

# WORLD HAPPINESS RANKINGS REVIEW



# OUR TOPIC



- World Happiness Report Review
- What factors not mentioned in the World Happiness Report may have an influence on a country's happiness ranking?
  - ☐ Age distribution amongst the population?
  - ☐ Government spending on education?
  - ☐ Migration activity?

# WHO IS OUR AUDIENCE?



- Anyone who is looking to relocate to another country
- UNHRC (United Nations Human Rights Commission)

# OUR DATA SOURCES



- World Happiness Report Compilation (via Kaggle)
- UNESCO Institute for Statistics' data on each country's government spending on education (via Our World in Data)
- United Nations, Department of Economic and Social Affairs, Population Division's data on:
  - ❑ each country's age distribution among their population (via Our World in Data)
  - ❑ each country's migration activity (via the UN website)

# HOUSING DATA (SQL)



```
1 drop table population_and_demography;
2
3 CREATE TABLE population_and_demography (
4     "Country name" varchar(100),
5     "Year" int,
6     "Population" double precision,
7     "Population of children under the age of 1" double precision,
8     "Population of children under the age of 5" double precision,
9     "Population of children under the age of 15" double precision,
10    "Population under the age of 25" double precision,
11    "Population aged 15 to 64 years" double precision,
12    "Population at age 1" double precision,
13    "Population aged 1 to 4 years" double precision,
14    "Population aged 5 to 9 years" double precision,
15    "Population aged 10 to 14 years" double precision,
16    "Population aged 15 to 19 years" double precision,
17    "Population aged 20 to 29 years" double precision,
18    "Population aged 30 to 39 years" double precision,
19    "Population aged 40 to 49 years" double precision,
20    "Population aged 50 to 59 years" double precision,
21    "Population aged 60 to 69 years" double precision,
22    "Population aged 70 to 79 years" double precision,
23    "Population aged 80 to 89 years" double precision,
24    "Population aged 90 to 99 years" double precision,
25    "Population older than 100 years" double precision,
26    "population__all__15plus__records" double precision,
27    "population__all__18plus__records" double precision
28 );
29
30 select * from population_and_demography;
```

```
32 select *
33 from total_government_expenditure_on_education_gdp
34 where "Year" between 2015 and 2020;
```

Data Output					Messages	Notifications
	Entity character varying (50)	Code character varying (10)	Year integer	Government expenditure on education, total (% of GDP) double precision		
1	Afghanistan	AFG	2015	3.2558000087738037		
2	Afghanistan	AFG	2016	3.5119800567626953		
3	Afghanistan	AFG	2017	3.373310089111328		
4	Afghanistan	AFG	2018	3.1997900009155273		
5	Afghanistan	AFG	2019	3.213779926300049		
6	Albania	ALB	2015	3.437969923019409		
7	Albania	ALB	2016	3.962090015411377		
8	Albania	ALB	2017	3.611720085144043		
9	Albania	ALB	2019	3.9457600116729736		
10	Algeria	DZA	2016	7.344359874725342		
11	Algeria	DZA	2017	6.505380153656006		
12	Algeria	DZA	2018	5.866350173950195		
13	Algeria	DZA	2019	6.100359916687012		
14	Andorra	AND	2015	3.2803499698638916		
15	Andorra	AND	2016	3.237070083618164		
16	Andorra	AND	2017	3.21708891433716		

35 select "Region, development group, country or area of destination","Notes of destination","Location code of destination","Type of data of destination", "Region, development group, country or area of origin", "Location code of origin", "2015", "2020" 36 from migration\_data\_un; 37 38

Data OutputMessagesNotifications

	Region, development group, country or area of destination character varying (100)	Notes of destination integer	Location code of destination integer	Type of data of destination character varying (100)	Region, development group, country or area of origin character varying (100)	Location code of origin integer	2015 integer	2020 integer	
1	WORLD	[null]	900	[null]	WORLD	900	247958644	280598105	
2	WORLD	[null]	900	[null]	Sub-Saharan Africa	947	24197211	28284538	
3	WORLD	[null]	900	[null]	Northern Africa and Western Asia	1833	32606047	37563820	
4	WORLD	[null]	900	[null]	Central and Southern Asia	921	46481130	51229549	
5	WORLD	[null]	900	[null]	Eastern and South-Eastern Asia	1832	35205590	38400740	
6	WORLD	[null]	900	[null]	Latin America and the Caribbean	1830	36206000	42890481	
7	WORLD	[null]	900	[null]	Oceania (excluding Australia and New Zealand)	1835	495220	565281	
8	WORLD	[null]	900	[null]	Australia and New Zealand	927	1256202	1404924	
9	WORLD	[null]	900	[null]	Europe and Northern America	1829	60592402	67601621	
10	WORLD	[null]	900	[null]	Developed regions	901	62613012	69815370	
11	WORLD	[null]	900	[null]	Less developed regions	902	174426790	198125584	
12	WORLD	[null]	900	[null]	Less developed regions, excluding least developed countries	934	132944110	150520987	
13	WORLD	[null]	900	[null]	Least developed countries	948	163095388	186511434	
14	WORLD	[null]	900	[null]	Least developed countries	941	41482680	47604597	
15	WORLD	[null]	900	[null]	Land-locked Developing Countries (LLDC)	1836	31336289	35277768	
16	WORLD	[null]	900	[null]	Small island developing States (SIDS)	1837	11647167	11559408	

# DATA CLEANING PROCESS



```
migration_from_df["Destination"] = migration_from_df["Destination"].replace({  
    "Taiwan, Province of China": "Taiwan",  
    "China, Taiwan Province of China": "Taiwan",  
    "China Taiwan Province of China": "Taiwan",  
    "Taiwan Province of China": "Taiwan"  
})
```

# CODING BREAKDOWN



```
//2015 data filter
function filter2015(data){return data["Year"]==2015;}
//2016 data filter
function filter2016(data){return data["Year"]==2016;}
//2017 data filter
function filter2017(data){return data["Year"]==2017;}
//2018 data filter
function filter2018(data){return data["Year"]==2018;}
//2019 data filter
function filter2019(data){return data["Year"]==2019;}
//2020 data filter
function filter2020(data){return data["Year"]==2020;}
//2021 data filter
function filter2021(data){return data["Year"]==2021;}

//data variables for each year
let data2015 = data.filter(filter2015);
let data2016 = data.filter(filter2016);
let data2017 = data.filter(filter2017);
let data2018 = data.filter(filter2018);
let data2019 = data.filter(filter2019);
let data2020 = data.filter(filter2020);
let data2021 = data.filter(filter2021);
```

# CODING BREAKDOWN



```
//function to redraw graphs and charts
function selYear() {
  // Use D3 to select the dropdown menu
  let dropdownMenu = d3.select("#selDataset");

  // Assign the value of the dropdown menu option to a variable
  let curYear = dropdownMenu.property("value");

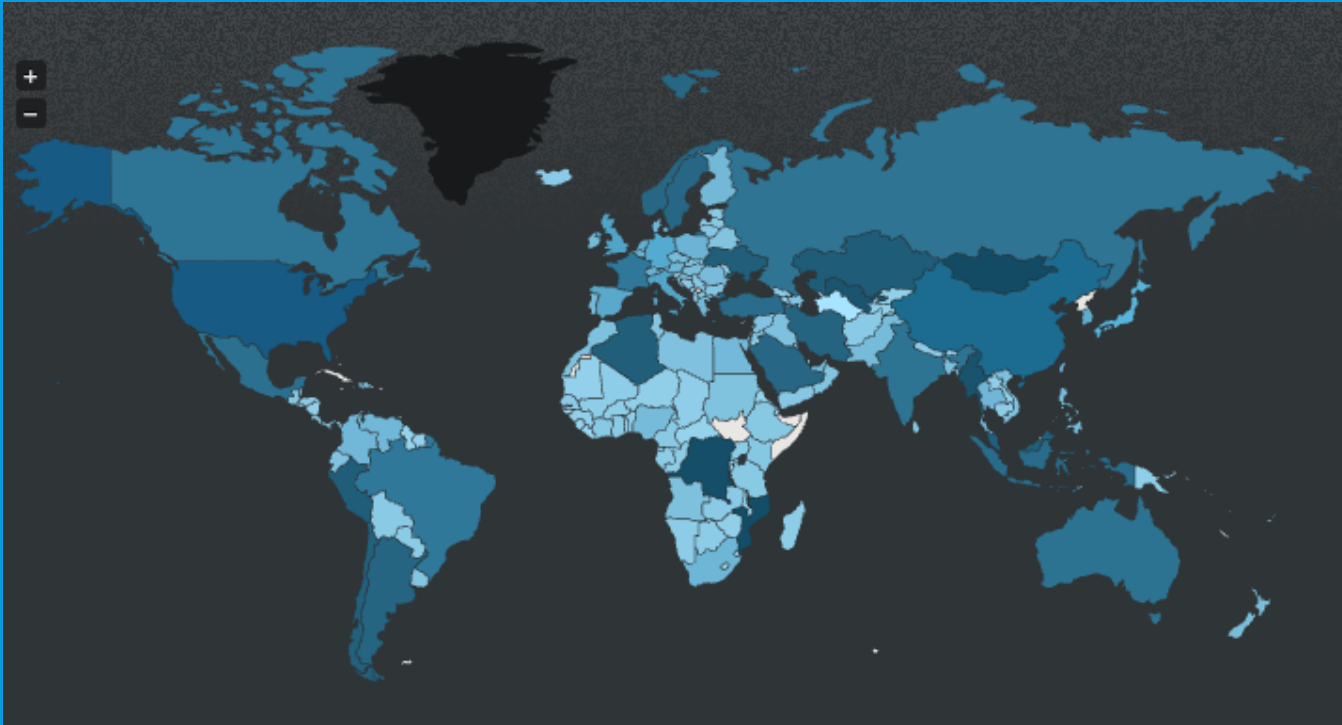
  //empty data array
  let data =[];
```

```
//update top 10 country bar chart
Plotly.update('age_bar_top', {
  x: [country, country, country, country, country],
  y: [age65, age64_25, age24_15, age14_5, age5]
});

//update bot 10 country bar chart
Plotly.update('age_bar_bot', {
  x: [lastcountry, lastcountry, lastcountry, lastcountry, lastcountry],
  y: [lastage65, lastage64_25, lastage24_15, lastage14_5, lastage5]
});
}
```



# PLUGIN



# DASHBOARD VIEWS



1. Homepage
2. World Happiness Score Heat Map
3. Age Distribution Amongst Top 10 and Bottom 10 Happiest Scoring Countries
4. Countries with Highest and Lowest Government Spending on Education (% of Country's GDP)
5. Migration Movement Comparisons
6. Migration Movement World Heat Map

# DASHBOARD HOMEPAGE VIEW



## How Happy Is Your Country?

World Happiness Score

Population and Age

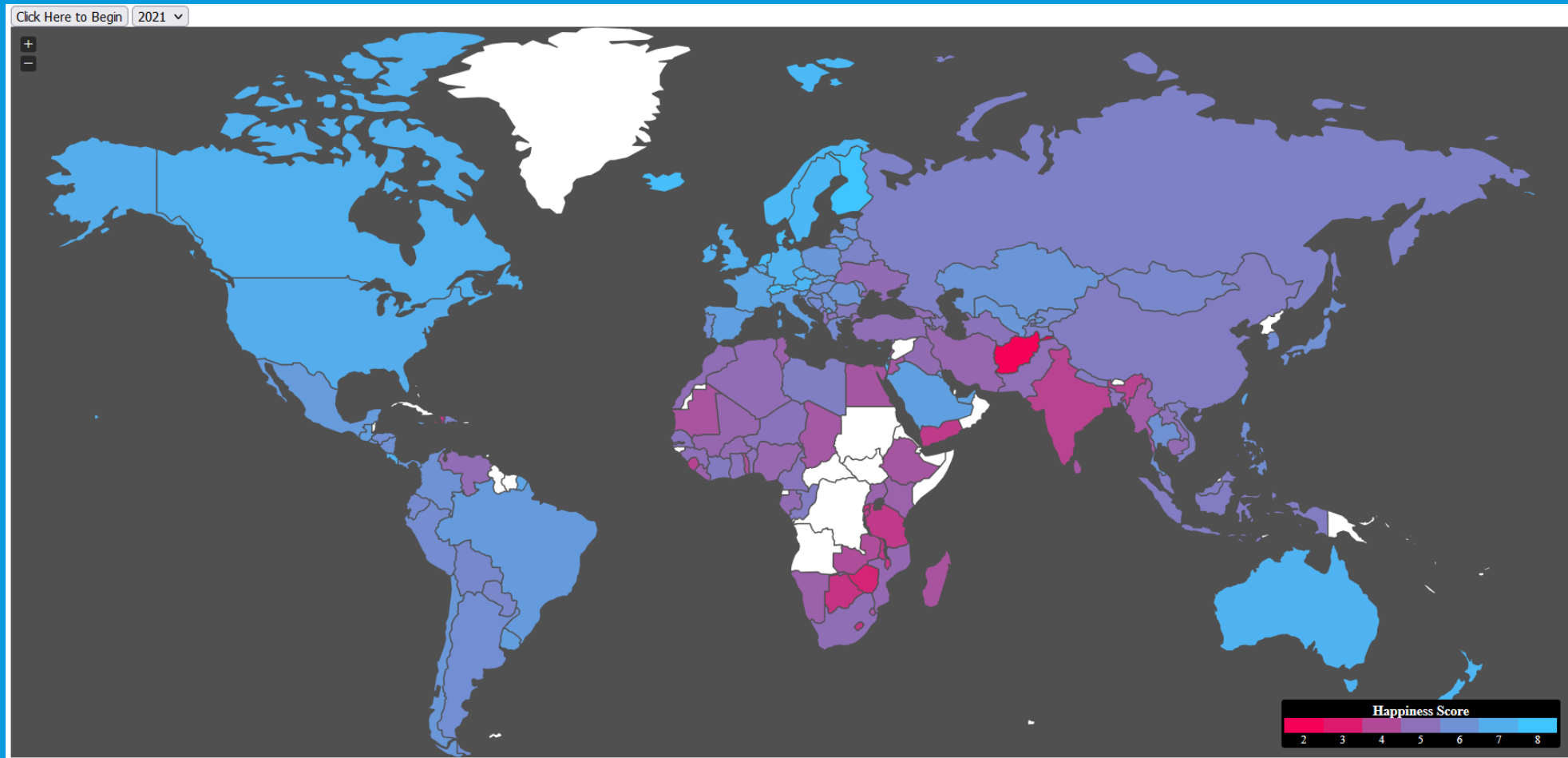
Education Expenditure

Migration Data

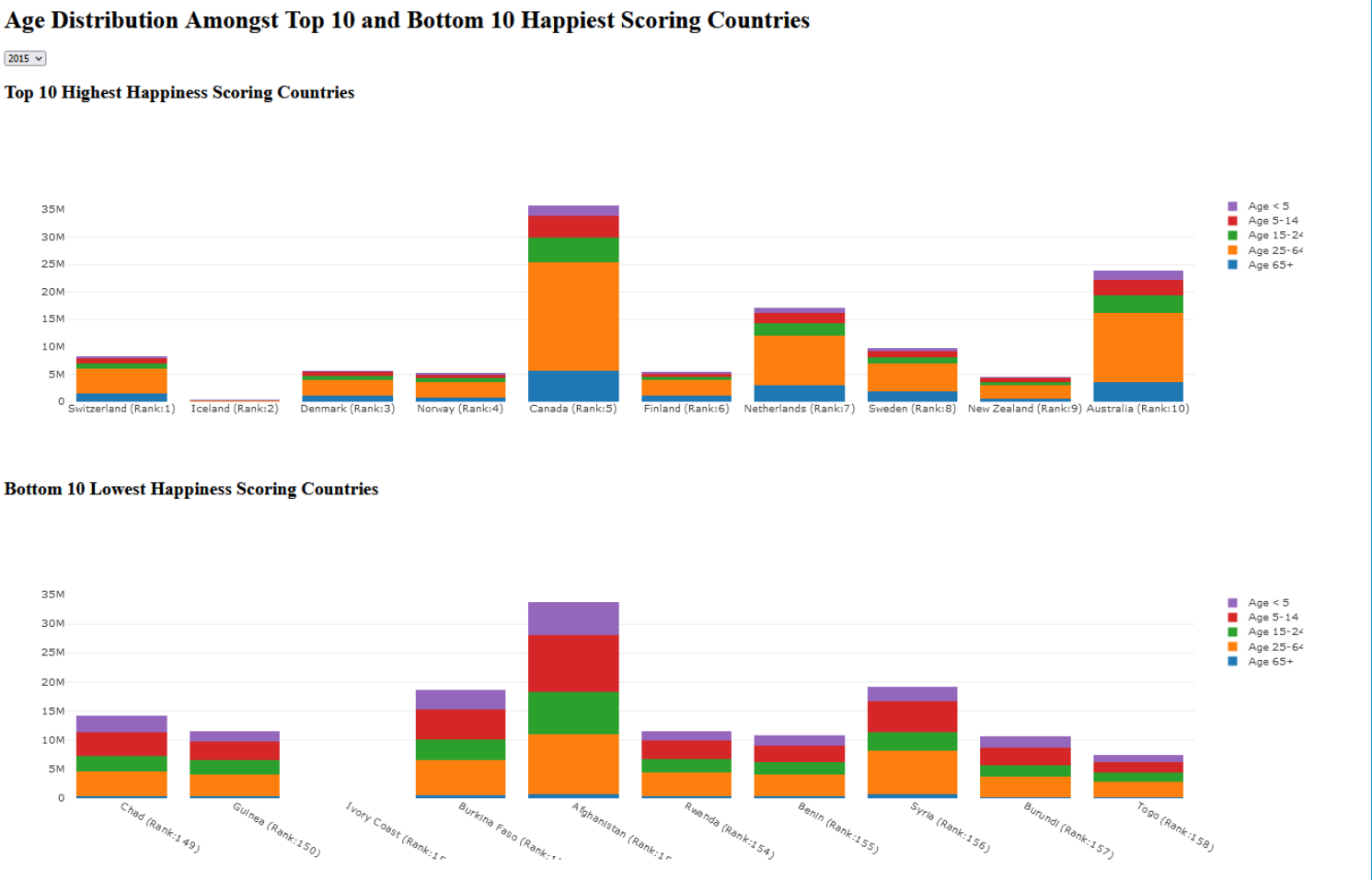
Migration Map



# VIEW 1 - WORLD HAPPINESS SCORE HEAT MAP



# VIEW 2 AGE DISTRIBUTION AMONGST TOP 10 AND BOTTOM 10 HAPPIEST SCORING COUNTRIES



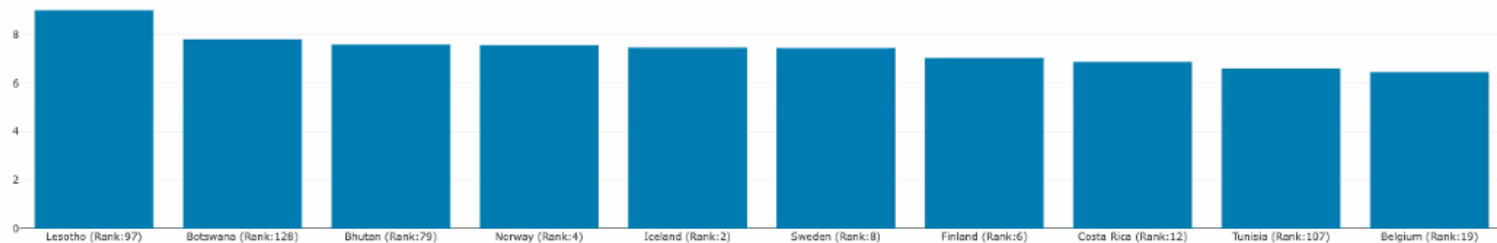
# VIEW 3 COUNTRIES WITH HIGHEST AND LOWEST GOVERNMENT SPENDING ON EDUCATION (% OF COUNTRY'S GDP)



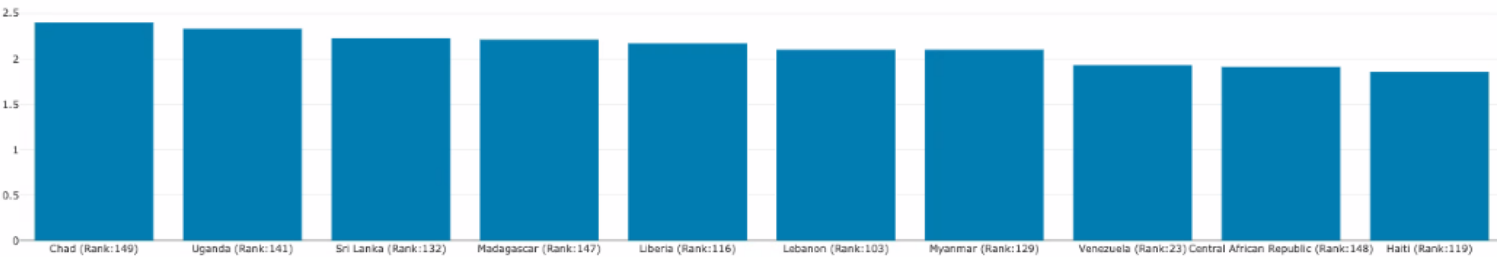
## Countries with Highest and Lowest Government Spending on Education (% of Country's GDP)

2015

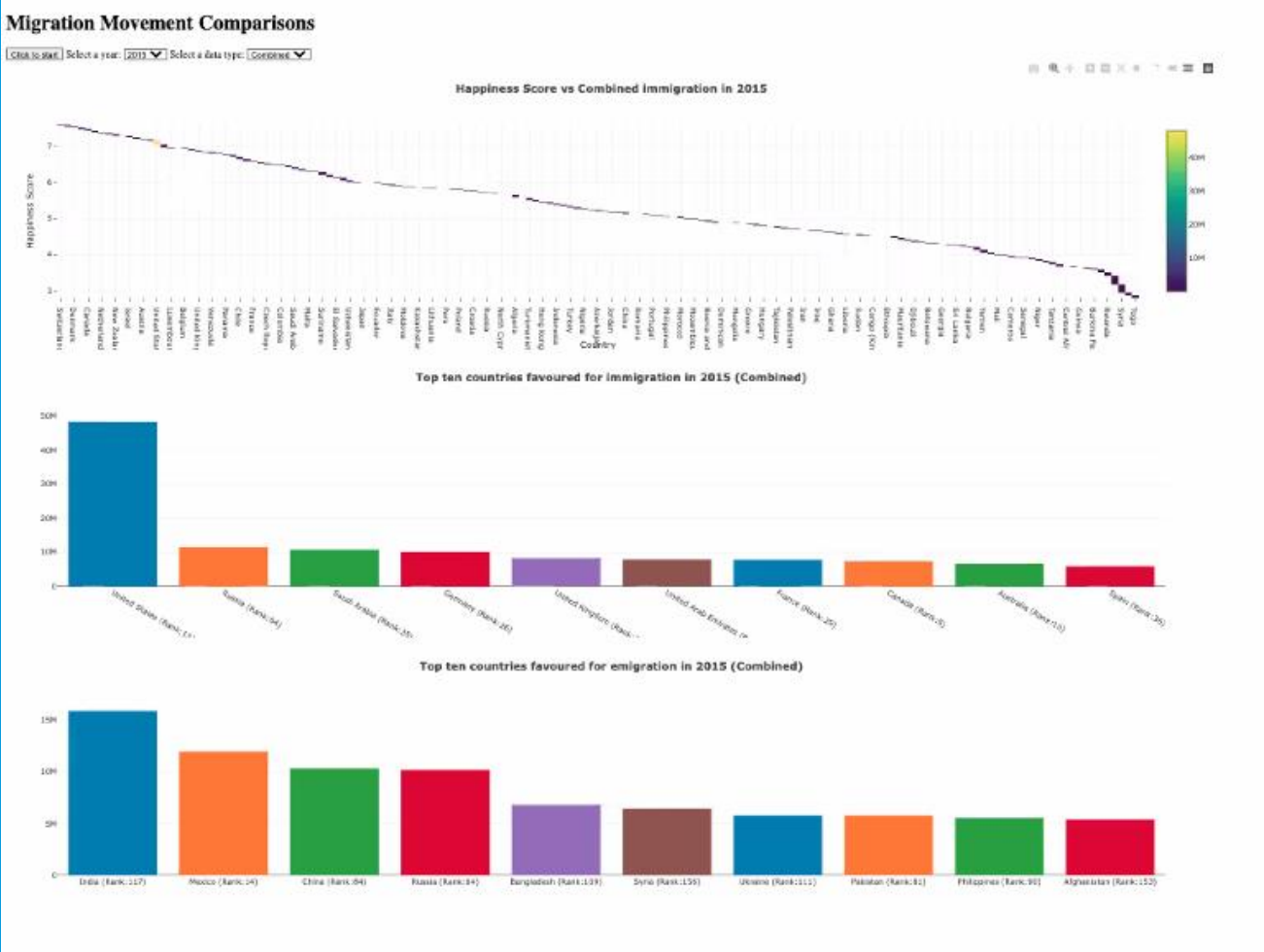
### Top 10 Countries with Highest Government Spending on Education (% of Country's GDP)



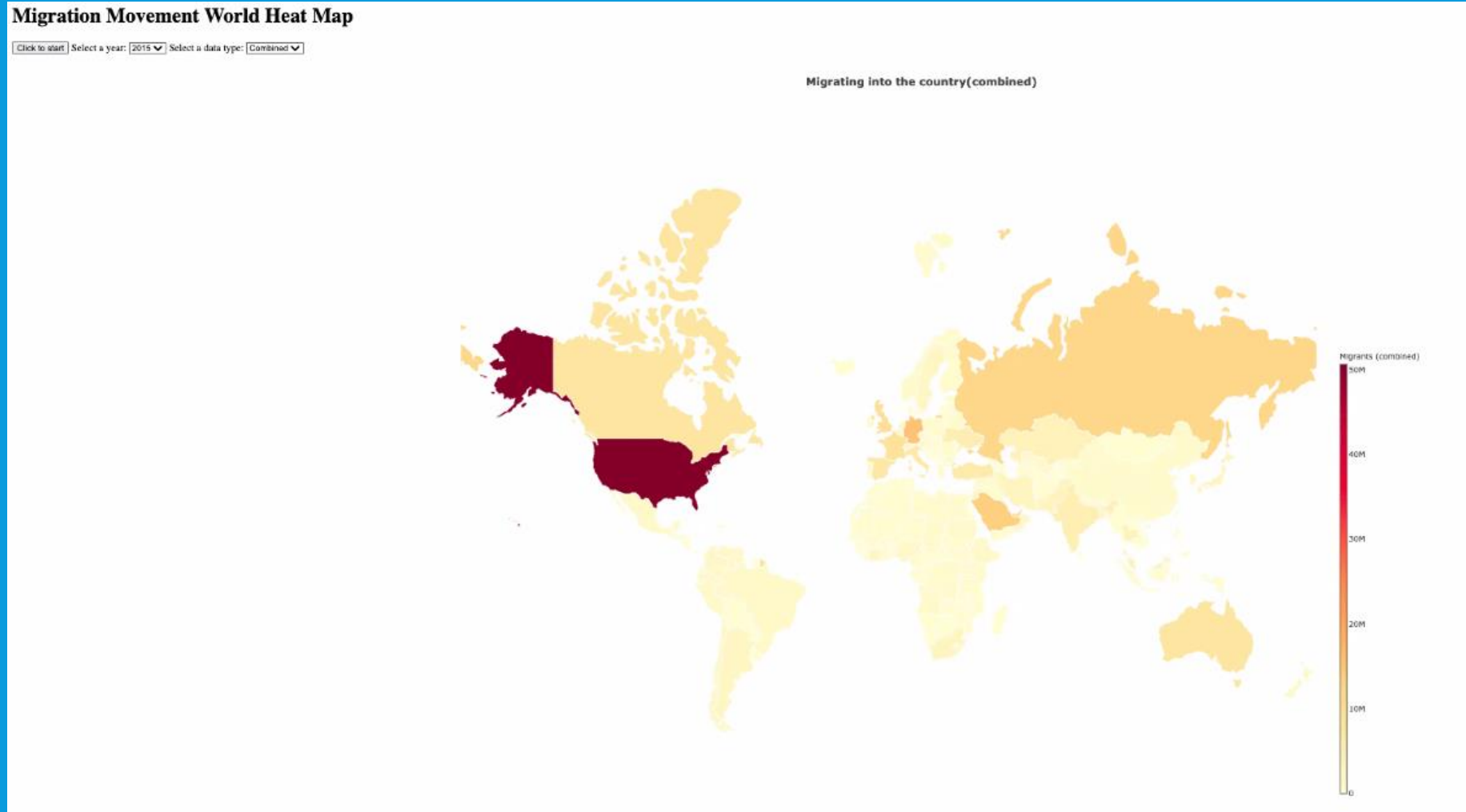
### Bottom 10 Countries with Lowest Government Spending on Education (% of Country's GDP)



# VIEW 4 MIGRATION MOVEMENT COMPARISONS



# VIEW 4 MIGRATION MOVEMENT WORLD HEAT MAP





# Q&A

