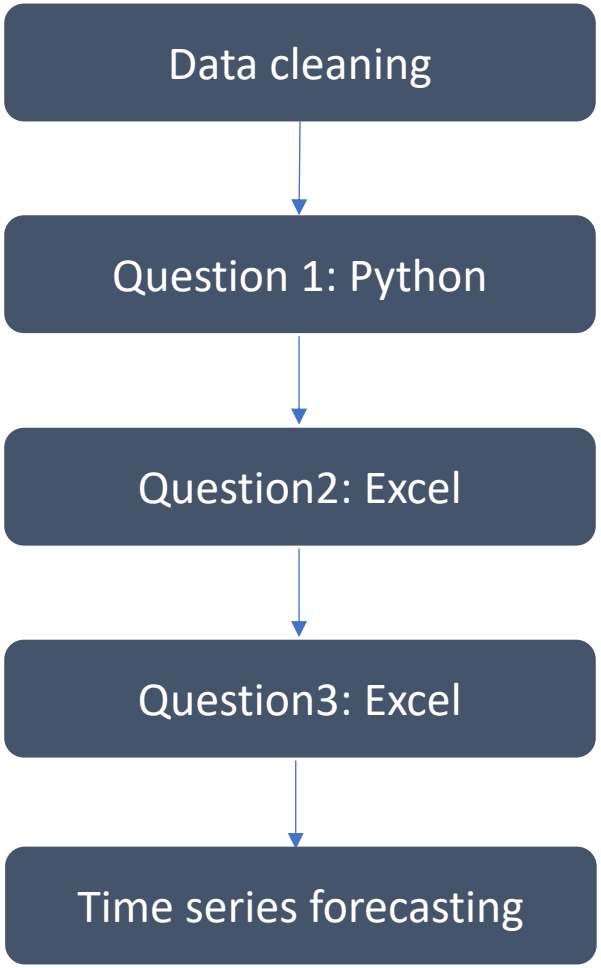
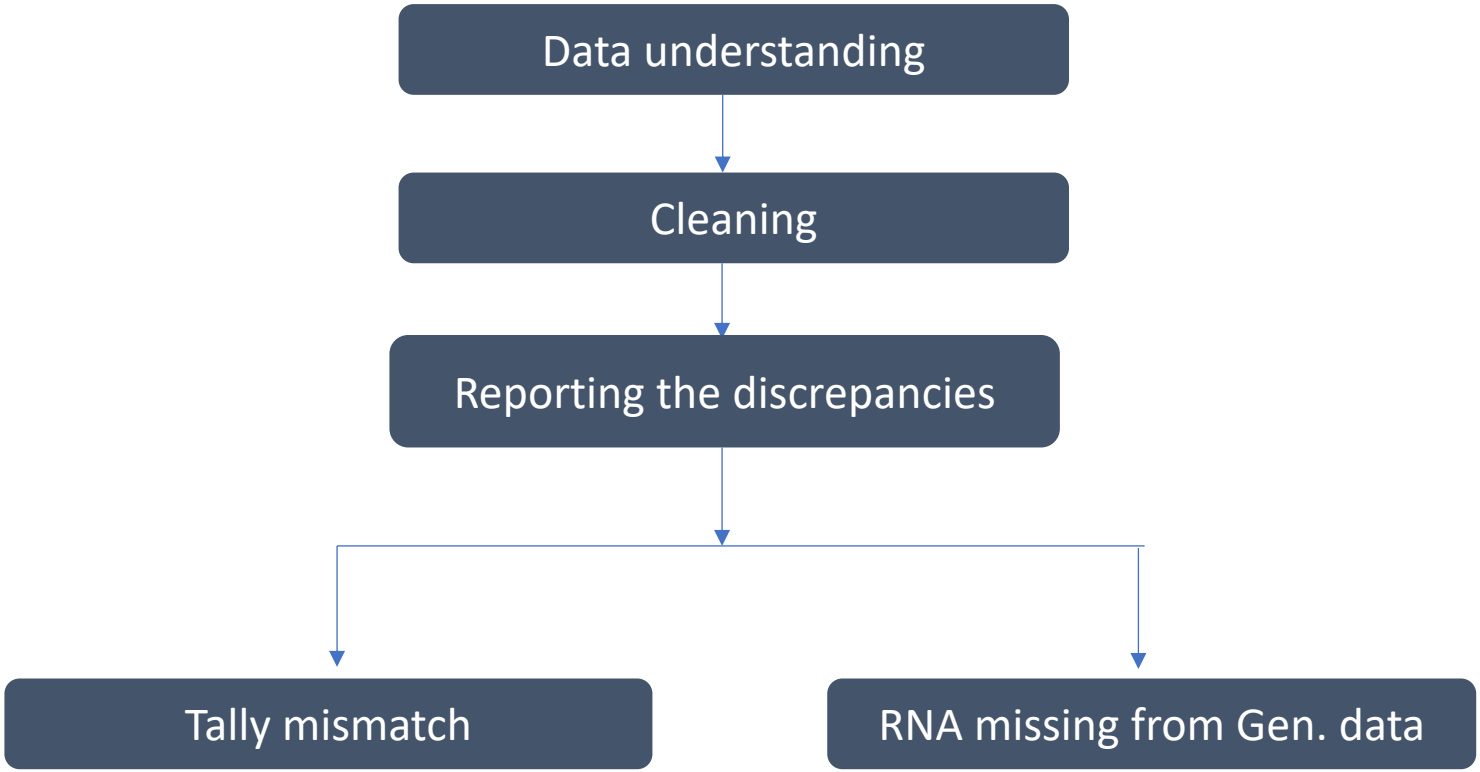
TURBINE FAILURE DATA ANALYSIS

METHODOLOGY



DATA CLEANING



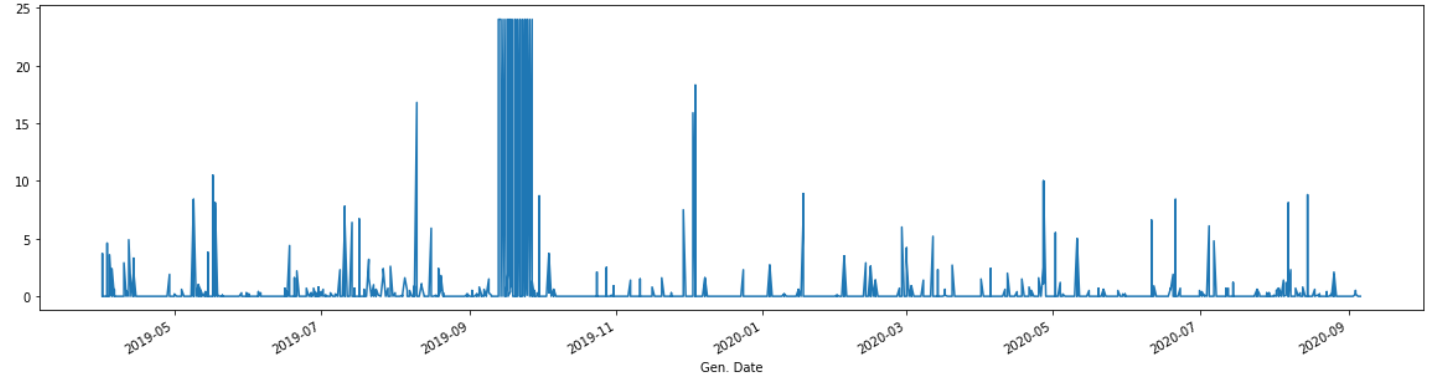
Question 1

Statement: Is there any particular season when particular type of failures happen the most?

Expected outcome: Finding the pattern of different failures based upon season(month)

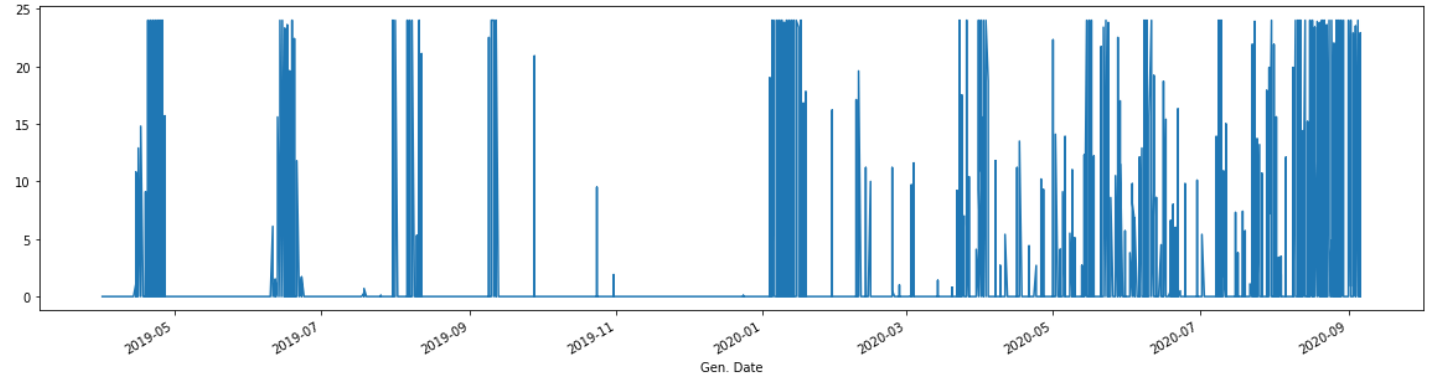
SOLUTION

1) GF



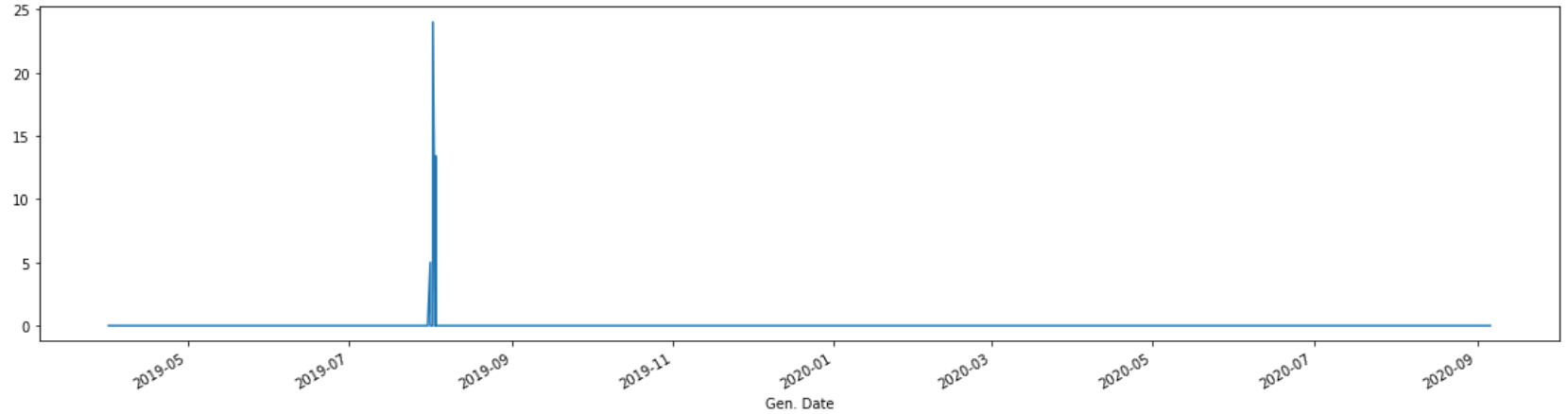
Dec 2019 is the season where Grid Failure has occur the most

2) FM



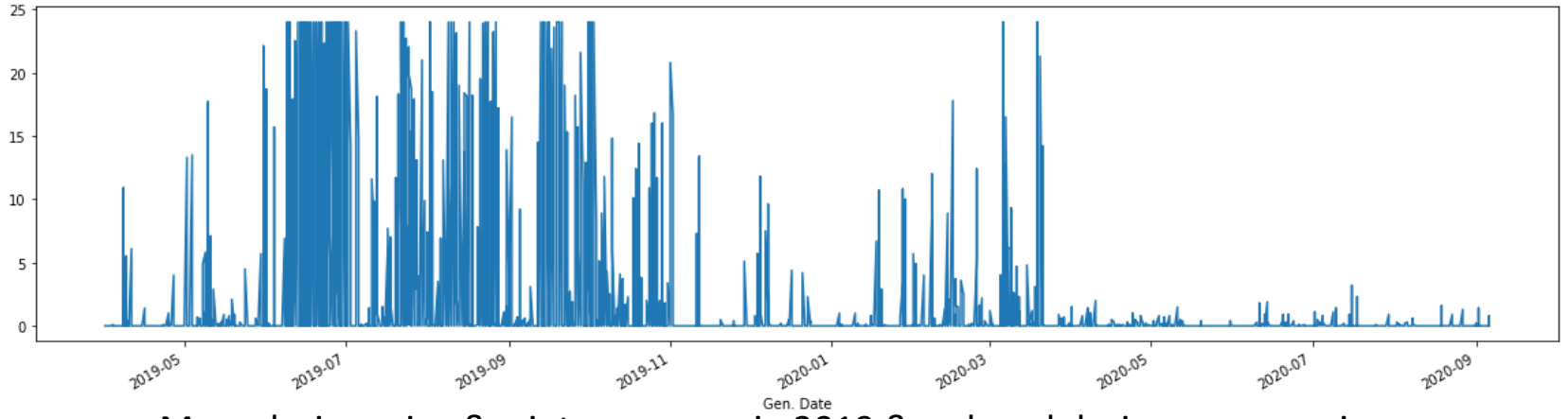
In 2019 it occurs periodically after 2 months & in 2020 it is seen to be more often

3) NOR



NOR type of failure occurred only Between July 2019 to September 2019

4) U



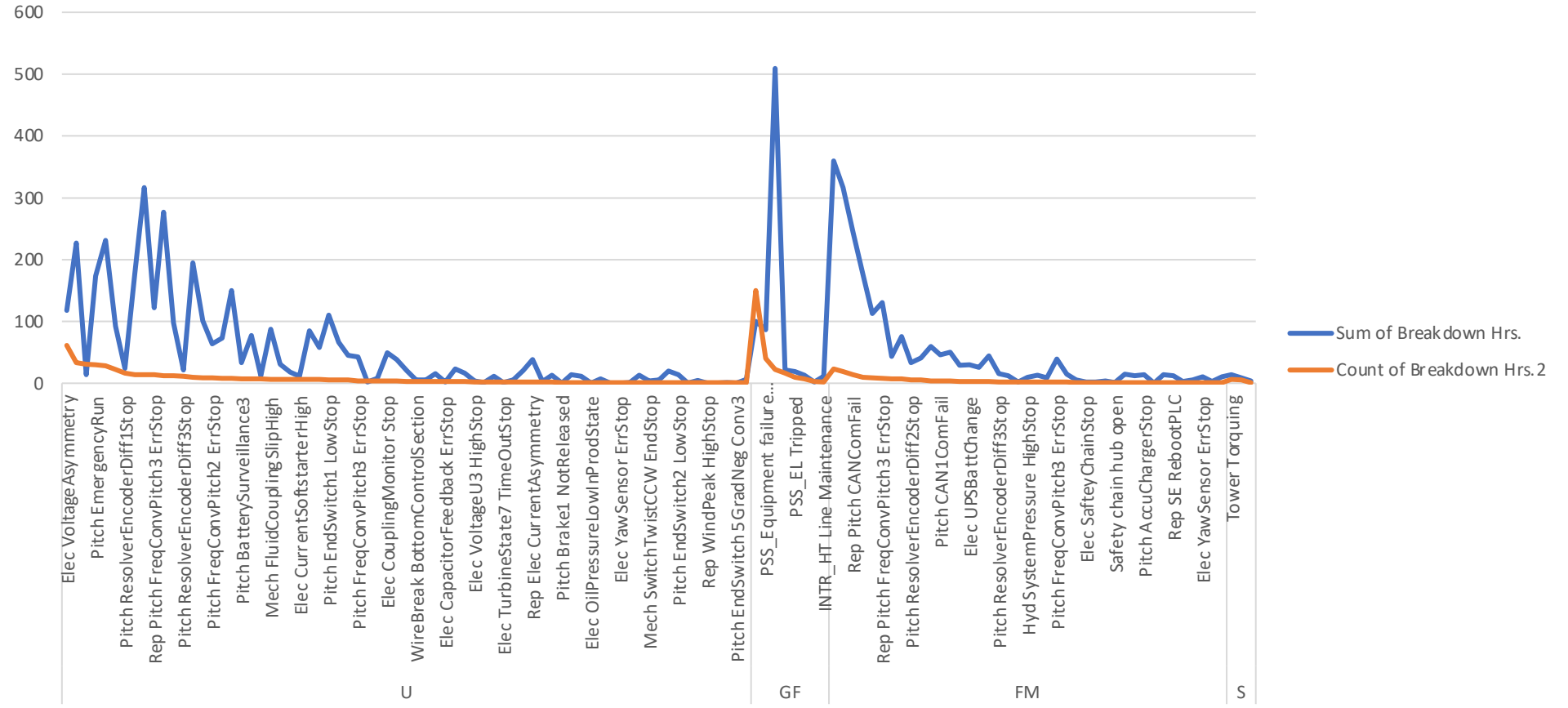
More during rainy & winter seasons in 2019 & reduced during summers in 2020

Question 2

Statement: Can you build a model that can estimate possible loss of generation due to any of the turbine component failure?

Expected outcome: Contribution of failures caused by different turbine components

SOLUTION



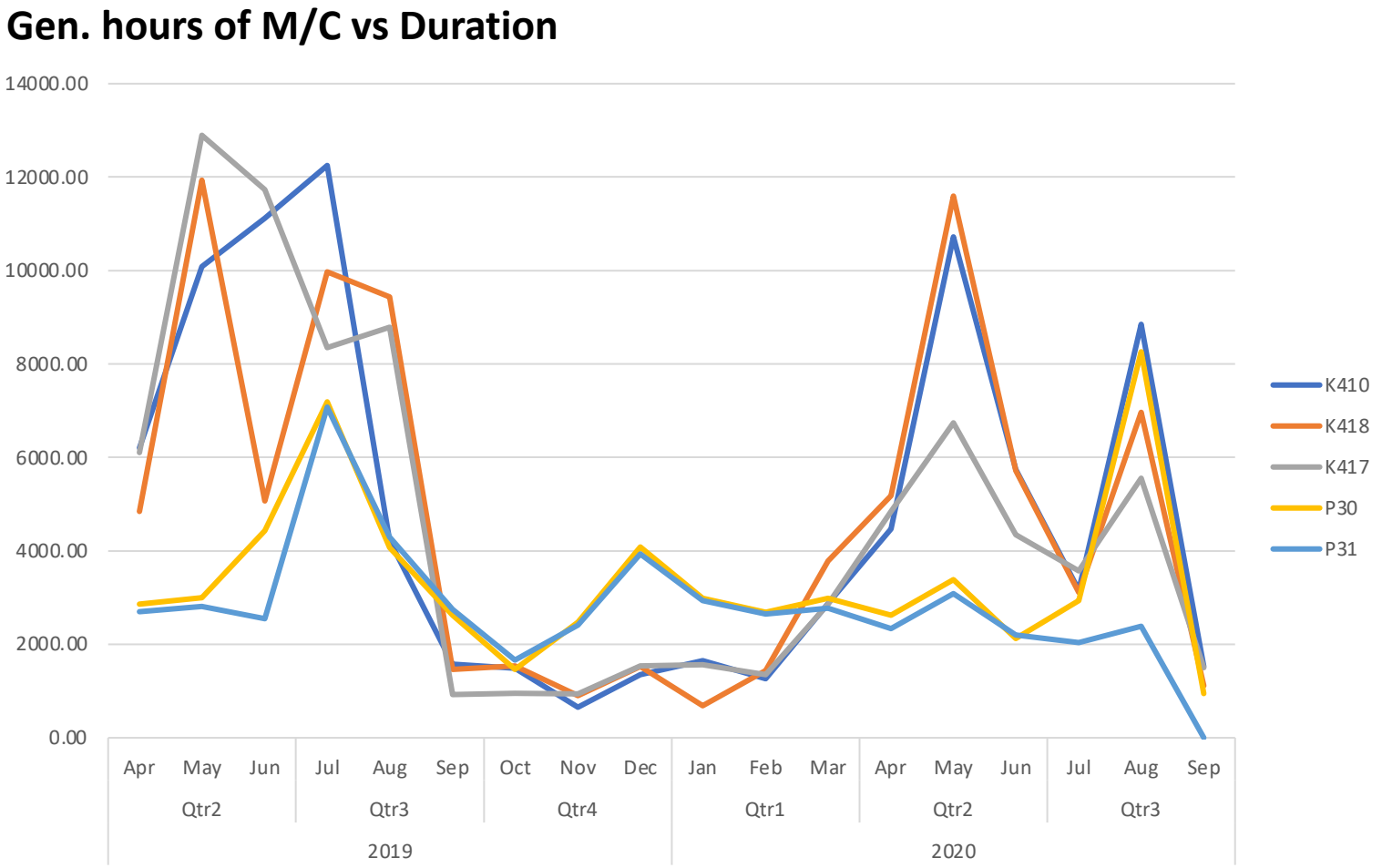
U type of downtime has the highest contribution and S has the lowest.

Question 3

Statement: What could be features associated to major breakdowns?

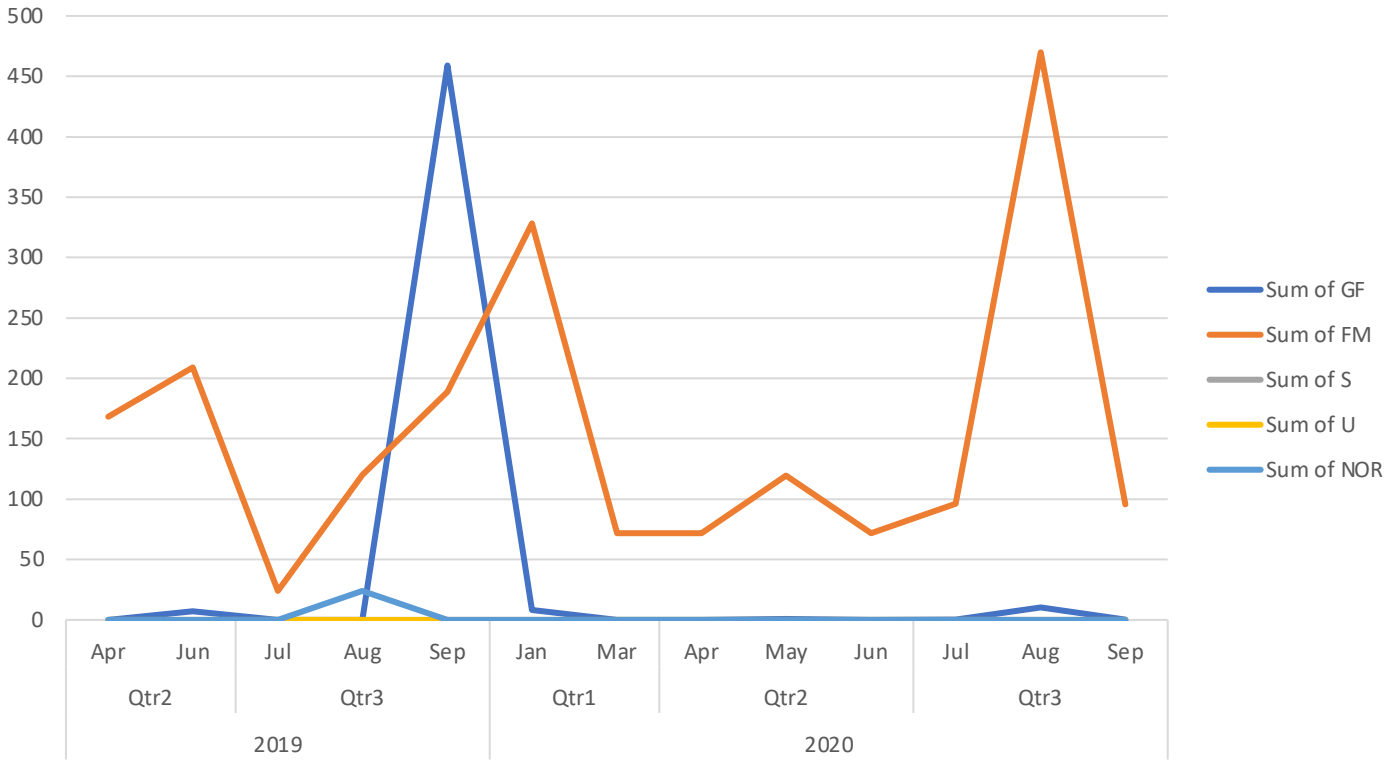
Expected outcome: Reasons & factors affecting major breakdowns

SOLUTION



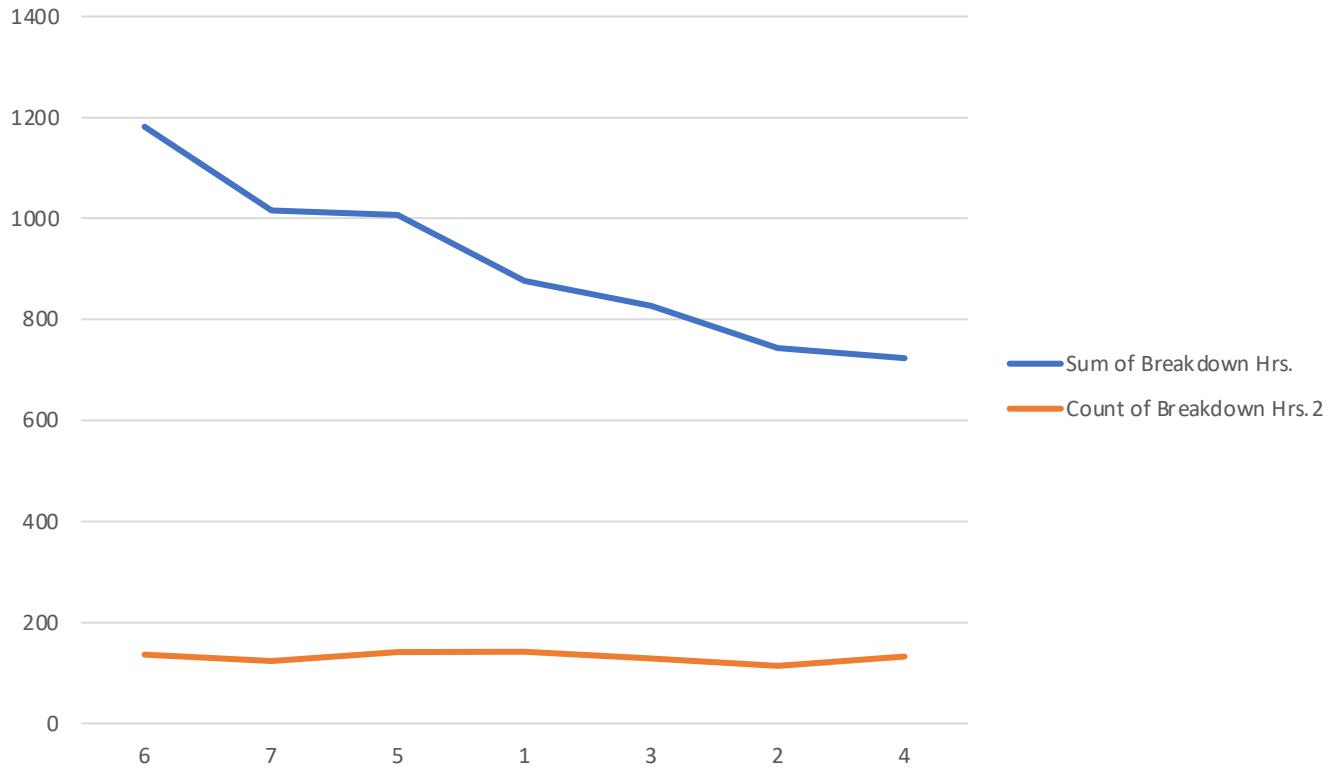
- We can observe that Generation through turbine has drop significantly for the period September 2019 to March 2020
- Maximum generation is from machine K410

Breakdown of M/C vs Duration



- Dip in previous graph is because major breakdowns has happened in that period
- Major breakdown was mainly due to FM which is varying over time
- But, GF failure is observed only b/w Aug, Sept

Gen. hours of M/C vs Duration



Sum of Breakdowns is highest for Saturday and specially at the weekend




THANK YOU