AIG_Interview_Excel_Test

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```
data_19q3 <- read.csv('/Users/AncelotLiu/Downloads/19Q3.csv')
data_19q4 <- read.csv('/Users/AncelotLiu/Downloads/19Q4.csv')
```

Germany

```
loss_19q3_Germany <- matrix(nrow = 4, ncol = 17)
loss_19q3_Germany <- as.data.frame(loss_19q3_Germany)
loss_19q3_Germany[is.na(loss_19q3_Germany)] <- 0

#loss_19q3_Germany
```

```
loss_19q4_Germany <- matrix(nrow = 4, ncol = 17)
loss_19q4_Germany <- as.data.frame(loss_19q4_Germany)
loss_19q4_Germany[is.na(loss_19q4_Germany)] <- 0

#loss_19q4_Germany
```

```
dev = c("dev3", "dev6", "dev9",  "dev12",  "dev15",  "dev18",  "dev21",  "dev24",  "d
ev27", "dev30",  "dev33",  "dev36",  "dev39",  "dev42",  "dev45",  "dev48", "dev51")
lossyear = c("2016","2017", "2018", "2019")
colnames(loss_19q3_Germany) = dev
rownames(loss_19q3_Germany) = lossyear

colnames(loss_19q4_Germany) = dev
rownames(loss_19q4_Germany) = lossyear



#loss_19q3_Germany
#loss_19q4_Germany
```

```
for(i in 1:dim(loss_19q3_Germany)[1]) {

  for (j in 1:dim(loss_19q3_Germany)[2]) {

    logit <- data_19q3[,"countryname"] == "Germany" & data_19q3[,"year_new"] == lossy
ear[i] & data_19q3[,"X_NAME_"] == "paid"

    dev_name <- dev[j]

    loss_19q3_Germany[i,j] <- sum(data_19q3[,dev_name][logit])

  }
}

loss_19q3_Germany[is.na(loss_19q3_Germany)] <- 0
loss_19q3_Germany
```

```
##      dev3 dev6 dev9 dev12 dev15 dev18 dev21 dev24 dev27 dev30 dev33 dev36
## 2016   43  151  586   803  1843  2674  6090  6776  7865 16466 18447 20563
## 2017    0   68  246   374   894  1328  2288  2660  4620  5488  5917     0
## 2018    5   64  216   409   890  1284  5944     0     0     0     0     0
## 2019    4   72   95     0     0     0     0     0     0     0     0     0
##      dev39 dev42 dev45 dev48 dev51
## 2016 33521 33890 28659     0     0
## 2017     0     0     0     0     0
## 2018     0     0     0     0     0
## 2019     0     0     0     0     0
```

```
for(i in 1:dim(loss_19q4_Germany)[1]) {

  for (j in 1:dim(loss_19q4_Germany)[2]) {

    logit <- data_19q4[,"countryname"] == "Germany" & data_19q4[,"year_new"] == lossy
ear[i] & data_19q4[,"X_NAME_"] == "paid"

    dev_name <- dev[j]

    loss_19q4_Germany[i,j] <- sum(data_19q4[,dev_name][logit])

  }
}

loss_19q4_Germany[is.na(loss_19q4_Germany)] <- 0
loss_19q4_Germany
```

```
##      dev3 dev6 dev9 dev12 dev15 dev18 dev21 dev24 dev27 dev30 dev33 dev36
## 2016   43  151  594   814  1853  2685  6100  6792  7881 16890 18965 21101
## 2017    0   70  251   379   900  1334  2293  2666  4620  5488  5917  6090
## 2018    5   64  216   409   890  1283  5927  6273     0     0     0     0
## 2019    4   72   95   118     0     0     0     0     0     0     0     0
##      dev39 dev42 dev45 dev48 dev51
## 2016 34067 34443 29224 29477     0
## 2017     0     0     0     0     0
## 2018     0     0     0     0     0
## 2019     0     0     0     0     0
```

```
recon_Germany <- loss_19q4_Germany - loss_19q3_Germany

recon_Germany[1,16] = 0
recon_Germany[2,12] = 0
recon_Germany[3,8] = 0
recon_Germany[4,4] = 0

recon_Germany
```

```
##      dev3 dev6 dev9 dev12 dev15 dev18 dev21 dev24 dev27 dev30 dev33 dev36
## 2016    0    0    8    11    10    11    10    16    16   424   518   538
## 2017    0    2    5     5     6     6     5     6     0     0     0     0
## 2018    0    0    0     0     0    -1   -17     0     0     0     0     0
## 2019    0    0    0     0     0     0     0     0     0     0     0     0
##      dev39 dev42 dev45 dev48 dev51
## 2016   546   553   565     0     0
## 2017     0     0     0     0     0
## 2018     0     0     0     0     0
## 2019     0     0     0     0     0
```

```
sum(recon_Germany)
```

```
## [1] 3243
```

```
result_19q3_Germany <- as.data.frame(matrix(nrow = 4, ncol = 1))
result_19q4_Germany <- as.data.frame(matrix(nrow = 4, ncol = 1))

result_19q3_Germany[1,1] <- loss_19q3_Germany[1,15]
result_19q3_Germany[2,1] <- loss_19q3_Germany[2,11]
result_19q3_Germany[3,1] <- loss_19q3_Germany[3,7]
result_19q3_Germany[4,1] <- loss_19q3_Germany[4,3]

row.names(result_19q3_Germany) <- lossyear
colnames(result_19q3_Germany) <- '2019Q3'

result_19q3_Germany
```

```
##      2019Q3
## 2016  28659
## 2017   5917
## 2018   5944
## 2019     95
```

```
result_19q4_Germany[1,1] <- loss_19q4_Germany[1,15]
result_19q4_Germany[2,1] <- loss_19q4_Germany[2,11]
result_19q4_Germany[3,1] <- loss_19q4_Germany[3,7]
result_19q4_Germany[4,1] <- loss_19q4_Germany[4,3]

row.names(result_19q4_Germany) <- lossyear
colnames(result_19q4_Germany) <- '2019Q4'

result_19q4_Germany
```

```
##      2019Q4
## 2016  29224
## 2017   5917
## 2018   5927
## 2019     95
```

The result for Germany Reconciliation

```
recon_Germany_result_19 <- result_19q4_Germany - result_19q3_Germany
colnames(recon_Germany_result_19) <- 'Difference'
recon_Germany_result_19
```

```
##      Difference
## 2016        565
## 2017          0
## 2018        -17
## 2019          0
```

```
sum(recon_Germany_result_19)
```

```
## [1] 548
```

France

```
loss_19q3_France <- matrix(nrow = 4, ncol = 17)
loss_19q3_France <- as.data.frame(loss_19q3_France)
loss_19q3_France[is.na(loss_19q3_France)] <- 0

#loss_19q3_France
```

```
loss_19q4_France <- matrix(nrow = 4, ncol = 17)
loss_19q4_France <- as.data.frame(loss_19q4_France)
loss_19q4_France[is.na(loss_19q4_France)] <- 0

#loss_19q4_France
```

```
dev = c("dev3", "dev6", "dev9",  "dev12",  "dev15",  "dev18",  "dev21",  "dev24",  "d
ev27", "dev30",  "dev33",  "dev36",  "dev39",  "dev42",  "dev45",  "dev48", "dev51")
lossyear = c("2016","2017", "2018", "2019")
colnames(loss_19q3_France) = dev
rownames(loss_19q3_France) = lossyear

colnames(loss_19q4_France) = dev
rownames(loss_19q4_France) = lossyear



#loss_19q3_France
#loss_19q4_France
```

```
for(i in 1:dim(loss_19q3_France)[1]) {

  for (j in 1:dim(loss_19q3_France)[2]) {

    logit <- data_19q3[,"countryname"] == "France" & data_19q3[,"year_new"] == lossye
ar[i] & data_19q3[,"X_NAME_"] == "paid"

    dev_name <- dev[j]

    loss_19q3_France[i,j] <- sum(data_19q3[,dev_name][logit])

  }
}

loss_19q3_France[is.na(loss_19q3_France)] <- 0
loss_19q3_France
```

```
##      dev3 dev6 dev9 dev12 dev15 dev18 dev21 dev24 dev27 dev30 dev33 dev36
## 2016   30  307  508  1271  2614  3246  3795  4811  5748  7956  8992 10493
## 2017    0  140  397   937  1467  2263  3350  6150  7257  7845  8607     0
## 2018    0   62  783  1263  2033  3476  5461     0     0     0     0     0
## 2019   14   40  140     0     0     0     0     0     0     0     0     0
##      dev39 dev42 dev45 dev48 dev51
## 2016 11801 13581 15652     0     0
## 2017     0     0     0     0     0
## 2018     0     0     0     0     0
## 2019     0     0     0     0     0
```

```
for(i in 1:dim(loss_19q4_France)[1]) {

  for (j in 1:dim(loss_19q4_France)[2]) {

    logit <- data_19q4[,"countryname"] == "France" & data_19q4[,"year_new"] == lossye
ar[i] & data_19q4[,"X_NAME_"] == "paid"

    dev_name <- dev[j]

    loss_19q4_France[i,j] <- sum(data_19q4[,dev_name][logit])

  }
}

loss_19q4_France[is.na(loss_19q4_France)] <- 0
loss_19q4_France
```

```
##      dev3 dev6 dev9 dev12 dev15 dev18 dev21 dev24 dev27 dev30 dev33 dev36
## 2016   30  306  510  1274  2616  3247  3796  4811  5748  7965  9009 10523
## 2017    0  140  402   942  1472  2269  3355  6150  7257  7846  8607  8775
## 2018    0   62  783  1263  2033  3474  5491  6187     0     0     0     0
## 2019   14   40  140   598     0     0     0     0     0     0     0     0
##      dev39 dev42 dev45 dev48 dev51
## 2016 11850 13644 15752 17418     0
## 2017     0     0     0     0     0
## 2018     0     0     0     0     0
## 2019     0     0     0     0     0
```

```
recon_France <- loss_19q4_France - loss_19q3_France

recon_France[1,16] = 0
recon_France[2,12] = 0
recon_France[3,8] = 0
recon_France[4,4] = 0

recon_France
```

```
##      dev3 dev6 dev9 dev12 dev15 dev18 dev21 dev24 dev27 dev30 dev33 dev36
## 2016    0   -1    2     3     2     1     1     0     0     9    17    30
## 2017    0    0    5     5     5     6     5     0     0     1     0     0
## 2018    0    0    0     0     0    -2    30     0     0     0     0     0
## 2019    0    0    0     0     0     0     0     0     0     0     0     0
##      dev39 dev42 dev45 dev48 dev51
## 2016    49    63   100     0     0
## 2017     0     0     0     0     0
## 2018     0     0     0     0     0
## 2019     0     0     0     0     0
```

```
sum(recon_France)
```

```
## [1] 331
```

```
result_19q3_France <- as.data.frame(matrix(nrow = 4, ncol = 1))
result_19q4_France <- as.data.frame(matrix(nrow = 4, ncol = 1))

result_19q3_France[1,1] <- loss_19q3_France[1,15]
result_19q3_France[2,1] <- loss_19q3_France[2,11]
result_19q3_France[3,1] <- loss_19q3_France[3,7]
result_19q3_France[4,1] <- loss_19q3_France[4,3]

row.names(result_19q3_France) <- lossyear
colnames(result_19q3_France) <- '2019Q3'

result_19q3_France
```

```
##      2019Q3
## 2016  15652
## 2017   8607
## 2018   5461
## 2019    140
```

```
result_19q4_France[1,1] <- loss_19q4_France[1,15]
result_19q4_France[2,1] <- loss_19q4_France[2,11]
result_19q4_France[3,1] <- loss_19q4_France[3,7]
result_19q4_France[4,1] <- loss_19q4_France[4,3]

row.names(result_19q4_France) <- lossyear
colnames(result_19q4_France) <- '2019Q4'

result_19q4_France
```

```
##      2019Q4
## 2016  15752
## 2017   8607
## 2018   5491
## 2019    140
```

The result for France Reconciliation

```
recon_France_result_19 <- result_19q4_France - result_19q3_France
colnames(recon_France_result_19) <- 'Difference'
recon_France_result_19
```

```
##      Difference
## 2016        100
## 2017          0
## 2018         30
## 2019          0
```

```
sum(recon_France_result_19)
```

```
## [1] 130
```

Sweden

```
loss_19q3_Sweden <- matrix(nrow = 4, ncol = 17)
loss_19q3_Sweden <- as.data.frame(loss_19q3_Sweden)
loss_19q3_Sweden[is.na(loss_19q3_Sweden)] <- 0

#loss_19q3_Sweden
```

```
loss_19q4_Sweden <- matrix(nrow = 4, ncol = 17)
loss_19q4_Sweden <- as.data.frame(loss_19q4_Sweden)
loss_19q4_Sweden[is.na(loss_19q4_Sweden)] <- 0

#loss_19q4_Sweden
```

```
dev = c("dev3", "dev6", "dev9",  "dev12",  "dev15",  "dev18",  "dev21",  "dev24",  "d
ev27", "dev30",  "dev33",  "dev36",  "dev39",  "dev42",  "dev45",  "dev48", "dev51")
lossyear = c("2016","2017", "2018", "2019")
colnames(loss_19q3_Sweden) = dev
rownames(loss_19q3_Sweden) = lossyear

colnames(loss_19q4_Sweden) = dev
rownames(loss_19q4_Sweden) = lossyear



#loss_19q3_Sweden
#loss_19q4_Sweden
```

```
for(i in 1:dim(loss_19q3_Sweden)[1]) {

  for (j in 1:dim(loss_19q3_Sweden)[2]) {

    logit <- data_19q3[,"countryname"] == "Sweden" & data_19q3[,"year_new"] == lossye
ar[i] & data_19q3[,"X_NAME_"] == "paid"

    dev_name <- dev[j]

    loss_19q3_Sweden[i,j] <- sum(data_19q3[,dev_name][logit])

  }
}

loss_19q3_Sweden[is.na(loss_19q3_Sweden)] <- 0
loss_19q3_Sweden
```

```
##      dev3 dev6 dev9 dev12 dev15 dev18 dev21 dev24 dev27 dev30 dev33 dev36
## 2016    0    0    0  3404  4504  4991  6064  7014  7728  8641  9773 10506
## 2017    4   29   64   104   168   202   238   248   257   257   272     0
## 2018    0    0    5   213   500   777   922     0     0     0     0     0
## 2019    0   53  121     0     0     0     0     0     0     0     0     0
##      dev39 dev42 dev45 dev48 dev51
## 2016 11476 12459 12947     0     0
## 2017     0     0     0     0     0
## 2018     0     0     0     0     0
## 2019     0     0     0     0     0
```

```
for(i in 1:dim(loss_19q4_Sweden)[1]) {

  for (j in 1:dim(loss_19q4_Sweden)[2]) {

    logit <- data_19q4[,"countryname"] == "Sweden" & data_19q4[,"year_new"] == lossye
ar[i] & data_19q4[,"X_NAME_"] == "paid"

    dev_name <- dev[j]

    loss_19q4_Sweden[i,j] <- sum(data_19q4[,dev_name][logit])

  }
}

loss_19q4_Sweden[is.na(loss_19q4_Sweden)] <- 0
loss_19q4_Sweden
```

```
##      dev3 dev6 dev9 dev12 dev15 dev18 dev21 dev24 dev27 dev30 dev33 dev36
## 2016    0    0    0  3397  4493  4978  6048  6997  7718  8634  9765 10497
## 2017    4   29   66   106   172   206   242   252   261   261   276   276
## 2018    0    0    5   216   510   793   941  1165     0     0     0     0
## 2019    0   54  124   128     0     0     0     0     0     0     0     0
##      dev39 dev42 dev45 dev48 dev51
## 2016 11468 12459 12949 14078     0
## 2017     0     0     0     0     0
## 2018     0     0     0     0     0
## 2019     0     0     0     0     0
```

```
recon_Sweden <- loss_19q4_Sweden - loss_19q3_Sweden

recon_Sweden[1,16] = 0
recon_Sweden[2,12] = 0
recon_Sweden[3,8] = 0
recon_Sweden[4,4] = 0

recon_Sweden
```

```
##      dev3 dev6 dev9 dev12 dev15 dev18 dev21 dev24 dev27 dev30 dev33 dev36
## 2016    0    0    0    -7   -11   -13   -16   -17   -10    -7    -8    -9
## 2017    0    0    2     2     4     4     4     4     4     4     4     0
## 2018    0    0    0     3    10    16    19     0     0     0     0     0
## 2019    0    1    3     0     0     0     0     0     0     0     0     0
##      dev39 dev42 dev45 dev48 dev51
## 2016    -8     0     2     0     0
## 2017     0     0     0     0     0
## 2018     0     0     0     0     0
## 2019     0     0     0     0     0
```

```
sum(recon_Sweden)
```

```
## [1] -20
```

```
result_19q3_Sweden <- as.data.frame(matrix(nrow = 4, ncol = 1))
result_19q4_Sweden <- as.data.frame(matrix(nrow = 4, ncol = 1))

result_19q3_Sweden[1,1] <- loss_19q3_Sweden[1,15]
result_19q3_Sweden[2,1] <- loss_19q3_Sweden[2,11]
result_19q3_Sweden[3,1] <- loss_19q3_Sweden[3,7]
result_19q3_Sweden[4,1] <- loss_19q3_Sweden[4,3]

row.names(result_19q3_Sweden) <- lossyear
colnames(result_19q3_Sweden) <- '2019Q3'

result_19q3_Sweden
```

```
##      2019Q3
## 2016  12947
## 2017    272
## 2018    922
## 2019    121
```

```
result_19q4_Sweden[1,1] <- loss_19q4_Sweden[1,15]
result_19q4_Sweden[2,1] <- loss_19q4_Sweden[2,11]
result_19q4_Sweden[3,1] <- loss_19q4_Sweden[3,7]
result_19q4_Sweden[4,1] <- loss_19q4_Sweden[4,3]

row.names(result_19q4_Sweden) <- lossyear
colnames(result_19q4_Sweden) <- '2019Q4'

result_19q4_Sweden
```

```
##      2019Q4
## 2016  12949
## 2017    276
## 2018    941
## 2019    124
```

The result for Sweden Reconciliation

```
recon_Sweden_result_19 <- result_19q4_Sweden - result_19q3_Sweden
colnames(recon_Sweden_result_19) <- 'Difference'
recon_Sweden_result_19
```

```
##      Difference
## 2016          2
## 2017          4
## 2018         19
## 2019          3
```

```
sum(recon_Sweden_result_19)
```

```
## [1] 28
```

Summary for Reconciliations of Germany, France and Sweden

```
recon_summary <- as.data.frame(matrix(nrow = 3, ncol = 2))
colnames(recon_summary) <- c('Country', 'Recon_Difference')

recon_summary[,1] <- c('Germany', 'France', 'Sweden')
recon_summary[,2] <- c(sum(recon_Germany_result_19),sum(recon_France_result_19),sum(r
econ_Sweden_result_19))

recon_summary
```

```
##   Country Recon_Difference
## 1 Germany              548
## 2  France              130
## 3  Sweden               28
```