After running the algorithm with Ks in the range 1:30 I produced the following plot, illustrating the relationship between cost (y-axis) and K (x-axis). The graph was helpful in choosing the best K because there is a pretty obvious “elbow point” in the graph. The slope of the decrease in the cost becomes considerably less steep at K= 5, producing an “elbow point” which is considered a reasonable guess as to the optimal K value. In addition to this insight from the graph, we can confirm our hypothesis by considering the similarities between our features. There are 16 features and after comparing them it looks like each feature has generally about two other features that are similar to it. So if we group our features with 16/3 we are going to get a number that rounds to five, making K=5 seem like a reasonable choice.

The complete lists of countries by cluster are included at the end for the sake of organization. The clusters have sizes of 55, 38, 58, 15, and 28. These sizes are not super well balanced. We have two big clusters, two medium clusters, and one small cluster. The clusters seem contain countries that are similar in geography and economic status. Cluster A includes many countries in Africa, the Middle East, and Asia. Many are easily identifiable as countries with economic issues and some are also nations that have endured considerable armed conflicts in recent history. Cluster B includes countries that represent pretty much the same continents as Cluster A, many of which are very poor. Cluster C includes a lot of island nations and many of the smaller influential countries in Europe, South America, and Asia. Some notable inclusions are Central African Republic, which was ranked the poorest country in the world by Business Insider, and also Japan, interestingly enough. Cluster D is the smallest cluster and includes a random looking collection of countries including Cuba, China, and Monaco. Cluster E is a clear grouping of many of the wealthiest countries in the world and the major players in international politics.
4. I chose Cuba to look at. Cuba is in Cluster D, which is the smallest cluster. There really isn’t a clear relationship between the countries in Cluster D. The topics that these countries are most interested in are a good education, healthcare system, and more job opportunities. This makes me think that all of these countries would like better and more government programs and spending. These countries also care least about reliable energy and better roads. So specifically these countries seem to care more about government spending on things that are less about infrastructure and more about opportunity for greater wealth and health. Australia specifically surprises me a lot as being a member of this group since it is so often included favorably in rankings of the best places to live in the world. Based on the interests of the rest of the countries, this group seems to be of nations where people are unsatisfied with their opportunity and care.

Cluster A:
1. Afghanistan
2. Algeria
3. Angola
4. Armenia
5. Azerbaijan
6. Bahamas
7. Bahrain
8. Bangladesh
9. Benin
10. Botswana
11. Burkina Faso
12. Burundi
13. Cambodia
14. Chad
15. Democratic Republic of the Congo
16. Djibouti
17. Equatorial Guinea
18. Eritrea
19. Ethiopia
20. Gambia
21. Guinea
22. India
23. Iraq
24. Jamaica
25. Jordan
26. Kuwait
27. Lebanon
28. Libya
29. Malaysia
30. Mauritania
31. Morocco
32. Mozambique
33. Myanmar
34. Namibia
35. Oman
36. Qatar
37. Rwanda
38. San Marino
39. Saudi Arabia
40. Somalia
41. South Africa
42. Syrian Arab Republic
43. Tajikistan
44. Thailand
45. Timor-Leste
46. Togo
47. Tonga
48. Uganda
49. Ukraine
50. United Arab Emirates
51. Uzbekistan
52. Vanuatu
53. Yemen
54. Zimbabwe
55. Palestine (State of)

Cluster B:
1. Albania
2. Bhutan
3. Bosnia and Herzegovina
4. Cape Verde
5. Congo
6. Cote d'Ivoire
7. Dominican Republic
8. Egypt
9. Fiji
10. Gabon
11. Georgia
12. Ghana
13. Grenada
14. Haiti
15. Indonesia
16. Kiribati
17. Kyrgyzstan
18. Lesotho
19. Liberia
20. Malawi
21. Maldives
22. Mali
23. Mexico
24. Nauru
25. Nepal
26. Nicaragua
27. Nigeria
28. Pakistan
29. Paraguay
30. Philippines
31. Serbia
32. Sierra Leone
33. Sudan
34. Swaziland
35. Tunisia
36. Tuvalu
37. United Republic of Tanzania
38. Zambia

Cluster C:
1. Barbados
2. Belarus
3. Belize
4. Bolivia (Plurinational State of)
5. Brazil
6. Brunei Darussalam
7. Bulgaria
8. Central African Republic
9. Colombia
10. Costa Rica
11. Croatia
12. Cyprus
13. Democratic People's Republic of Korea
14. Dominica
15. Ecuador
16. El Salvador
17. Estonia
18. Greece
19. Guatemala
20. Guinea-Bissau
21. Guyana
22. Honduras
23. Israel
24. Japan
25. Kazakhstan
26. Kenya
27. Latvia
28. Lithuania
29. Madagascar
30. Mauritius
31. Micronesia (Federated States of)
32. Montenegro
33. Niger
34. Papua New Guinea
35. Peru
36. Poland
37. Republic of Korea
38. Republic of Moldova
39. Romania
40. Russian Federation
41. Saint Kitts and Nevis
42. Saint Lucia
43. Saint Vincent and the Grenadines
44. Samoa
45. Sao Tome and Principe
46. Seychelles
47. Singapore
48. Slovakia
49. Slovenia
50. Solomon Islands
51. South Sudan
52. Suriname
53. The former Yugoslav Republic of Macedonia
54. Trinidad and Tobago
55. Turkey
56. Turkmenistan
57. Venezuela (Bolivarian Republic of)
58. Viet Nam

Cluster D:
1. Andorra
2. Antigua and Barbuda
3. Australia
4. Cameroon
5. China
6. Comoros
7. Cuba
8. Czech Republic
9. Iran (Islamic Republic of)
10. Lao People's Democratic Republic
11. Liechtenstein
12. Monaco
13. Mongolia
14. Palau
15. Sri Lanka

Cluster E:
1. Argentina
2. Austria
3. Belgium
4. Canada
5. Chile
6. Denmark
7. Finland
8. France
9. Germany
10. Hungary
11. Iceland
12. Ireland
13. Italy
14. Luxembourg
15. Malta
16. Marshall Islands
17. Netherlands
18. New Zealand
19. Norway
20. Panama
21. Portugal
22. Senegal
23. Spain
24. Sweden
25. Switzerland
26. United Kingdom of Great Britain and Northern Ireland
27. United States of America
28. Uruguay