

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	Australia State of the Environment	<a href="http://data.gov.au/dataset/2016-soe-inw-aus-hydrogeology">http://data.gov.au/dataset/2016-soe-inw-aus-hydrogeology</a>
Schools locations	Department of Education	<a href="https://data.nsw.gov.au/data/dataset/nsw-government-school-locations/resource/13aca3f1-55">https://data.nsw.gov.au/data/dataset/nsw-government-school-locations/resource/13aca3f1-55</a>
Hospitals / health services	NSW Health	<a href="http://vhs.health.nsw.gov.au/hospitals/search.asp">http://vhs.health.nsw.gov.au/hospitals/search.asp</a>
NSW Earthquakes	Geoscience Australia Earthquakes	<a href="http://www.ga.gov.au/earthquakes/exportDataController.do">http://www.ga.gov.au/earthquakes/exportDataController.do</a>
Population Extract	ABS Australian Bureau of Statistics	<a href="http://stat.data.abs.gov.au">http://stat.data.abs.gov.au</a>
Income per Family per Week	ABS Australian Bureau of Statistics	<a href="http://stat.data.abs.gov.au">http://stat.data.abs.gov.au</a>

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	-5	0	-1	1	0	0	-5
Fire Break Out	-0.5	0	0	1.5	0	5	6
Earthquake	0	-5	0.5	-2	3	0	-3.5

Formula
<b>Survival Index</b> = 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