Assignment 7 - Math 448

Assignment 7: Due 3/3 by email

This is an extension of Challenge 7 in-class on health vs. wealth measures of a country's "development".

One measure of a countries development how long people live on average/ how much money a country has per person. That is Life expectancy divided by per capita GDP. We can obtain both of these using the CountryData command in Mathematica.

CountryData["United States", "LifeExpectancy"]

CountryData["Italy", "GDPPerCapita"]

In the challenge you were asked to find a linear fit to this data (GDPPerCapita,LifeExpectancy). A fairly famous plot of this data (see http://www.gapminder.org/) includes a bubble representing the relative size of the countries population, centered at the (GDPPerCapita,LifeExpectancy) coordinates for that country. This can be replicated in Mathematica using Bubble chart. Recreate the GapMinder bubble chart for the most recent year Mathematica has data for.

We can also rank countries as Econamic over/under performers and Health over/under performers based on how far away they are from the best fit liner for this data. The vertical distance between a country's point and the best fit line measure Health performance, and the horizontal distance measure economic performance. Rank the countries of the world based on economic performance and then again for health performance.

There are many other statistics in country data that can be proxies for health (like life expectancy) and wealth (like per capita GDP). Make bubble charts using a different measure of health v wealth. The relationship may not be linear. Find good fitting polynomial for this new data, and find the economic and heath performance of each country as above.