VTL 2.0 Quiz – Find the right error messages

B1(COC) Codes are consistent

```
define datapoint ruleset TABLE_Periodicity (variable TABLE, FREQ) is

        when TABLE = "T01" then FREQ="A"
                errorcode ("B1a")
                errorlevel ("Error");

        when TABLE = "T02" then FREQ="Q"
                errorcode ("B1b ")
                errorlevel ("Error");

end datapoint ruleset ;

check_datapoint (IntraEUTravellers [keep OBS_VALUE], TABLE_Periodicity)
```

1
B1a - Table T01 should contain only (A) Annual series.
B1b - Table T02 should contain only (Q) Quarterly series.

2
B1a - Table T01 should contain only (Q) Quarterly series
B1b - Table T02 should contain only (A) Annual series

3
B1a - Table T01 should contain at least (A) Annual series
B1b - Table T02 should contain at least (Q) Quarterly series

B2(VAD) Values for Aggregates are consistent with details

```
// Get the Annual Data Subset (select and remove components FREQ = "A" and TABLE = "T01")
ds_Annual_Data:= IntraEUTravellers [ sub TABLE = "T01", FREQ = "A" ] ;

// Calculate the Annual Data Subset from Quarterly series (select and remove components FREQ
= "A" and TABLE = "T02")
ds_Annual_Calc:= sum(IntraEUTravellers [ filter TABLE="T02" and FREQ = "Q" ] group all
                                time_agg ("A", "Q") )
                                [ sub TABLE = "T02", FREQ = "Q" ];

check (abs(ds_Annual_Data - ds_Annual_Calc) <= 1
                errorcode ("B2")
                errorlevel ("Error"))
```

1
B2 - Quarterly Sum should correspond to Annual data +/-1%

2
B2 - Quarterly Sum should correspond to Annual data +/-1.

3
B2 - Quarterly Sum should correspond to Annual data

C3(VNO) Values are not outliers

```
// Annual Data comparison
ds_Prev_Year := lag (IntraEUTravellers [ filter FREQ = "A" ] , 1  over ( order by TIME_PERIOD ) );
ds_Cur_Year := IntraEUTravellers [ filter FREQ = "A" ];

check (abs(ds_Prev_Year - ds_Cur_Year) / ds_Prev_Year  <= 0.2
                errorcode ("C3a")
                errorlevel ("Error"))

// Quarterly Data comparison
ds_Prev_Quart := lag (IntraEUTravellers [ filter FREQ = "Q" ], 4 over ( order by TIME_PERIOD ) );
ds_Cur_Quart := IntraEUTravellers [ filter FREQ = "Q" ];

check (abs(ds_Prev_ Quart - ds_Cur_ Quart) / ds_Prev_ Quart <= 0.2
                errorcode ("C3b")
                errorlevel ("Error"))
```

1
C3a - Annual data should differ more than 20 % from previous year
C3b - Quarterly data should differ more than 20% from previous year

2
C3a - Annual data should differ less than 20 % from previous year
C3b - Quarterly data should differ less than 20% from previous Quarter

3
C3a - Annual data should differ less than 20 % from previous year.
C3b - Quarterly data should differ less than 20% from previous year.

E1(COC) Codes are consistent

```
check (IntraEUTravellers#REPORTING <> IntraEUTravellers#PARTNER
        errorcode ("E1 ")
        errorlevel ("Error"))
```

1
E1 - Reporting Country and Partner Country should be different.
2
E1 - Reporting Country and Partner Country should be equal
3
E1 – Number of travellers from Reporting Country and Partner Country should be different

E2(VAD) Values for Aggregates are consistent with Details

```
define hierarchical ruleset partner_countries_ruleset ( valuedomain rule  PARTNER ) is

        EU28 =  BE + BG + CZ + DK + DE + EE + IE + EL + ES + FR + HR + IT + CY + LV + LT + LU
         + HU + MT + NL + AT + PL + PT + RO + SI + SK + FI + SE + UK
        errorcode ("E2")
        errorlevel ("Error")

end hierarchical ruleset ;
```

1
E2 - The code for *PARTNER* is invalid

2
E2 - The Total value for *PARTNER* should correspond to the sum of the 28 EU countries.

3
E2 - At least one EU country is missing in *PARTNER*

check_hierarchy(*IntraEUTravellers* **[keep** *OBS_VALUE***]**, *partner_countries_ruleset***)**	
F1(VMP) Values for mirror data are plausible (assumption: data contains all reporting countries)	

// Check Passenger Incoming from Reporting Country with mirror
ds_Reporter_Incoming:= *IntraEUTravellers* **[sub** *DIRECTION* = "IN" **]** ;
ds_Partner_Outgoing:= *IntraEUTravellers* **[sub** *DIRECTION* = "OUT" **]**
[rename *REPORTING* **to** tmp, *PARTNER* **to** *REPORTING*, tmp **to** *PARTNER*];
 	
check (abs(**ds_Reporter_Incoming - ds_Partner_Outgoing) /ds_Reporter_Incoming** <= 0.05
errorcode ("F1a") **errorlevel** ("Warning"))
 	
// Check Passenger Outgoing from Reporting Country with mirror
ds_Reporter_Outgoing:= *IntraEUTravellers* **[sub** *DIRECTION* = "OUT" **]** ;
ds_Partner_Incoming:= *IntraEUTravellers* **[sub** *DIRECTION* = "IN" **]**
[rename *REPORTING* **to** tmp, *PARTNER* **to** *REPORTING*, tmp **to** *PARTNER*];
 	
check (abs(**ds_Reporter_Outgoing - ds_Partner_Incoming) / ds_Reporter_Outgoing** <= 0.05
errorcode ("F1b") **errorlevel** ("Warning"))
	1
	F1a - Travellers reported by country A as incoming from B should correspond +/-5% to travellers reported by B as outgoing to A.
	F1b – Travellers reported by country A as outgoing to B should correspond +/-5% to travellers reported by B as incoming from A.
	2
	F1a - Travellers reported by country A as incoming should correspond +/-5% to travellers reported by country B as outgoing
	F1b – Travellers reported by country A as outgoing should correspond +/-5% to travellers reported by country B as incoming
	3
	F1a - Travellers reported by country A as incoming from country B should correspond +/-5% to travellers reported as outgoing to country B
	F1b – Travellers reported by country A as outgoing to country B should correspond +/-5% to travellers reported as incoming from country B

G1(VAD) Values for Aggregates are consistent with details	
ds_Total:= *IntraEUTravellers* **[sub** *AGE* = "TOTAL" **]** ; **ds_SumDetails**:= **sum**(*IntraEUTravellers* **[filter** *AGE* **in** {"Y0", "Y1", "Y2", … , "Y122", "UNK"} **]** **group by** *AGE)***;** **check** (**abs**(**ds_Total - ds_SumDetails**) / **ds_Total** < 0.01, **errorcode** ("G1"), **errorlevel** ("Warning"))	**1** G1 – Travellers of all ages should be reported **2** G1 – Incoming travellers by age should correspond (+/- 1%) to the Sum of Outgoing declared by the partner country **3** G1 – The total travellers for all ages should correspond (+/-1%) to the sum of all ages.
G2(VCO) Values are consistent	
ds_All_Ages:= *IntraEUTravellers* **[sub** *AGE* = "TOTAL" **]** ; **ds_Under_18**:= *IntraEUTravellers* **[sub** *AGE* = "Y0_18" **];** **check** (**ds_All_Ages** > 2 * **ds_Under_18** **errorcode** ("G2") **errorlevel** ("Warning"))	**1** G2 – Children aged 18 or under should represent half of total travellers **2** G2 – Children aged 18 or under should represent less than half of total travellers. **3** G2 - Children aged 18 or under should represent more than half of total travellers
H3(VSA) Values for seasonally adjusted data are plausible	

//Sum quarterly series
ds_QuartSum:= **sum**(*IntraEUTravellers* **[filter** *FREQ* = "Q" **] group all time_agg** ("A", "Q"));
 	
//Get adjusted and Non-Adjusted series
ds_Adjust := **ds_QuartSum [sub** *ADJUST* = "S" **] [filter** *OBS_VALUE* <> 0 **];**
ds_NonAdj:= **ds_QuartSum [sub** *ADJUST* = "N" **];**
 	
check (**abs**(**ds_Adjust** - **ds_NonAdj**) / **ds_Ajust** < 0.01
errorcode ("H3")
errorlevel ("Warning"))
	1
	H3 –Annual sum of both Quarterly Adjusted and Quarterly Non-Adjusted series should be equal
	
	2
	H3 – Annual sum of both Quarterly Adjusted and Quarterly Non-Adjusted series correspond with a +/-1 % tolerance.
	
	3
	H3 – Quarterly Adjusted and Quarterly Non-Adjusted series should correspond with a 1 % tolerance

I1(VIR) Values are in range	
check (*IntraEUTravellers* **[filter** not **isnull**(*OBS_VALUE*)**]** >= 1 **errorcode** ("I1") **errorlevel** ("Warning"))	**1** I1 – Values should be greater or equal to 1 **2** I1 – Values, when provided, should be greater or equal to 1. **3** I1 – Values, when provided, should be greater than 1