/12/2021", "27/11/2021")

- dob = date of birth and adm_date = enrollment date. Calculate enrollment age in months
- Find mean, median

6. Get the iris data set in R using the this function data("iris") and then use head(iris) to view the first five rows. Without using tidyverse or data.table compute the following

   - Subset the first 5 rows with all columns
   - Subset row number 10 to row number 20 with all columns
   - Select the first two columns
   - Select Sepal.Length & Species columns
   - Subset where Petal.Length is greater than 4
   - Subset where Petal.Length is greater than 4 and Species is versicolor
   - Subset where Petal.Length is greater than 4 or Species is versicolor

7. See the list below

   l2 <- list(country = c("Uganda", "Bangladesh", "Malawi"), collaborators = c("Chris", "Sayeem", "Chikondi"), sites = c("Kampala", "Dhaka", "Blantrye"))

   - Convert this to a data frame
   - Find the mean of the following vectors vec <- c(1:10, NA)

8. See the vector below

   vec8 <- c(10.6, 22.3, 5.4, 12.6, 7.6, 13.2, 2.8, 15.9, 9.2, 15.7, 7,

   9.1, 9.2, 8, 12.2, 2.6, 12.3, 11.9, 5.6, 11)

   - produce another vector which has two values based on the condition that values of vec10 are less or equal to 10 or greater or equal 10. The values should be "<=10", ">10"
   - Produce another vector based on these conditions values less than 5 as "<5" values between 5 and 10 as "5-10" and values > 10 as "10"

9. Using vec8 above

   - Add 0.01 to each element using for loop
   - Add 0.01 to each element using while loop
   - Add 0.01 to each element using vectorization R method
   - Add 0.01 to each element less than 10 and 0.1 to each element greater or equal to 10 using for loop
   - Add 0.01 to each element less than 10 and 0.1 to each element greater or equal to 10 using R way, vectorization

10. •