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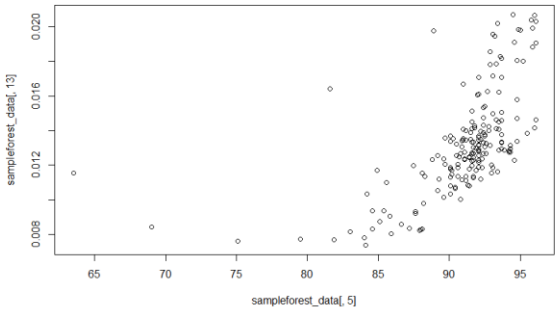
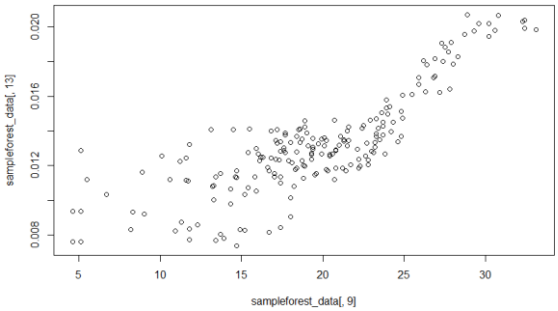
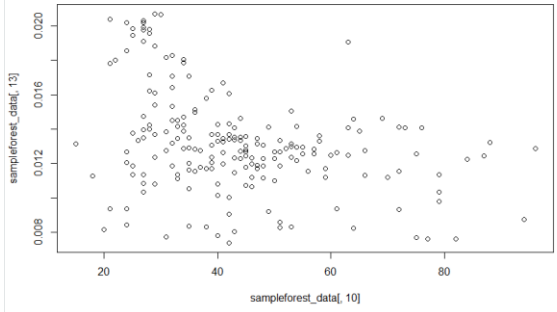
SIT718 – Real world Analytics

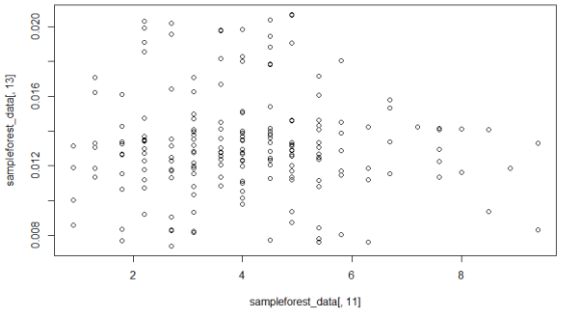
Trimester 3, 2018

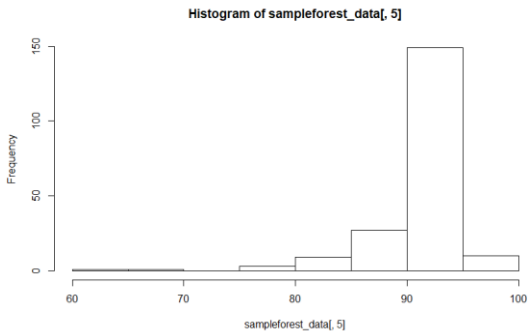
Assignment task 1

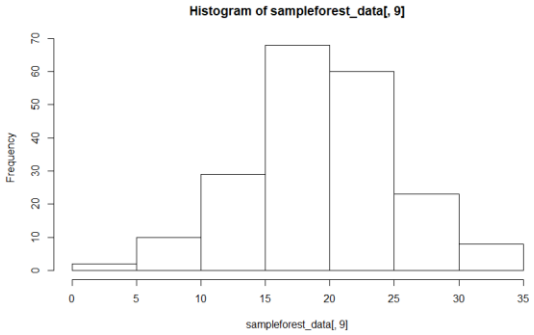


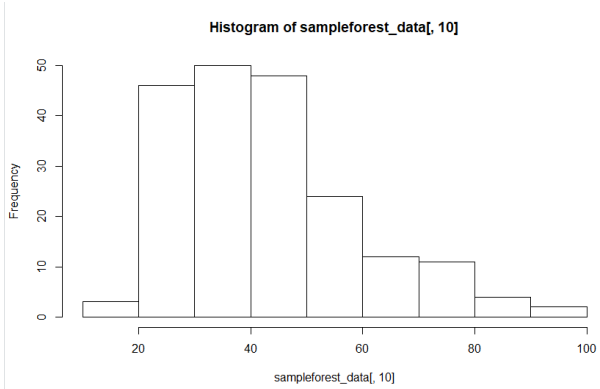


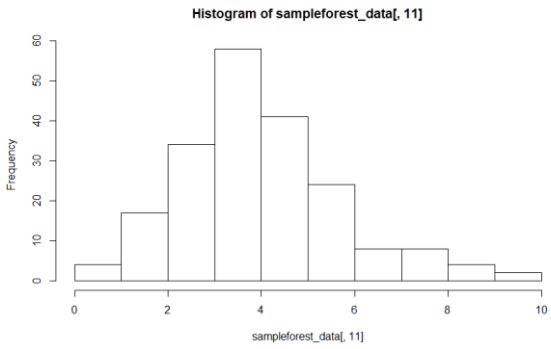


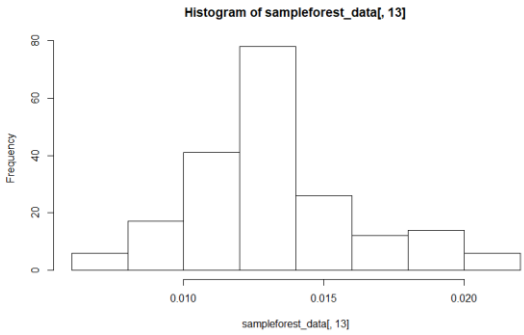












Assignment task 2:

Fine fuel moisture code plays a major role in determining the area that will be burned as the dry fuel burn more easily than the live trees, so it describes how dry the fine fuels are and how easily can the fuels catch fire.

Temperature also is significantly important in analyzing the moisture content present in the air. Higher temperature dries the area which can ignite fire easily.

Increase of humidity decreases the chance of fire. In this case the humidity being less the chances of catching fire was more. Hence that also played an important role in helping fire to spread more.

Wind speed and area burned are related in such a way, if there is more wind then there is a chance of fire to spread more in the direction of the wind flow as there was dry weather it was more easy spread of fire.

Assignment task 3:

Model	RMSE	Average Abs Error	Pearson Correlation	Spearman Correlation	Orness
OWA	0.0432711087135237	0.039902918059793	-0.011508193816009	0.0130418768534193	0
QAM	0.044168738348505	0.040502918059793	-0.056350553075 4014	-0.006919322582 87767	
Choquet Integral	0.0432711087135126	0.039902918059 7808	-0.011508193816 0199	-0.038096230991111	0.222222222222225

Weights:

Model	Weights
OWA	1. 1 2. 0 3. 0 4. 0
QAM	1. 0 2. 0

	3. 0 4. 1
Choquet Integral	1. 0 2. 0 3. 0 4. 0 5. 0 6. 0 7. 0 8. 0 9. 0 10. 1.00000000000001 11. 1.00000000000001 12. 0 13. 0 14. 1.00000000000001 15. 1.00000000000001

(iv) The Choquet Integral is considered a better model than all other models because it provides more weights and calculates. More factors are considered while fitting model using Choquet. Hence considering Choquet provides more accurate output.

Each variable is considerably significant because these variables play a vital role in calculating the accurate area burned, temperature is considered a major factor in catching fire, if the temperature is high then the humidity will have a very low value and the moisture content in the air is reduced which help in burning of the fire.

Assignment task 4:

(ii) The result obtained is 0.006876681 (in ha), the prediction is valid as the data provided in the assignment is having higher values, which signifies that the weather and temperature is not acting as a fuel for causing the fire.

(iii) The ideal conditions are having the lesser FFMI, higher temperature, lower humidity and moderate wind speed will cause the fire to catch more easily in and around the area with the mentioned conditions. Hence the above conditions are required to have a very high area (in ha) burned.