Reading: Friedland 07 (Development Technique)
Model: Simple Example of Development Technique
Problem Type: Paid Claims Development

Demo 07.01 Development (Problem)

Find Calculate ultimate claims for all accident years using data as of year-end 2023

Given

cumulative paid claims

AY	12	24	36	48
2020	48	140	201	240
2021	48	140	201	
2022	48	140		
2023	48			

Assume no development past 48 months. In other words, the triangle is fully dveloped by 48 months.

The paid claims on the latest diagonal are in brown font for instructional purposes within the solution.

Step A =====> **link ratios for paid claim triangle**

AY	12-24	24-36	36-48	48-ult
2013	2.924	1.430	1.196	
2014	2.924	1.430		
2015	2.924			
2016				
selected	2.924	1.430	1.196	**1.000**

Tail Factor: The triangle is fully developed as of 48 months. That means the 48-ult tail factor is equal to 1.0

Step B =====>

Step C =====> **calculate age-to-ultimate LDFs**

	12-ult	24-ult	36-ult	48-ult
age -> ult	5.000	1.710	1.196	**1.000**

<====== (**selected**) x (prior [age -> ult])

(calculate from right-to-left)

Step D =====> **calculate ultimate losses based on latest paid losses**

	'23@12	'22@24	'21@36	'20@48
diagonal	48	140	201	240
final answers ===> ultimate	240	240	240	240

<====== (**diagonal**) x (age -> ult)

Sometimes it's nice to present the ultimates in a column to the right of the original triangle:

cumulative paid claims

AY	12	24	36	48
2020	48	140	201	240
2021	48	140	201	
2022	48	140		
2023	48			

ultimates	real ultimates	% error
240	240	0%
240	240	0%
240	240	0%
240	240	0%

Interesting side note:

*This example was created using my simulation software **SimPolicy**. One of the input parameters to the simulation is the value of the ultimate loss. For this simulation, each AY was given the same **ultimate loss of 240**. That means we can see how accurate our estimates are. More to the point, we can often see how **inaccurate** our estimates are regardless of how we select our LDFs (Loss Development Factors) in Step B.*

Moral:

Don't agonize for too long over selecting LDFs. In a real-life situation there will be a lot of noise or random variation that cannot be fully accounted for by any reserving method. Do the best you can with the information you've got but make allowances for the fact that your estimates will never be exactly right, especially for AYs at early stages of development.

This example:

*Here our estimates **were** perfectly accurate. But that's because the development pattern was consistent across all AYs. In other words, the LDFs in each column were all the same so it was obvious how to make your selection..*
This is not a realistic situation. There will always be noise (random variation) and other influences on the data that no method can fully capture.