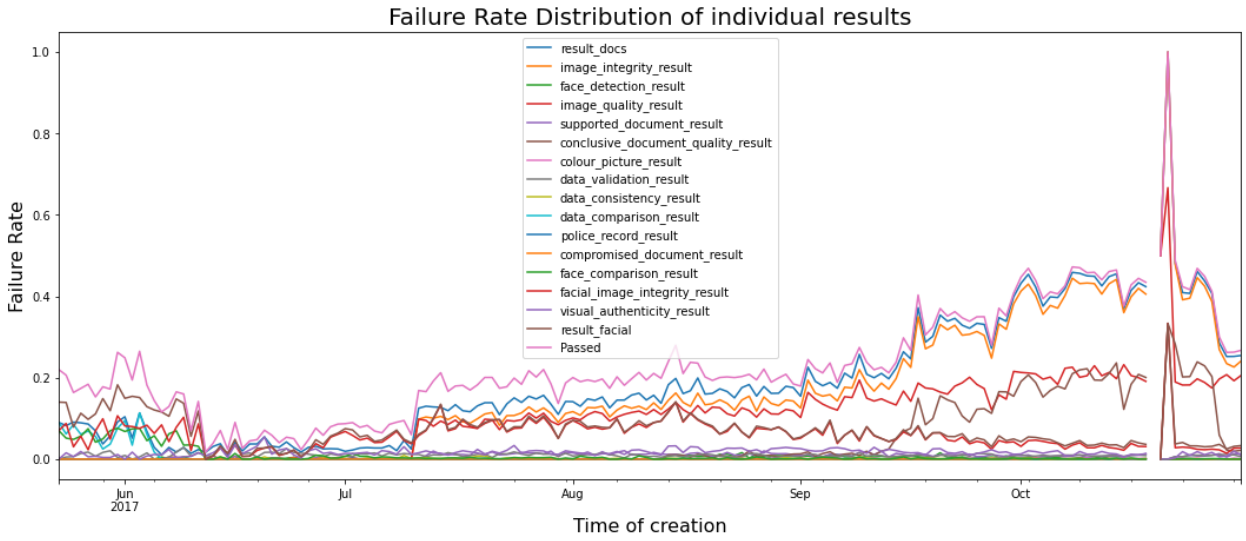
Calculation and Additional Analysis

In this document, we have shared the various subreport results and graphs in detail.

A.Finding the suspected variables(sub reports) of IIR,CDQR,IIR, IQR and FIIR, result_docs, result_facial.

We went ahead and plotted all variables(sub reports) which couldn't be ascertained to not spike during the problematic period. And then found those sub reports which had spikes during the problematic period.



(For reference purposes only)

Chart A.1: Failure Rates for result_docs,result_facial

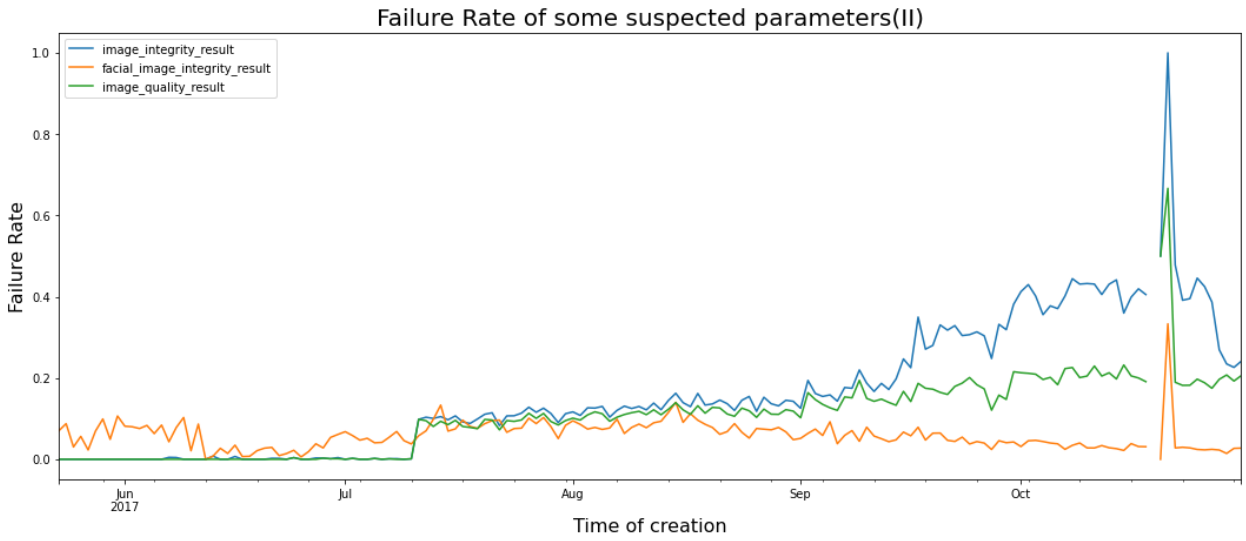


Chart A.2: Failure Rates for image_integrity_result, facial_image_integrity_result and image_quality_result

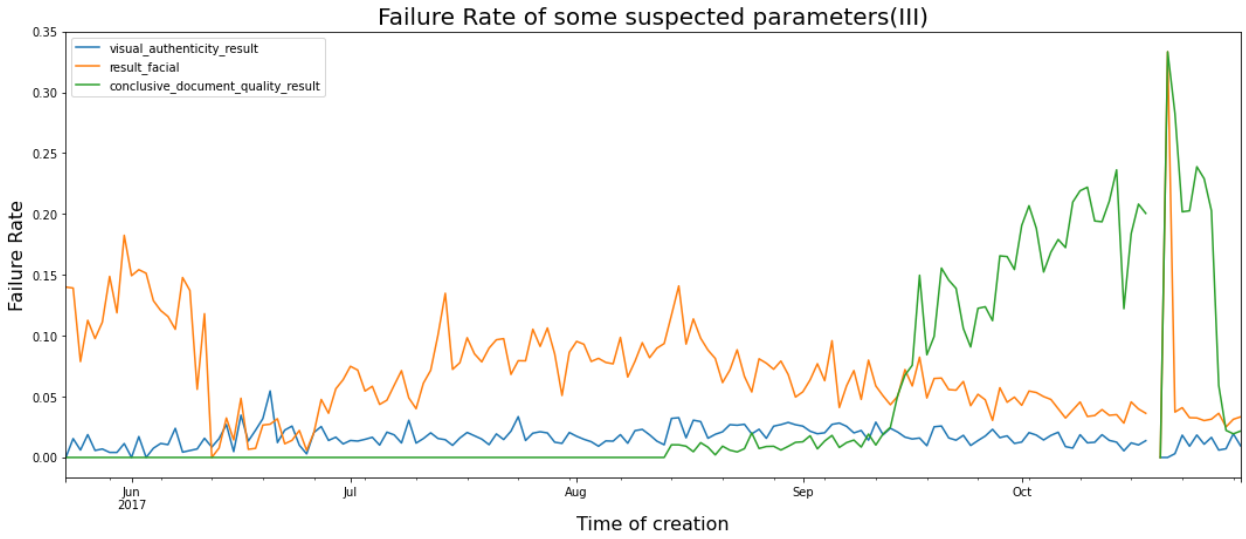


Chart A.3: Failure Rates for visual_authenticity_result, result_facial, conclusive_document_quality_result

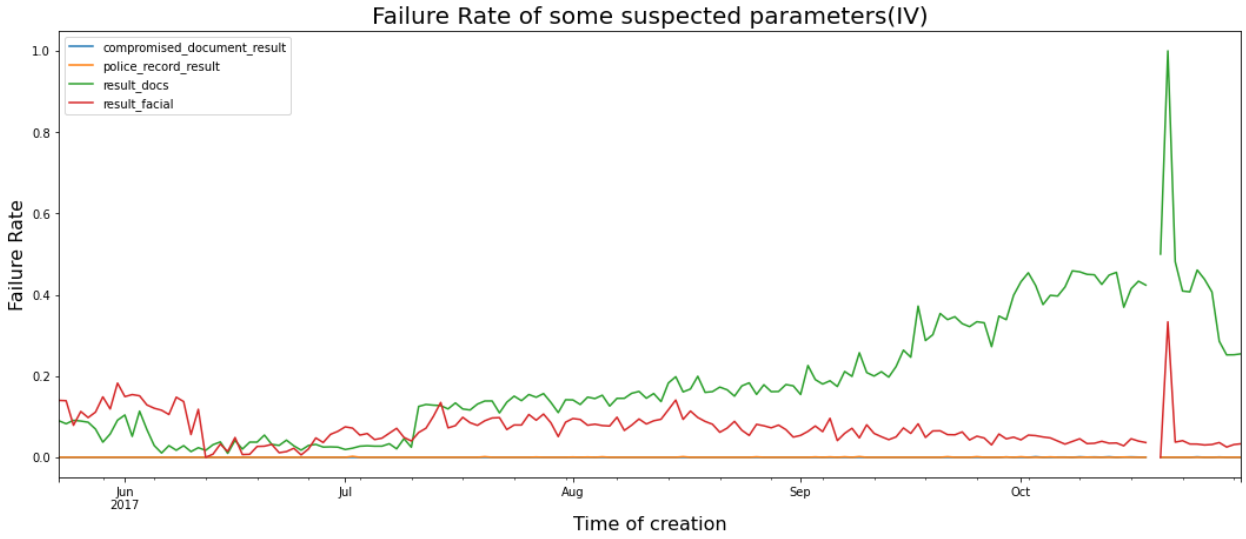


Chart A.4: Failure Rates of police_record_result, compromised_document_result, result_docs and result_facial

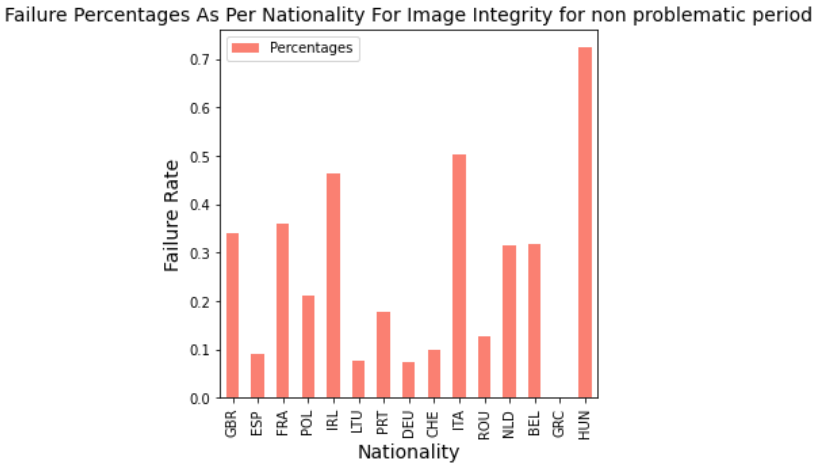
From the above charts we find that the spike(during the problematic period) is in the six sub reports that we pointed out in the main report. They were:
1.image_integrity_result (IIR)
2.facial_image_integrity_report(FIIR)
3.image_quality_result(IQR)
4.conclusive_document_quality_report(CDQR)
5.result_facial
6.result_docs

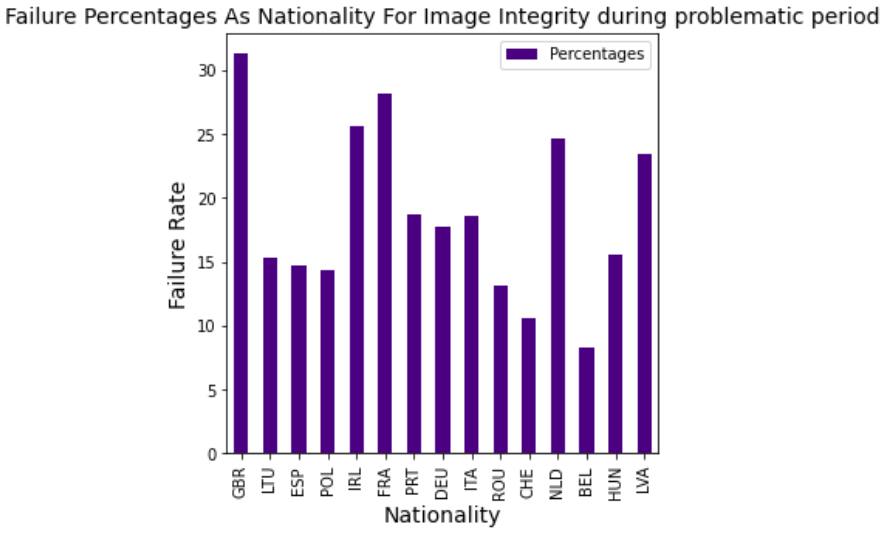
B. Deeper Dive Into Spiked Sub-Reports

Please note that for these sub reports which had histogram bins created on the basis of nationality or issuing country, we have considered the top 15 percentages.

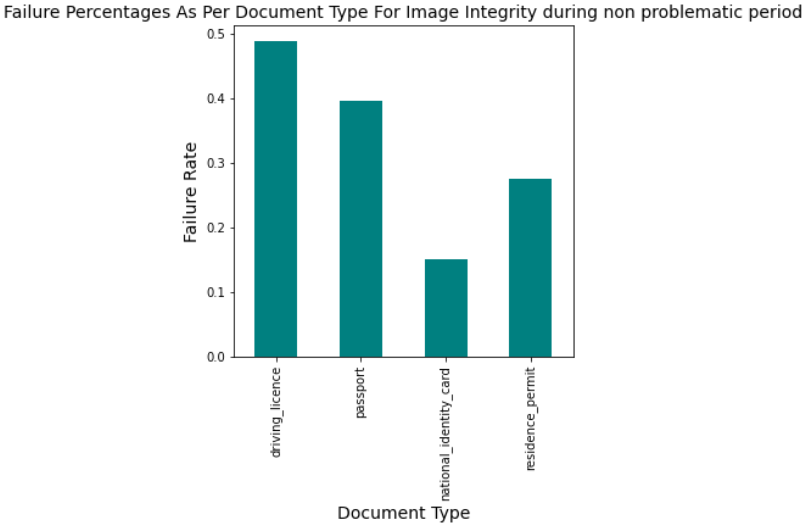
a. image_integrity_result (IIR):

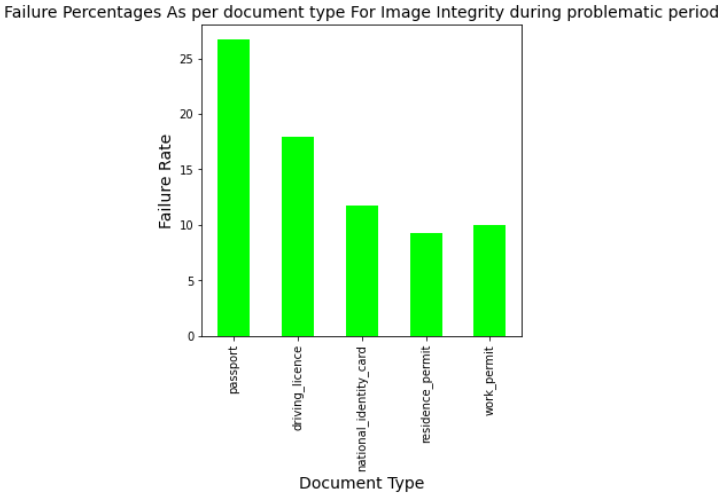
i. Nationality





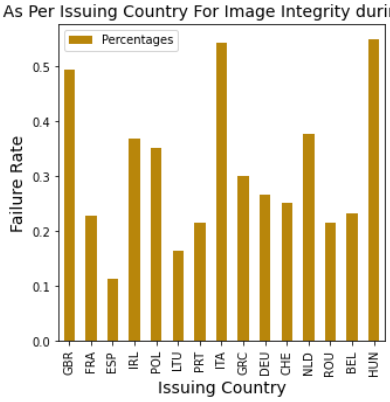
ii. Document Type



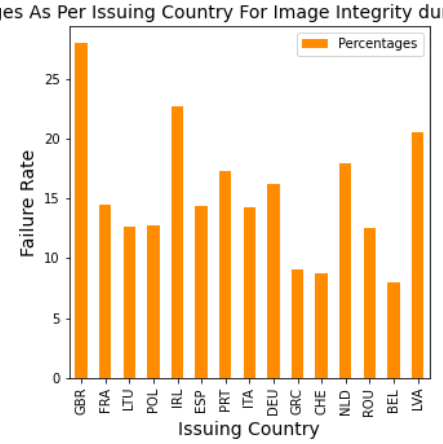


iii. Issuing Country

Failure Percentages As Per Issuing Country For Image Integrity during non problematic period

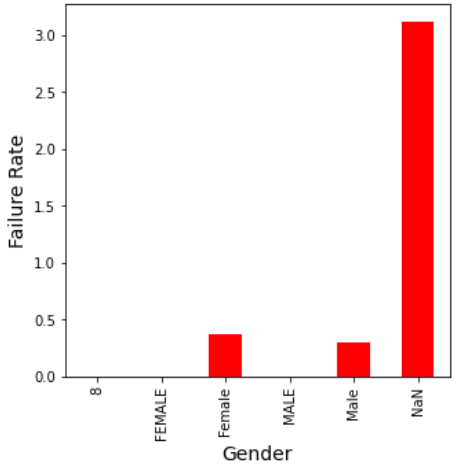


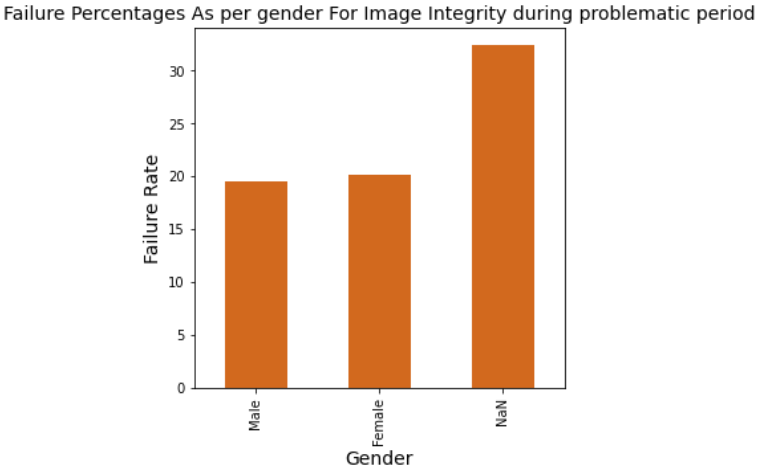
Failure Percentages As Per Issuing Country For Image Integrity during Problematic Period



iv. Gender

Failure Percentages As Per Gender For Image Integrity during non problematic period





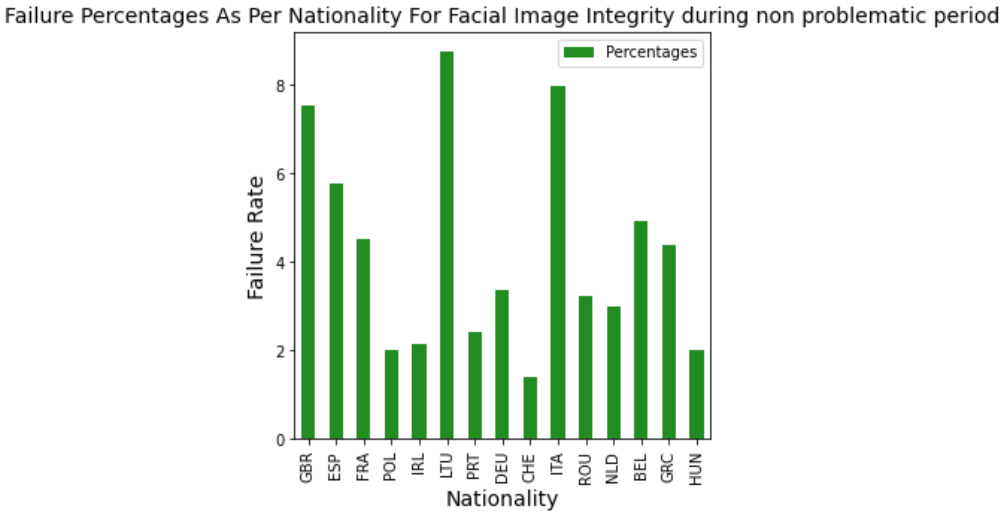
{Observations:

a. Magnitude of average failure rate increase over the problematic period for IIR=20-30%
b. Magnitude of average failure rate increase over the problematic period for IIR based on nationality=20%-30%.
c. Magnitude of average failure rate increase over the problematic period for IIR based on Document type=20%-25%
d. Magnitude of average failure rate increase over the problematic period for IIR based on gender=20%-30%

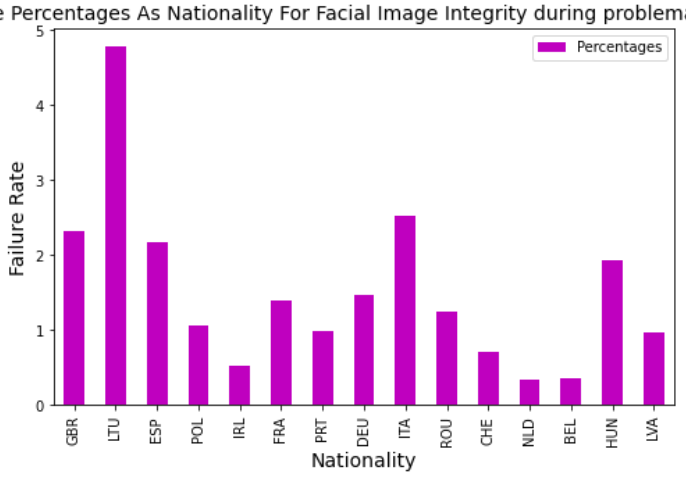
}

b. facial_image_integrity_result(FIIR):

i. Nationality

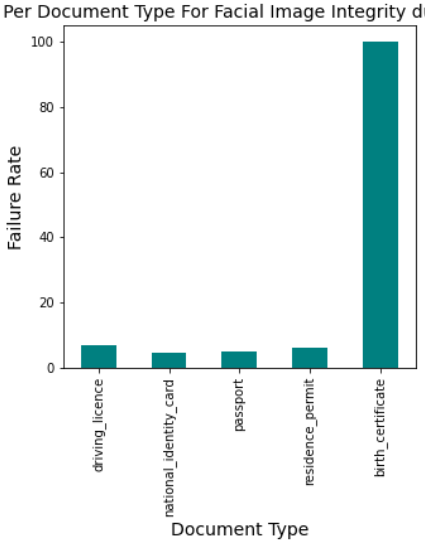


Failure Percentages As Nationality For Facial Image Integrity during problematic period

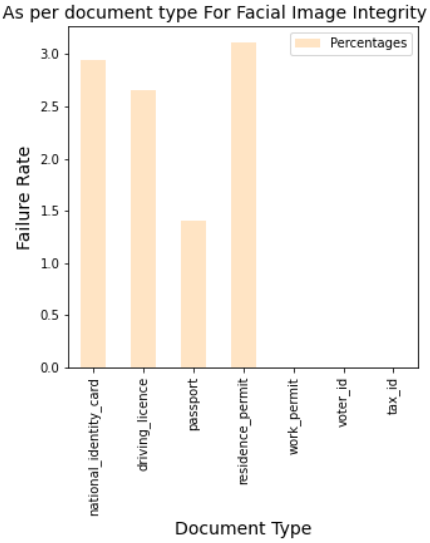


ii. Document Type

Failure Percentages As Per Document Type For Facial Image Integrity during non problematic period

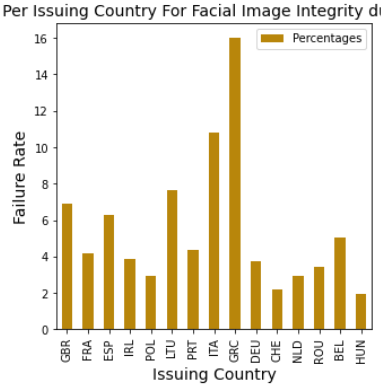


Failure Percentages As per document type For Facial Image Integrity during problematic period

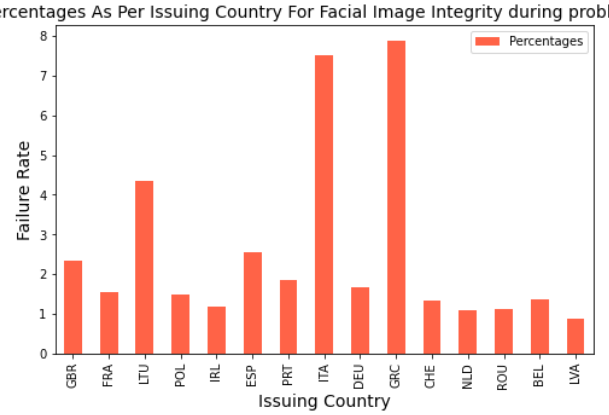


iii. Issuing Country

Failure Percentages As Per Issuing Country For Facial Image Integrity during non problematic period

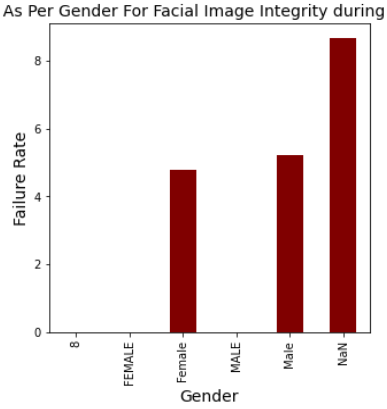


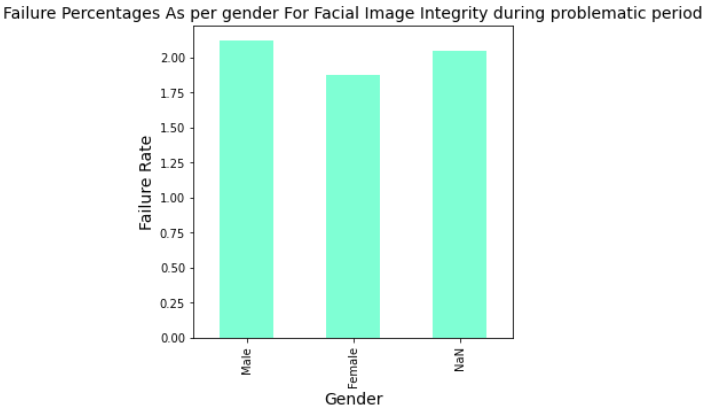
Failure Percentages As Per Issuing Country For Facial Image Integrity during problematic Period



iv. Gender

Failure Percentages As Per Gender For Facial Image Integrity during non problematic period

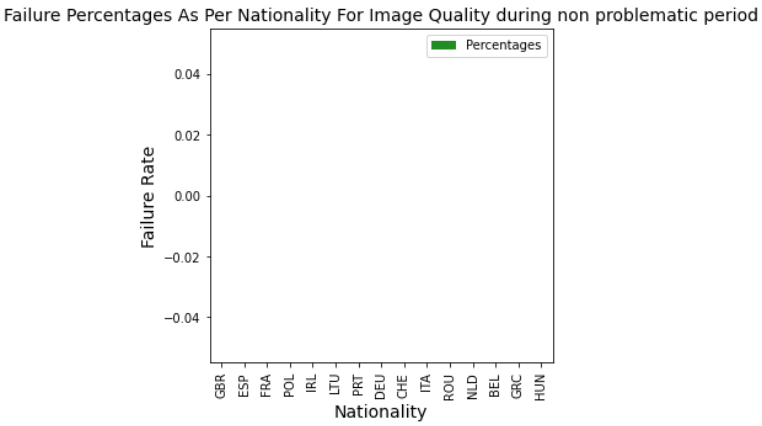


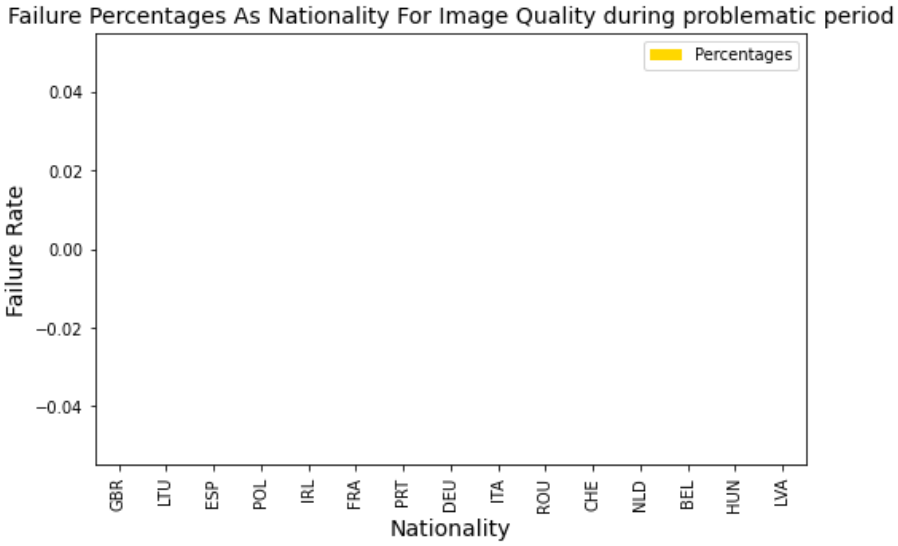


{Observations: Overall, the average failure rate of facial_image_integrity decreased during this period, as was also visible in the main graph. A similar decrease was observed in the individual property variables as well. This means that the spike can be attributed to an anomaly on one particular day (21-10-2017).}

c. image_quality_result(IQR):

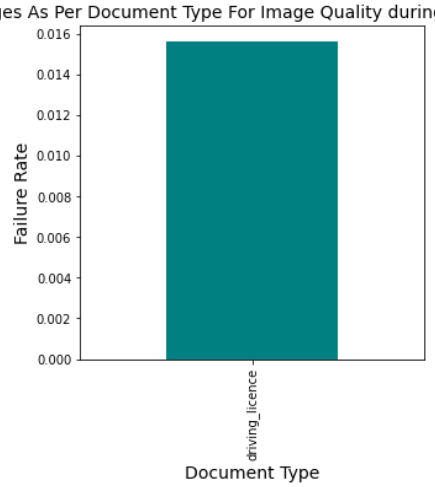
i.Nationality



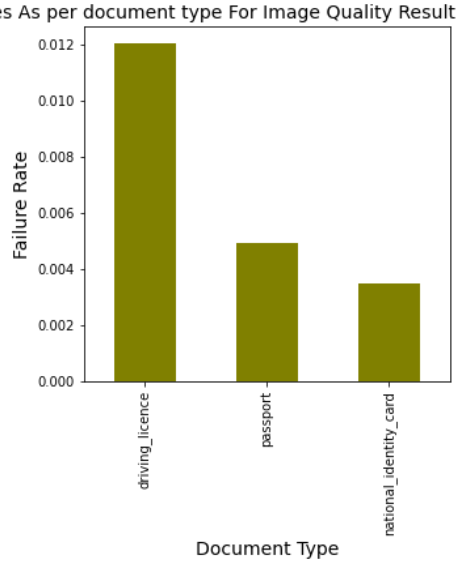


ii. Document Type

Failure Percentages As Per Document Type For Image Quality during non problematic period

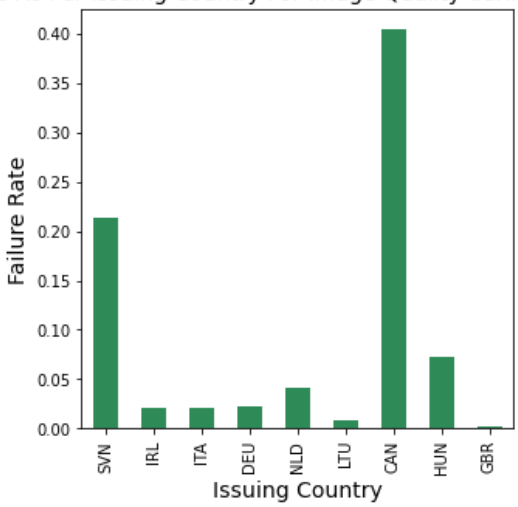


Failure Percentages As per document type For Image Quality Result during problematic period

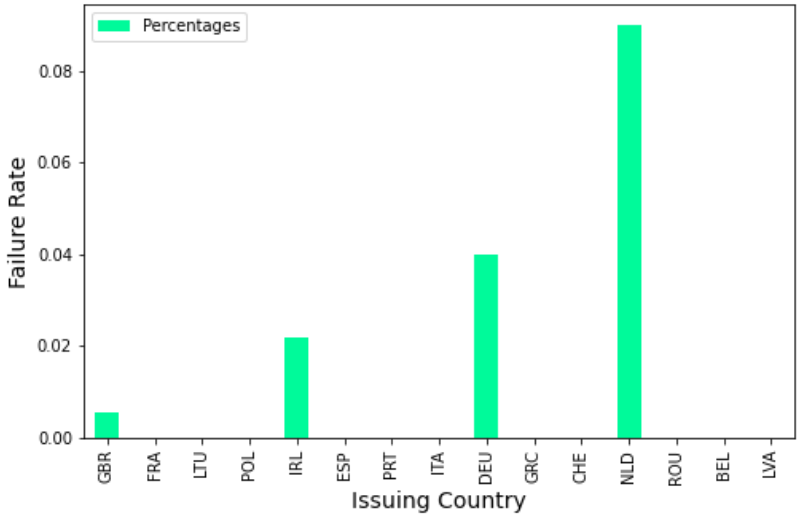


iii. Issuing Country

Failure Percentages As Per Issuing Country For Image Quality during non problematic period

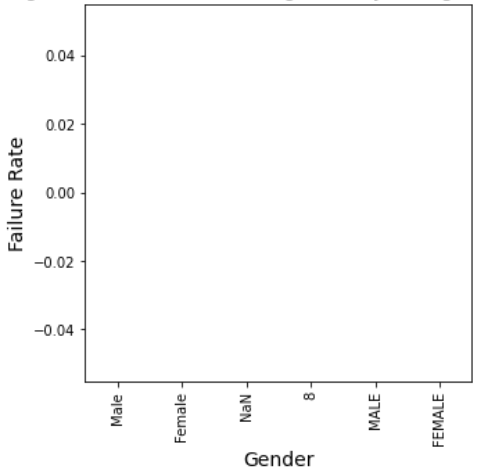


Failure Percentages As Per Issuing Country For Image Quality during problematic Period

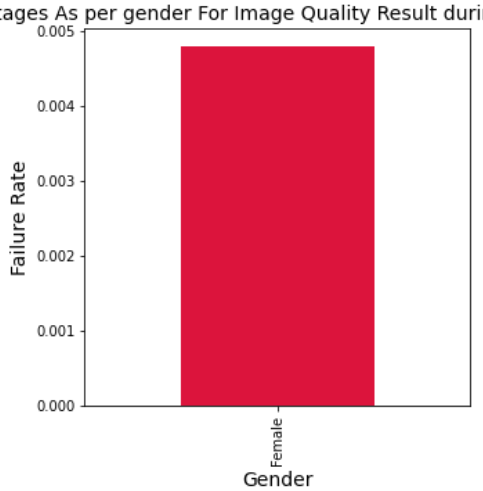


iv. Gender

Failure Percentages As Per Gender For Image Quality during non problematic period



Failure Percentages As per gender For Image Quality Result during problematic period

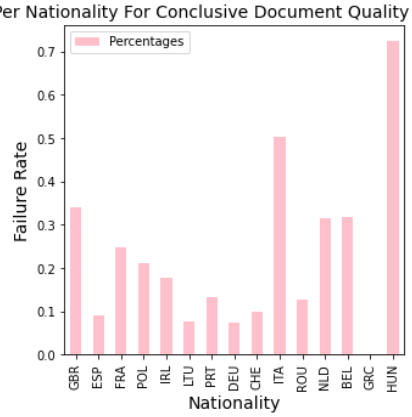


{Observations: Image Quality Result Actually improved during this period(as observed in the main time-series earlier). The results were not dependent on any of the properties as is clear.Thus the spike must be on one particular day because of extraordinary circumstances and may be treated as an outlier}

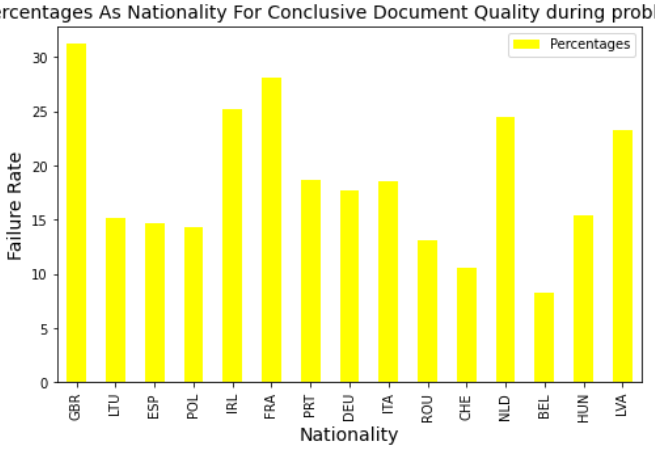
d. conclusive_document_quality_result (CDQR):

i. Nationality

Failure Percentages As Per Nationality For Conclusive Document Quality during non problematic period

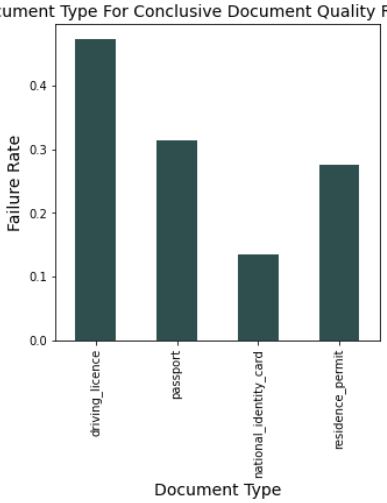


Failure Percentages As Nationality For Conclusive Document Quality during problematic period

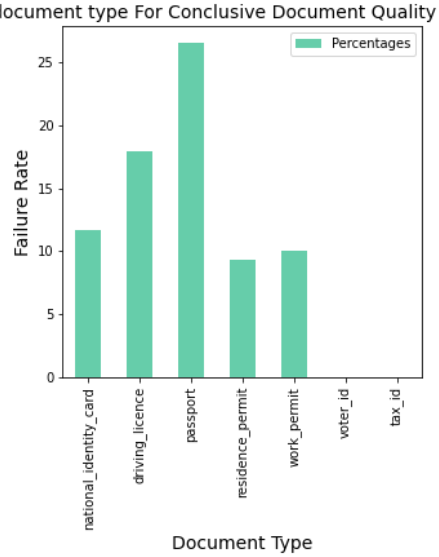


ii. Document Type

Failure Percentages As Per Document Type For Conclusive Document Quality Result during non problematic period

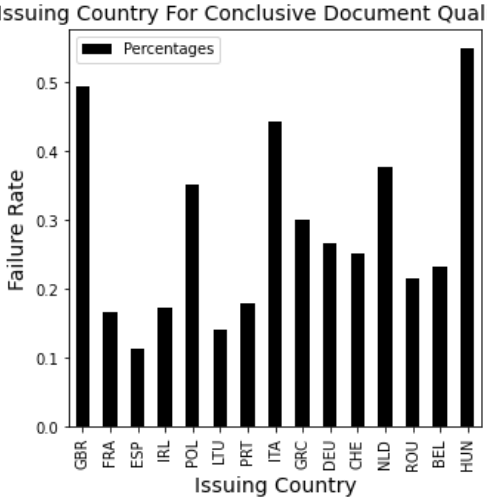


Failure Percentages As per document type For Conclusive Document Quality Result during problematic period



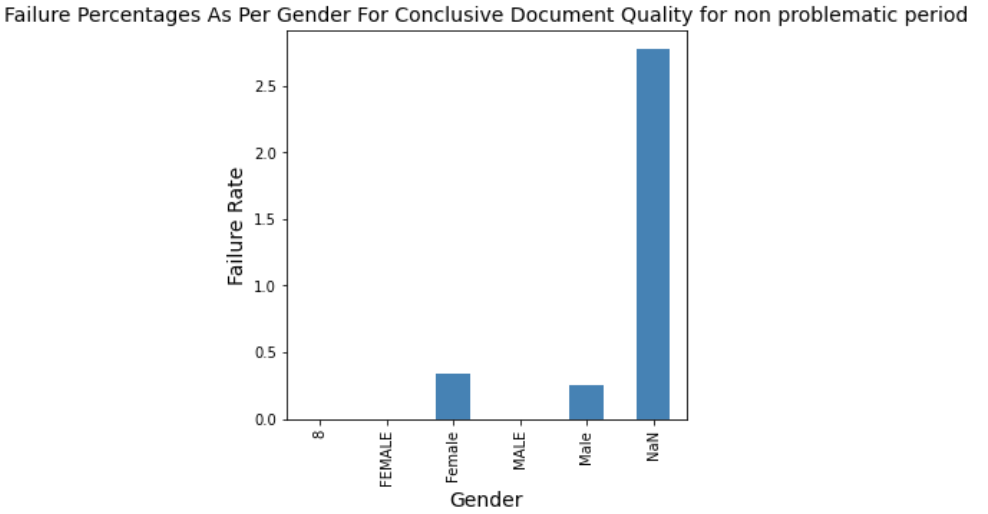
iii. Issuing Country

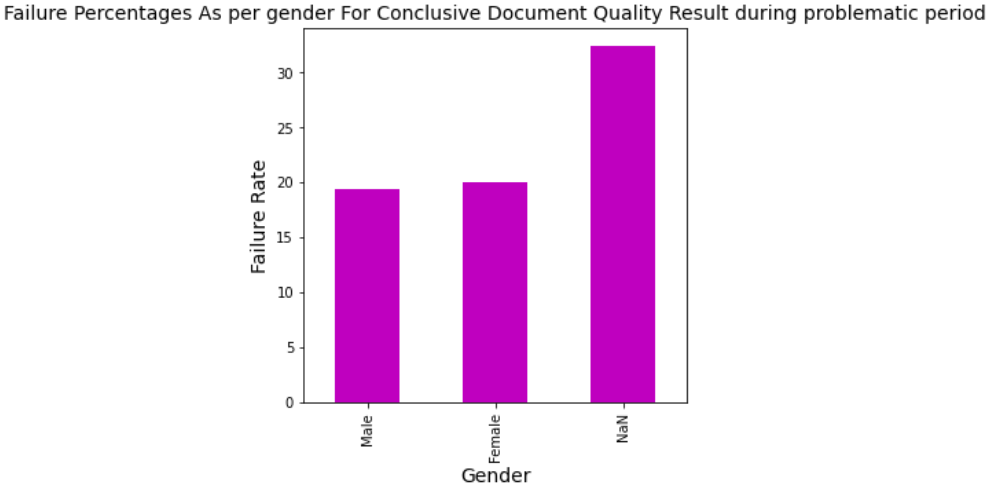
Failure Percentages As Per Issuing Country For Conclusive Document Quality during non problematic period



Failure Percentages As Per Issuing Country For Cocnlusive Document Quality during problematic Period

iv. Gender





{Observations:

a. Failure rate of CQDR changed by 20% to 30% during the problematic period.
b. Failure rate of CQDR grouped by nationality changed by 20% to 30% during the problematic period.
c. Failure rate of CQDR grouped by document type changed by 20% to 25% during the problematic period.
d. Failure rate of CQDR grouped by issuing country changed by 20% to 30% during the problematic period.
e. Failure rate of CQDR grouped by gender changed by 20% to 30% during the problematic period.

This means that there isn't any one factor that influences the result heavily in comparison to others.}