

POC_Week_2

2026-01-16

R Markdown

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When you click the **Knit** button a document will be generated that includes both content as well as the output of any embedded R code chunks within the document. You can embed an R code chunk like this:

```
#1.Create data frame "dfCountries", load countries population file in it.
#loading csv population file
getwd()
```

```
## [1] "C:/Users/kusharani/Documents/R"
```

```
file_path = './Countries Population.csv' #relative path
dfCountries = read.csv(file= file_path)
dfCountries
```

```
##           Country.Name Country.Code Total.Population.2017  X X.1
## 1      Afghanistan      AFG      35530081 NA  NA
## 2        Albania      ALB      2873457 NA  NA
## 3        Algeria      DZA      41318142 NA  NA
## 4    American Samoa      ASM       55641 NA  NA
## 5        Andorra      AND       76965 NA  NA
## 6        Angola      AGO      29784193 NA  NA
## 7    Antigua and Barbuda      ATG       102012 NA  NA
## 8        Argentina      ARG      44271041 NA  NA
## 9        Armenia      ARM      2930450 NA  NA
## 10       Aruba      ABW       105264 NA  NA
## 11       Australia      AUS      24598933 NA  NA
## 12        Austria      AUT       8809212 NA  NA
## 13     Azerbaijan      AZE       9862429 NA  NA
## 14    Bahamas, The      BHS       395361 NA  NA
## 15        Bahrain      BHR       1492584 NA  NA
## 16     Bangladesh      BGD      164669751 NA  NA
## 17       Barbados      BRB       285719 NA  NA
## 18       Belarus      BLR       9507875 NA  NA
## 19       Belgium      BEL      11372068 NA  NA
## 20       Belize      BLZ       374681 NA  NA
## 21        Benin      BEN      11175692 NA  NA
## 22       Bermuda      BMU       65441 NA  NA
## 23        Bhutan      BTN       807610 NA  NA
## 24       Bolivia      BOL      11051600 NA  NA
```

## 25	Bosnia and Herzegovina	BIH	3507017	NA	NA
## 26	Botswana	BWA	2291661	NA	NA
## 27	Brazil	BRA	209288278	NA	NA
## 28	British Virgin Islands	VGB	31196	NA	NA
## 29	Brunei Darussalam	BRN	428697	NA	NA
## 30	Bulgaria	BGR	7075991	NA	NA
## 31	Burkina Faso	BFA	19193382	NA	NA
## 32	Burundi	BDI	10864245	NA	NA
## 33	Cabo Verde	CPV	546388	NA	NA
## 34	Cambodia	KHM	16005373	NA	NA
## 35	Cameroon	CMR	24053727	NA	NA
## 36	Canada	CAN	36708083	NA	NA
## 37	Cayman Islands	CYM	61559	NA	NA
## 38	Central African Republic	CAF	4659080	NA	NA
## 39	Chad	TCD	14899994	NA	NA
## 40	Channel Islands	CHI	165314	NA	NA
## 41	Chile	CHL	18054726	NA	NA
## 42	China	CHN	1386395000	NA	NA
## 43	Colombia	COL	49065615	NA	NA
## 44	Comoros	COM	813912	NA	NA
## 45	Congo, Dem. Rep.	COD	81339988	NA	NA
## 46	Congo, Rep.	COG	5260750	NA	NA
## 47	Costa Rica	CRI	4905769	NA	NA
## 48	Cote d'Ivoire	CIV	24294750	NA	NA
## 49	Croatia	HRV	4125700	NA	NA
## 50	Cuba	CUB	11484636	NA	NA
## 51	Curacao	CUW	161014	NA	NA
## 52	Cyprus	CYP	1179551	NA	NA
## 53	Czech Republic	CZE	10591323	NA	NA
## 54	Denmark	DNK	5769603	NA	NA
## 55	Djibouti	DJI	956985	NA	NA
## 56	Dominica	DMA	73925	NA	NA
## 57	Dominican Republic	DOM	10766998	NA	NA
## 58	Ecuador	ECU	16624858	NA	NA
## 59	Egypt, Arab Rep.	EGY	97553151	NA	NA
## 60	El Salvador	SLV	6377853	NA	NA
## 61	Equatorial Guinea	GNQ	1267689	NA	NA
## 62	Estonia	EST	1315480	NA	NA
## 63	Eswatini	SWZ	1367254	NA	NA
## 64	Ethiopia	ETH	104957438	NA	NA
## 65	Fake Country 1	FC1	3000000	NA	NA
## 66	Fake Country 2	FC2	4000000	NA	NA
## 67	Faroe Islands	FR0	49290	NA	NA
## 68	Fiji	FJI	905502	NA	NA
## 69	Finland	FIN	5511303	NA	NA
## 70	France	FRA	67118648	NA	NA
## 71	French Polynesia	PYF	283007	NA	NA
## 72	Gabon	GAB	2025137	NA	NA
## 73	Gambia, The	GMB	2100568	NA	NA
## 74	Georgia	GEO	3717100	NA	NA
## 75	Germany	DEU	82695000	NA	NA
## 76	Ghana	GHA	28833629	NA	NA
## 77	Gibraltar	GIB	34571	NA	NA
## 78	Greece	GRC	10760421	NA	NA

## 79	Greenland	GRL	56171	NA	NA
## 80	Grenada	GRD	107825	NA	NA
## 81	Guam	GUM	164229	NA	NA
## 82	Guatemala	GTM	16913503	NA	NA
## 83	Guinea	GIN	12717176	NA	NA
## 84	Guinea-Bissau	GNB	1861283	NA	NA
## 85	Guyana	GUY	777859	NA	NA
## 86	Haiti	HTI	10981229	NA	NA
## 87	Honduras	HND	9265067	NA	NA
## 88	Hong Kong SAR, China	HKG	7391700	NA	NA
## 89	Hungary	HUN	9781127	NA	NA
## 90	Iceland	ISL	341284	NA	NA
## 91	India	IND	1339180127	NA	NA
## 92	Indonesia	IDN	263991379	NA	NA
## 93	Iran, Islamic Rep.	IRN	81162788	NA	NA
## 94	Iraq	IRQ	38274618	NA	NA
## 95	Ireland	IRL	4813608	NA	NA
## 96	Isle of Man	IMN	84287	NA	NA
## 97	Israel	ISR	8712400	NA	NA
## 98	Italy	ITA	60551416	NA	NA
## 99	Jamaica	JAM	2890299	NA	NA
## 100	Japan	JPN	126785797	NA	NA
## 101	Jordan	JOR	9702353	NA	NA
## 102	Kazakhstan	KAZ	18037646	NA	NA
## 103	Kenya	KEN	49699862	NA	NA
## 104	Kiribati	KIR	116398	NA	NA
## 105	Korea, Dem. People's Rep.	PRK	25490965	NA	NA
## 106	Korea, Rep.	KOR	51466201	NA	NA
## 107	Kosovo	XKX	1830700	NA	NA
## 108	Kuwait	KWT	4136528	NA	NA
## 109	Kyrgyz Republic	KGZ	6201500	NA	NA
## 110	Lao PDR	LAO	6858160	NA	NA
## 111	Latvia	LVA	1940740	NA	NA
## 112	Lebanon	LBN	6082357	NA	NA
## 113	Lesotho	LSO	2233339	NA	NA
## 114	Liberia	LBR	4731906	NA	NA
## 115	Libya	LBY	6374616	NA	NA
## 116	Liechtenstein	LIE	37922	NA	NA
## 117	Lithuania	LTU	2827721	NA	NA
## 118	Luxembourg	LUX	599449	NA	NA
## 119	Macao SAR, China	MAC	622567	NA	NA
## 120	Macedonia, FYR	MKD	2083160	NA	NA
## 121	Madagascar	MDG	25570895	NA	NA
## 122	Malawi	MWI	18622104	NA	NA
## 123	Malaysia	MYS	31624264	NA	NA
## 124	Maldives	MDV	436330	NA	NA
## 125	Mali	MLI	18541980	NA	NA
## 126	Malta	MLT	465292	NA	NA
## 127	Marshall Islands	MHL	53127	NA	NA
## 128	Mauritania	MRT	4420184	NA	NA
## 129	Mauritius	MUS	1264613	NA	NA
## 130	Mexico	MEX	129163276	NA	NA
## 131	Micronesia, Fed. Sts.	FSM	105544	NA	NA
## 132	Moldova	MDA	3549750	NA	NA

## 133	Monaco	MCO	38695	NA	NA
## 134	Mongolia	MNG	3075647	NA	NA
## 135	Montenegro	MNE	622471	NA	NA
## 136	Morocco	MAR	35739580	NA	NA
## 137	Mozambique	MOZ	29668834	NA	NA
## 138	Myanmar	MMR	53370609	NA	NA
## 139	Namibia	NAM	2533794	NA	NA
## 140	Nauru	NRU	13649	NA	NA
## 141	Nepal	NPL	29304998	NA	NA
## 142	Netherlands	NLD	17132854	NA	NA
## 143	New Caledonia	NCL	280460	NA	NA
## 144	New Zealand	NZL	4793900	NA	NA
## 145	Nicaragua	NIC	6217581	NA	NA
## 146	Niger	NER	21477348	NA	NA
## 147	Nigeria	NGA	190886311	NA	NA
## 148	Northern Mariana Islands	MNP	55144	NA	NA
## 149	Norway	NOR	5282223	NA	NA
## 150	Oman	OMN	4636262	NA	NA
## 151	Pacific island small states	PSS	2419188	NA	NA
## 152	Pakistan	PAK	197015955	NA	NA
## 153	Palau	PLW	21729	NA	NA
## 154	Panama	PAN	4098587	NA	NA
## 155	Papua New Guinea	PNG	8251162	NA	NA
## 156	Paraguay	PRY	6811297	NA	NA
## 157	Peru	PER	32165485	NA	NA
## 158	Philippines	PHL	104918090	NA	NA
## 159	Poland	POL	37975841	NA	NA
## 160	Portugal	PRT	10293718	NA	NA
## 161	Puerto Rico	PRI	3337177	NA	NA
## 162	Qatar	QAT	2639211	NA	NA
## 163	Romania	ROU	19586539	NA	NA
## 164	Russian Federation	RUS	144495044	NA	NA
## 165	Rwanda	RWA	12208407	NA	NA
## 166	Samoa	WSM	196440	NA	NA
## 167	San Marino	SMR	33400	NA	NA
## 168	Sao Tome and Principe	STP	204327	NA	NA
## 169	Saudi Arabia	SAU	32938213	NA	NA
## 170	Senegal	SEN	15850567	NA	NA
## 171	Serbia	SRB	7022268	NA	NA
## 172	Seychelles	SYC	95843	NA	NA
## 173	Sierra Leone	SLE	7557212	NA	NA
## 174	Singapore	SGP	5612253	NA	NA
## 175	Sint Maarten (Dutch part)	SXM	41109	NA	NA
## 176	Slovak Republic	SVK	5439892	NA	NA
## 177	Slovenia	SVN	2066748	NA	NA
## 178	Solomon Islands	SLB	611343	NA	NA
## 179	Somalia	SOM	14742523	NA	NA
## 180	South Africa	ZAF	56717156	NA	NA
## 181	South Sudan	SSD	12575714	NA	NA
## 182	Spain	ESP	46572028	NA	NA
## 183	Sri Lanka	LKA	21444000	NA	NA
## 184	St. Kitts and Nevis	KNA	55345	NA	NA
## 185	St. Lucia	LCA	178844	NA	NA
## 186	St. Martin (French part)	MAF	32125	NA	NA

## 187	St. Vincent and the Grenadines	VCT	109897	NA	NA
## 188	Sudan	SDN	40533330	NA	NA
## 189	Suriname	SUR	563402	NA	NA
## 190	Sweden	SWE	10067744	NA	NA
## 191	Switzerland	CHE	8466017	NA	NA
## 192	Syrian Arab Republic	SYR	18269868	NA	NA
## 193	Tajikistan	TJK	8921343	NA	NA
## 194	Tanzania	TZA	57310019	NA	NA
## 195	Thailand	THA	69037513	NA	NA
## 196	Timor-Leste	TLS	1296311	NA	NA
## 197	Togo	TGO	7797694	NA	NA
## 198	Tonga	TON	108020	NA	NA
## 199	Trinidad and Tobago	TTO	1369125	NA	NA
## 200	Tunisia	TUN	11532127	NA	NA
## 201	Turkey	TUR	80745020	NA	NA
## 202	Turkmenistan	TKM	5758075	NA	NA
## 203	Turks and Caicos Islands	TCA	35446	NA	NA
## 204	Tuvalu	TUV	11192	NA	NA
## 205	Uganda	UGA	42862958	NA	NA
## 206	Ukraine	UKR	44831159	NA	NA
## 207	United Arab Emirates	ARE	9400145	NA	NA
## 208	United Kingdom	GBR	66022273	NA	NA
## 209	United States	USA	325719178	NA	NA
## 210	Uruguay	URY	3456750	NA	NA
## 211	Uzbekistan	UZB	32387200	NA	NA
## 212	Vanuatu	VUT	276244	NA	NA
## 213	Venezuela, RB	VEN	31977065	NA	NA
## 214	Vietnam	VNM	95540800	NA	NA
## 215	Virgin Islands (U.S.)	VIR	107268	NA	NA
## 216	West Bank and Gaza	PSE	4684777	NA	NA
## 217	Yemen, Rep.	YEM	28250420	NA	NA
## 218	Zambia	ZMB	17094130	NA	NA
## 219	Zimbabwe	ZWE	16529904	NA	NA

```
#loading countries region csv
```

```
file_path_regions = './Countries Region Mapping.csv' #relative path
dfCountriesRegion = read.csv(file= file_path_regions)
```

```
#loading countries Indicators csv
```

```
file_path_indicators = './Countries Indicators.csv' #relative path
dfCountriesIndicators = read.csv(file= file_path_indicators)
```

```
#2. Sort countries according to their population in ascending and descending order
```

```
dfCountries_ascending <-arrange(dfCountries, Total.Population.2017)
dfCountries_ascending
```

##	Country.Name	Country.Code	Total.Population.2017	X	X.1
## 1	Tuvalu	TUV	11192	NA	NA
## 2	Nauru	NRU	13649	NA	NA
## 3	Palau	PLW	21729	NA	NA
## 4	British Virgin Islands	VGB	31196	NA	NA
## 5	St. Martin (French part)	MAF	32125	NA	NA
## 6	San Marino	SMR	33400	NA	NA
## 7	Gibraltar	GIB	34571	NA	NA

## 8	Turks and Caicos Islands	TCA	35446	NA	NA
## 9	Liechtenstein	LIE	37922	NA	NA
## 10	Monaco	MCO	38695	NA	NA
## 11	Sint Maarten (Dutch part)	SXM	41109	NA	NA
## 12	Faroe Islands	FRO	49290	NA	NA
## 13	Marshall Islands	MHL	53127	NA	NA
## 14	Northern Mariana Islands	MNP	55144	NA	NA
## 15	St. Kitts and Nevis	KNA	55345	NA	NA
## 16	American Samoa	ASM	55641	NA	NA
## 17	Greenland	GRL	56171	NA	NA
## 18	Cayman Islands	CYM	61559	NA	NA
## 19	Bermuda	BMU	65441	NA	NA
## 20	Dominica	DMA	73925	NA	NA
## 21	Andorra	AND	76965	NA	NA
## 22	Isle of Man	IMN	84287	NA	NA
## 23	Seychelles	SYC	95843	NA	NA
## 24	Antigua and Barbuda	ATG	102012	NA	NA
## 25	Aruba	ABW	105264	NA	NA
## 26	Micronesia, Fed. Sts.	FSM	105544	NA	NA
## 27	Virgin Islands (U.S.)	VIR	107268	NA	NA
## 28	Grenada	GRD	107825	NA	NA
## 29	Tonga	TON	108020	NA	NA
## 30	St. Vincent and the Grenadines	VCT	109897	NA	NA
## 31	Kiribati	KIR	116398	NA	NA
## 32	Curacao	CUW	161014	NA	NA
## 33	Guam	GUM	164229	NA	NA
## 34	Channel Islands	CHI	165314	NA	NA
## 35	St. Lucia	LCA	178844	NA	NA
## 36	Samoa	WSM	196440	NA	NA
## 37	Sao Tome and Principe	STP	204327	NA	NA
## 38	Vanuatu	VUT	276244	NA	NA
## 39	New Caledonia	NCL	280460	NA	NA
## 40	French Polynesia	PYF	283007	NA	NA
## 41	Barbados	BRB	285719	NA	NA
## 42	Iceland	ISL	341284	NA	NA
## 43	Belize	BLZ	374681	NA	NA
## 44	Bahamas, The	BHS	395361	NA	NA
## 45	Brunei Darussalam	BRN	428697	NA	NA
## 46	Maldives	MDV	436330	NA	NA
## 47	Malta	MLT	465292	NA	NA
## 48	Cabo Verde	CPV	546388	NA	NA
## 49	Suriname	SUR	563402	NA	NA
## 50	Luxembourg	LUX	599449	NA	NA
## 51	Solomon Islands	SLB	611343	NA	NA
## 52	Montenegro	MNE	622471	NA	NA
## 53	Macao SAR, China	MAC	622567	NA	NA
## 54	Guyana	GUY	777859	NA	NA
## 55	Bhutan	BTN	807610	NA	NA
## 56	Comoros	COM	813912	NA	NA
## 57	Fiji	FJI	905502	NA	NA
## 58	Djibouti	DJI	956985	NA	NA
## 59	Cyprus	CYP	1179551	NA	NA
## 60	Mauritius	MUS	1264613	NA	NA
## 61	Equatorial Guinea	GNQ	1267689	NA	NA

## 62	Timor-Leste	TLS	1296311	NA	NA
## 63	Estonia	EST	1315480	NA	NA
## 64	Eswatini	SWZ	1367254	NA	NA
## 65	Trinidad and Tobago	TTO	1369125	NA	NA
## 66	Bahrain	BHR	1492584	NA	NA
## 67	Kosovo	KKX	1830700	NA	NA
## 68	Guinea-Bissau	GNB	1861283	NA	NA
## 69	Latvia	LVA	1940740	NA	NA
## 70	Gabon	GAB	2025137	NA	NA
## 71	Slovenia	SVN	2066748	NA	NA
## 72	Macedonia, FYR	MKD	2083160	NA	NA
## 73	Gambia, The	GMB	2100568	NA	NA
## 74	Lesotho	LSO	2233339	NA	NA
## 75	Botswana	BWA	2291661	NA	NA
## 76	Pacific island small states	PSS	2419188	NA	NA
## 77	Namibia	NAM	2533794	NA	NA
## 78	Qatar	QAT	2639211	NA	NA
## 79	Lithuania	LTU	2827721	NA	NA
## 80	Albania	ALB	2873457	NA	NA
## 81	Jamaica	JAM	2890299	NA	NA
## 82	Armenia	ARM	2930450	NA	NA
## 83	Fake Country 1	FC1	3000000	NA	NA
## 84	Mongolia	MNG	3075647	NA	NA
## 85	Puerto Rico	PRI	3337177	NA	NA
## 86	Uruguay	URY	3456750	NA	NA
## 87	Bosnia and Herzegovina	BIH	3507017	NA	NA
## 88	Moldova	MDA	3549750	NA	NA
## 89	Georgia	GEO	3717100	NA	NA
## 90	Fake Country 2	FC2	4000000	NA	NA
## 91	Panama	PAN	4098587	NA	NA
## 92	Croatia	HRV	4125700	NA	NA
## 93	Kuwait	KWT	4136528	NA	NA
## 94	Mauritania	MRT	4420184	NA	NA
## 95	Oman	OMN	4636262	NA	NA
## 96	Central African Republic	CAF	4659080	NA	NA
## 97	West Bank and Gaza	PSE	4684777	NA	NA
## 98	Liberia	LBR	4731906	NA	NA
## 99	New Zealand	NZL	4793900	NA	NA
## 100	Ireland	IRL	4813608	NA	NA
## 101	Costa Rica	CRI	4905769	NA	NA
## 102	Congo, Rep.	COG	5260750	NA	NA
## 103	Norway	NOR	5282223	NA	NA
## 104	Slovak Republic	SVK	5439892	NA	NA
## 105	Finland	FIN	5511303	NA	NA
## 106	Singapore	SGP	5612253	NA	NA
## 107	Turkmenistan	TKM	5758075	NA	NA
## 108	Denmark	DNK	5769603	NA	NA
## 109	Lebanon	LBN	6082357	NA	NA
## 110	Kyrgyz Republic	KGZ	6201500	NA	NA
## 111	Nicaragua	NIC	6217581	NA	NA
## 112	Libya	LBY	6374616	NA	NA
## 113	El Salvador	SLV	6377853	NA	NA
## 114	Paraguay	PRY	6811297	NA	NA
## 115	Lao PDR	LAO	6858160	NA	NA

## 116	Serbia	SRB	7022268	NA	NA
## 117	Bulgaria	BGR	7075991	NA	NA
## 118	Hong Kong SAR, China	HKG	7391700	NA	NA
## 119	Sierra Leone	SLE	7557212	NA	NA
## 120	Togo	TGO	7797694	NA	NA
## 121	Papua New Guinea	PNG	8251162	NA	NA
## 122	Switzerland	CHE	8466017	NA	NA
## 123	Israel	ISR	8712400	NA	NA
## 124	Austria	AUT	8809212	NA	NA
## 125	Tajikistan	TJK	8921343	NA	NA
## 126	Honduras	HND	9265067	NA	NA
## 127	United Arab Emirates	ARE	9400145	NA	NA
## 128	Belarus	BLR	9507875	NA	NA
## 129	Jordan	JOR	9702353	NA	NA
## 130	Hungary	HUN	9781127	NA	NA
## 131	Azerbaijan	AZE	9862429	NA	NA
## 132	Sweden	SWE	10067744	NA	NA
## 133	Portugal	PRT	10293718	NA	NA
## 134	Czech Republic	CZE	10591323	NA	NA
## 135	Greece	GRC	10760421	NA	NA
## 136	Dominican Republic	DOM	10766998	NA	NA
## 137	Burundi	BDI	10864245	NA	NA
## 138	Haiti	HTI	10981229	NA	NA
## 139	Bolivia	BOL	11051600	NA	NA
## 140	Benin	BEN	11175692	NA	NA
## 141	Belgium	BEL	11372068	NA	NA
## 142	Cuba	CUB	11484636	NA	NA
## 143	Tunisia	TUN	11532127	NA	NA
## 144	Rwanda	RWA	12208407	NA	NA
## 145	South Sudan	SSD	12575714	NA	NA
## 146	Guinea	GIN	12717176	NA	NA
## 147	Somalia	SOM	14742523	NA	NA
## 148	Chad	TCD	14899994	NA	NA
## 149	Senegal	SEN	15850567	NA	NA
## 150	Cambodia	KHM	16005373	NA	NA
## 151	Zimbabwe	ZWE	16529904	NA	NA
## 152	Ecuador	ECU	16624858	NA	NA
## 153	Guatemala	GTM	16913503	NA	NA
## 154	Zambia	ZMB	17094130	NA	NA
## 155	Netherlands	NLD	17132854	NA	NA
## 156	Kazakhstan	KAZ	18037646	NA	NA
## 157	Chile	CHL	18054726	NA	NA
## 158	Syrian Arab Republic	SYR	18269868	NA	NA
## 159	Mali	MLI	18541980	NA	NA
## 160	Malawi	MWI	18622104	NA	NA
## 161	Burkina Faso	BFA	19193382	NA	NA
## 162	Romania	ROU	19586539	NA	NA
## 163	Sri Lanka	LKA	21444000	NA	NA
## 164	Niger	NER	21477348	NA	NA
## 165	Cameroon	CMR	24053727	NA	NA
## 166	Cote d'Ivoire	CIV	24294750	NA	NA
## 167	Australia	AUS	24598933	NA	NA
## 168	Korea, Dem. People's Rep.	PRK	25490965	NA	NA
## 169	Madagascar	MDG	25570895	NA	NA

## 170	Yemen, Rep.	YEM	28250420	NA	NA
## 171	Ghana	GHA	28833629	NA	NA
## 172	Nepal	NPL	29304998	NA	NA
## 173	Mozambique	MOZ	29668834	NA	NA
## 174	Angola	AGO	29784193	NA	NA
## 175	Malaysia	MYS	31624264	NA	NA
## 176	Venezuela, RB	VEN	31977065	NA	NA
## 177	Peru	PER	32165485	NA	NA
## 178	Uzbekistan	UZB	32387200	NA	NA
## 179	Saudi Arabia	SAU	32938213	NA	NA
## 180	Afghanistan	AFG	35530081	NA	NA
## 181	Morocco	MAR	35739580	NA	NA
## 182	Canada	CAN	36708083	NA	NA
## 183	Poland	POL	37975841	NA	NA
## 184	Iraq	IRQ	38274618	NA	NA
## 185	Sudan	SDN	40533330	NA	NA
## 186	Algeria	DZA	41318142	NA	NA
## 187	Uganda	UGA	42862958	NA	NA
## 188	Argentina	ARG	44271041	NA	NA
## 189	Ukraine	UKR	44831159	NA	NA
## 190	Spain	ESP	46572028	NA	NA
## 191	Colombia	COL	49065615	NA	NA
## 192	Kenya	KEN	49699862	NA	NA
## 193	Korea, Rep.	KOR	51466201	NA	NA
## 194	Myanmar	MMR	53370609	NA	NA
## 195	South Africa	ZAF	56717156	NA	NA
## 196	Tanzania	TZA	57310019	NA	NA
## 197	Italy	ITA	60551416	NA	NA
## 198	United Kingdom	GBR	66022273	NA	NA
## 199	France	FRA	67118648	NA	NA
## 200	Thailand	THA	69037513	NA	NA
## 201	Turkey	TUR	80745020	NA	NA
## 202	Iran, Islamic Rep.	IRN	81162788	NA	NA
## 203	Congo, Dem. Rep.	COD	81339988	NA	NA
## 204	Germany	DEU	82695000	NA	NA
## 205	Vietnam	VNM	95540800	NA	NA
## 206	Egypt, Arab Rep.	EGY	97553151	NA	NA
## 207	Philippines	PHL	104918090	NA	NA
## 208	Ethiopia	ETH	104957438	NA	NA
## 209	Japan	JPN	126785797	NA	NA
## 210	Mexico	MEX	129163276	NA	NA
## 211	Russian Federation	RUS	144495044	NA	NA
## 212	Bangladesh	BGD	164669751	NA	NA
## 213	Nigeria	NGA	190886311	NA	NA
## 214	Pakistan	PAK	197015955	NA	NA
## 215	Brazil	BRA	209288278	NA	NA
## 216	Indonesia	IDN	263991379	NA	NA
## 217	United States	USA	325719178	NA	NA
## 218	India	IND	1339180127	NA	NA
## 219	China	CHN	1386395000	NA	NA

```
dfCountries_descending <- arrange(dfCountries, - Total.Population.2017)
dfCountries_descending
```

##	Country.Name	Country.Code	Total.Population.2017	X	X.1
## 1	China	CHN	1386395000	NA	NA
## 2	India	IND	1339180127	NA	NA
## 3	United States	USA	325719178	NA	NA
## 4	Indonesia	IDN	263991379	NA	NA
## 5	Brazil	BRA	209288278	NA	NA
## 6	Pakistan	PAK	197015955	NA	NA
## 7	Nigeria	NGA	190886311	NA	NA
## 8	Bangladesh	BGD	164669751	NA	NA
## 9	Russian Federation	RUS	144495044	NA	NA
## 10	Mexico	MEX	129163276	NA	NA
## 11	Japan	JPN	126785797	NA	NA
## 12	Ethiopia	ETH	104957438	NA	NA
## 13	Philippines	PHL	104918090	NA	NA
## 14	Egypt, Arab Rep.	EGY	97553151	NA	NA
## 15	Vietnam	VNM	95540800	NA	NA
## 16	Germany	DEU	82695000	NA	NA
## 17	Congo, Dem. Rep.	COD	81339988	NA	NA
## 18	Iran, Islamic Rep.	IRN	81162788	NA	NA
## 19	Turkey	TUR	80745020	NA	NA
## 20	Thailand	THA	69037513	NA	NA
## 21	France	FRA	67118648	NA	NA
## 22	United Kingdom	GBR	66022273	NA	NA
## 23	Italy	ITA	60551416	NA	NA
## 24	Tanzania	TZA	57310019	NA	NA
## 25	South Africa	ZAF	56717156	NA	NA
## 26	Myanmar	MMR	53370609	NA	NA
## 27	Korea, Rep.	KOR	51466201	NA	NA
## 28	Kenya	KEN	49699862	NA	NA
## 29	Colombia	COL	49065615	NA	NA
## 30	Spain	ESP	46572028	NA	NA
## 31	Ukraine	UKR	44831159	NA	NA
## 32	Argentina	ARG	44271041	NA	NA
## 33	Uganda	UGA	42862958	NA	NA
## 34	Algeria	DZA	41318142	NA	NA
## 35	Sudan	SDN	40533330	NA	NA
## 36	Iraq	IRQ	38274618	NA	NA
## 37	Poland	POL	37975841	NA	NA
## 38	Canada	CAN	36708083	NA	NA
## 39	Morocco	MAR	35739580	NA	NA
## 40	Afghanistan	AFG	35530081	NA	NA
## 41	Saudi Arabia	SAU	32938213	NA	NA
## 42	Uzbekistan	UZB	32387200	NA	NA
## 43	Peru	PER	32165485	NA	NA
## 44	Venezuela, RB	VEN	31977065	NA	NA
## 45	Malaysia	MYS	31624264	NA	NA
## 46	Angola	AGO	29784193	NA	NA
## 47	Mozambique	MOZ	29668834	NA	NA
## 48	Nepal	NPL	29304998	NA	NA
## 49	Ghana	GHA	28833629	NA	NA
## 50	Yemen, Rep.	YEM	28250420	NA	NA
## 51	Madagascar	MDG	25570895	NA	NA
## 52	Korea, Dem. People's Rep.	PRK	25490965	NA	NA
## 53	Australia	AUS	24598933	NA	NA

## 54	Cote d'Ivoire	CIV	24294750	NA	NA
## 55	Cameroon	CMR	24053727	NA	NA
## 56	Niger	NER	21477348	NA	NA
## 57	Sri Lanka	LKA	21444000	NA	NA
## 58	Romania	ROU	19586539	NA	NA
## 59	Burkina Faso	BFA	19193382	NA	NA
## 60	Malawi	MWI	18622104	NA	NA
## 61	Mali	MLI	18541980	NA	NA
## 62	Syrian Arab Republic	SYR	18269868	NA	NA
## 63	Chile	CHL	18054726	NA	NA
## 64	Kazakhstan	KAZ	18037646	NA	NA
## 65	Netherlands	NLD	17132854	NA	NA
## 66	Zambia	ZMB	17094130	NA	NA
## 67	Guatemala	GTM	16913503	NA	NA
## 68	Ecuador	ECU	16624858	NA	NA
## 69	Zimbabwe	ZWE	16529904	NA	NA
## 70	Cambodia	KHM	16005373	NA	NA
## 71	Senegal	SEN	15850567	NA	NA
## 72	Chad	TCD	14899994	NA	NA
## 73	Somalia	SOM	14742523	NA	NA
## 74	Guinea	GIN	12717176	NA	NA
## 75	South Sudan	SSD	12575714	NA	NA
## 76	Rwanda	RWA	12208407	NA	NA
## 77	Tunisia	TUN	11532127	NA	NA
## 78	Cuba	CUB	11484636	NA	NA
## 79	Belgium	BEL	11372068	NA	NA
## 80	Benin	BEN	11175692	NA	NA
## 81	Bolivia	BOL	11051600	NA	NA
## 82	Haiti	HTI	10981229	NA	NA
## 83	Burundi	BDI	10864245	NA	NA
## 84	Dominican Republic	DOM	10766998	NA	NA
## 85	Greece	GRC	10760421	NA	NA
## 86	Czech Republic	CZE	10591323	NA	NA
## 87	Portugal	PRT	10293718	NA	NA
## 88	Sweden	SWE	10067744	NA	NA
## 89	Azerbaijan	AZE	9862429	NA	NA
## 90	Hungary	HUN	9781127	NA	NA
## 91	Jordan	JOR	9702353	NA	NA
## 92	Belarus	BLR	9507875	NA	NA
## 93	United Arab Emirates	ARE	9400145	NA	NA
## 94	Honduras	HND	9265067	NA	NA
## 95	Tajikistan	TJK	8921343	NA	NA
## 96	Austria	AUT	8809212	NA	NA
## 97	Israel	ISR	8712400	NA	NA
## 98	Switzerland	CHE	8466017	NA	NA
## 99	Papua New Guinea	PNG	8251162	NA	NA
## 100	Togo	TGO	7797694	NA	NA
## 101	Sierra Leone	SLE	7557212	NA	NA
## 102	Hong Kong SAR, China	HKG	7391700	NA	NA
## 103	Bulgaria	BGR	7075991	NA	NA
## 104	Serbia	SRB	7022268	NA	NA
## 105	Lao PDR	LAO	6858160	NA	NA
## 106	Paraguay	PRY	6811297	NA	NA
## 107	El Salvador	SLV	6377853	NA	NA

## 108	Libya	LBY	6374616	NA	NA
## 109	Nicaragua	NIC	6217581	NA	NA
## 110	Kyrgyz Republic	KGZ	6201500	NA	NA
## 111	Lebanon	LBN	6082357	NA	NA
## 112	Denmark	DNK	5769603	NA	NA
## 113	Turkmenistan	TKM	5758075	NA	NA
## 114	Singapore	SGP	5612253	NA	NA
## 115	Finland	FIN	5511303	NA	NA
## 116	Slovak Republic	SVK	5439892	NA	NA
## 117	Norway	NOR	5282223	NA	NA
## 118	Congo, Rep.	COG	5260750	NA	NA
## 119	Costa Rica	CRI	4905769	NA	NA
## 120	Ireland	IRL	4813608	NA	NA
## 121	New Zealand	NZL	4793900	NA	NA
## 122	Liberia	LBR	4731906	NA	NA
## 123	West Bank and Gaza	PSE	4684777	NA	NA
## 124	Central African Republic	CAF	4659080	NA	NA
## 125	Oman	OMN	4636262	NA	NA
## 126	Mauritania	MRT	4420184	NA	NA
## 127	Kuwait	KWT	4136528	NA	NA
## 128	Croatia	HRV	4125700	NA	NA
## 129	Panama	PAN	4098587	NA	NA
## 130	Fake Country 2	FC2	4000000	NA	NA
## 131	Georgia	GEO	3717100	NA	NA
## 132	Moldova	MDA	3549750	NA	NA
## 133	Bosnia and Herzegovina	BIH	3507017	NA	NA
## 134	Uruguay	URY	3456750	NA	NA
## 135	Puerto Rico	PRI	3337177	NA	NA
## 136	Mongolia	MNG	3075647	NA	NA
## 137	Fake Country 1	FC1	3000000	NA	NA
## 138	Armenia	ARM	2930450	NA	NA
## 139	Jamaica	JAM	2890299	NA	NA
## 140	Albania	ALB	2873457	NA	NA
## 141	Lithuania	LTU	2827721	NA	NA
## 142	Qatar	QAT	2639211	NA	NA
## 143	Namibia	NAM	2533794	NA	NA
## 144	Pacific island small states	PSS	2419188	NA	NA
## 145	Botswana	BWA	2291661	NA	NA
## 146	Lesotho	LSO	2233339	NA	NA
## 147	Gambia, The	GMB	2100568	NA	NA
## 148	Macedonia, FYR	MKD	2083160	NA	NA
## 149	Slovenia	SVN	2066748	NA	NA
## 150	Gabon	GAB	2025137	NA	NA
## 151	Latvia	LVA	1940740	NA	NA
## 152	Guinea-Bissau	GNB	1861283	NA	NA
## 153	Kosovo	XKX	1830700	NA	NA
## 154	Bahrain	BHR	1492584	NA	NA
## 155	Trinidad and Tobago	TTO	1369125	NA	NA
## 156	Eswatini	SWZ	1367254	NA	NA
## 157	Estonia	EST	1315480	NA	NA
## 158	Timor-Leste	TLS	1296311	NA	NA
## 159	Equatorial Guinea	GNQ	1267689	NA	NA
## 160	Mauritius	MUS	1264613	NA	NA
## 161	Cyprus	CYP	1179551	NA	NA

## 162	Djibouti	DJI	956985	NA	NA
## 163	Fiji	FJI	905502	NA	NA
## 164	Comoros	COM	813912	NA	NA
## 165	Bhutan	BTN	807610	NA	NA
## 166	Guyana	GUY	777859	NA	NA
## 167	Macao SAR, China	MAC	622567	NA	NA
## 168	Montenegro	MNE	622471	NA	NA
## 169	Solomon Islands	SLB	611343	NA	NA
## 170	Luxembourg	LUX	599449	NA	NA
## 171	Suriname	SUR	563402	NA	NA
## 172	Cabo Verde	CPV	546388	NA	NA
## 173	Malta	MLT	465292	NA	NA
## 174	Maldives	MDV	436330	NA	NA
## 175	Brunei Darussalam	BRN	428697	NA	NA
## 176	Bahamas, The	BHS	395361	NA	NA
## 177	Belize	BLZ	374681	NA	NA
## 178	Iceland	ISL	341284	NA	NA
## 179	Barbados	BRB	285719	NA	NA
## 180	French Polynesia	PYF	283007	NA	NA
## 181	New Caledonia	NCL	280460	NA	NA
## 182	Vanuatu	VUT	276244	NA	NA
## 183	Sao Tome and Principe	STP	204327	NA	NA
## 184	Samoa	WSM	196440	NA	NA
## 185	St. Lucia	LCA	178844	NA	NA
## 186	Channel Islands	CHI	165314	NA	NA
## 187	Guam	GUM	164229	NA	NA
## 188	Curacao	CUW	161014	NA	NA
## 189	Kiribati	KIR	116398	NA	NA
## 190	St. Vincent and the Grenadines	VCT	109897	NA	NA
## 191	Tonga	TON	108020	NA	NA
## 192	Grenada	GRD	107825	NA	NA
## 193	Virgin Islands (U.S.)	VIR	107268	NA	NA
## 194	Micronesia, Fed. Sts.	FSM	105544	NA	NA
## 195	Aruba	ABW	105264	NA	NA
## 196	Antigua and Barbuda	ATG	102012	NA	NA
## 197	Seychelles	SYC	95843	NA	NA
## 198	Isle of Man	IMN	84287	NA	NA
## 199	Andorra	AND	76965	NA	NA
## 200	Dominica	DMA	73925	NA	NA
## 201	Bermuda	BMU	65441	NA	NA
## 202	Cayman Islands	CYM	61559	NA	NA
## 203	Greenland	GRL	56171	NA	NA
## 204	American Samoa	ASM	55641	NA	NA
## 205	St. Kitts and Nevis	KNA	55345	NA	NA
## 206	Northern Mariana Islands	MNP	55144	NA	NA
## 207	Marshall Islands	MHL	53127	NA	NA
## 208	Faroe Islands	FRO	49290	NA	NA
## 209	Sint Maarten (Dutch part)	SXM	41109	NA	NA
## 210	Monaco	MCO	38695	NA	NA
## 211	Liechtenstein	LIE	37922	NA	NA
## 212	Turks and Caicos Islands	TCA	35446	NA	NA
## 213	Gibraltar	GIB	34571	NA	NA
## 214	San Marino	SMR	33400	NA	NA
## 215	St. Martin (French part)	MAF	32125	NA	NA

```
## 216          British Virgin Islands          VGB          31196 NA  NA
## 217                      Palau          PLW          21729 NA  NA
## 218                      Nauru          NRU          13649 NA  NA
## 219                      Tuvalu          TUV          11192 NA  NA
```

```
#3.A vector of countries with population more than 10000000
dfpopulation <- filter(dfCountries, Total.Population.2017 >10000000)
vector_country <- c(dfpopulation$Country.Name)
vector_country
```

```
## [1] "Afghanistan"          "Algeria"
## [3] "Angola"               "Argentina"
## [5] "Australia"           "Bangladesh"
## [7] "Belgium"             "Benin"
## [9] "Bolivia"             "Brazil"
## [11] "Burkina Faso"        "Burundi"
## [13] "Cambodia"           "Cameroon"
## [15] "Canada"             "Chad"
## [17] "Chile"              "China"
## [19] "Colombia"           "Congo, Dem. Rep."
## [21] "Cote d'Ivoire"       "Cuba"
## [23] "Czech Republic"     "Dominican Republic"
## [25] "Ecuador"            "Egypt, Arab Rep."
## [27] "Ethiopia"           "France"
## [29] "Germany"            "Ghana"
## [31] "Greece"             "Guatemala"
## [33] "Guinea"             "Haiti"
## [35] "India"              "Indonesia"
## [37] "Iran, Islamic Rep." "Iraq"
## [39] "Italy"              "Japan"
## [41] "Kazakhstan"         "Kenya"
## [43] "Korea, Dem. People's Rep." "Korea, Rep."
## [45] "Madagascar"        "Malawi"
## [47] "Malaysia"           "Mali"
## [49] "Mexico"             "Morocco"
## [51] "Mozambique"         "Myanmar"
## [53] "Nepal"              "Netherlands"
## [55] "Niger"              "Nigeria"
## [57] "Pakistan"           "Peru"
## [59] "Philippines"        "Poland"
## [61] "Portugal"           "Romania"
## [63] "Russian Federation" "Rwanda"
## [65] "Saudi Arabia"       "Senegal"
## [67] "Somalia"            "South Africa"
## [69] "South Sudan"        "Spain"
## [71] "Sri Lanka"          "Sudan"
## [73] "Sweden"             "Syrian Arab Republic"
## [75] "Tanzania"           "Thailand"
## [77] "Tunisia"            "Turkey"
## [79] "Uganda"             "Ukraine"
## [81] "United Kingdom"     "United States"
## [83] "Uzbekistan"         "Venezuela, RB"
## [85] "Vietnam"            "Yemen, Rep."
## [87] "Zambia"             "Zimbabwe"
```

```
#4. Create a dataframe "dfBigAndSmall" that has countries with population greater than 10M and less than 200M
dfBigAndSmall <- filter(dfCountries, (Total.Population.2017 >100000000) | (Total.Population.2017 < 200000000))
dfBigAndSmall
```

	Country.Name	Country.Code	Total.Population.2017	X	X.1
## 1	American Samoa	ASM	55641	NA	NA
## 2	Andorra	AND	76965	NA	NA
## 3	Antigua and Barbuda	ATG	102012	NA	NA
## 4	Aruba	ABW	105264	NA	NA
## 5	Bahamas, The	BHS	395361	NA	NA
## 6	Bahrain	BHR	1492584	NA	NA
## 7	Bangladesh	BGD	164669751	NA	NA
## 8	Barbados	BRB	285719	NA	NA
## 9	Belize	BLZ	374681	NA	NA
## 10	Bermuda	BMU	65441	NA	NA
## 11	Bhutan	BTN	807610	NA	NA
## 12	Brazil	BRA	209288278	NA	NA
## 13	British Virgin Islands	VGB	31196	NA	NA
## 14	Brunei Darussalam	BRN	428697	NA	NA
## 15	Cabo Verde	CPV	546388	NA	NA
## 16	Cayman Islands	CYM	61559	NA	NA
## 17	Channel Islands	CHI	165314	NA	NA
## 18	China	CHN	1386395000	NA	NA
## 19	Comoros	COM	813912	NA	NA
## 20	Curacao	CUW	161014	NA	NA
## 21	Cyprus	CYP	1179551	NA	NA
## 22	Djibouti	DJI	956985	NA	NA
## 23	Dominica	DMA	73925	NA	NA
## 24	Equatorial Guinea	GNQ	1267689	NA	NA
## 25	Estonia	EST	1315480	NA	NA
## 26	Eswatini	SWZ	1367254	NA	NA
## 27	Ethiopia	ETH	104957438	NA	NA
## 28	Faroe Islands	FRO	49290	NA	NA
## 29	Fiji	FJI	905502	NA	NA
## 30	French Polynesia	PYF	283007	NA	NA
## 31	Gibraltar	GIB	34571	NA	NA
## 32	Greenland	GRL	56171	NA	NA
## 33	Grenada	GRD	107825	NA	NA
## 34	Guam	GUM	164229	NA	NA
## 35	Guinea-Bissau	GNB	1861283	NA	NA
## 36	Guyana	GUY	777859	NA	NA
## 37	Iceland	ISL	341284	NA	NA
## 38	India	IND	1339180127	NA	NA
## 39	Indonesia	IDN	263991379	NA	NA
## 40	Isle of Man	IMN	84287	NA	NA
## 41	Japan	JPN	126785797	NA	NA
## 42	Kiribati	KIR	116398	NA	NA
## 43	Kosovo	XKX	1830700	NA	NA
## 44	Latvia	LVA	1940740	NA	NA
## 45	Liechtenstein	LIE	37922	NA	NA
## 46	Luxembourg	LUX	599449	NA	NA
## 47	Macao SAR, China	MAC	622567	NA	NA
## 48	Maldives	MDV	436330	NA	NA

## 49	Malta	MLT	465292	NA	NA
## 50	Marshall Islands	MHL	53127	NA	NA
## 51	Mauritius	MUS	1264613	NA	NA
## 52	Mexico	MEX	129163276	NA	NA
## 53	Micronesia, Fed. Sts.	FSM	105544	NA	NA
## 54	Monaco	MCO	38695	NA	NA
## 55	Montenegro	MNE	622471	NA	NA
## 56	Nauru	NRU	13649	NA	NA
## 57	New Caledonia	NCL	280460	NA	NA
## 58	Nigeria	NGA	190886311	NA	NA
## 59	Northern Mariana Islands	MNP	55144	NA	NA
## 60	Pakistan	PAK	197015955	NA	NA
## 61	Palau	PLW	21729	NA	NA
## 62	Philippines	PHL	104918090	NA	NA
## 63	Russian Federation	RUS	144495044	NA	NA
## 64	Samoa	WSM	196440	NA	NA
## 65	San Marino	SMR	33400	NA	NA
## 66	Sao Tome and Principe	STP	204327	NA	NA
## 67	Seychelles	SYC	95843	NA	NA
## 68	Sint Maarten (Dutch part)	SXM	41109	NA	NA
## 69	Solomon Islands	SLB	611343	NA	NA
## 70	St. Kitts and Nevis	KNA	55345	NA	NA
## 71	St. Lucia	LCA	178844	NA	NA
## 72	St. Martin (French part)	MAF	32125	NA	NA
## 73	St. Vincent and the Grenadines	VCT	109897	NA	NA
## 74	Suriname	SUR	563402	NA	NA
## 75	Timor-Leste	TLS	1296311	NA	NA
## 76	Tonga	TON	108020	NA	NA
## 77	Trinidad and Tobago	TTO	1369125	NA	NA
## 78	Turks and Caicos Islands	TCA	35446	NA	NA
## 79	Tuvalu	TUV	11192	NA	NA
## 80	United States	USA	325719178	NA	NA
## 81	Vanuatu	VUT	276244	NA	NA
## 82	Virgin Islands (U.S.)	VIR	107268	NA	NA

#5. Create levels of income group from dataset "Countries region mapping" levels: Low, Lower mid, Upper

```
Incomelevels <- factor(
  dfCountriesRegion$IncomeGroup,
  levels = c("Low income", "Lower middle income", "Upper middle income", "High income" ),
  labels = c("Low", "Lower Mid", "Upper Mid", "High"),
  ordered = TRUE
)
dfCountriesRegion$IncomeLevel <- Incomelevels
dfCountriesRegion
```

##	Country.Code	Region	IncomeGroup	IncomeLevel
## 1	ABW	Latin America & Caribbean	High income	High
## 2	AFG	South Asia	Low income	Low
## 3	AGO	Sub-Saharan Africa	Lower middle income	Lower Mid
## 4	ALB	Europe & Central Asia	Upper middle income	Upper Mid
## 5	AND	Europe & Central Asia	High income	High
## 6	ARE	Middle East & North Africa	High income	High
## 7	ARG	Latin America & Caribbean	High income	High
## 8	ARM	Europe & Central Asia	Upper middle income	Upper Mid

## 9	ASM	East Asia & Pacific	Upper middle income	Upper Mid
## 10	ATG	Latin America & Caribbean	High income	High
## 11	AUS	East Asia & Pacific	High income	High
## 12	AUT	Europe & Central Asia	High income	High
## 13	AZE	Europe & Central Asia	Upper middle income	Upper Mid
## 14	BDI	Sub-Saharan Africa	Low income	Low
## 15	BEL	Europe & Central Asia	High income	High
## 16	BEN	Sub-Saharan Africa	Low income	Low
## 17	BFA	Sub-Saharan Africa	Low income	Low
## 18	BGD	South Asia	Lower middle income	Lower Mid
## 19	BGR	Europe & Central Asia	Upper middle income	Upper Mid
## 20	BHR	Middle East & North Africa	High income	High
## 21	BHS	Latin America & Caribbean	High income	High
## 22	BIH	Europe & Central Asia	Upper middle income	Upper Mid
## 23	BLR	Europe & Central Asia	Upper middle income	Upper Mid
## 24	BLZ	Latin America & Caribbean	Upper middle income	Upper Mid
## 25	BMU	North America	High income	High
## 26	BOL	Latin America & Caribbean	Lower middle income	Lower Mid
## 27	BRA	Latin America & Caribbean	Upper middle income	Upper Mid
## 28	BRB	Latin America & Caribbean	High income	High
## 29	BRN	East Asia & Pacific	High income	High
## 30	BTN	South Asia	Lower middle income	Lower Mid
## 31	BWA	Sub-Saharan Africa	Upper middle income	Upper Mid
## 32	CAF	Sub-Saharan Africa	Low income	Low
## 33	CAN	North America	High income	High
## 34	CHE	Europe & Central Asia	High income	High
## 35	CHI	Europe & Central Asia	High income	High
## 36	CHL	Latin America & Caribbean	High income	High
## 37	CHN	East Asia & Pacific	Upper middle income	Upper Mid
## 38	CIV	Sub-Saharan Africa	Lower middle income	Lower Mid
## 39	CMR	Sub-Saharan Africa	Lower middle income	Lower Mid
## 40	COD	Sub-Saharan Africa	Low income	Low
## 41	COG	Sub-Saharan Africa	Lower middle income	Lower Mid
## 42	COL	Latin America & Caribbean	Upper middle income	Upper Mid
## 43	COM	Sub-Saharan Africa	Low income	Low
## 44	CPV	Sub-Saharan Africa	Lower middle income	Lower Mid
## 45	CRI	Latin America & Caribbean	Upper middle income	Upper Mid
## 46	CUB	Latin America & Caribbean	Upper middle income	Upper Mid
## 47	CUW	Latin America & Caribbean	High income	High
## 48	CYM	Latin America & Caribbean	High income	High
## 49	CYP	Europe & Central Asia	High income	High
## 50	CZE	Europe & Central Asia	High income	High
## 51	DEU	Europe & Central Asia	High income	High
## 52	DJI	Middle East & North Africa	Lower middle income	Lower Mid
## 53	DMA	Latin America & Caribbean	Upper middle income	Upper Mid
## 54	DNK	Europe & Central Asia	High income	High
## 55	DOM	Latin America & Caribbean	Upper middle income	Upper Mid
## 56	DZA	Middle East & North Africa	Upper middle income	Upper Mid
## 57	ECU	Latin America & Caribbean	Upper middle income	Upper Mid
## 58	EGY	Middle East & North Africa	Lower middle income	Lower Mid
## 59	ERI	Sub-Saharan Africa	Low income	Low
## 60	ESP	Europe & Central Asia	High income	High
## 61	EST	Europe & Central Asia	High income	High
## 62	ETH	Sub-Saharan Africa	Low income	Low

## 63	FIN	Europe & Central Asia	High income	High
## 64	FJI	East Asia & Pacific	Upper middle income	Upper Mid
## 65	FRA	Europe & Central Asia	High income	High
## 66	FRO	Europe & Central Asia	High income	High
## 67	FSM	East Asia & Pacific	Lower middle income	Lower Mid
## 68	GAB	Sub-Saharan Africa	Upper middle income	Upper Mid
## 69	GBR	Europe & Central Asia	High income	High
## 70	GEO	Europe & Central Asia	Lower middle income	Lower Mid
## 71	GHA	Sub-Saharan Africa	Lower middle income	Lower Mid
## 72	GIB	Europe & Central Asia	High income	High
## 73	GIN	Sub-Saharan Africa	Low income	Low
## 74	GMB	Sub-Saharan Africa	Low income	Low
## 75	GNB	Sub-Saharan Africa	Low income	Low
## 76	GNQ	Sub-Saharan Africa	Upper middle income	Upper Mid
## 77	GRC	Europe & Central Asia	High income	High
## 78	GRD	Latin America & Caribbean	Upper middle income	Upper Mid
## 79	GRL	Europe & Central Asia	High income	High
## 80	GTM	Latin America & Caribbean	Upper middle income	Upper Mid
## 81	GUM	East Asia & Pacific	High income	High
## 82	GUY	Latin America & Caribbean	Upper middle income	Upper Mid
## 83	HKG	East Asia & Pacific	High income	High
## 84	HND	Latin America & Caribbean	Lower middle income	Lower Mid
## 85	HRV	Europe & Central Asia	High income	High
## 86	HTI	Latin America & Caribbean	Low income	Low
## 87	HUN	Europe & Central Asia	High income	High
## 88	IDN	East Asia & Pacific	Lower middle income	Lower Mid
## 89	IMN	Europe & Central Asia	High income	High
## 90	IND	South Asia	Lower middle income	Lower Mid
## 91	IRL	Europe & Central Asia	High income	High
## 92	IRN	Middle East & North Africa	Upper middle income	Upper Mid
## 93	IRQ	Middle East & North Africa	Upper middle income	Upper Mid
## 94	ISL	Europe & Central Asia	High income	High
## 95	ISR	Middle East & North Africa	High income	High
## 96	ITA	Europe & Central Asia	High income	High
## 97	JAM	Latin America & Caribbean	Upper middle income	Upper Mid
## 98	JOR	Middle East & North Africa	Upper middle income	Upper Mid
## 99	JPN	East Asia & Pacific	High income	High
## 100	KAZ	Europe & Central Asia	Upper middle income	Upper Mid
## 101	KEN	Sub-Saharan Africa	Lower middle income	Lower Mid
## 102	KGZ	Europe & Central Asia	Lower middle income	Lower Mid
## 103	KHM	East Asia & Pacific	Lower middle income	Lower Mid
## 104	KIR	East Asia & Pacific	Lower middle income	Lower Mid
## 105	KNA	Latin America & Caribbean	High income	High
## 106	KOR	East Asia & Pacific	High income	High
## 107	KWT	Middle East & North Africa	High income	High
## 108	LAO	East Asia & Pacific	Lower middle income	Lower Mid
## 109	LBN	Middle East & North Africa	Upper middle income	Upper Mid
## 110	LBR	Sub-Saharan Africa	Low income	Low
## 111	LBY	Middle East & North Africa	Upper middle income	Upper Mid
## 112	LCA	Latin America & Caribbean	Upper middle income	Upper Mid
## 113	LIE	Europe & Central Asia	High income	High
## 114	LKA	South Asia	Lower middle income	Lower Mid
## 115	LSO	Sub-Saharan Africa	Lower middle income	Lower Mid
## 116	LTU	Europe & Central Asia	High income	High

## 117	LUX	Europe & Central Asia	High income	High
## 118	LVA	Europe & Central Asia	High income	High
## 119	MAC	East Asia & Pacific	High income	High
## 120	MAF	Latin America & Caribbean	High income	High
## 121	MAR	Middle East & North Africa	Lower middle income	Lower Mid
## 122	MCO	Europe & Central Asia	High income	High
## 123	MDA	Europe & Central Asia	Lower middle income	Lower Mid
## 124	MDG	Sub-Saharan Africa	Low income	Low
## 125	MDV	South Asia	Upper middle income	Upper Mid
## 126	MEX	Latin America & Caribbean	Upper middle income	Upper Mid
## 127	MHL	East Asia & Pacific	Upper middle income	Upper Mid
## 128	MKD	Europe & Central Asia	Upper middle income	Upper Mid
## 129	MLI	Sub-Saharan Africa	Low income	Low
## 130	MLT	Middle East & North Africa	High income	High
## 131	MMR	East Asia & Pacific	Lower middle income	Lower Mid
## 132	MNE	Europe & Central Asia	Upper middle income	Upper Mid
## 133	MNG	East Asia & Pacific	Lower middle income	Lower Mid
## 134	MNP	East Asia & Pacific	High income	High
## 135	MOZ	Sub-Saharan Africa	Low income	Low
## 136	MRT	Sub-Saharan Africa	Lower middle income	Lower Mid
## 137	MUS	Sub-Saharan Africa	Upper middle income	Upper Mid
## 138	MWI	Sub-Saharan Africa	Low income	Low
## 139	NAM	Sub-Saharan Africa	Upper middle income	Upper Mid
## 140	NCL	East Asia & Pacific	High income	High
## 141	NER	Sub-Saharan Africa	Low income	Low
## 142	NGA	Sub-Saharan Africa	Lower middle income	Lower Mid
## 143	NIC	Latin America & Caribbean	Lower middle income	Lower Mid
## 144	NLD	Europe & Central Asia	High income	High
## 145	NOR	Europe & Central Asia	High income	High
## 146	NPL	South Asia	Low income	Low
## 147	NRU	East Asia & Pacific	Upper middle income	Upper Mid
## 148	NZL	East Asia & Pacific	High income	High
## 149	OMN	Middle East & North Africa	High income	High
## 150	PAK	South Asia	Lower middle income	Lower Mid
## 151	PAN	Latin America & Caribbean	High income	High
## 152	PER	Latin America & Caribbean	Upper middle income	Upper Mid
## 153	PHL	East Asia & Pacific	Lower middle income	Lower Mid
## 154	PLW	East Asia & Pacific	High income	High
## 155	PNG	East Asia & Pacific	Lower middle income	Lower Mid
## 156	POL	Europe & Central Asia	High income	High
## 157	PRI	Latin America & Caribbean	High income	High
## 158	PRK	East Asia & Pacific	Low income	Low
## 159	PRT	Europe & Central Asia	High income	High
## 160	PRY	Latin America & Caribbean	Upper middle income	Upper Mid
## 161	PSE	Middle East & North Africa	Lower middle income	Lower Mid
## 162	PYF	East Asia & Pacific	High income	High
## 163	QAT	Middle East & North Africa	High income	High
## 164	ROU	Europe & Central Asia	Upper middle income	Upper Mid
## 165	RUS	Europe & Central Asia	Upper middle income	Upper Mid
## 166	RWA	Sub-Saharan Africa	Low income	Low
## 167	SAU	Middle East & North Africa	High income	High
## 168	SDN	Sub-Saharan Africa	Lower middle income	Lower Mid
## 169	SEN	Sub-Saharan Africa	Low income	Low
## 170	SGP	East Asia & Pacific	High income	High

## 171	SLB	East Asia & Pacific	Lower middle income	Lower Mid
## 172	SLE	Sub-Saharan Africa	Low income	Low
## 173	SLV	Latin America & Caribbean	Lower middle income	Lower Mid
## 174	SMR	Europe & Central Asia	High income	High
## 175	SOM	Sub-Saharan Africa	Low income	Low
## 176	SRB	Europe & Central Asia	Upper middle income	Upper Mid
## 177	SSD	Sub-Saharan Africa	Low income	Low
## 178	STP	Sub-Saharan Africa	Lower middle income	Lower Mid
## 179	SUR	Latin America & Caribbean	Upper middle income	Upper Mid
## 180	SVK	Europe & Central Asia	High income	High
## 181	SVN	Europe & Central Asia	High income	High
## 182	SWE	Europe & Central Asia	High income	High
## 183	SWZ	Sub-Saharan Africa	Lower middle income	Lower Mid
## 184	SXM	Latin America & Caribbean	High income	High
## 185	SYC	Sub-Saharan Africa	High income	High
## 186	SYR	Middle East & North Africa	Low income	Low
## 187	TCA	Latin America & Caribbean	High income	High
## 188	TCD	Sub-Saharan Africa	Low income	Low
## 189	TGO	Sub-Saharan Africa	Low income	Low
## 190	THA	East Asia & Pacific	Upper middle income	Upper Mid
## 191	TJK	Europe & Central Asia	Low income	Low
## 192	TKM	Europe & Central Asia	Upper middle income	Upper Mid
## 193	TLS	East Asia & Pacific	Lower middle income	Lower Mid
## 194	TON	East Asia & Pacific	Upper middle income	Upper Mid
## 195	TTO	Latin America & Caribbean	High income	High
## 196	TUN	Middle East & North Africa	Lower middle income	Lower Mid
## 197	TUR	Europe & Central Asia	Upper middle income	Upper Mid
## 198	TUV	East Asia & Pacific	Upper middle income	Upper Mid
## 199	TZA	Sub-Saharan Africa	Low income	Low
## 200	UGA	Sub-Saharan Africa	Low income	Low
## 201	UKR	Europe & Central Asia	Lower middle income	Lower Mid
## 202	URY	Latin America & Caribbean	High income	High
## 203	USA	North America	High income	High
## 204	UZB	Europe & Central Asia	Lower middle income	Lower Mid
## 205	VCT	Latin America & Caribbean	Upper middle income	Upper Mid
## 206	VEN	Latin America & Caribbean	Upper middle income	Upper Mid
## 207	VGB	Latin America & Caribbean	High income	High
## 208	VIR	Latin America & Caribbean	High income	High
## 209	VNM	East Asia & Pacific	Lower middle income	Lower Mid
## 210	VUT	East Asia & Pacific	Lower middle income	Lower Mid
## 211	WSM	East Asia & Pacific	Upper middle income	Upper Mid
## 212	XKX	Europe & Central Asia	Lower middle income	Lower Mid
## 213	YEM	Middle East & North Africa	Low income	Low
## 214	ZAF	Sub-Saharan Africa	Upper middle income	Upper Mid
## 215	ZMB	Sub-Saharan Africa	Lower middle income	Lower Mid
## 216	ZWE	Sub-Saharan Africa	Low income	Low

#6. Merge the 3 datasets attached into 1 dataframe : "dfCountryMaster"

```
dfCountryMaster = merge(dfCountries, dfCountriesRegion , by = "Country.Code", all = TRUE)
dfCountryMaster = merge(dfCountryMaster, dfCountriesIndicators, by = "Country.Code", all = TRUE)

dfCountryMaster <- dfCountryMaster %>%
  select(where(~ !all(is.na(.))))
dfCountryMaster
```

##	Country.Code	Country.Name	Total.Population.2017
## 1	ABW	Aruba	105264
## 2	AFG	Afghanistan	35530081
## 3	AGO	Angola	29784193
## 4	ALB	Albania	2873457
## 5	AND	Andorra	76965
## 6	ARB	<NA>	NA
## 7	ARE	United Arab Emirates	9400145
## 8	ARG	Argentina	44271041
## 9	ARM	Armenia	2930450
## 10	ASM	American Samoa	55641
## 11	ATG	Antigua and Barbuda	102012
## 12	AUS	Australia	24598933
## 13	AUT	Austria	8809212
## 14	AZE	Azerbaijan	9862429
## 15	BDI	Burundi	10864245
## 16	BEL	Belgium	11372068
## 17	BEN	Benin	11175692
## 18	BFA	Burkina Faso	19193382
## 19	BGD	Bangladesh	164669751
## 20	BGR	Bulgaria	7075991
## 21	BHR	Bahrain	1492584
## 22	BHS	Bahamas, The	395361
## 23	BIH	Bosnia and Herzegovina	3507017
## 24	BLR	Belarus	9507875
## 25	BLZ	Belize	374681
## 26	BMU	Bermuda	65441
## 27	BOL	Bolivia	11051600
## 28	BRA	Brazil	209288278
## 29	BRB	Barbados	285719
## 30	BRN	Brunei Darussalam	428697
## 31	BTN	Bhutan	807610
## 32	BWA	Botswana	2291661
## 33	CAF	Central African Republic	4659080
## 34	CAN	Canada	36708083
## 35	CEB	<NA>	NA
## 36	CHE	Switzerland	8466017
## 37	CHI	Channel Islands	165314
## 38	CHL	Chile	18054726
## 39	CHN	China	1386395000
## 40	CIV	Cote d'Ivoire	24294750
## 41	CMR	Cameroon	24053727
## 42	COD	Congo, Dem. Rep.	81339988
## 43	COG	Congo, Rep.	5260750
## 44	COL	Colombia	49065615
## 45	COM	Comoros	813912
## 46	CPV	Cabo Verde	546388
## 47	CRI	Costa Rica	4905769
## 48	CSS	<NA>	NA
## 49	CUB	Cuba	11484636
## 50	CUW	Curacao	161014
## 51	CYM	Cayman Islands	61559
## 52	CYP	Cyprus	1179551
## 53	CZE	Czech Republic	10591323

## 54	DEU	Germany	82695000
## 55	DJI	Djibouti	956985
## 56	DMA	Dominica	73925
## 57	DNK	Denmark	5769603
## 58	DOM	Dominican Republic	10766998
## 59	DZA	Algeria	41318142
## 60	EAP	<NA>	NA
## 61	EAR	<NA>	NA
## 62	EAS	<NA>	NA
## 63	ECA	<NA>	NA
## 64	ECS	<NA>	NA
## 65	ECU	Ecuador	16624858
## 66	EGY	Egypt, Arab Rep.	97553151
## 67	EMU	<NA>	NA
## 68	ERI	<NA>	NA
## 69	ESP	Spain	46572028
## 70	EST	Estonia	1315480
## 71	ETH	Ethiopia	104957438
## 72	EUU	<NA>	NA
## 73	FC1	Fake Country 1	3000000
## 74	FC2	Fake Country 2	4000000
## 75	FCS	<NA>	NA
## 76	FIN	Finland	5511303
## 77	FJI	Fiji	905502
## 78	FRA	France	67118648
## 79	FRO	Faroe Islands	49290
## 80	FSM	Micronesia, Fed. Sts.	105544
## 81	GAB	Gabon	2025137
## 82	GBR	United Kingdom	66022273
## 83	GEO	Georgia	3717100
## 84	GHA	Ghana	28833629
## 85	GIB	Gibraltar	34571
## 86	GIN	Guinea	12717176
## 87	GMB	Gambia, The	2100568
## 88	GNB	Guinea-Bissau	1861283
## 89	GNQ	Equatorial Guinea	1267689
## 90	GRC	Greece	10760421
## 91	GRD	Grenada	107825
## 92	GRL	Greenland	56171
## 93	GTM	Guatemala	16913503
## 94	GUM	Guam	164229
## 95	GUY	Guyana	777859
## 96	HIC	<NA>	NA
## 97	HKG	Hong Kong SAR, China	7391700
## 98	HND	Honduras	9265067
## 99	HPC	<NA>	NA
## 100	HRV	Croatia	4125700
## 101	HTI	Haiti	10981229
## 102	HUN	Hungary	9781127
## 103	IDN	Indonesia	263991379
## 104	IMN	Isle of Man	84287
## 105	IND	India	1339180127
## 106	IRL	Ireland	4813608
## 107	IRN	Iran, Islamic Rep.	81162788

## 108	IRQ	Iraq	38274618
## 109	ISL	Iceland	341284
## 110	ISR	Israel	8712400
## 111	ITA	Italy	60551416
## 112	JAM	Jamaica	2890299
## 113	JOR	Jordan	9702353
## 114	JPN	Japan	126785797
## 115	KAZ	Kazakhstan	18037646
## 116	KEN	Kenya	49699862
## 117	KGZ	Kyrgyz Republic	6201500
## 118	KHM	Cambodia	16005373
## 119	KIR	Kiribati	116398
## 120	KNA	St. Kitts and Nevis	55345
## 121	KOR	Korea, Rep.	51466201
## 122	KWT	Kuwait	4136528
## 123	LAC	<NA>	NA
## 124	LAO	Lao PDR	6858160
## 125	LBN	Lebanon	6082357
## 126	LBR	Liberia	4731906
## 127	LBY	Libya	6374616
## 128	LCA	St. Lucia	178844
## 129	LCN	<NA>	NA
## 130	LDC	<NA>	NA
## 131	LIC	<NA>	NA
## 132	LIE	Liechtenstein	37922
## 133	LKA	Sri Lanka	21444000
## 134	LMC	<NA>	NA
## 135	LMY	<NA>	NA
## 136	LSO	Lesotho	2233339
## 137	LTE	<NA>	NA
## 138	LTU	Lithuania	2827721
## 139	LUX	Luxembourg	599449
## 140	LVA	Latvia	1940740
## 141	MAC	Macao SAR, China	622567
## 142	MAF	St. Martin (French part)	32125
## 143	MAR	Morocco	35739580
## 144	MCO	Monaco	38695
## 145	MDA	Moldova	3549750
## 146	MDG	Madagascar	25570895
## 147	MDV	Maldives	436330
## 148	MEA	<NA>	NA
## 149	MEX	Mexico	129163276
## 150	MHL	Marshall Islands	53127
## 151	MIC	<NA>	NA
## 152	MKD	Macedonia, FYR	2083160
## 153	MLI	Mali	18541980
## 154	MLT	Malta	465292
## 155	MMR	Myanmar	53370609
## 156	MNA	<NA>	NA
## 157	MNE	Montenegro	622471
## 158	MNG	Mongolia	3075647
## 159	MNP	Northern Mariana Islands	55144
## 160	MOZ	Mozambique	29668834
## 161	MRT	Mauritania	4420184

## 162	MUS	Mauritius	1264613
## 163	MWI	Malawi	18622104
## 164	MYS	Malaysia	31624264
## 165	NAC	<NA>	NA
## 166	NAM	Namibia	2533794
## 167	NCL	New Caledonia	280460
## 168	NER	Niger	21477348
## 169	NGA	Nigeria	190886311
## 170	NIC	Nicaragua	6217581
## 171	NLD	Netherlands	17132854
## 172	NOR	Norway	5282223
## 173	NPL	Nepal	29304998
## 174	NRU	Nauru	13649
## 175	NZL	New Zealand	4793900
## 176	OED	<NA>	NA
## 177	OMN	Oman	4636262
## 178	OSS	<NA>	NA
## 179	PAK	Pakistan	197015955
## 180	PAN	Panama	4098587
## 181	PER	Peru	32165485
## 182	PHL	Philippines	104918090
## 183	PLW	Palau	21729
## 184	PNG	Papua New Guinea	8251162
## 185	POL	Poland	37975841
## 186	PRE	<NA>	NA
## 187	PRI	Puerto Rico	3337177
## 188	PRK	Korea, Dem. People's Rep.	25490965
## 189	PRT	Portugal	10293718
## 190	PRY	Paraguay	6811297
## 191	PSE	West Bank and Gaza	4684777
## 192	PSS	Pacific island small states	2419188
## 193	PST	<NA>	NA
## 194	PYF	French Polynesia	283007
## 195	QAT	Qatar	2639211
## 196	ROU	Romania	19586539
## 197	RUS	Russian Federation	144495044
## 198	RWA	Rwanda	12208407
## 199	SAS	<NA>	NA
## 200	SAU	Saudi Arabia	32938213
## 201	SDN	Sudan	40533330
## 202	SEN	Senegal	15850567
## 203	SGP	Singapore	5612253
## 204	SLB	Solomon Islands	611343
## 205	SLE	Sierra Leone	7557212
## 206	SLV	El Salvador	6377853
## 207	SMR	San Marino	33400
## 208	SOM	Somalia	14742523
## 209	SRB	Serbia	7022268
## 210	SSA	<NA>	NA
## 211	SSD	South Sudan	12575714
## 212	SSF	<NA>	NA
## 213	SST	<NA>	NA
## 214	STP	Sao Tome and Principe	204327
## 215	SUR	Suriname	563402

## 216	SVK	Slovak Republic	5439892
## 217	SVN	Slovenia	2066748
## 218	SWE	Sweden	10067744
## 219	SWZ	Eswatini	1367254
## 220	SXM	Sint Maarten (Dutch part)	41109
## 221	SYC	Seychelles	95843
## 222	SYR	Syrian Arab Republic	18269868
## 223	TCA	Turks and Caicos Islands	35446
## 224	TCD	Chad	14899994
## 225	TEA	<NA>	NA
## 226	TEC	<NA>	NA
## 227	TGO	Togo	7797694
## 228	THA	Thailand	69037513
## 229	TJK	Tajikistan	8921343
## 230	TKM	Turkmenistan	5758075
## 231	TLA	<NA>	NA
## 232	TLS	Timor-Leste	1296311
## 233	TMN	<NA>	NA
## 234	TON	Tonga	108020
## 235	TSA	<NA>	NA
## 236	TSS	<NA>	NA
## 237	TTO	Trinidad and Tobago	1369125
## 238	TUN	Tunisia	11532127
## 239	TUR	Turkey	80745020
## 240	TUV	Tuvalu	11192
## 241	TZA	Tanzania	57310019
## 242	UGA	Uganda	42862958
## 243	UKR	Ukraine	44831159
## 244	UMC	<NA>	NA
## 245	URY	Uruguay	3456750
## 246	USA	United States	325719178
## 247	UZB	Uzbekistan	32387200
## 248	VCT	St. Vincent and the Grenadines	109897
## 249	VEN	Venezuela, RB	31977065
## 250	VGB	British Virgin Islands	31196
## 251	VIR	Virgin Islands (U.S.)	107268
## 252	VNM	Vietnam	95540800
## 253	VUT	Vanuatu	276244
## 254	WLD	<NA>	NA
## 255	WSM	Samoa	196440
## 256	XKX	Kosovo	1830700
## 257	YEM	Yemen, Rep.	28250420
## 258	ZAF	South Africa	56717156
## 259	ZMB	Zambia	17094130
## 260	ZWE	Zimbabwe	16529904

##	Region	IncomeGroup	IncomeLevel
## 1	Latin America & Caribbean	High income	High
## 2	South Asia	Low income	Low
## 3	Sub-Saharan Africa	Lower middle income	Lower Mid
## 4	Europe & Central Asia	Upper middle income	Upper Mid
## 5	Europe & Central Asia	High income	High
## 6	<NA>	<NA>	<NA>
## 7	Middle East & North Africa	High income	High
## 8	Latin America & Caribbean	High income	High

## 9	Europe & Central Asia	Upper middle income	Upper Mid
## 10	East Asia & Pacific	Upper middle income	Upper Mid
## 11	Latin America & Caribbean	High income	High
## 12	East Asia & Pacific	High income	High
## 13	Europe & Central Asia	High income	High
## 14	Europe & Central Asia	Upper middle income	Upper Mid
## 15	Sub-Saharan Africa	Low income	Low
## 16	Europe & Central Asia	High income	High
## 17	Sub-Saharan Africa	Low income	Low
## 18	Sub-Saharan Africa	Low income	Low
## 19	South Asia	Lower middle income	Lower Mid
## 20	Europe & Central Asia	Upper middle income	Upper Mid
## 21	Middle East & North Africa	High income	High
## 22	Latin America & Caribbean	High income	High
## 23	Europe & Central Asia	Upper middle income	Upper Mid
## 24	Europe & Central Asia	Upper middle income	Upper Mid
## 25	Latin America & Caribbean	Upper middle income	Upper Mid
## 26	North America	High income	High
## 27	Latin America & Caribbean	Lower middle income	Lower Mid
## 28	Latin America & Caribbean	Upper middle income	Upper Mid
## 29	Latin America & Caribbean	High income	High
## 30	East Asia & Pacific	High income	High
## 31	South Asia	Lower middle income	Lower Mid
## 32	Sub-Saharan Africa	Upper middle income	Upper Mid
## 33	Sub-Saharan Africa	Low income	Low
## 34	North America	High income	High
## 35	<NA>	<NA>	<NA>
## 36	Europe & Central Asia	High income	High
## 37	Europe & Central Asia	High income	High
## 38	Latin America & Caribbean	High income	High
## 39	East Asia & Pacific	Upper middle income	Upper Mid
## 40	Sub-Saharan Africa	Lower middle income	Lower Mid
## 41	Sub-Saharan Africa	Lower middle income	Lower Mid
## 42	Sub-Saharan Africa	Low income	Low
## 43	Sub-Saharan Africa	Lower middle income	Lower Mid
## 44	Latin America & Caribbean	Upper middle income	Upper Mid
## 45	Sub-Saharan Africa	Low income	Low
## 46	Sub-Saharan Africa	Lower middle income	Lower Mid
## 47	Latin America & Caribbean	Upper middle income	Upper Mid
## 48	<NA>	<NA>	<NA>
## 49	Latin America & Caribbean	Upper middle income	Upper Mid
## 50	Latin America & Caribbean	High income	High
## 51	Latin America & Caribbean	High income	High
## 52	Europe & Central Asia	High income	High
## 53	Europe & Central Asia	High income	High
## 54	Europe & Central Asia	High income	High
## 55	Middle East & North Africa	Lower middle income	Lower Mid
## 56	Latin America & Caribbean	Upper middle income	Upper Mid
## 57	Europe & Central Asia	High income	High
## 58	Latin America & Caribbean	Upper middle income	Upper Mid
## 59	Middle East & North Africa	Upper middle income	Upper Mid
## 60	<NA>	<NA>	<NA>
## 61	<NA>	<NA>	<NA>
## 62	<NA>	<NA>	<NA>

## 63		<NA>	<NA>	<NA>
## 64		<NA>	<NA>	<NA>
## 65	Latin America & Caribbean	Upper middle income		Upper Mid
## 66	Middle East & North Africa	Lower middle income		Lower Mid
## 67		<NA>	<NA>	<NA>
## 68	Sub-Saharan Africa	Low income		Low
## 69	Europe & Central Asia	High income		High
## 70	Europe & Central Asia	High income		High
## 71	Sub-Saharan Africa	Low income		Low
## 72		<NA>	<NA>	<NA>
## 73		<NA>	<NA>	<NA>
## 74		<NA>	<NA>	<NA>
## 75		<NA>	<NA>	<NA>
## 76	Europe & Central Asia	High income		High
## 77	East Asia & Pacific	Upper middle income		Upper Mid
## 78	Europe & Central Asia	High income		High
## 79	Europe & Central Asia	High income		High
## 80	East Asia & Pacific	Lower middle income		Lower Mid
## 81	Sub-Saharan Africa	Upper middle income		Upper Mid
## 82	Europe & Central Asia	High income		High
## 83	Europe & Central Asia	Lower middle income		Lower Mid
## 84	Sub-Saharan Africa	Lower middle income		Lower Mid
## 85	Europe & Central Asia	High income		High
## 86	Sub-Saharan Africa	Low income		Low
## 87	Sub-Saharan Africa	Low income		Low
## 88	Sub-Saharan Africa	Low income		Low
## 89	Sub-Saharan Africa	Upper middle income		Upper Mid
## 90	Europe & Central Asia	High income		High
## 91	Latin America & Caribbean	Upper middle income		Upper Mid
## 92	Europe & Central Asia	High income		High
## 93	Latin America & Caribbean	Upper middle income		Upper Mid
## 94	East Asia & Pacific	High income		High
## 95	Latin America & Caribbean	Upper middle income		Upper Mid
## 96		<NA>	<NA>	<NA>
## 97	East Asia & Pacific	High income		High
## 98	Latin America & Caribbean	Lower middle income		Lower Mid
## 99		<NA>	<NA>	<NA>
## 100	Europe & Central Asia	High income		High
## 101	Latin America & Caribbean	Low income		Low
## 102	Europe & Central Asia	High income		High
## 103	East Asia & Pacific	Lower middle income		Lower Mid
## 104	Europe & Central Asia	High income		High
## 105	South Asia	Lower middle income		Lower Mid
## 106	Europe & Central Asia	High income		High
## 107	Middle East & North Africa	Upper middle income		Upper Mid
## 108	Middle East & North Africa	Upper middle income		Upper Mid
## 109	Europe & Central Asia	High income		High
## 110	Middle East & North Africa	High income		High
## 111	Europe & Central Asia	High income		High
## 112	Latin America & Caribbean	Upper middle income		Upper Mid
## 113	Middle East & North Africa	Upper middle income		Upper Mid
## 114	East Asia & Pacific	High income		High
## 115	Europe & Central Asia	Upper middle income		Upper Mid
## 116	Sub-Saharan Africa	Lower middle income		Lower Mid

## 117	Europe & Central Asia	Lower middle income	Lower Mid
## 118	East Asia & Pacific	Lower middle income	Lower Mid
## 119	East Asia & Pacific	Lower middle income	Lower Mid
## 120	Latin America & Caribbean	High income	High
## 121	East Asia & Pacific	High income	High
## 122	Middle East & North Africa	High income	High
## 123	<NA>	<NA>	<NA>
## 124	East Asia & Pacific	Lower middle income	Lower Mid
## 125	Middle East & North Africa	Upper middle income	Upper Mid
## 126	Sub-Saharan Africa	Low income	Low
## 127	Middle East & North Africa	Upper middle income	Upper Mid
## 128	Latin America & Caribbean	Upper middle income	Upper Mid
## 129	<NA>	<NA>	<NA>
## 130	<NA>	<NA>	<NA>
## 131	<NA>	<NA>	<NA>
## 132	Europe & Central Asia	High income	High
## 133	South Asia	Lower middle income	Lower Mid
## 134	<NA>	<NA>	<NA>
## 135	<NA>	<NA>	<NA>
## 136	Sub-Saharan Africa	Lower middle income	Lower Mid
## 137	<NA>	<NA>	<NA>
## 138	Europe & Central Asia	High income	High
## 139	Europe & Central Asia	High income	High
## 140	Europe & Central Asia	High income	High
## 141	East Asia & Pacific	High income	High
## 142	Latin America & Caribbean	High income	High
## 143	Middle East & North Africa	Lower middle income	Lower Mid
## 144	Europe & Central Asia	High income	High
## 145	Europe & Central Asia	Lower middle income	Lower Mid
## 146	Sub-Saharan Africa	Low income	Low
## 147	South Asia	Upper middle income	Upper Mid
## 148	<NA>	<NA>	<NA>
## 149	Latin America & Caribbean	Upper middle income	Upper Mid
## 150	East Asia & Pacific	Upper middle income	Upper Mid
## 151	<NA>	<NA>	<NA>
## 152	Europe & Central Asia	Upper middle income	Upper Mid
## 153	Sub-Saharan Africa	Low income	Low
## 154	Middle East & North Africa	High income	High
## 155	East Asia & Pacific	Lower middle income	Lower Mid
## 156	<NA>	<NA>	<NA>
## 157	Europe & Central Asia	Upper middle income	Upper Mid
## 158	East Asia & Pacific	Lower middle income	Lower Mid
## 159	East Asia & Pacific	High income	High
## 160	Sub-Saharan Africa	Low income	Low
## 161	Sub-Saharan Africa	Lower middle income	Lower Mid
## 162	Sub-Saharan Africa	Upper middle income	Upper Mid
## 163	Sub-Saharan Africa	Low income	Low
## 164	<NA>	<NA>	<NA>
## 165	<NA>	<NA>	<NA>
## 166	Sub-Saharan Africa	Upper middle income	Upper Mid
## 167	East Asia & Pacific	High income	High
## 168	Sub-Saharan Africa	Low income	Low
## 169	Sub-Saharan Africa	Lower middle income	Lower Mid
## 170	Latin America & Caribbean	Lower middle income	Lower Mid

## 171	Europe & Central Asia	High income	High
## 172	Europe & Central Asia	High income	High
## 173	South Asia	Low income	Low
## 174	East Asia & Pacific	Upper middle income	Upper Mid
## 175	East Asia & Pacific	High income	High
## 176	<NA>	<NA>	<NA>
## 177	Middle East & North Africa	High income	High
## 178	<NA>	<NA>	<NA>
## 179	South Asia	Lower middle income	Lower Mid
## 180	Latin America & Caribbean	High income	High
## 181	Latin America & Caribbean	Upper middle income	Upper Mid
## 182	East Asia & Pacific	Lower middle income	Lower Mid
## 183	East Asia & Pacific	High income	High
## 184	East Asia & Pacific	Lower middle income	Lower Mid
## 185	Europe & Central Asia	High income	High
## 186	<NA>	<NA>	<NA>
## 187	Latin America & Caribbean	High income	High
## 188	East Asia & Pacific	Low income	Low
## 189	Europe & Central Asia	High income	High
## 190	Latin America & Caribbean	Upper middle income	Upper Mid
## 191	Middle East & North Africa	Lower middle income	Lower Mid
## 192	<NA>	<NA>	<NA>
## 193	<NA>	<NA>	<NA>
## 194	East Asia & Pacific	High income	High
## 195	Middle East & North Africa	High income	High
## 196	Europe & Central Asia	Upper middle income	Upper Mid
## 197	Europe & Central Asia	Upper middle income	Upper Mid
## 198	Sub-Saharan Africa	Low income	Low
## 199	<NA>	<NA>	<NA>
## 200	Middle East & North Africa	High income	High
## 201	Sub-Saharan Africa	Lower middle income	Lower Mid
## 202	Sub-Saharan Africa	Low income	Low
## 203	East Asia & Pacific	High income	High
## 204	East Asia & Pacific	Lower middle income	Lower Mid
## 205	Sub-Saharan Africa	Low income	Low
## 206	Latin America & Caribbean	Lower middle income	Lower Mid
## 207	Europe & Central Asia	High income	High
## 208	Sub-Saharan Africa	Low income	Low
## 209	Europe & Central Asia	Upper middle income	Upper Mid
## 210	<NA>	<NA>	<NA>
## 211	Sub-Saharan Africa	Low income	Low
## 212	<NA>	<NA>	<NA>
## 213	<NA>	<NA>	<NA>
## 214	Sub-Saharan Africa	Lower middle income	Lower Mid
## 215	Latin America & Caribbean	Upper middle income	Upper Mid
## 216	Europe & Central Asia	High income	High
## 217	Europe & Central Asia	High income	High
## 218	Europe & Central Asia	High income	High
## 219	Sub-Saharan Africa	Lower middle income	Lower Mid
## 220	Latin America & Caribbean	High income	High
## 221	Sub-Saharan Africa	High income	High
## 222	Middle East & North Africa	Low income	Low
## 223	Latin America & Caribbean	High income	High
## 224	Sub-Saharan Africa	Low income	Low

## 225	<NA>	<NA>	<NA>
## 226	<NA>	<NA>	<NA>
## 227	Sub-Saharan Africa	Low income	Low
## 228	East Asia & Pacific	Upper middle income	Upper Mid
## 229	Europe & Central Asia	Low income	Low
## 230	Europe & Central Asia	Upper middle income	Upper Mid
## 231	<NA>	<NA>	<NA>
## 232	East Asia & Pacific	Lower middle income	Lower Mid
## 233	<NA>	<NA>	<NA>
## 234	East Asia & Pacific	Upper middle income	Upper Mid
## 235	<NA>	<NA>	<NA>
## 236	<NA>	<NA>	<NA>
## 237	Latin America & Caribbean	High income	High
## 238	Middle East & North Africa	Lower middle income	Lower Mid
## 239	Europe & Central Asia	Upper middle income	Upper Mid
## 240	East Asia & Pacific	Upper middle income	Upper Mid
## 241	Sub-Saharan Africa	Low income	Low
## 242	Sub-Saharan Africa	Low income	Low
## 243	Europe & Central Asia	Lower middle income	Lower Mid
## 244	<NA>	<NA>	<NA>
## 245	Latin America & Caribbean	High income	High
## 246	North America	High income	High
## 247	Europe & Central Asia	Lower middle income	Lower Mid
## 248	Latin America & Caribbean	Upper middle income	Upper Mid
## 249	Latin America & Caribbean	Upper middle income	Upper Mid
## 250	Latin America & Caribbean	High income	High
## 251	Latin America & Caribbean	High income	High
## 252	East Asia & Pacific	Lower middle income	Lower Mid
## 253	East Asia & Pacific	Lower middle income	Lower Mid
## 254	<NA>	<NA>	<NA>
## 255	East Asia & Pacific	Upper middle income	Upper Mid
## 256	Europe & Central Asia	Lower middle income	Lower Mid
## 257	Middle East & North Africa	Low income	Low
## 258	Sub-Saharan Africa	Upper middle income	Upper Mid
## 259	Sub-Saharan Africa	Lower middle income	Lower Mid
## 260	Sub-Saharan Africa	Low income	Low
##	GDP.per.capita.2017	Under.5.Mortality.Rate.2017	
## 1	25,655.10202	NA	
## 2	550.0684588	67.900000	
## 3	4,100.289786	81.100000	
## 4	4,537.579056	8.800000	
## 5	39,146.54884	3.300000	
## 6	6,239.713933	36.661202	
## 7	40,698.84934	9.100000	
## 8	14,398.35877	10.400000	
## 9	3,936.79832	12.600000	
## 10	11,394.4753	NA	
## 11	14,803.01093	7.400000	
## 12	53,799.93809	3.500000	
## 13	47,290.91165	3.600000	
## 14	4,131.61831	23.000000	
## 15	292.0052103	61.200000	
## 16	43,323.80734	3.800000	
## 17	827.3936794	98.300000	

## 18	642.0371483	81.200000
## 19	1,516.51327	32.400000
## 20	8,227.960406	7.500000
## 21	23,655.0356	7.300000
## 22	30,762.01244	7.200000
## 23	5,148.208517	5.700000
## 24	5,727.511718	3.700000
## 25	4,971.201636	14.200000
## 26	<NA>	NA
## 27	3,393.955818	34.900000
## 28	9,821.407686	14.800000
## 29	16,356.98011	12.400000
## 30	28,290.5852	10.500000
## 31	3,130.233543	30.800000
## 32	7,595.611141	37.600000
## 33	418.411287	121.500000
## 34	45,032.11991	5.100000
## 35	14,159.23242	5.253084
## 36	80,189.69686	4.200000
## 37	<NA>	NA
## 38	15,346.4497	7.400000
## 39	8,826.994096	9.300000
## 40	1,537.504031	88.800000
## 41	1,451.865747	84.000000
## 42	462.7795441	91.100000
## 43	1,654.010322	47.500000
## 44	6,408.920012	14.700000
## 45	1,312.333925	69.000000
## 46	3,244.409561	17.400000
## 47	11,677.26904	9.000000
## 48	9,448.224139	18.891134
## 49	8,433.092699	5.400000
## 50	<NA>	NA
## 51	<NA>	NA
## 52	25,233.57098	2.700000
## 53	20,368.13856	3.300000
## 54	44,469.90906	3.700000
## 55	1,927.589706	61.700000
## 56	6,719.337166	34.000000
## 57	56,307.5083	4.300000
## 58	7,052.258839	29.900000
## 59	4,055.247211	24.000000
## 60	7,126.385077	16.625767
## 61	3,513.220852	37.410850
## 62	10,368.48391	15.800000
## 63	7,947.079776	13.136749
## 64	23,422.19437	9.000000
## 65	6,273.488892	14.500000
## 66	2,412.727082	22.100000
## 67	36,870.17553	3.750167
## 68	<NA>	43.100000
## 69	28,156.81584	3.100000
## 70	19,704.65504	2.700000
## 71	767.5634778	58.500000

## 72	33,723.2706	4.096865
## 73	<NA>	NA
## 74	<NA>	NA
## 75	1,608.798658	72.863635
## 76	45,703.32787	2.300000
## 77	5,589.388833	25.300000
## 78	38,476.65864	4.200000
## 79	<NA>	NA
## 80	3,187.556848	32.200000
## 81	7,413.795207	48.300000
## 82	39,720.44343	4.300000
## 83	4,057.286081	10.800000
## 84	2,046.109986	49.300000
## 85	<NA>	NA
## 86	823.4937155	85.700000
## 87	709.077158	63.600000
## 88	723.6094119	84.200000
## 89	9,697.630234	89.600000
## 90	18,613.42387	5.300000
## 91	10,451.02988	16.700000
## 92	<NA>	NA
## 93	4,470.989572	27.600000
## 94	35,675.79417	NA
## 95	4,655.144448	31.300000
## 96	41,214.28084	5.400000
## 97	46,193.61452	NA
## 98	2,480.125929	18.200000
## 99	970.6319121	70.889793
## 100	13,382.71985	4.600000
## 101	765.6839246	71.700000
## 102	14,224.84646	4.500000
## 103	3,846.864323	25.400000
## 104	<NA>	NA
## 105	1,942.097401	39.400000
## 106	69,330.69015	3.500000
## 107	5,593.853783	14.900000
## 108	5,017.968065	30.400000
## 109	70,056.87339	2.100000
## 110	40,270.25135	3.600000
## 111	31,952.97592	3.400000
## 112	5,114.041081	15.200000
## 113	4,129.751664	17.000000
## 114	38,428.09732	2.600000
## 115	9,030.383889	10.000000
## 116	1,594.834926	45.600000
## 117	1,219.824048	20.000000
## 118	1,384.423187	29.200000
## 119	1,594.29287	54.600000
## 120	17,924.06546	13.700000
## 121	29,742.83886	3.300000
## 122	29,040.36371	8.100000
## 123	8,350.108418	18.546688
## 124	2,457.377414	63.400000
## 125	8,808.589448	7.800000

## 126	694.3195828	74.700000
## 127	5,978.042926	12.400000
## 128	9,715.194786	16.600000
## 129	9,274.781581	17.700000
## 130	1,071.438079	66.326223
## 131	785.5817826	69.100000
## 132	<NA>	NA
## 133	4,073.736519	8.800000
## 134	2,192.31892	48.500000
## 135	4,662.155413	42.772961
## 136	1,154.444246	85.900000
## 137	8,982.239	11.062641
## 138	16,680.6781	4.300000
## 139	1,04,103.0367	2.600000
## 140	15,594.28602	4.200000
## 141	80,892.82133	NA
## 142	<NA>	NA
## 143	3,007.242877	23.300000
## 144	<NA>	3.300000
## 145	2,289.877719	15.500000
## 146	449.7223819	44.200000
## 147	11,151.06921	7.900000
## 148	7,372.265034	23.100000
## 149	8,910.333177	13.400000
## 150	3,843.119884	34.000000
## 151	5,173.860153	36.175442
## 152	5,414.614823	13.700000
## 153	827.0064008	106.000000
## 154	26,903.82452	6.400000
## 155	1,256.660675	48.600000
## 156	3,791.753562	25.053943
## 157	7,782.83979	3.500000
## 158	3,717.473389	17.200000
## 159	28,888.00232	NA
## 160	426.2219619	72.400000
## 161	1,136.764591	79.000000
## 162	10,490.50397	13.100000
## 163	338.4844303	55.400000
## 164	9,951.544153	7.900000
## 165	58,070.06614	6.500000
## 166	5,230.771726	44.200000
## 167	<NA>	NA
## 168	378.0592523	84.500000
## 169	1,968.425523	100.200000
## 170	2,221.806445	17.200000
## 171	48,223.15549	3.900000
## 172	75,504.56626	2.600000
## 173	849.0110426	33.700000
## 174	8,343.827999	33.000000
## 175	42,940.57829	5.300000
## 176	38,151.36194	6.681087
## 177	15,668.36663	11.300000
## 178	13,169.0818	51.391220
## 179	1,547.853414	74.900000

## 180	15,196.39734	16.100000
## 181	6,571.928645	15.000000
## 182	2,988.952703	28.100000
## 183	13,338.09655	15.300000
## 184	2,488.899697	53.400000
## 185	13,863.17788	4.700000
## 186	1,432.454235	78.178777
## 187	<NA>	NA
## 188	<NA>	19.000000
## 189	21,136.29721	3.700000
## 190	5,823.766137	21.000000
## 191	3,094.725747	20.900000
## 192	3,995.446872	24.877069
## 193	42,526.45314	4.950960
## 194	<NA>	NA
## 195	63,249.42243	7.600000
## 196	10,817.83379	7.800000
## 197	10,743.09659	7.600000
## 198	748.2920943	37.900000
## 199	1,842.255349	44.800000
## 200	20,849.29137	7.400000
## 201	2,898.549346	63.200000
## 202	1,329.304228	45.400000
## 203	57,714.29663	2.800000
## 204	2,132.115068	20.600000
## 205	499.5291033	110.500000
## 206	3,889.308769	14.500000
## 207	48,888.02517	2.200000
## 208	478.3441749	127.200000
## 209	5,900.038108	5.700000
## 210	1,572.338434	75.460403
## 211	<NA>	96.400000
## 212	1,573.607916	75.500000
## 213	11,946.58496	45.526693
## 214	1,921.284473	32.400000
## 215	5,317.389539	19.600000
## 216	17,604.95098	5.600000
## 217	23,597.29173	2.100000
## 218	53,442.00828	2.800000
## 219	3,242.751065	53.900000
## 220	<NA>	NA
## 221	15,629.30594	14.200000
## 222	<NA>	17.000000
## 223	<NA>	NA
## 224	662.5001146	123.200000
## 225	7,201.594243	16.596482
## 226	8,487.002958	12.622763
## 227	610.1517301	72.900000
## 228	6,595.004125	9.500000
## 229	801.0508713	33.600000
## 230	6,586.625863	47.300000
## 231	9,111.807358	17.812158
## 232	2,279.253204	47.600000
## 233	3,799.867898	25.128577

```
## 234      3,959.079757      16.000000
## 235      1,842.255349      44.766089
## 236      1,573.607916      75.458016
## 237      16,126.37095      26.100000
## 238        3,464.41689      13.000000
## 239      10,546.15256      11.600000
## 240      3,549.974741      24.900000
## 241         936.330768      54.000000
## 242        606.4684535      49.000000
## 243      2,639.824326       8.800000
## 244      8,610.652409      13.700000
## 245      16,245.59837       8.200000
## 246      59,531.66196       6.600000
## 247      1,533.852038      22.500000
## 248      7,145.076837      16.200000
## 249          <NA>      30.900000
## 250          <NA>          NA
## 251          <NA>          NA
## 252      2,342.244003      20.900000
## 253      3,123.614591      26.900000
## 254      10,721.60885      39.100000
## 255      4,280.838915      16.500000
## 256      3,957.441819          NA
## 257      1,106.803906      55.400000
## 258      6,151.077955      37.100000
## 259      1,513.276316      60.000000
## 260      1,333.395663      50.300000
```

#7. Summarize dfCountryMaster countries by region.

```
summary_region = dfCountryMaster %>%
  group_by(Region) %>%
  summarise(
    Number_of_Countries = n_distinct(Country.Code)
  )
summary_region
```

```
## # A tibble: 8 x 2
##   Region                Number_of_Countries
##   <chr>                  <int>
## 1 East Asia & Pacific      36
## 2 Europe & Central Asia    58
## 3 Latin America & Caribbean 42
## 4 Middle East & North Africa 21
## 5 North America           3
## 6 South Asia              8
## 7 Sub-Saharan Africa      48
## 8 <NA>                    44
```

#8. Summarize dfCountryMaster countries by region and income

```
summary_region_income = dfCountryMaster %>%
  filter(!is.na(Region)) %>%
  group_by(Region, IncomeGroup) %>%
  summarise(
```

```
Number_of_Countries = n_distinct(Country.Code)
)
```

'summarise()' has grouped output by 'Region'. You can override using the
'.groups' argument.

```
as.data.frame(summary_region_income)
```

##	Region	IncomeGroup	Number_of_Countries
## 1	East Asia & Pacific	High income	13
## 2	East Asia & Pacific	Low income	1
## 3	East Asia & Pacific	Lower middle income	13
## 4	East Asia & Pacific	Upper middle income	9
## 5	Europe & Central Asia	High income	37
## 6	Europe & Central Asia	Low income	1
## 7	Europe & Central Asia	Lower middle income	6
## 8	Europe & Central Asia	Upper middle income	14
## 9	Latin America & Caribbean	High income	18
## 10	Latin America & Caribbean	Low income	1
## 11	Latin America & Caribbean	Lower middle income	4
## 12	Latin America & Caribbean	Upper middle income	19
## 13	Middle East & North Africa	High income	8
## 14	Middle East & North Africa	Low income	2
## 15	Middle East & North Africa	Lower middle income	5
## 16	Middle East & North Africa	Upper middle income	6
## 17	North America	High income	3
## 18	South Asia	Low income	2
## 19	South Asia	Lower middle income	5
## 20	South Asia	Upper middle income	1
## 21	Sub-Saharan Africa	High income	1
## 22	Sub-Saharan Africa	Low income	27
## 23	Sub-Saharan Africa	Lower middle income	14
## 24	Sub-Saharan Africa	Upper middle income	6

```
#summary_region_income
```

#9. Summarize dfCountryMaster countries by region. Result to have the following columns in it.

#1, Number of countries.

#2. Total population in millions.

#3. Average of GDP per capita

#4. Countries with low income.

#5. Median GDP per capita

#6. minimum and maximum mortality rate under 5.

```
dfCountryMaster$GDP.per.capita.2017 <- gsub(",", "", dfCountryMaster$GDP.per.capita.2017)
```

```
dfCountryMaster$GDP.per.capita.2017 <- sapply(dfCountryMaster$GDP.per.capita.2017, FUN = as.numeric)
```

```
summary_region_full <- dfCountryMaster %>%
```

```
  group_by(Region) %>%
```

```
  summarise(
```

```
    Number_of_Countries = n_distinct(Country.Code),
```

```
    Total_Population_Millions = sum(Total.Population.2017, na.rm = TRUE) / 1000000,
```

```

    Avg_GDP_per_capita = mean(GDP.per.capita.2017, na.rm = TRUE),
    Low_Income_Countries = sum(IncomeGroup == "Low income", na.rm = TRUE),
    Median_GDP_per_capita = median(GDP.per.capita.2017, na.rm = TRUE),
    Min_Under5_Mortality = min(Under.5.Mortality.Rate.2017, na.rm = TRUE),
    Max_Under5_Mortality = max(Under.5.Mortality.Rate.2017, na.rm = TRUE)
  )
as.data.frame(summary_region_full)

```

```

##           Region Number_of_Countries Total_Population_Millions
## 1      East Asia & Pacific             36          2259.18873
## 2      Europe & Central Asia            58          915.54580
## 3 Latin America & Caribbean            42          644.13767
## 4 Middle East & North Africa           21          444.32242
## 5           North America              3          362.49270
## 6           South Asia                 8         1788.38885
## 7      Sub-Saharan Africa              48         1056.03889
## 8              <NA>                  44          41.04345
##   Avg_GDP_per_capita Low_Income_Countries Median_GDP_per_capita
## 1          16517.791              1          4280.839
## 2          25476.890              1         16680.678
## 3          9851.427               1          7145.077
## 4         15446.618               2          5785.948
## 5         52281.891               0         52281.891
## 6          3095.073               2          1744.975
## 7          2368.914              27          1145.604
## 8         11520.185               0          7659.672
##   Min_Under5_Mortality Max_Under5_Mortality
## 1           2.600000           63.40000
## 2           2.100000           47.30000
## 3           5.400000           71.70000
## 4           3.600000           61.70000
## 5           5.100000            6.60000
## 6           7.900000           74.90000
## 7          13.100000          127.20000
## 8           3.750167           78.17878

```

```
#summary_region_full
```

```
#10. Write the above result in csv.
```

```
write.csv(summary_region_full, "Region Summary Output.csv")
```

```
#11. Histogram of gdp per capita
```

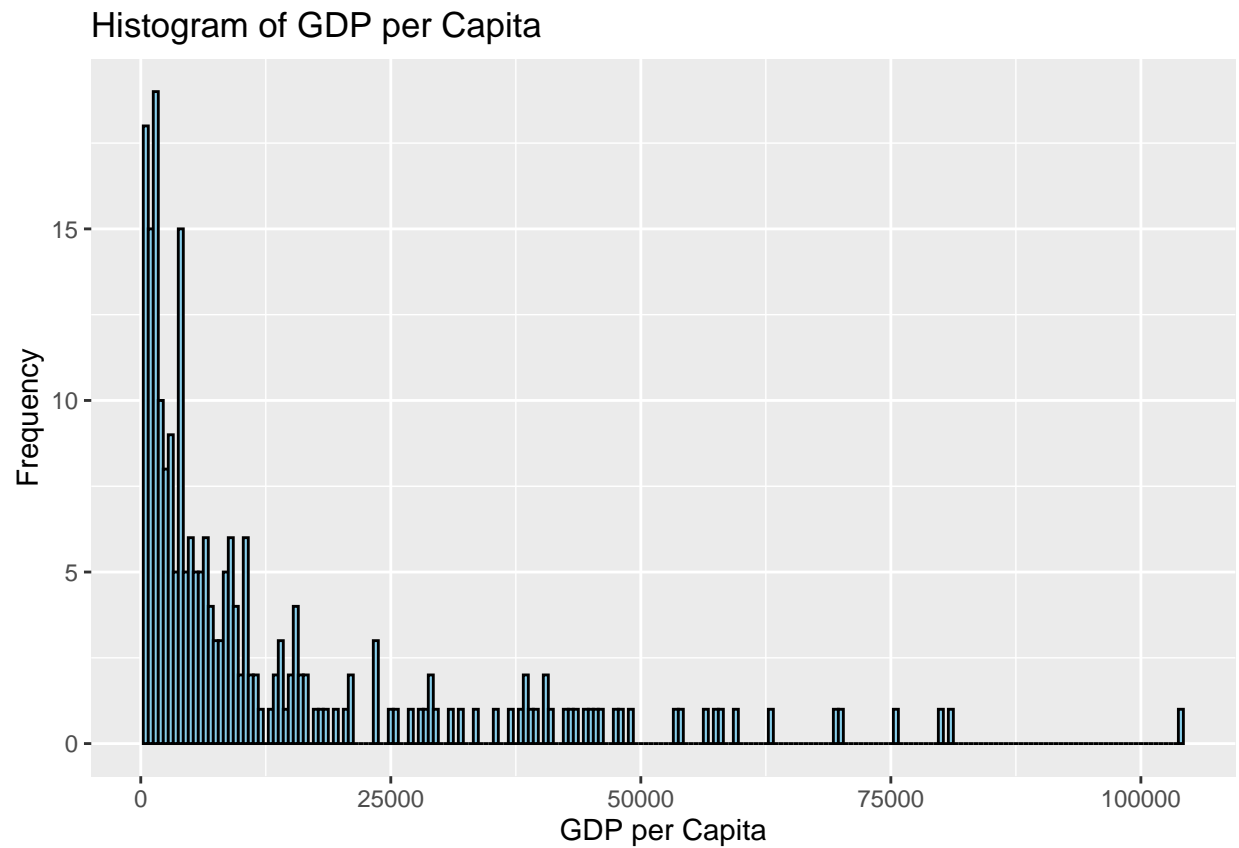
```

gdp_plot1 <- ggplot(
  dfCountryMaster %>% filter(!is.na(GDP.per.capita.2017)),
  aes(x = GDP.per.capita.2017)
) +
  geom_histogram(
    binwidth = 500,
    color = "black",
    fill = "skyblue"
  ) +
  ggtitle("Histogram of GDP per Capita") +

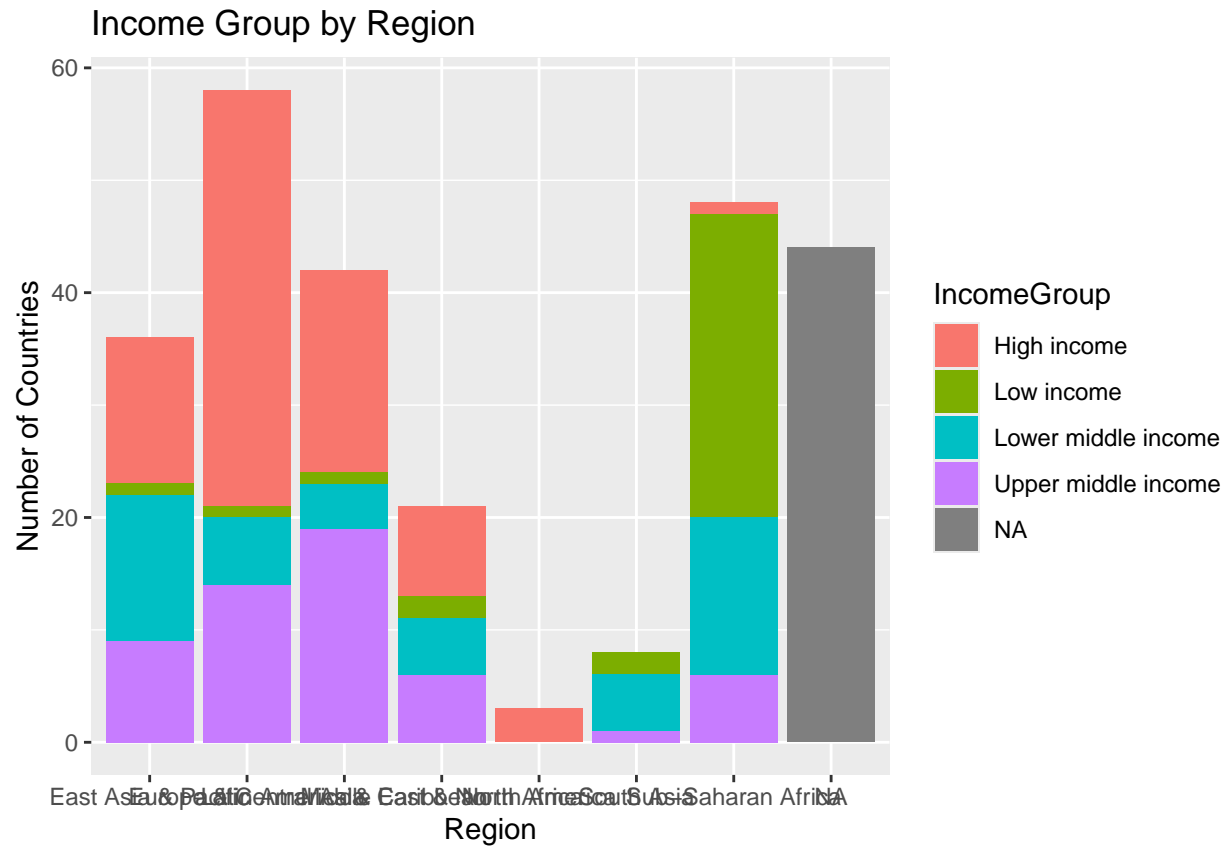
```

```
xlab("GDP per Capita") +  
ylab("Frequency")
```

gdp_plot1

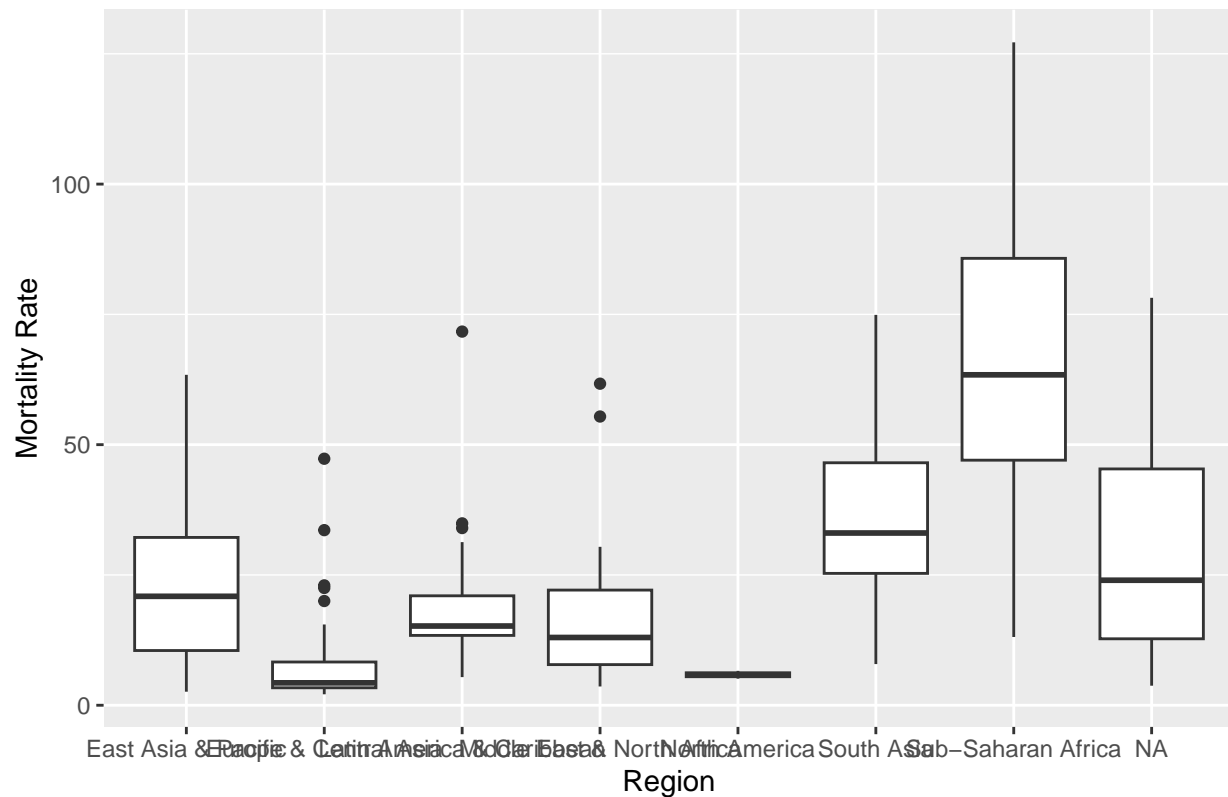


```
#12. Plot of income group by region.  
ggplot(dfCountryMaster, aes(x = Region, fill = IncomeGroup)) +  
  geom_bar() +  
  ggtitle("Income Group by Region") +  
  xlab("Region") +  
  ylab("Number of Countries")
```



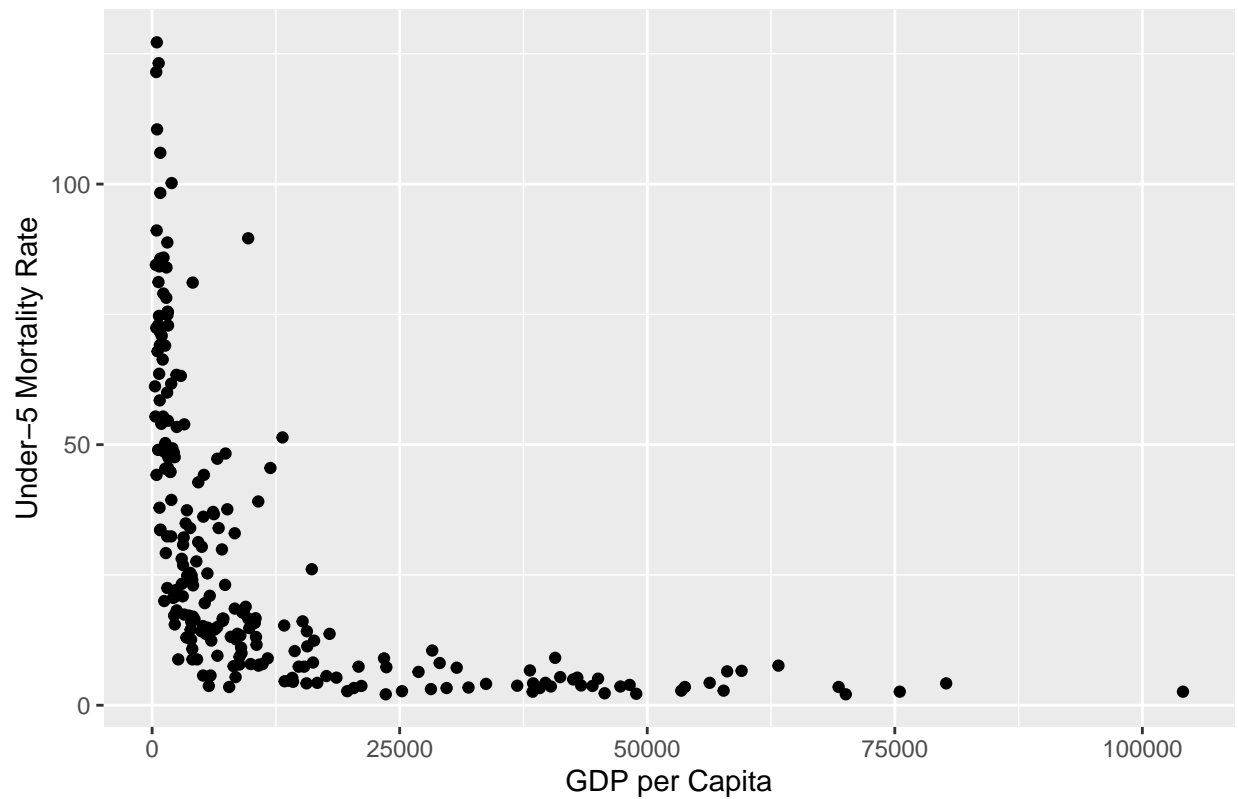
```
#13. Plot of mortality rate under 5 by region
ggplot(dfCountryMaster %>% filter(!is.na(Under.5.Mortality.Rate.2017)), aes(x = Region, y = Under.5.Mortality.Rate.2017)) +
  geom_boxplot() +
  ggtitle("Under-5 Mortality Rate by Region") +
  xlab("Region") +
  ylab("Mortality Rate")
```

Under-5 Mortality Rate by Region



```
#14. Scatter plot of mortality rate under 5 against GDP per capita.
ggplot(dfCountryMaster%>% filter(!is.na(GDP.per.capita.2017), !is.na(Under.5.Mortality.Rate.2017)),
  aes(x = GDP.per.capita.2017,
      y = Under.5.Mortality.Rate.2017)) +
  geom_point() +
  ggtitle("Mortality Rate vs GDP per Capita") +
  xlab("GDP per Capita") +
  ylab("Under-5 Mortality Rate")
```


Mortality Rate vs GDP per Capita



```
#15. Plot of mortality rate under 5 against GDP and region.
ggplot(dfCountryMaster%>% filter(!is.na(GDP.per.capita.2017), !is.na(Under.5.Mortality.Rate.2017)),
  aes(x = GDP.per.capita.2017,
    y = Under.5.Mortality.Rate.2017,
    color = Region)) +
  geom_point() +
  ggtitle("Mortality Rate vs GDP per Capita by Region") +
  xlab("GDP per Capita") +
  ylab("Under-5 Mortality Rate")
```

Mortality Rate vs GDP per Capita by Region

