

## Tableau Visualization

Original Table

Bacteria	Penicilin	Streptomycin	Neomycin	Gram Staining
Aerobacter aerogenes	870	1	1.6	negative
Brucella abortus	1	2	0.02	negative
Brucella anthracis	0.001	0.01	0.007	positive
Diplococcus pneumoniae	0.005	11	10	positive
Escherichia coli	100	0.4	0.1	negative
Klebsiella pneumoniae	850	1.2	1	negative
Mycobacterium tuberculosis	800	5	2	negative
Proteus vulgaris	3	0.1	0.1	negative
Pseudomonas aeruginosa	850	2	0.4	negative
Salmonella (Eberthella) typhosa	1	0.4	0.008	negative
Salmonella schottmuelleri	10	0.8	0.09	negative
Staphylococcus albus	0.007	0.1	0.001	positive
Staphylococcus aureus	0.03	0.03	0.001	positive
Streptococcus fecalis	1	1	0.1	positive
Streptococcus hemolyticus	0.001	14	10	positive
Streptococcus viridans	0.005	10	40	positive

Logarithmic Scale

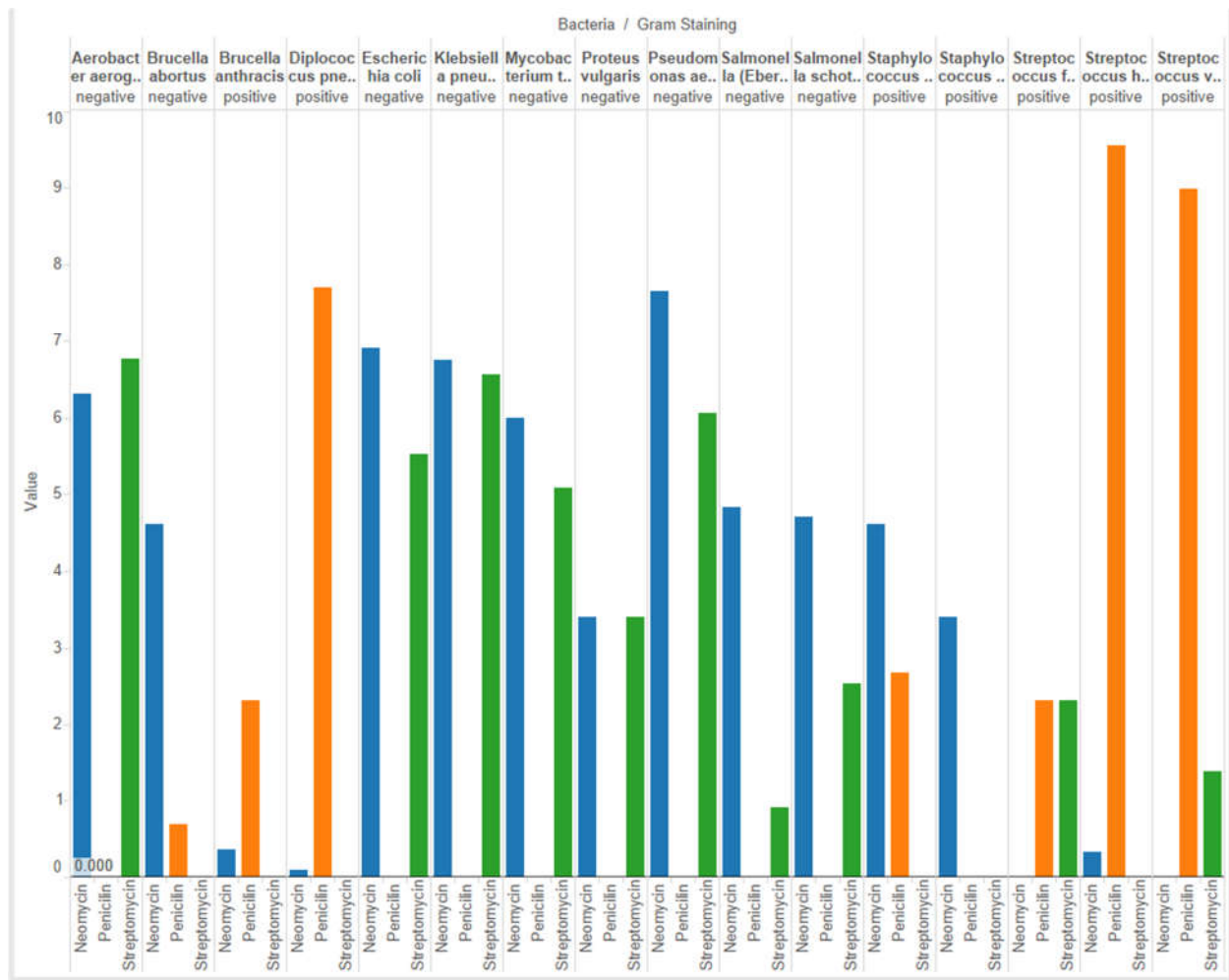
Bacteria	Penicilin ln	Streptomycin ln	Neomycin ln
Aerobacter aerogenes	6.768493212	0	0.470003629
Brucella abortus	0	0.693147181	-3.912023005
Brucella anthracis	-6.907755279	-4.605170186	-4.96184513
Diplococcus pneumoniae	-5.298317367	2.397895273	2.302585093
Escherichia coli	4.605170186	-0.916290732	-2.302585093
Klebsiella pneumoniae	6.745236349	0.182321557	0
Mycobacterium tuberculosis	6.684611728	1.609437912	0.693147181
Proteus vulgaris	1.098612289	-2.302585093	-2.302585093
Pseudomonas aeruginosa	6.745236349	0.693147181	-0.916290732
Salmonella (Eberthella) typhosa	0	-0.916290732	-4.828313737
Salmonella schottmuelleri	2.302585093	-0.223143551	-2.407945609
Staphylococcus albus	-4.96184513	-2.302585093	-6.907755279
Staphylococcus aureus	-3.506557897	-3.506557897	-6.907755279
Streptococcus fecalis	0	0	-2.302585093
Streptococcus hemolyticus	-6.907755279	2.63905733	2.302585093

Streptococcus viridans	-5.298317367	2.302585093	3.688879454
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Modified Table:

Bacteria	Penicilin In	Streptomycin In	Neomycin In	Gram Staining
Aerobacter aerogenes	0	6.768493212	6.298489583	negative
Brucella abortus	0.693147181	0	4.605170186	negative
Brucella anthracis	2.302585093	0	0.356674944	positive
Diplococcus pneumoniae	7.69621264	0	0.09531018	positive
Escherichia coli	0	5.521460918	6.907755279	negative
Klebsiella pneumoniae	0	6.562914792	6.745236349	negative
Mycobacterium tuberculosis	0	5.075173816	5.991464547	negative
Proteus vulgaris	0	3.401197382	3.401197382	negative
Pseudomonas aeruginosa	0	6.052089168	7.661527081	negative
Salmonella (Eberthella) typhosa	0	0.916290732	4.828313737	negative
Salmonella schottmuelleri	0	2.525728644	4.710530702	negative
Staphylococcus albus	2.659260037	0	4.605170186	positive
Staphylococcus aureus	0	0	3.401197382	positive
Streptococcus fecalis	2.302585093	2.302585093	0	positive
Streptococcus hemolyticus	9.546812609	0	0.336472237	positive
Streptococcus viridans	8.987196821	1.386294361	0	positive

Visualization



Explanation:

Minimum Inhibitory Concentration (MIC) of 3 antibiotics

Domain/Job Functions: Represent Minimum Inhibitory Concentration (MIC) of 3 antibiotics on 16 bacteria stains.

Task Abstraction/Comparisons: Level of effectiveness of the 3 antibiotics on bacteria

Visual Encoding/Interaction Technique Design/Idioms: Bar Chart showing bacteria on X axis and Levels on Y axis. Gram Staining included on X-axis.

Algorithm/Implementation Ways: Log of data represented followed by subtracting highest value of each bacteria from each of the other two values.

The data presented was the MIC of 3 antibiotics on 16 bacteria stains.

The data range was very large, i.e. values ranged from 0.001 to 850.

Plotting these on the graph directly had a problem of a large range of data points which would not be discernable to the user clearly.

For that purpose, we switched to the logarithmic scale.

We had the advantage of reduced range of values. However, the lesser the value, the more the potent the antibiotic. This had to be represented with a greater degree of variation and in a better visualization than a logarithmic scale.

For this purpose, I subtracted the largest value of each bacteria from each of the 3 values. This resulted in one of the values being represented as 0 and the other 2 values shown in comparison to these values. Hence the overall representation has only 2 antibiotic values displayed with one of them being zero and the other two displayed as a comparison of how much more effective they are.