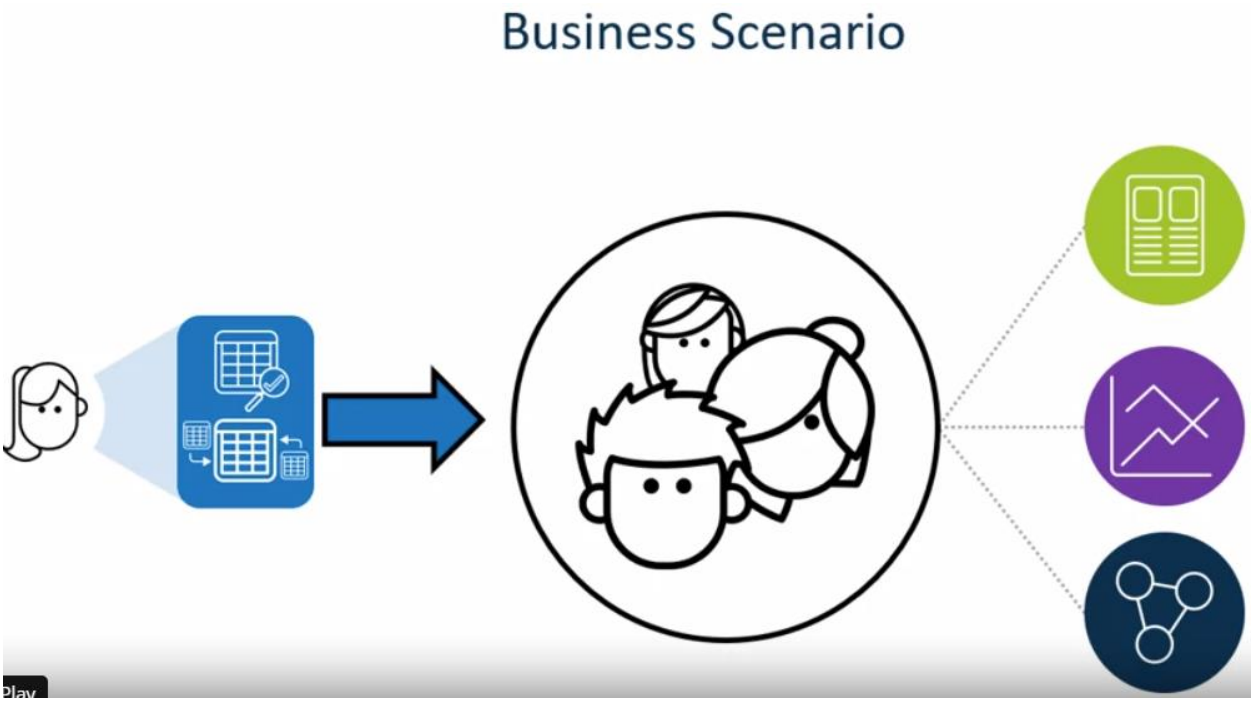
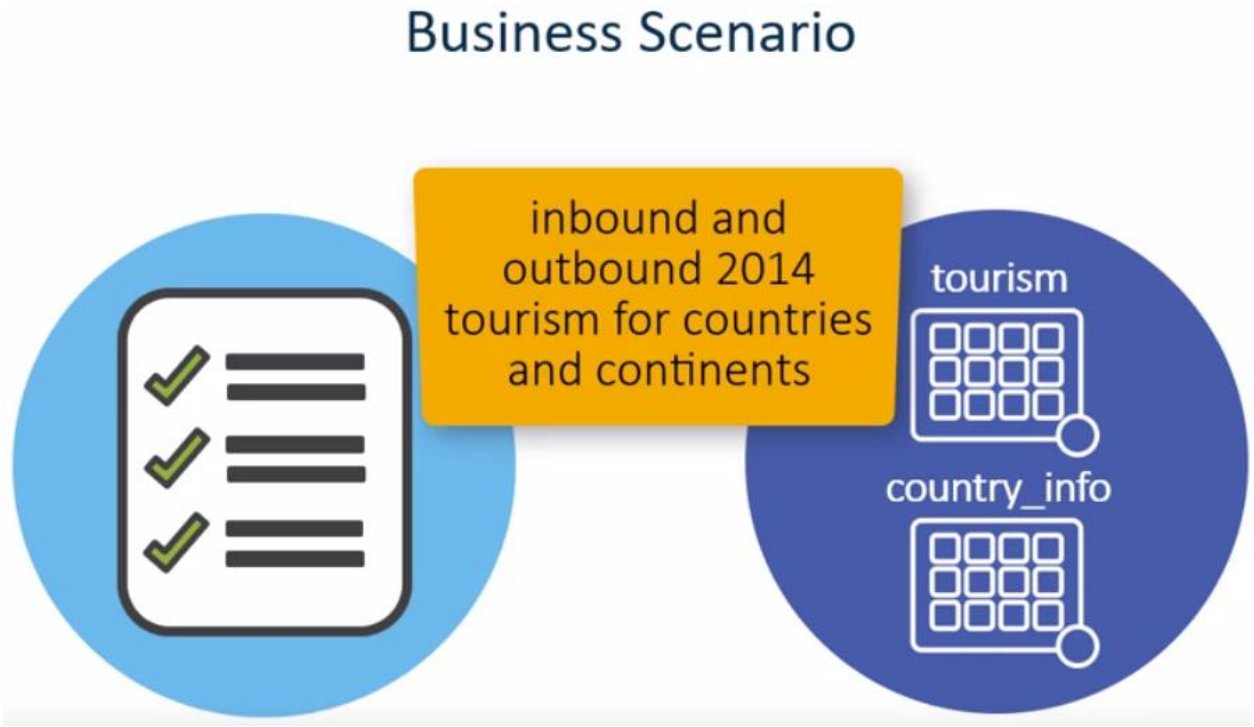
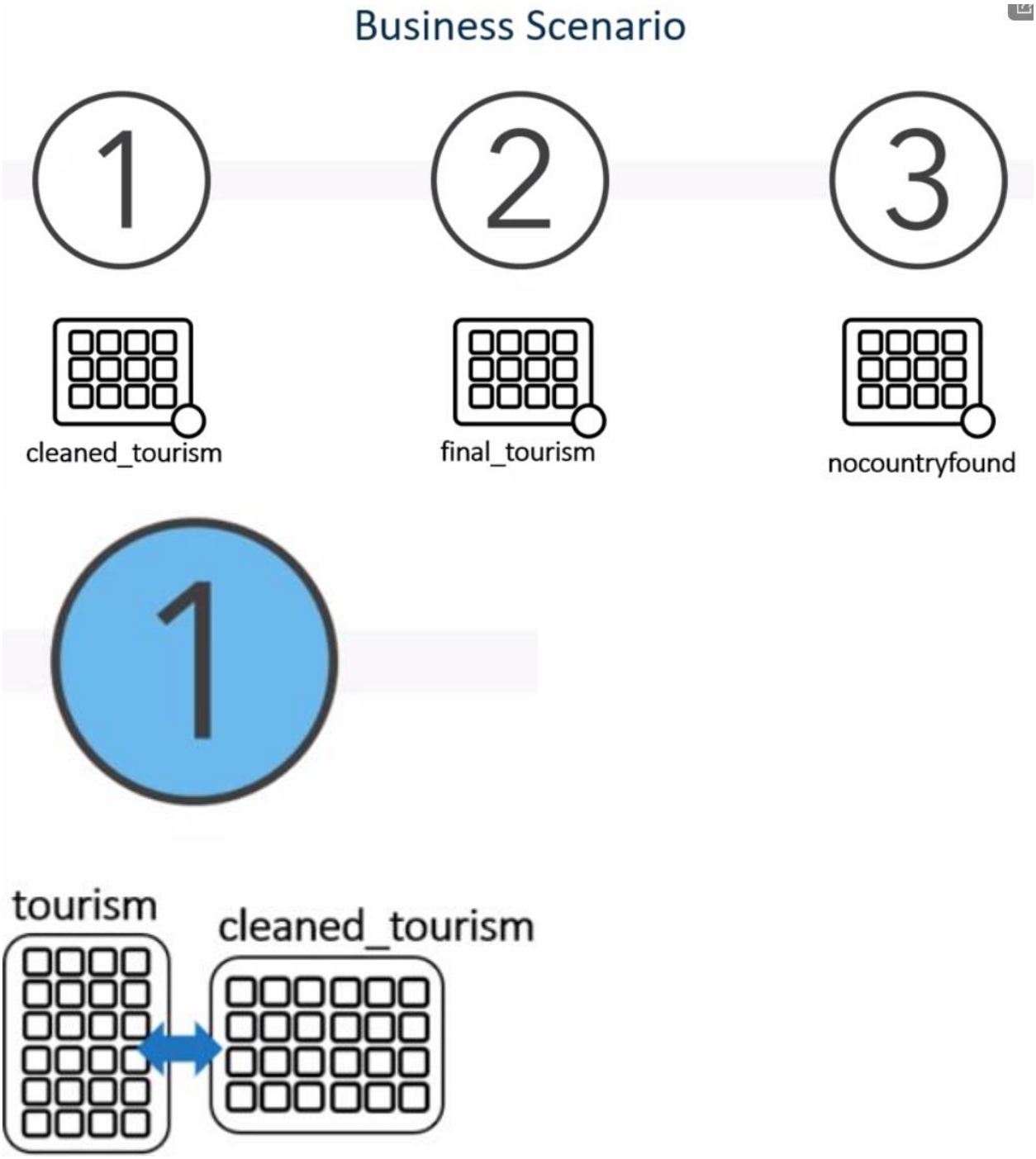
Case Study World Tourism Data





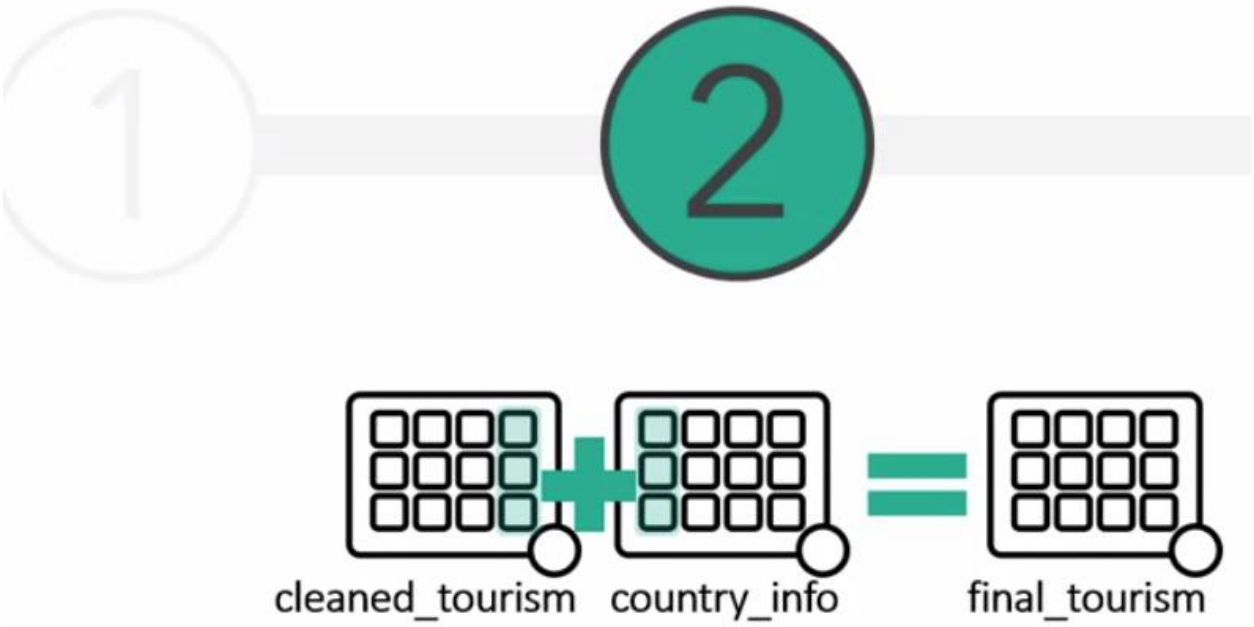

Business Scenario
1
2
3
cleaned_tourism
final_tourism
nocountryfound
1
tourism
cleaned_tourism

Business Scenario

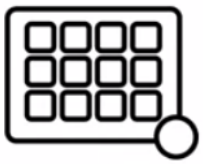
A	COUNTRY	Series	1995	1996	1997	1998	1999	2000	2001	2002	2003
826	UNITED KINGDOM										
	Inbound tourism										
	Arrivals - Thousands	TF	21,719	22,936	23,215	23,710	23,341	23,212	20,982	22,307	22,787
	Tourism expenditure in the country - US$ Mn	IMF	**27,577**	**29,181**	**30,483**	**31,658**	**30,807**	**29,978**	**26,137**	**27,819**	**30,736**
	Travel - US$ Mn	IMF	20,487	21,389	22,586	23,689	22,716	21,769	18,864	20,549	22,668
	Passenger transport - US$ Mn	IMF	7,090	7,792	7,897	7,969	8,091	8,209	7,273	7,270	8,068
	Outbound tourism										
	Departures - Thousands	TF	41,345	42,050	45,957	50,872	53,881	56,837	58,281	59,377	61,424
	Tourism expenditure in other countries - US$ Mn	IMF	**30,749**	**32,298**	**35,954**	**41,458**	**45,536**	**47,009**	**46,410**	**51,125**	**58,627**
	Travel - US$ Mn	IMF	24,926	25,962	28,529	33,452	37,034	38,262	37,931	41,744	47,853
	Passenger transport - US$ Mn	IMF	5,823	6,336	7,425	8,006	8,502	8,747	8,479	9,381	10,774

COUNTRY_NAME	TOURISM_TYPE	CATEGORY	SERIES	Y2014
UNITED KINGDOM	Inbound tourism	Arrivals	TF	32,613,000
UNITED KINGDOM	Inbound tourism	Tourism expenditure in the country - US$	IMF	**62,830,000,000**
UNITED KINGDOM	Inbound tourism	Travel - US$	IMF	46,723,000,000
UNITED KINGDOM	Inbound tourism	Passenger transport - US$	IMF	16,107,000,000
UNITED KINGDOM	Outbound tourism	Departures	TF	60,082,000
UNITED KINGDOM	Outbound tourism	Tourism expenditure in other countries - US$	IMF	**79,935,000,000**
UNITED KINGDOM	Outbound tourism	Travel - US$	IMF	63,424,000,000
UNITED KINGDOM	Outbound tourism	Passenger transport - US$	IMF	16,511,000,000

Business Scenario



Business Scenario



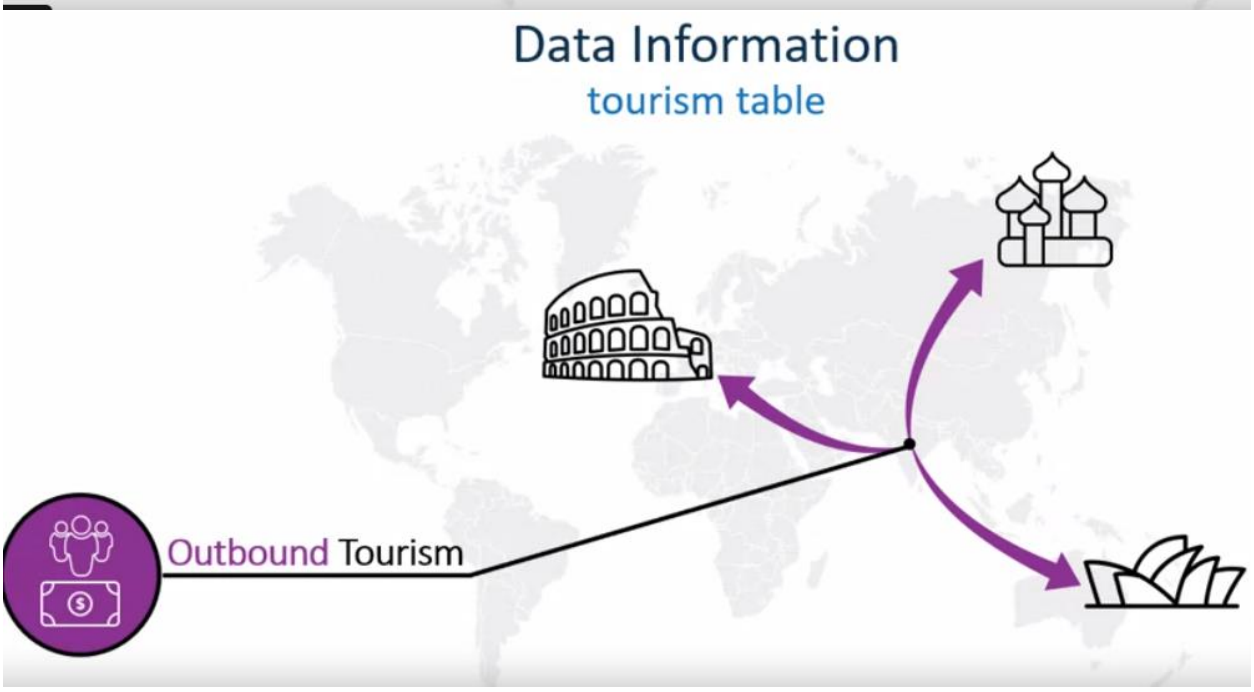
nocountryfound

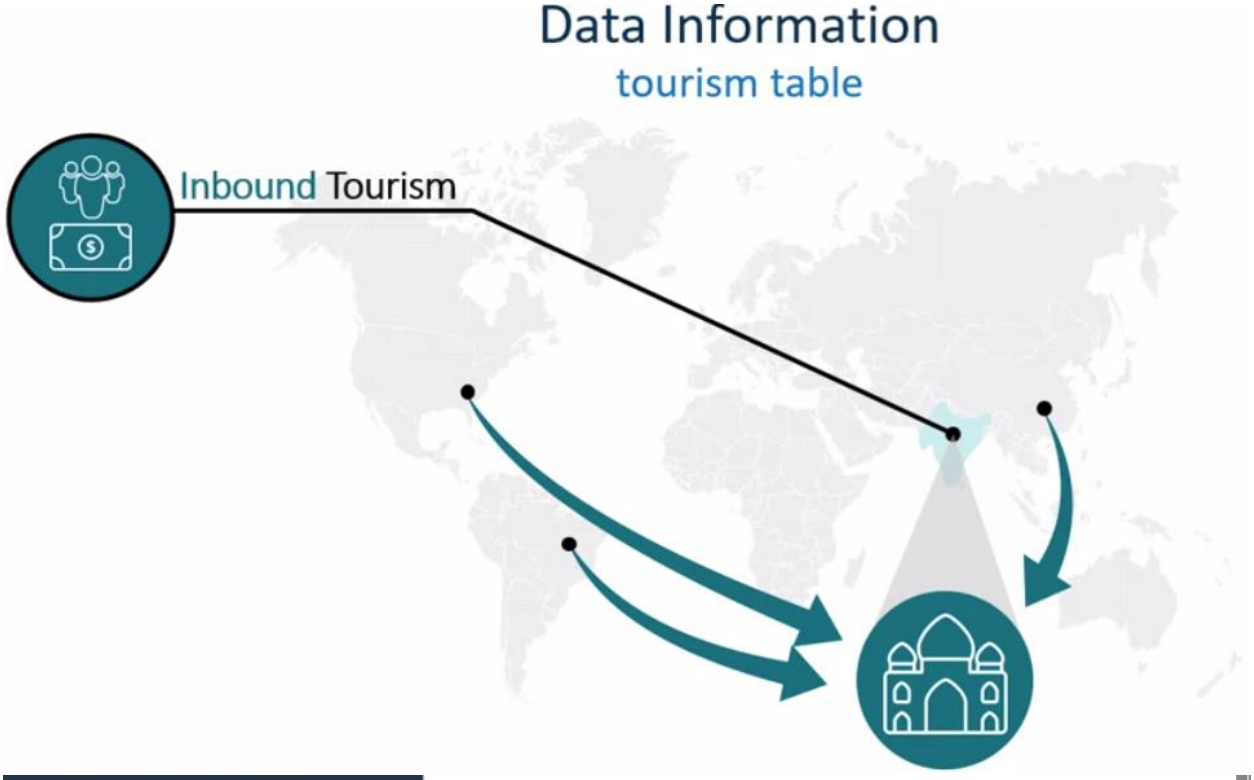
Data Information

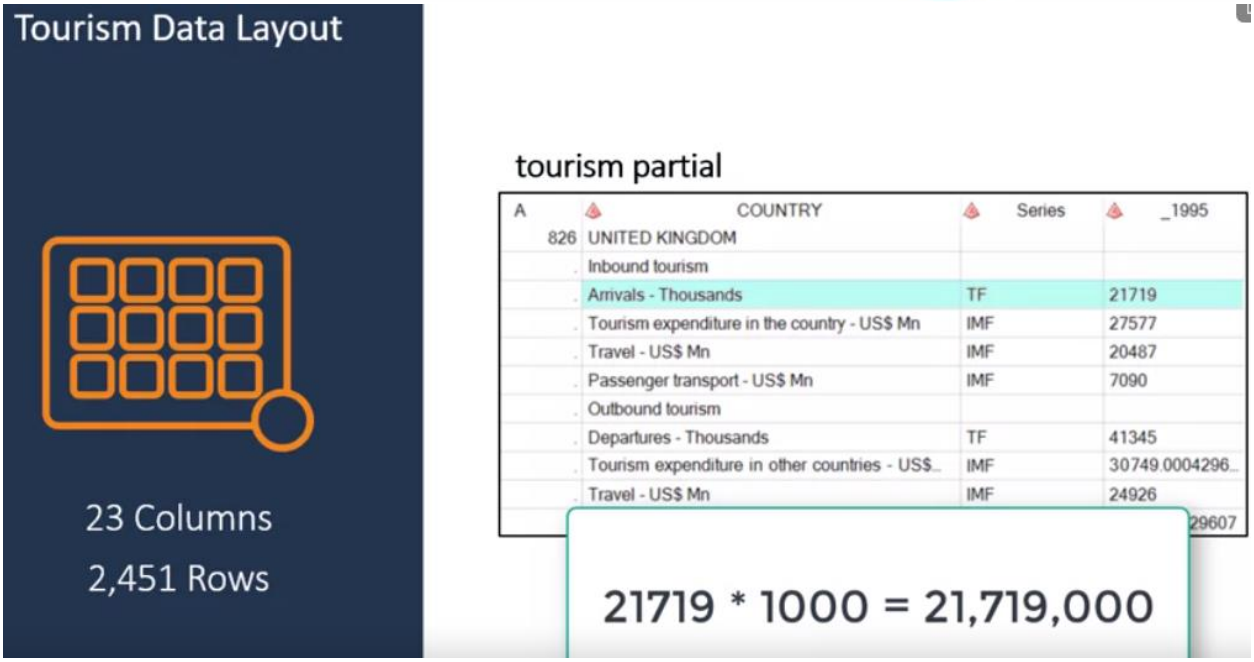
tourism

country_info


Data Information
tourism table
Inbound Tourism
Outbound Tourism


Data Information
tourism table
Outbound Tourism


Data Information
tourism table
Inbound Tourism


Tourism Data Layout
23 Columns
2,451 Rows
tourism partial
A
COUNTRY
Series
_1995
826 UNITED KINGDOM
Inbound tourism
Arrivals - Thousands TF 21719
Tourism expenditure in the country - US$ Mn IMF 27577
Travel - US$ Mn IMF 20487
Passenger transport - US$ Mn IMF 7090
Outbound tourism
Departures - Thousands TF 41345
Tourism expenditure in other countries - US$... IMF 30749.0004296...
Travel - US$ Mn IMF 24926
29607
21719 * 1000 = 21,719,000

country_info partial

Continent	Country
3	ANDORRA
5	UNITED ARAB EMIRATES
5	AFGHANISTAN
1	ANTIGUA AND BARBUDA
1	ANGUILLA
3	ALBANIA
5	ARMENIA
4	ANGOLA
7	ANTARCTICA
2	ARGENTINA
6	AMERICAN SAMOA
3	AUSTRIA
6	AUSTRALIA

```
/*********************************************/
/* This code defines macro variables and the   */
/* library for this course. You must run       */
/* this code each time you start SAS OnDemand  */
/* for Academics to access your practice data. */
/*********************************************/
%let path=~/ECRB94/data;
%let outpath=~/ECRB94/output;
libname cr "&path";


/* Create the Cleaned_Tourism Table */
/* Part 1 */
/* 1. If necessary, redefine the cr library. Read the cr.tourism table and create the cr.cleaned_tourism
table. */
/* 2. Remove the columns _1995 through _2013. */
/* 3. Create the Country_Name and Tourism_Type columns from values in the Country column.
Valid values for Tourism_Type are Inbound tourism and Outbound tourism.
Remove rows that contain this labeling information and no other data. */
```

```
data cr.cleaned_tourism;
        length Country_Name $ 300 Tourism_Type $ 20;
        retain Country_Name "" Tourism_Type "";
        set cr.Tourism(drop=_1995-_2013);
        if A ne . then Country_Name=Country;
        if lowcase(Country)="inbound tourism" then Tourism_Type="Inbound tourism";
        else if lowcase(Country)="outbound tourism" then Tourism_Type="Outbound tourism";
        if Country_Name ne Country and Tourism_Type ne Country;
run;
```

Table: CR.CLEANED_TOURISM | View: Column names | Filter: (none)

Columns

- Select all
- Country_Name
- Tourism_Type
- A
- COUNTRY
- Series
- _2014

Property	Value
Label	
Name	
Length	

Total rows: 1797 Total columns: 6 Rows 1-10

	Country_Name	Tourism_Type	A	COUNTRY	Series	_2014
1	AFGHANISTAN	Inbound tourism	.	Arrivals - Thousands	..	..
2	AFGHANISTAN	Inbound tourism	.	Tourism expenditure in the country - US$ Mn	IMF	91
3	AFGHANISTAN	Inbound tourism	.	Travel - US$ Mn	IMF	82
4	AFGHANISTAN	Inbound tourism	.	Passenger transport - US$ Mn	IMF	9
5	AFGHANISTAN	Outbound tourism	.	Departures - Thousands	..	..
6	AFGHANISTAN	Outbound tourism	.	Tourism expenditure in other countries - US$ Mn	IMF	122
7	AFGHANISTAN	Outbound tourism	.	Travel - US$ Mn	IMF	111
8	AFGHANISTAN	Outbound tourism	.	Passenger transport - US$ Mn	IMF	11
9	ALBANIA	Inbound tourism	.	Arrivals - Thousands	VF	3673
10	ALBANIA	Inbound tourism	.	Arrivals - Thousands	TF	3341
11	ALBANIA	Inbound tourism	.	Arrivals - Thousands	THS	161
12	ALBANIA	Inbound tourism	.	Tourism expenditure in the country - US$ Mn	IMF	1849
13	ALBANIA	Inbound tourism	.	Travel - US$ Mn	IMF	1700
14	ALBANIA	Inbound tourism	.	Passenger transport - US$ Mn	IMF	149
15	ALBANIA	Outbound tourism	.	Departures - Thousands	VF	4146
16	ALBANIA	Outbound tourism	.	Tourism expenditure in other countries - US$ Mn	IMF	1689
17	ALBANIA	Outbound tourism	.	Travel - US$ Mn	IMF	1590
18	ALBANIA	Outbound tourism	.	Passenger transport - US$ Mn	IMF	99
19	ALGERIA	Inbound tourism	.	Arrivals - Thousands	VF	2301

```
/* Part 2 */
/* 4. In the Series column, convert values to uppercase and convert ".." to missing a character value. */
/* 5. Determine the conversion type (Mn or Thousands) that will be used to calculate values for the new
Y2014 column.
Hint: You might want to create a new column with this information. */
/* 6. In the _2014 column, change the data not available (values of "..") to a single period. */
data cr.cleaned_tourism;
        length Country_Name $ 300 Tourism_Type $ 20;
        retain Country_Name "" Tourism_Type "";
```

```
set cr.Tourism(drop=_1995-_2013);
if A ne . then Country_Name=Country;
if lowcase(Country)="inbound tourism" then Tourism_Type="Inbound tourism";
else if lowcase(Country)="outbound tourism" then Tourism_Type="Outbound tourism";
if Country_Name ne Country and Tourism_Type ne Country;

series=upcase(series);
if series=".." then Series="";
ConversionType=scan(Country, -1, " ");
if _2014=".." then _2014=".";
run;
```

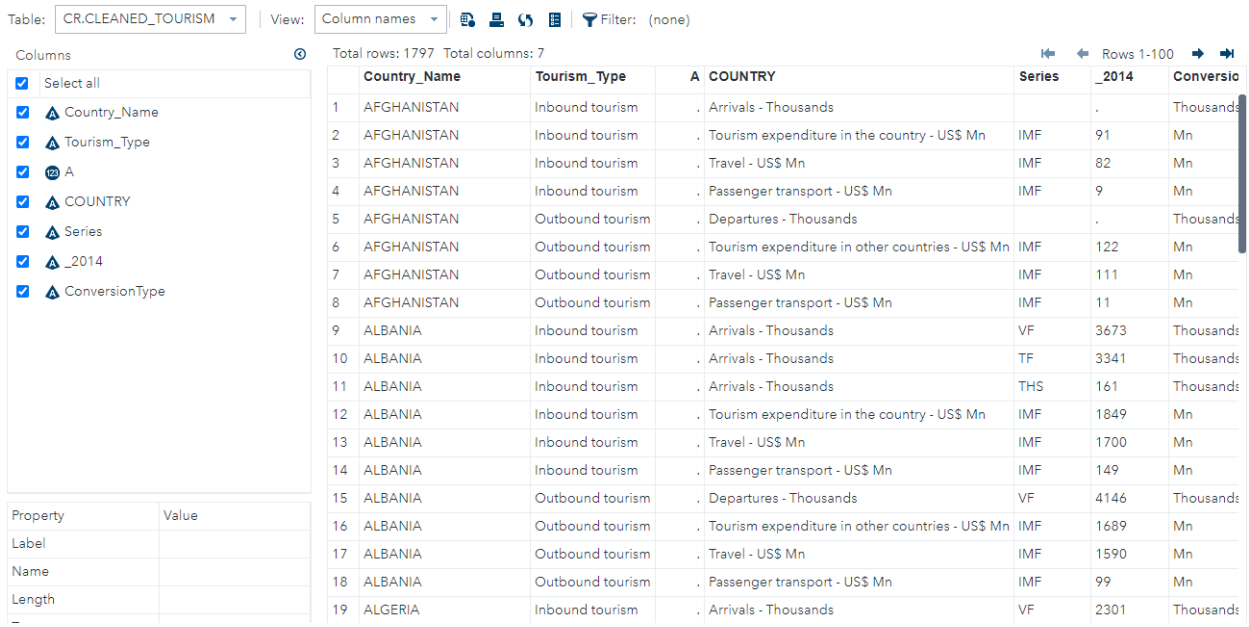


Table: CR.CLEANED_TOURISM | View: Column names | Filter: (none)

Columns

- Select all
- Country_Name
- Tourism_Type
- A
- COUNTRY
- Series
- _2014
- ConversionType

Property	Value
Label	
Name	
Length	

Total rows: 1797 Total columns: 7 — Rows 1-100

	Country_Name	Tourism_Type	A	COUNTRY	Series	_2014	Conversio
1	AFGHANISTAN	Inbound tourism	.	Arrivals - Thousands		.	Thousands
2	AFGHANISTAN	Inbound tourism	.	Tourism expenditure in the country - US$ Mn	IMF	91	Mn
3	AFGHANISTAN	Inbound tourism	.	Travel - US$ Mn	IMF	82	Mn
4	AFGHANISTAN	Inbound tourism	.	Passenger transport - US$ Mn	IMF	9	Mn
5	AFGHANISTAN	Outbound tourism	.	Departures - Thousands		.	Thousands
6	AFGHANISTAN	Outbound tourism	.	Tourism expenditure in other countries - US$ Mn	IMF	122	Mn
7	AFGHANISTAN	Outbound tourism	.	Travel - US$ Mn	IMF	111	Mn
8	AFGHANISTAN	Outbound tourism	.	Passenger transport - US$ Mn	IMF	11	Mn
9	ALBANIA	Inbound tourism	.	Arrivals - Thousands	VF	3673	Thousands
10	ALBANIA	Inbound tourism	.	Arrivals - Thousands	TF	3341	Thousands
11	ALBANIA	Inbound tourism	.	Arrivals - Thousands	THS	161	Thousands
12	ALBANIA	Inbound tourism	.	Tourism expenditure in the country - US$ Mn	IMF	1849	Mn
13	ALBANIA	Inbound tourism	.	Travel - US$ Mn	IMF	1700	Mn
14	ALBANIA	Inbound tourism	.	Passenger transport - US$ Mn	IMF	149	Mn
15	ALBANIA	Outbound tourism	.	Departures - Thousands	VF	4146	Thousands
16	ALBANIA	Outbound tourism	.	Tourism expenditure in other countries - US$ Mn	IMF	1689	Mn
17	ALBANIA	Outbound tourism	.	Travel - US$ Mn	IMF	1590	Mn
18	ALBANIA	Outbound tourism	.	Passenger transport - US$ Mn	IMF	99	Mn
19	ALGERIA	Inbound tourism	.	Arrivals - Thousands	VF	2301	Thousands

```
proc freq data=cr.cleaned_tourism;
    tables Country_Name Tourism_Type Series ConversionType;
run;
```

The FREQ Procedure

Country_Name	Frequency	Percent	Cumulative Frequency	Cumulative Percent
AFGHANISTAN	8	0.45	8	0.45
ALBANIA	10	0.56	18	1.00
ALGERIA	8	0.45	26	1.45
AMERICAN SAMOA	8	0.45	34	1.89
ANDORRA	8	0.45	42	2.34
ANGOLA	8	0.45	50	2.78
ANGUILLA	8	0.45	58	3.23
ANTIGUA AND BARBUDA	8	0.45	66	3.67
ARGENTINA	8	0.45	74	4.12
ARMENIA	8	0.45	82	4.56
ARUBA	8	0.45	90	5.01
AUSTRALIA	9	0.50	99	5.51
AUSTRIA	8	0.45	107	5.95
AZERBAIJAN	10	0.56	117	6.51
BAHAMAS	8	0.45	125	6.96
BAHRAIN	9	0.50	134	7.46
BANGLADESH	8	0.45	142	7.90
BARBADOS	8	0.45	150	8.35
BELARUS	9	0.50	159	8.85
BELGIUM	8	0.45	167	9.29
BELIZE	8	0.45	175	9.74
BENIN	8	0.45	183	10.18
BERMUDA	8	0.45	191	10.63
BHUTAN	8	0.45	199	11.07
BOLIVIA, PLURINATIONAL STATE OF	8	0.45	207	11.52
BONAIRE	8	0.45	215	11.96
BOSNIA AND HERZEGOVINA	8	0.45	223	12.41
BOTSWANA	8	0.45	231	12.85
BRAZIL	8	0.45	239	13.30

UKRAINE	8	0.45	1699	94.55
UNITED ARAB EMIRATES	8	0.45	1707	94.99
UNITED KINGDOM	8	0.45	1715	95.44
UNITED STATES OF AMERICA	8	0.45	1723	95.88
UNITED STATES VIRGIN ISLANDS	8	0.45	1731	96.33
URUGUAY	8	0.45	1739	96.77
UZBEKISTAN	8	0.45	1747	97.22
VANUATU	8	0.45	1755	97.66
VENEZUELA, BOLIVARIAN REPUBLIC OF	8	0.45	1763	98.11
VIETNAM	9	0.50	1772	98.61
YEMEN	8	0.45	1780	99.05
ZAMBIA	8	0.45	1788	99.50
ZIMBABWE	9	0.50	1797	100.00

Tourism_Type	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Inbound tourism	913	50.81	913	50.81
Outbound tourism	884	49.19	1797	100.00

Series				
Series	Frequency	Percent	Cumulative Frequency	Cumulative Percent
CB	14	0.95	14	0.95
COUNTRY	34	2.30	48	3.25
IMF	1036	70.05	1084	73.29
TCE	24	1.62	1108	74.92
TF	300	20.28	1408	95.20
THS	19	1.28	1427	96.48
VF	52	3.52	1479	100.00
Frequency Missing = 318				

ConversionType	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Mn	1308	72.79	1308	72.79
Thousands	489	27.21	1797	100.00

/* Part 3 */

/* 7. Create the Y2014 column by explicitly converting character values in _2014 to numeric and multiplying */

/* by the conversion type (millions or thousands) that is found in the Country column or new column, if you created one. */

/* 8. Create the new Category column from values in the Country column and change the original values to the following valid values: */

```
/* • Arrivals */
/* • Departures */
/* • Passenger Transport - US$ */
/* • Tourism expenditure in other countries - US$ */
/* • Tourism expenditure in the country – US$ */
/* • Travel - US$ */
/* 9. Permanently format Y2014 with the COMMA format. */
/* 10. Include only Country_Name, Tourism_Type, Category, Series, and Y2014 in the output table. */

data cr.cleaned_tourism;
        length Country_Name $ 300 Tourism_Type $ 20;
        retain Country_Name "" Tourism_Type "";
        set cr.Tourism(drop=_1995-_2013);
        if A ne . then Country_Name=Country;
        if lowcase(Country)="inbound tourism" then Tourism_Type="Inbound tourism";
        else if lowcase(Country)="outbound tourism" then Tourism_Type="Outbound tourism";
        if Country_Name ne Country and Tourism_Type ne Country;

        series=upcase(series);
        if series=".." then Series="";
        ConversionType=scan(Country, -1, " ");
        if _2014=".." then _2014=".";

        if ConversionType="Mn" then do;
                if _2014 ne "." then Y2014=input(_2014,16.) * 1000000;
                else if Y2014=.;
                Category=cat(scan(country, 1, '-', 'r'),' - US$');
        end;
        if ConversionType="Thousands" then do;
```

```
        if _2014 ne "." then Y2014=input(_2014,16.) * 1000;
        else if Y2014=.;
        Category=scan(country, 1, '-', 'r');
    end;
run;

proc freq data=cr.cleaned_tourism;
    tables country Category;
run;
```

Total rows: 1797 Total columns: 9 Rows 1-100

	Country_Name	Tourism_Type	A	COUNTRY	Series	_2014	ConversionType	Y2014	Category
1	AFGHANISTAN	Inbound tourism	.	Arrivals - Thousands		.	Thousands	.	Arrivals
2	AFGHANISTAN	Inbound tourism	.	Tourism expenditure in the country - US$ Mn	IMF	91	Mn	91000000	Tourism expenditure in the country - US$
3	AFGHANISTAN	Inbound tourism	.	Travel - US$ Mn	IMF	82	Mn	82000000	Travel - US$
4	AFGHANISTAN	Inbound tourism	.	Passenger transport - US$ Mn	IMF	9	Mn	9000000	Passenger transport - US$
5	AFGHANISTAN	Outbound tourism	.	Departures - Thousands		.	Thousands	.	Departures
6	AFGHANISTAN	Outbound tourism	.	Tourism expenditure in other countries - US$ Mn	IMF	122	Mn	122000000	Tourism expenditure in other countries -
7	AFGHANISTAN	Outbound tourism	.	Travel - US$ Mn	IMF	111	Mn	111000000	Travel - US$
8	AFGHANISTAN	Outbound tourism	.	Passenger transport - US$ Mn	IMF	11	Mn	11000000	Passenger transport - US$
9	ALBANIA	Inbound tourism	.	Arrivals - Thousands	VF	3673	Thousands	3673000	Arrivals
10	ALBANIA	Inbound tourism	.	Arrivals - Thousands	TF	3341	Thousands	3341000	Arrivals
11	ALBANIA	Inbound tourism	.	Arrivals - Thousands	THS	161	Thousands	161000	Arrivals
12	ALBANIA	Inbound tourism	.	Tourism expenditure in the country - US$ Mn	IMF	1849	Mn	1849000000	Tourism expenditure in the country - US$

The FREQ Procedure

COUNTRY				
COUNTRY	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Arrivals - Thousands	259	14.41	259	14.41
Departures - Thousands	230	12.80	489	27.21
Passenger transport - US$ Mn	436	24.26	925	51.47
Tourism expenditure in other countries - US$ Mn	218	12.13	1143	63.61
Tourism expenditure in the country - US$ Mn	218	12.13	1361	75.74
Travel - US$ Mn	436	24.26	1797	100.00

Category	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Arrivals	259	14.41	259	14.41
Departures	230	12.80	489	27.21
Passenger transport - US$	436	24.26	925	51.47
Tourism expenditure in other countries - US$	218	12.13	1143	63.61
Tourism expenditure in the country - US$	218	12.13	1361	75.74
Travel - US$	436	24.26	1797	100.00

```
data cr.cleaned_tourism;
	length Country_Name $ 300 Tourism_Type $ 20;
	retain Country_Name "" Tourism_Type "";
	set cr.Tourism(drop=_1995-_2013);
	if A ne . then Country_Name=Country;
	if lowcase(Country)="inbound tourism" then Tourism_Type="Inbound tourism";
	else if lowcase(Country)="outbound tourism" then Tourism_Type="Outbound tourism";
	if Country_Name ne Country and Tourism_Type ne Country;

	series=upcase(series);
	if series=".." then Series="";
	ConversionType=scan(Country, -1, " ");
	if _2014=".." then _2014=".";

	if ConversionType="Mn" then do;
		if _2014 ne "." then Y2014=input(_2014,16.) * 1000000;
		else if Y2014=.;
		Category=cat(scan(country, 1, '-', 'r'),' - US$');
	end;
	if ConversionType="Thousands" then do;
		if _2014 ne "." then Y2014=input(_2014,16.) * 1000;
		else if Y2014=.;
		Category=scan(country, 1, '-', 'r');
	end;
	format Y2014 comma25.;
	drop A ConversionType Country _2014;
run;
```

Total rows: 1797 Total columns: 5

	Country_Name	Tourism_Type	Series	Y2014	Category
1	AFGHANISTAN	Inbound tourism		.	Arrivals
2	AFGHANISTAN	Inbound tourism	IMF	91,000,000	Tourism expenditure in the country - US$
3	AFGHANISTAN	Inbound tourism	IMF	82,000,000	Travel - US$
4	AFGHANISTAN	Inbound tourism	IMF	9,000,000	Passenger transport - US$
5	AFGHANISTAN	Outbound tourism		.	Departures
6	AFGHANISTAN	Outbound tourism	IMF	122,000,000	Tourism expenditure in other countries - US$
7	AFGHANISTAN	Outbound tourism	IMF	111,000,000	Travel - US$
8	AFGHANISTAN	Outbound tourism	IMF	11,000,000	Passenger transport - US$
9	ALBANIA	Inbound tourism	VF	3,673,000	Arrivals
10	ALBANIA	Inbound tourism	TF	3,341,000	Arrivals
11	ALBANIA	Inbound tourism	THS	161,000	Arrivals
12	ALBANIA	Inbound tourism	IMF	1,849,000,000	Tourism expenditure in the country - US$
13	ALBANIA	Inbound tourism	IMF	1,700,000,000	Travel - US$
14	ALBANIA	Inbound tourism	IMF	149,000,000	Passenger transport - US$
15	ALBANIA	Outbound tourism	VF	4,146,000	Departures
16	ALBANIA	Outbound tourism	IMF	1,689,000,000	Tourism expenditure in other countries - US$
17	ALBANIA	Outbound tourism	IMF	1,590,000,000	Travel - US$
18	ALBANIA	Outbound tourism	IMF	99,000,000	Passenger transport - US$
19	ALGERIA	Inbound tourism	VF	2,301,000	Arrivals
20	ALGERIA	Inbound tourism	IMF	347,000,000	Tourism expenditure in the country - US$

```
proc freq data=cr.cleaned_tourism;
        tables Category Tourism_Type Series;
run;

proc means data=cr.cleaned_tourism mean min max sum maxdec=0;
run;
```

The FREQ Procedure

Category	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Arrivals	259	14.41	259	14.41
Departures	230	12.80	489	27.21
Passenger transport - US$	436	24.26	925	51.47
Tourism expenditure in other countries - US$	218	12.13	1143	63.61
Tourism expenditure in the country - US$	218	12.13	1361	75.74
Travel - US$	436	24.26	1797	100.00

Tourism_Type	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Inbound tourism	913	50.81	913	50.81
Outbound tourism	884	49.19	1797	100.00

Series				
Series	Frequency	Percent	Cumulative Frequency	Cumulative Percent
CB	14	0.95	14	0.95
COUNTRY	34	2.30	48	3.25
IMF	1036	70.05	1084	73.29
TCE	24	1.62	1108	74.92
TF	300	20.28	1408	95.20
THS	19	1.28	1427	96.48
VF	52	3.52	1479	100.00
Frequency Missing = 318				

The MEANS Procedure

Analysis Variable : Y2014			
Mean	Minimum	Maximum	Sum
4316887684	1400	220757000000	4.6061192E12

```
/* Create the Final Tourism Table */

/* Create the custom format */

proc format;

	value ContIDs

		1 = "North America"

		2 = "South America"

		3 = "Europe"

		4 = "Africa"

		5 = "Asia"

		6 = "Oceania"

		7 = "Antarctica";

run;


/* Merge Matching Rows */

proc sort data=cr.country_info(rename=(Country=Country_Name))

		out=cr.country_sorted;

	by Country_Name;

run;


data final_tourism;

	merge cr.cleaned_tourism(in=t) cr.country_sorted(in=c);

	by Country_Name;

	if t=1 and c=1 then output final_tourism;

	format continent contIDs.;

run;


proc freq data=final_tourism nlevels;

	tables category series Tourism_Type Continent / nocum nopercent;

run;
```

```
proc means data=final_tourism mean min max sum maxdec=0;
        var Y2014;
run;
```

```
92          data final_tourism;
93          merge cr.cleaned_tourism(in=t) cr.country_sorted(in=c);
94          by Country_Name;
95          if t=1 and c=1 then output final_tourism;
96          format continent contIDs.;
97          run;

NOTE: There were 1797 observations read from the data set CR.CLEANED_TOURISM.
NOTE: There were 250 observations read from the data set CR.COUNTRY_SORTED.
NOTE: The data set WORK.FINAL_TOURISM has 1724 observations and 6 variables.
```

Table: WORK.FINAL_TOURISM | View: Column names | Filter: (none)

Columns

- Select all
- Country_Name
- Tourism_Type
- Series
- Y2014
- Category
- Continent

Total rows: 1724 Total columns: 6 — Rows 1-100

	Country_Name	Tourism_Type	Series	Y2014	Category	Continent
1	AFGHANISTAN	Inbound tourism		.	Arrivals	Asia
2	AFGHANISTAN	Inbound tourism	IMF	91,000,000	Tourism expenditure in the country - US$	Asia
3	AFGHANISTAN	Inbound tourism	IMF	82,000,000	Travel - US$	Asia
4	AFGHANISTAN	Inbound tourism	IMF	9,000,000	Passenger transport - US$	Asia
5	AFGHANISTAN	Outbound tourism		.	Departures	Asia
6	AFGHANISTAN	Outbound tourism	IMF	122,000,000	Tourism expenditure in other countries - US$	Asia
7	AFGHANISTAN	Outbound tourism	IMF	111,000,000	Travel - US$	Asia
8	AFGHANISTAN	Outbound tourism	IMF	11,000,000	Passenger transport - US$	Asia
9	ALBANIA	Inbound tourism	VF	3,673,000	Arrivals	Europe
10	ALBANIA	Inbound tourism	TF	3,341,000	Arrivals	Europe

The FREQ Procedure

Number of Variable Levels				
Variable	Label	Levels	Missing Levels	Nonmissing Levels
Category		6	0	6
Series	Series	8	1	7
Tourism_Type		2	0	2
Continent	Numeric number for continent	6	0	6

Category	Frequency
Arrivals	249
Departures	221
Passenger transport - US$	418
Tourism expenditure in other countries - US$	209
Tourism expenditure in the country - US$	209
Travel - US$	418

Series	
Series	Frequency
CB	12
COUNTRY	29
IMF	1016
TCE	23
TF	291
THS	19
VF	49
Frequency Missing = 285	

Tourism_Type	Frequency
Inbound tourism	876
Outbound tourism	848

Numeric number for continent	
Continent	Frequency
North America	284
South America	105
Europe	369
Africa	422
Asia	382
Oceania	162

The MEANS Procedure

Analysis Variable : Y2014			
Mean	Minimum	Maximum	Sum
4228748679	1400	220757000000	4.3809836E12

/* Create the NoCountryFound table */

```
data final_tourism
        NoCountryFound(keep=Country_Name);
        merge cr.cleaned_tourism(in=t) cr.country_sorted(in=c);
        by Country_Name;
        if t=1 and c=1 then output final_tourism;
        if (t=1 and c=0) and first.Country_Name=1 then output NoCountryFound;
        format continent contIDs.;
run;
```

```
NOTE: There were 1797 observations read from the data set CR.CLEANED_TOURISM.
NOTE: There were 250 observations read from the data set CR.COUNTRY_SORTED.
NOTE: The data set WORK.FINAL_TOURISM has 1724 observations and 6 variables.
NOTE: The data set WORK.NOCOUNTRYFOUND has 9 observations and 1 variables.
```

Table: WORK.NOCOUNTRYFOUND | View: Column names

Columns

- Select all
- Country_Name

Total rows: 9 Total columns: 1

	Country_Name
1	BONAIRE
2	CABO VERDE
3	CONGO, DEMOCRATIC REPUBLIC OF
4	CURAÇAO
5	HONG KONG, CHINA
6	MACAO, CHINA
7	SABA
8	SERBIA AND MONTENEGRO
9	SINT EUSTATIUS

```
proc means data=final_tourism mean min max sum maxdec=0;
        var Y2014;
        class Continent;
        where Category="Tourism expenditure in the country - US$";
run;
```

The MEANS Procedure

Analysis Variable : Y2014					
Numeric number for continent	N Obs	Mean	Minimum	Maximum	Sum
North America	35	19973376923	420000000	220757000000	259653900000
South America	13	2897400000	103000000	7403000000	28974000000
Europe	44	13169310345	298000000	66803000000	381910000000
Africa	51	1703515000	16100000	10484000000	34070300000
Asia	46	6758970588	91000000	42063000000	229805000000
Oceania	20	3880988889	2800000	34117000000	34928900000

```
proc means data=final_tourism mean min max sum maxdec=0;
        var Y2014;
        class Continent;
        where Category="Tourism expenditure in other countries - US$";
run;
```

The MEANS Procedure

Analysis Variable : Y2014					
Numeric number for continent	N Obs	Mean	Minimum	Maximum	Sum
North America	35	9764411765	51000000	145678000000	165995000000
South America	13	5120800000	90000000	29998000000	51208000000
Europe	44	12955241379	79000000	106630000000	375702000000
Africa	51	1241850000	19000000	8573000000	24837000000
Asia	46	7204111111	29000000	55383000000	259348000000
Oceania	20	4024950000	4100000	31863000000	32199600000

```
proc means data=final_tourism mean min max sum maxdec=0;
        var Y2014;
        where Category="Tourism expenditure in other countries - US$";
run;
*Solution;
proc means data=cr.final_tourism mean maxdec=0;
```

```
    var y2014;
    where lowcase(Category) contains "tourism expenditure in other countries";
run;
```

The MEANS Procedure

Analysis Variable : Y2014			
Mean	Minimum	Maximum	Sum
7577413333	4100000	145678000000	909289600000

```
proc means data=final_tourism mean min max maxdec=0;
    var y2014;
    class Continent;
    where Category="Arrivals";
run;
```

The MEANS Procedure

Analysis Variable : Y2014				
Numeric number for continent	N Obs	Mean	Minimum	Maximum
North America	36	4399137	8800	75011000
South America	14	2376214	185000	6430000
Europe	57	10540377	11000	83767000
Africa	63	1641974	33000	10283000
Asia	57	7356268	60000	55622000
Oceania	22	846658	1400	6868000