NATIONAL UNIVERSITY OF SINGAPORE
SCHOOL OF COMPUTING

Project Proposal

Team 12

CS5346 INFORMATION VISUALISATION

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Many more happy returns! - Life expectancy, what affects it and how?

Project Overview

One of the major indicators of the health condition of a population is its life expectancy. Mankind has been trying to stretch its lifespan and live *long and happy* lives from time immemorial. Generation after generation try and experiment with techniques to extend the human lifespan. Even in literature and pop culture, fantastical creatures with no death or with inhumanely long life spans are revered (Vampire and Thor come to mind!). While immortality continues to be confined to Sci-Fi, leading a long and healthy life is definitely within one's reach.

In order to understand the factors that contribute to one's lifespan, one needs to look for patterns and indicators of correlation in a population in addition to analyzing the human body biologically. This project attempts to introduce readers to several potential factors that may impact longevity. Our target audience is diverse and through our visualizations we aim to cater to this audience with different interpretations of the data: the class cohort and the general population (general awareness), specific target groups such as the policymakers (interaction effect between indicators of health and life expectancy) and the industry (effect of food and fitness consumerism on life expectancy)

We decided to look into four measures: Body Mass Index(BMI), time spent on fitness, meat consumption patterns and healthcare. The reason we chose these measures is that we hypothesized that the major contributing factors to life expectancy would be the genetic factor (nature), the food and exercise factor (nurture) and the received medical support (external). We carefully analyzed these four contributors and choose the measures based on accurate measurability, uniqueness, and availability of integrated datasets. We will study global trends with country-level granularity.

Datasets

We will be using data from various sources and have CSV files of the following:

Life expectancy, which comes from the _United Nations Population Division_. The data contains the life expectancy at birth, i.e. the number of years a newborn infant would live if prevailing patterns of mortality at the time of birth were to stay the same throughout life, from 1960 to 2016 for 237 countries and regions.

BMI comes from the _NCD Risk Factor Collaboration_. We have data for 200 countries from 1975 to 2016, both for women and men.

Meat production and consumption comes from the _Food and Agriculture Organization of the United Nations_. We have data from 1961 to 2014 for 234 countries and regions.

Healthcare comes from the _World Health Organization_. We have data about the healthcare expenditure as a share of a country's GDP, the expenditure per capita and also the so-called 'out-of-pocket' expenditure, which refers to direct outlays made by households, including gratuities and in-kind payments, to healthcare providers. The data is available for 230 countries and regions.

Fitness comes from the World Health Organization and includes the prevalence of insufficient physical activity among adults in 161 countries.