

An aerial photograph of the Toronto skyline, featuring the CN Tower and numerous skyscrapers, with a warm orange-red color overlay. The image is used as a background for the presentation slide.

Data Analytics Project

IMMIGRATION ANALYSIS IN CANADA

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Analysis Objective

Canada has great reputation for being a friendly and safe place to live and raise a family. Generally speaking, moving to Canada is not too difficult. Because Canada is **open to welcoming new immigrants** and offers several immigration programs. With numerous number of people around the world who have immigrated to Canada, surely it affected the society, economy, and several aspects in Canada. By knowing the trend of immigration in Canada, hopefully there will be policies that regulates the society of Canada that bring prosperity.

Data Gathering

Dataset consist of several columns: Type, Coverage, OdName, AREA, AreaName, REG, RegName, DEV, DevName and Number of immigrants per each year (1980 - 2013)

Type	Coverage	OdName	AREA	AreaName	REG	RegName	DEV	DevName	1980	1981	1982	1983	1984	1985	1986	1987	1988
Immigrants	Foreigners	Afghanistan	935	Asia	5501	Southern Asia	902	Developing re	16	39	39	47	71	340	496	741	828
Immigrants	Foreigners	Algeria	903	Africa	912	Northern Africa	902	Developing re	80	67	71	69	63	44	69	132	242
Immigrants	Foreigners	American Samoa	909	Oceania	957	Polynesia	902	Developing re	0	1	0	0	0	0	0	1	0
Immigrants	Foreigners	Angola	903	Africa	911	Middle Africa	902	Developing re	1	3	6	6	4	3	5	5	11
Immigrants	Foreigners	Antigua and Barbuda	904	Latin America	915	Caribbean	902	Developing re	0	0	0	0	42	52	51	61	34
Immigrants	Foreigners	Argentina	904	Latin America	931	South America	902	Developing re	368	426	626	241	237	196	213	519	374
Immigrants	Foreigners	Armenia	935	Asia	922	Western Asia	902	Developing re	0	0	0	0	0	0	0	0	0
Immigrants	Foreigners	Azerbaijan	935	Asia	922	Western Asia	902	Developing re	0	0	0	0	0	0	0	0	0
Immigrants	Foreigners	Bahamas	904	Latin America	915	Caribbean	902	Developing re	26	23	38	12	21	28	23	18	22
Immigrants	Foreigners	Bahrain	935	Asia	922	Western Asia	902	Developing re	0	2	1	1	1	3	0	2	10
Immigrants	Foreigners	Bangladesh	935	Asia	5501	Southern Asia	902	Developing re	83	84	86	81	98	92	486	503	476
Immigrants	Foreigners	Barbados	904	Latin America	915	Caribbean	902	Developing re	372	376	299	244	265	285	251	303	265
Immigrants	Foreigners	Belize	904	Latin America	916	Central America	902	Developing re	16	27	13	21	37	26	25	23	53
Immigrants	Foreigners	Benin	903	Africa	914	Western Africa	902	Developing re	2	5	4	3	4	3	6	4	20
Immigrants	Foreigners	Bhutan	935	Asia	5501	Southern Asia	902	Developing re	0	0	0	0	1	0	0	0	0
Immigrants	Foreigners	Bolivia (Plurinational State of)	904	Latin America	931	South America	902	Developing re	44	52	42	49	38	44	79	165	63
Immigrants	Foreigners	Botswana	903	Africa	913	Southern Africa	902	Developing re	10	1	3	3	7	4	2	3	8
Immigrants	Foreigners	Brazil	904	Latin America	931	South America	902	Developing re	211	220	192	139	145	130	205	244	394
Immigrants	Foreigners	Brunei Darussalam	935	Asia	920	South-Eastern Asia	902	Developing re	79	6	8	2	2	4	12	16	103
Immigrants	Foreigners	Burkina Faso	903	Africa	914	Western Africa	902	Developing re	2	1	3	2	3	2	7	18	6
Immigrants	Foreigners	Burundi	903	Africa	910	Eastern Africa	902	Developing re	0	0	0	0	1	2	1	5	1
Immigrants	Foreigners	Cabo Verde	903	Africa	914	Western Africa	902	Developing re	1	1	2	0	11	1	9	3	1
Immigrants	Foreigners	Cambodia	935	Asia	920	South-Eastern Asia	902	Developing re	12	19	26	33	10	7	8	14	15
Immigrants	Foreigners	Cameroon	903	Africa	911	Middle Africa	902	Developing re	9	2	16	7	8	13	11	18	20
Immigrants	Foreigners	Central African Republic	903	Africa	911	Middle Africa	902	Developing re	4	3	1	0	0	0	0	2	3
Immigrants	Foreigners	Chad	903	Africa	911	Middle Africa	902	Developing re	0	0	1	0	0	1	2	3	7
Immigrants	Foreigners	Chile	904	Latin America	931	South America	902	Developing re	1233	1069	1078	781	681	533	633	1454	990
Immigrants	Foreigners	China	935	Asia	906	Eastern Asia	902	Developing re	5123	6682	3308	1863	1527	1816	1960	2643	2758
Immigrants	Foreigners	China, Hong Kong Special Administrative Region	935	Asia	906	Eastern Asia	902	Developing re	0	0	0	0	0	0	0	0	0
Immigrants	Foreigners	China, Macao Special Administrative Region	935	Asia	906	Eastern Asia	902	Developing re	0	0	0	0	0	0	0	0	0
Immigrants	Foreigners	Colombia	904	Latin America	931	South America	902	Developing re	266	326	360	244	235	214	257	376	352
Immigrants	Foreigners	Comoros	903	Africa	910	Eastern Africa	902	Developing re	0	2	2	0	0	2	1	0	2
Immigrants	Foreigners	Congo	903	Africa	911	Middle Africa	902	Developing re	2	0	1	0	1	2	4	1	1
Immigrants	Foreigners	Costa Rica	904	Latin America	916	Central America	902	Developing re	28	35	42	51	75	113	79	116	104

Data Transformation

- Unpivoting 1980 – 2013 Columns

```
CREATE VIEW vCanada AS
(SELECT Coverage, OdName , AreaName, RegName, DevName, Year, NumOfImm
FROM canadaCitizenship$
UNPIVOT
(
    NumOfImm for Year IN ([1980],[1981],[1982],[1983],[1984],[1985],[1986],[1987],[1988],[1989]
    ,[1990],[1991],[1992],[1993],[1994],[1995],[1996],[1997],[1998],[1999]
    ,[2000],[2001],[2002],[2003],[2004],[2005],[2006],[2007],[2008],[2009]
    ,[2010],[2011],[2012],[2013])
) imm)
```

- Selecting Important Columns

Columns	Description
Coverage	Status of citizenship whether citizen or foreigner
OdName	Countries name
AreaName	Continents name
RegName	Region of continents name
DevName	Status of countries whether developed or developing countries
Year	Year
NumOfImm	Number of citizen/foreigner

Exploratory Data Analytics



**Statistics
Descriptive**



**Univariate
Analysis**



**Build
Visualization
and Dashboard**



**Gathering
Insights**

Statistics Descriptive

```
df.describe()
```

	NumOfImm
count	6596.000000
mean	971.669648
std	3224.477320
min	0.000000
25%	7.000000
50%	102.000000
75%	588.000000
max	42584.000000

```
# Range
range_ni = max(df['NumOfImm'])-min(df['NumOfImm'])
print('Range =',range_ni)
print(50*'=')
```

```
# Variance
var_ni = statistics.variance(df['NumOfImm'])
print('Variance =',var_ni)
print(50*'=')
```

```
# Skewness
skew = df.skew(numeric_only=True)
print(skew)
print(50*'=')
```

```
# Kurtosis
kurt = df.kurtosis(numeric_only=True)
print(kurt)
```

```
Range = 42584
```

```
Variance = 10397253
```

```
NumOfImm    7.300867
dtype: float64
```

```
NumOfImm    63.784539
dtype: float64
```

Univariate Analysis

```
-- Average Immigrant Per Year
```

```
SELECT AVG(y.TotImm) FROM (  
    SELECT SUM(NumOfImm) TotImm  
    FROM vCanada2  
    GROUP BY YEAR) y
```

10 %

Results Messages Client Statistics

(No column name)
188503,911764706

```
-- TOP 10 Year with Highest Immigrants
```

```
SELECT TOP 10 Year, SUM(NumOfImm) TotImm FROM vCanada2  
GROUP BY YEAR  
ORDER BY SUM(NumOfImm) DESC
```

%

Results Messages Client Statistics

Year	TotImm
2010	276956
2013	257535
2005	257457
2012	256221
2009	248768
2006	247057
2011	246193
2008	243047
2001	242643
2007	232405

```
-- Total Immigrant per Continent
```

```
SELECT AreaName, SUM(NumOfImm) TotImm FROM vCanada2  
GROUP BY AreaName  
ORDER BY SUM(NumOfImm) DESC
```

0 %

Results Messages Client Statistics

AreaName	TotImm
Asia	3317794
Europe	1410947
Latin America and the Caribbean	765148
Africa	618948
Northern America	241122
Oceania	55174

Univariate Analysis

```
-- TOP 10 Where Immigrants Come FROM
```

```
SELECT TOP 10 OdName, SUM(NumOfImm) TotImm FROM vCanada2  
GROUP BY OdName  
ORDER BY TotImm DESC
```

OdName	TotImm
India	691904
China	659962
United Kingdom of Great Britain and Northern Ire...	551500
Philippines	511391
Pakistan	241600
United States of America	241122
Iran (Islamic Republic of)	175923
Sri Lanka	148358
Republic of Korea	142581
Poland	139241

```
-- BOTTOM 10 Where Immigrants Come FROM
```

```
SELECT TOP 10 OdName, SUM(NumOfImm) TotImm FROM vCanada2  
GROUP BY OdName  
ORDER BY TotImm
```

OdName	TotImm
Palau	1
Marshall Islands	2
Western Sahara	2
New Caledonia	5
San Marino	5
American Samoa	6
Tuvalu	8
Sao Tome and Principe	10
Vanuatu	11
Andorra	15

Univariate Analysis

```
-- TOP 10 Where Immigrants Come FROM
```

```
SELECT TOP 10 OdName, SUM(NumOfImm) TotImm FROM vCanada2  
GROUP BY OdName  
ORDER BY TotImm DESC
```

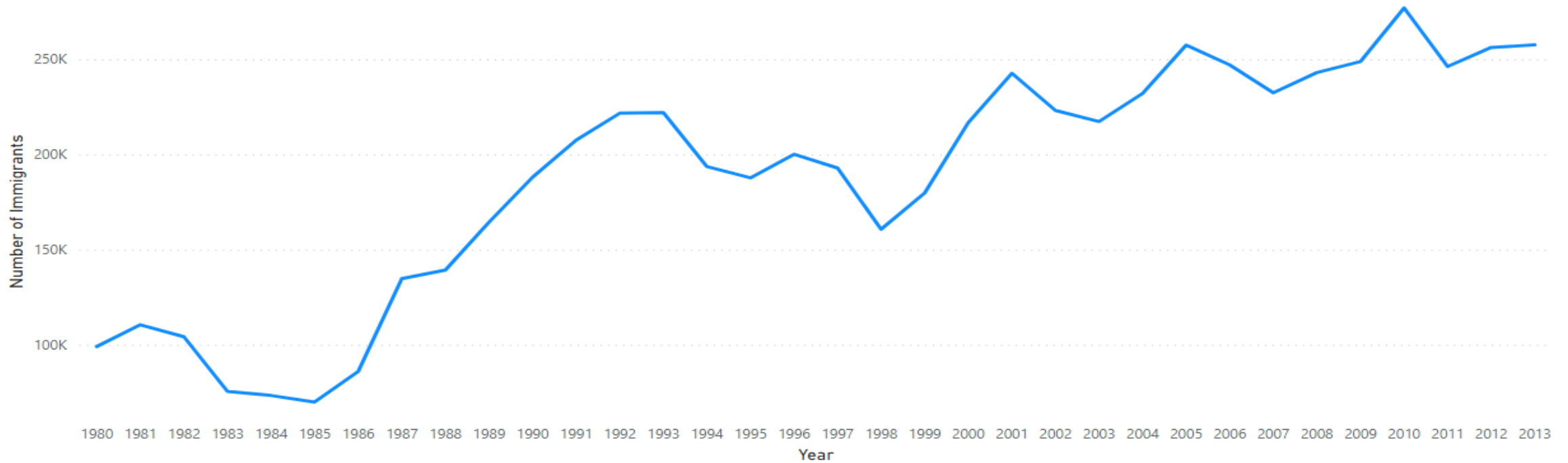
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```
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```

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SELECT TOP 10 OdName, SUM(NumOfImm) TotImm FROM vCanada2  
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ORDER BY TotImm
```

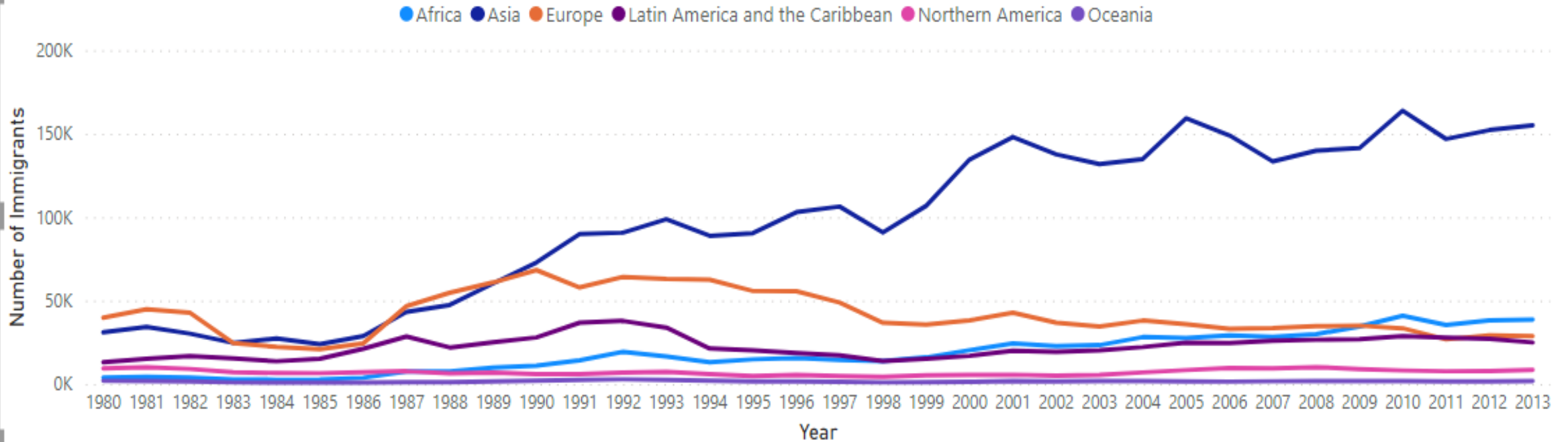
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Marshall Islands	2
Western Sahara	2
New Caledonia	5
San Marino	5
American Samoa	6
Tuvalu	8
Sao Tome and Principe	10
Vanuatu	11
Andorra	15

Visualization



Trend of Immigration in Canada tend to be ascending. Although there was a fluctuation with no significant fall which followed by high ascending trend

Visualization

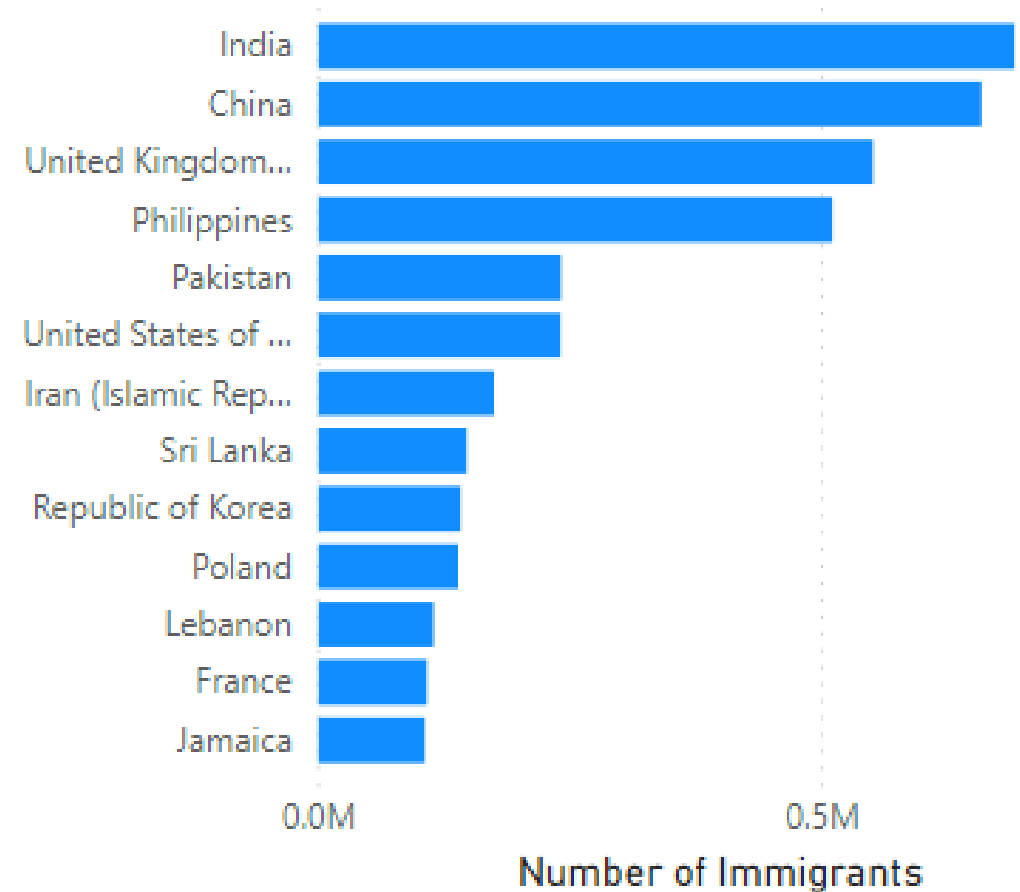


Asia has been dominated in terms of number of their people who emigrated to Canada, followed by Europe, Africa, Latin America and the Caribbean, Northern America, and Oceania.

Visualization

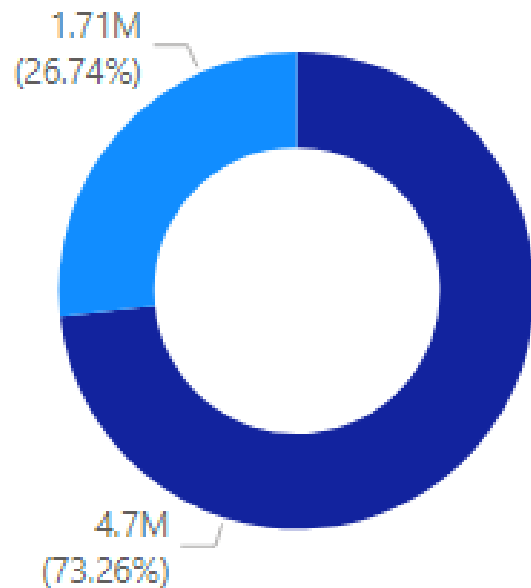
At 691904 immigrants, India had the highest number of immigrants and was around 69% higher than Palau, which had the lowest number of immigrants at 1 immigrant.

India accounted for 10.8 % of number of immigrants in total.



Visualization

● Developing regions ● Developed regions

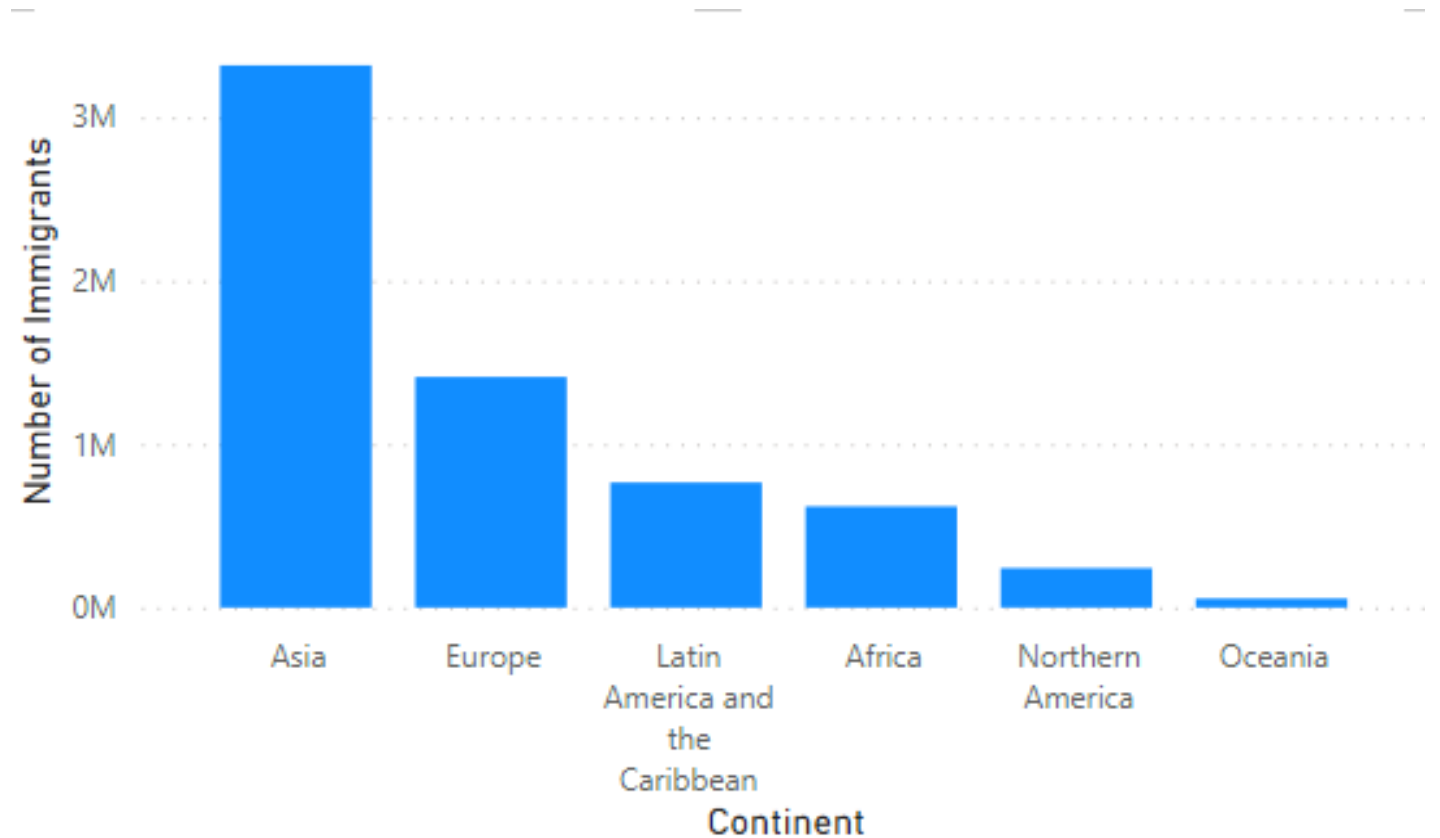


Developing countries accounts 73.26% of total immigrants including several countries which is the most supplier of immigrants such as : India, China, Philippines, Pakistan, Iran, Sri Lanka, Republic of Korea, Lebanon, and Jamaica.

Visualization

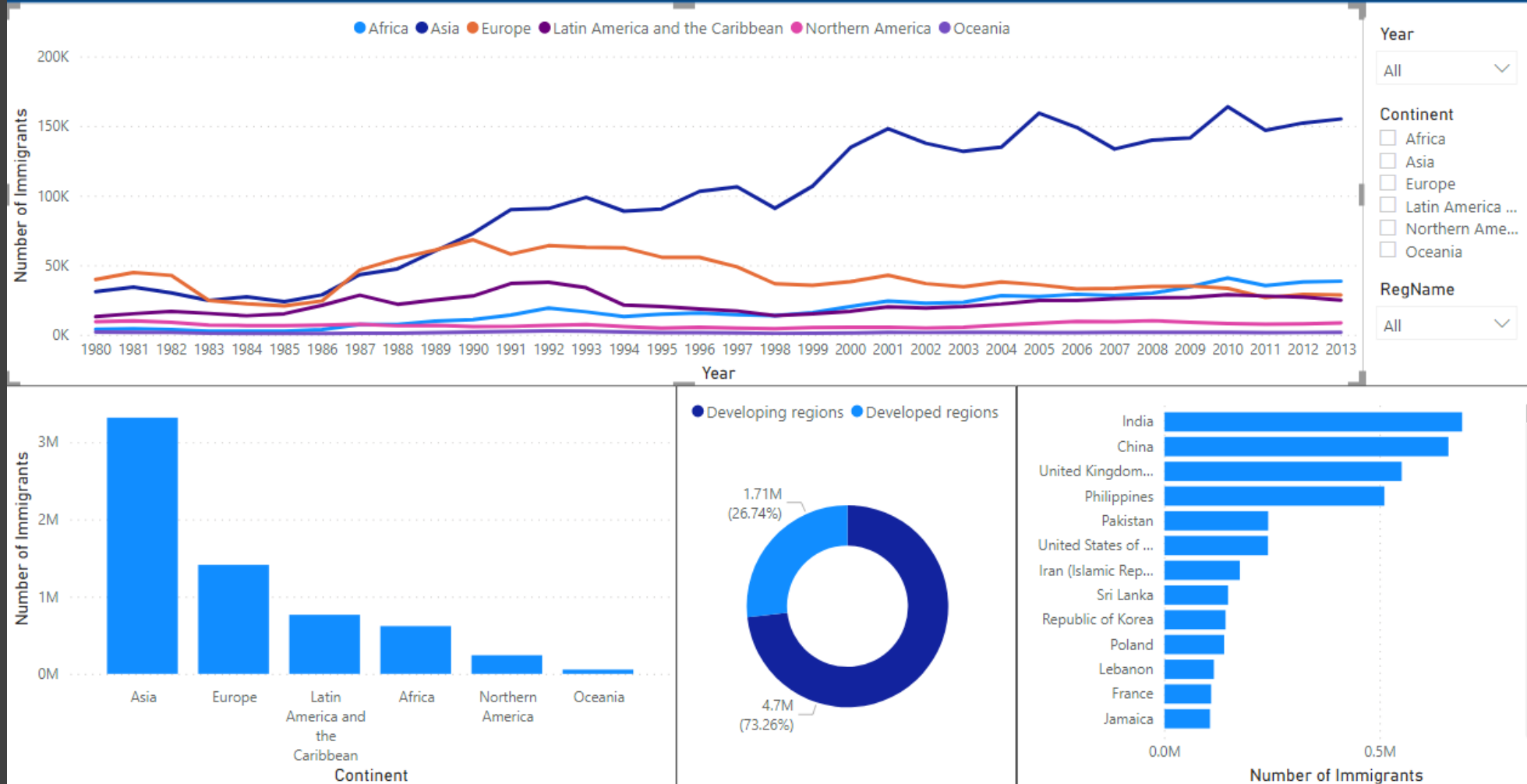
At 3290087 immigrants, Asia had the highest number of immigrants and was 15.597% higher than Oceania, which had the lowest number of immigrants at 20959.

Asia had the highest number of immigrants followed by Latin America and the Caribbean, Africa, and Oceania.



Dashboard

Immigration in Canada



Recommendation

**More detailed data are needed for further and comprehensive analysis
such as: age range, gender, job type, etc**

A photograph of the Toronto skyline at sunset, featuring the CN Tower and various skyscrapers reflected in the water. The image has a warm, orange-to-purple gradient overlay. A dark grey rectangular box is positioned on the right side, containing the text "THANK YOU" in white, bold, sans-serif capital letters.

THANK YOU