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Lesson 10 Problems

Problem #1

When it comes to the overall prediction on enrollment for this problem, it is best to use a prediction by using the average over time. Using the rate of change over time is going to offer some problematic approaches because there are too many changing variables and that there isn't a clearly defined growth formula since the enrollment has fluctuated so much. However using quantitative forecasting using trend extrapolation, below is a chart of enrollment over the past 7 years for 3 different institutions. Taking the average of the past 7 years, gives researchers a great idea as to what the prediction could be for year 8's enrollment.

	Institution 1	Institution 2	Institution 3
Year 1	3679	5867	2852
Year 2	3608	5974	2901
Year 3	3512	6085	2853
Year 4	3601	6097	2812
Year 5	3489	6034	2888
Year 6	3496	6101	2795
Year 7	3404	6025	2848
Formula (Sum/7)	(24789/7)	(42183/7)	(19949/7)
Year 8	3541	6026	2849

Problem #2

With this problem, I would again use trend extrapolation and examine the averages of students over time. The averages of the number of students, are all over the place when it comes to numbers therefore using a growth model would not be acceptable, however the numbers all fall within 500 students of each other so they are pretty consistent between the range of 447 students for the 1st year, 245 students for 2nd year and 48 in 3rd year students.

Student Type	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
1st Year	1274	1493	1102	1060	1507	1287
2nd Year	694	618	763	539	518	626
3rd Year	185	181	159	190	142	171
Total	2153	2292	2024	1789	2167	2084

Problem #3

Robin Dawes believes that you do not need to create a formula that assigns different weights to each variable as long as you use common sense variables to help foster predictions. Dawes believes in standardizing variables so they carry equivalent weight overall. First and foremost a person's overall salary is going to be of most importance to the developmental office. The more a person makes over $25,000 the more likely they will be in contributing $25,000 to the institution regardless of age so ultimately it comes down to disposable income based upon the donation amount.

Age can also create a large discrepancy because there usually be a range of 21-100. Therefore that will automatically create an unbalanced scale. An assumption could be that someone who is older might donate more than someone who is fresh out of college however that is a broad assumption and that variable is not reliable because someone who is making $100,000 and is 25 might be just as apt to donate as someone who is 50 and making $100,000.

Total amount donated in the past and total number of donations also could be beneficial in contributing to the formula however there are many variables that can consist to that. The question asks about a $25,000 gift or more to an institution, so someone who makes lots of smaller donations to the institution verses someone who makes 1 large donation could also factor into the formula. I think the bottom line is the most important variable is salary vs. donation amount. Therefore my formula would be:

Salary/$25,000 (donation amount)

The person with the higher number in the last column would be more likely to donate overall because they have a larger salary to work with.

Salary	Donation	
$25,000	$25,000	1
$30,000	$25,000	1.2
$35,000	$25,000	1.4
$40,000	$25,000	1.6
$45,000	$25,000	1.8
$50,000	$25,000	2
$55,000	$25,000	2.2
$60,000	$25,000	2.4
$65,000	$25,000	2.6
$70,000	$25,000	2.8
$75,000	$25,000	3
$80,000	$25,000	3.2
$85,000	$25,000	3.4
$90,000	$25,000	3.6
$95,000	$25,000	3.8
$100,000	$25,000	4