

UCS 548- Data Science Foundations

Assignment 7

1. Create a data matrix named MARKS having marks of three subjects SUB1, SUB2 and SUB3 for 20 students. Use *apply* function
 - a. To find total marks of each students.
 - b. Append the total to the given MARKS dataset.
 - c. To create a function called $\text{st.err}() = \text{sd}(x) / \sqrt{\text{length}(x)}$ to find the standard error in SUB1, SUB2, and SUB3.
 - d. Add 0.25 bonus marks to each mark in SUB1, SUB2 and SUB3.
2. Create three vectors V1, V2, and V3 from the SUB1, SUB2, and SUB3 above respectively. Use *lapply()* function to find the sum of all the marks in V1, V2, and V3.
3. Create a vector TOTAL_SUM that hold the value of V1, V2, and V3 using *sapply()*.
4. Compute the square of each value of marks in V1, V2, and V3 using *sapply()*.
5. Add an index field I=(1,1,1,1,1,2,2,2,2,2,3,3,3,3,3,4,4,4,4,4) to matrix MARKS. Use *tapply()* function to compute *mean()* and *sd()* of SUB1 based on index I.
6. Create a function $f(x,y)=x/y$ where x is V1 and y is V2. Use *mapply()* to compute this function.
7. Practice all apply functions on “Seatbelts” data set given in R.