2. We chose $k = 22$ because that is before much of the noise that develops in the higher twenties and thirties. We chose not to choose $k = 42$, where it appears that the line has smoothed out again, because there are only 194 countries in the data set and that would leave clusters of only 5 countries on average. Additionally, when we ran the program, there were many clusters with only one country in them.

3. We found that our clusters include countries that are mostly similar to each other. Specifically, countries with similar levels of economic development are congregated. Also, there appears to be geographic clustering, which is likely a result of neighboring countries being similar to one another. The clusters are fairly well balanced, with few single country clusters. There are also several clusters with 4-6 countries and other clusters with 12-15.

Our clusters are:
Cluster 0, contains:
  * Dominican Republic
  * Haiti
  * Nauru
  * Philippines

Cluster 1, contains:
  * Austria
  * Belgium
  * Finland
  * France
  * Luxembourg
  * Switzerland

Cluster 2, contains:
  * Paraguay

Cluster 3, contains:
  * Armenia
  * Bulgaria
  * Dominica
  * Indonesia
  * Latvia
  * Lithuania
  * Malaysia
  * Monaco
  * Montenegro
  * Poland
  * Republic of Moldova
  * Romania
  * Ukraine
  * Viet Nam

Cluster 4, contains:
  * Japan
  * Lao People’s Democratic Republic
  * Papua New Guinea
  * Solomon Islands
  * South Sudan
  * Vanuatu

Cluster 5, contains:
  * Guinea-Bissau
  * Marshall Islands
* Senegal

Cluster 6, contains:
* Argentina
* Bolivia (Plurinational State of)
* Chile
* Colombia
* Costa Rica
* El Salvador
* Hungary
* Panama
* Portugal
* Slovenia
* Spain
* Uruguay

Cluster 7, contains:
* Guyana
* Honduras
* Kenya
* Saint Kitts and Nevis
* Saint Lucia
* Saint Vincent and the Grenadines
* Seychelles
* Suriname
* Trinidad and Tobago
* Venezuela (Bolivarian Republic of)

Cluster 8, contains:
* Barbados
* Belize
* Croatia
* Cyprus
* Ecuador
* Greece
* Grenada
* Guatemala
* Madagascar
* Mauritius
* Micronesia (Federated States of)
* Peru
* Samoa
* Sao Tome and Principe
* Slovakia
* Tonga

Cluster 9, contains:
* Albania
* Algeria
* Bhutan
* Bosnia and Herzegovina
* Cape Verde
* Cote d'Ivoire
* Fiji
* Gabon
* Georgia
* Ghana
* Jamaica
* Kyrgyzstan
* Maldives
* Mexico
* Nepal
* Nicaragua
* Pakistan
* Serbia
* Tunisia
* Tuvalu
* United Republic of Tanzania

Cluster 10, contains:
* Canada
* Ireland
* New Zealand
* United Kingdom of Great Britain and Northern Ireland
* United States of America

Cluster 11, contains:
* Angola
* Benin
* Brunei Darussalam
* Central African Republic
* Comoros
* Equatorial Guinea
* Estonia
* Guinea
* Mauritania
* Niger
* Thailand
Cluster 12, contains:
* Bahrain
* Botswana
* Burkina Faso
* Chad
* Congo
* Djibouti
* Egypt
* Gambia
* India
* Mali
* Namibia
* Qatar
* Somalia
* South Africa
* Sudan
* Swaziland
* Tajikistan
* Timor-Leste
* Togo
* Uganda
* United Arab Emirates
* Uzbekistan
* Zimbabwe

Cluster 13, contains:
* Afghanistan
* Bahamas
* Bangladesh
* Democratic Republic of the Congo
* Iraq
* Jordan
* Kuwait
* Lebanon
* Libya
* Mozambique
* Oman
* Rwanda
* San Marino
* Saudi Arabia
* Syrian Arab Republic
* Yemen
* Palestine (State of)
Cluster 14, contains:
* Democratic People's Republic of Korea
* Morocco
* Republic of Korea

Cluster 15, contains:
* Belarus
* Brazil
* Kazakhstan
* Russian Federation

Cluster 16, contains:
* Kiribati
* Lesotho
* Liberia
* Malawi
* Nigeria
* Sierra Leone
* Zambia

Cluster 17, contains:
* Andorra
* Antigua and Barbuda
* Azerbaijan
* Cameroon
* China
* Czech Republic
* Iran (Islamic Republic of)
* Mongolia
* Sri Lanka

Cluster 18, contains:
* Denmark
* Germany
* Netherlands
* Norway
* Sweden

Cluster 19, contains:
* Burundi
* Cambodia
* Cuba
* Ethiopia
4. The country that we are interested in learning more about is Italy because Jonah is hungry. Italy is in cluster 20, which generally consists of European nations and countries of somewhat high development. Besides Australia, the countries tend to be geographically small. Politically, they are mostly democracies, except for Singapore and Singapore, and they are not quite as progressive as the northern European states. The country that appears to not belong in this cluster is Eritrea, which is a very underdeveloped country. All the others are developed.