DATA MODEL FOR A SURVIVAL INDICATOR

Summary

Our team has created a data model that calculates a survival indicator based on three parameters: location, scenario and age.
We used different open data sources to map suburbs in NSW with variables that would influence the chance of survival.
The explanatory variables have been normalized before using them in the formulas.

Data Sources

Inland Waters Principal hydrogeology	http://data.gov.au/dataset/2016-soe-inw-aus-hydrogeology
Schools locations	https://data.nsw.gov.au/data/dataset/nsw-government-school-locations/resource/13aca3f1-5522-436b-ab7a-d651e412f932
Hospitals / health services	http://yhs.health.nsw.gov.au/hospitals/search.asp
NSW Earthquakes	http://www.ga.gov.au/earthquakes/exportDataController.do
Population Extract	http://stat.data.abs.gov.au
Income per Family per Week	http://stat.data.abs.gov.au

Explanatory Variables

Location based	Population Density	population / area km 2
	Earthquake History	magnitude
	Income	average income per family per week
	Hospitals	distance to hospital
	Water Points	number of water points
Other	Age	user input
	Scenario	user input

Correlation

Scenario	Population Density	Earthquake	Income	Age	Hospitals	Water Points	Total
Zombie Attack	-0,5	0	-0,5	1	0	0	0
Fire Break Out	-1	0	0	0,25	0	0,75	0
Earthquake	0	-0,5	0,5	-0,5	0,5	0	0

Formula

Survival Index
= population_density_weight * population_density_normalized
+ earthquake_weight * earthquake_normalized
+ income_weight * income_normalized
+ age_weight * age_normalized
+ hospitals_weight * hospitals_normalized
+ water_weight * water_normalized