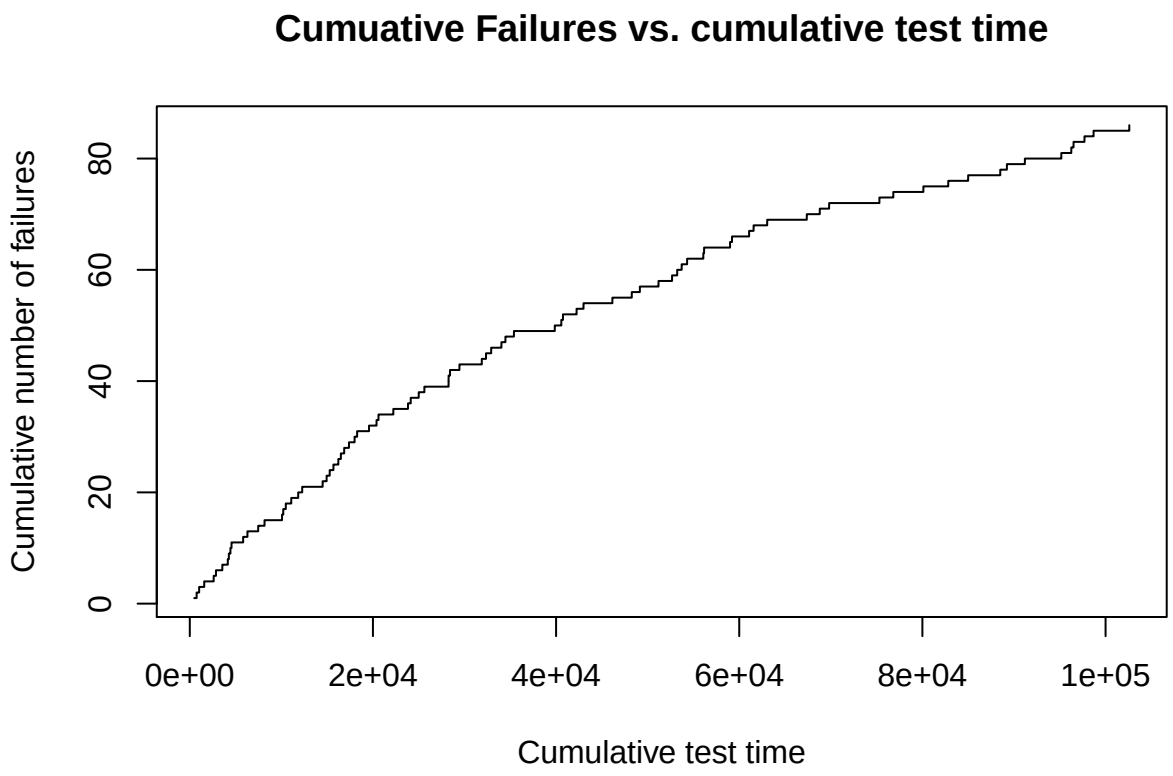
Software Failure and Reliability Assessment Tool: Report

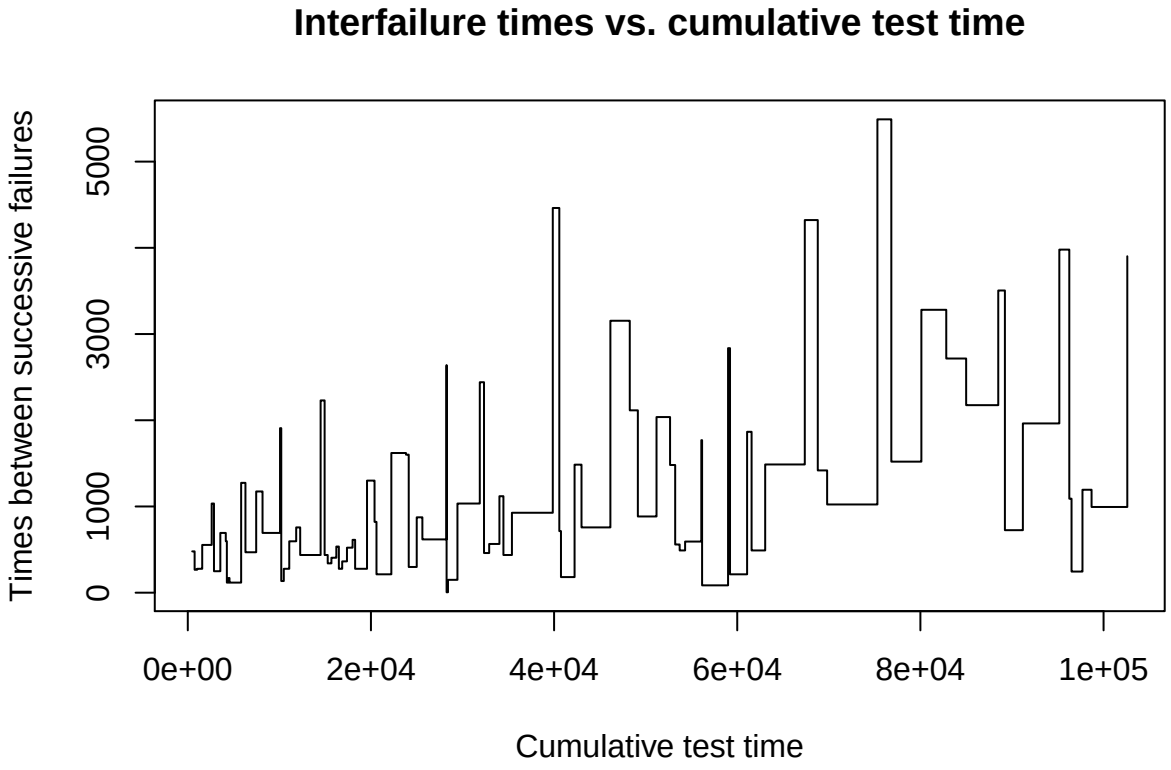
Tab 1: Select, Apply, and Analyze Data

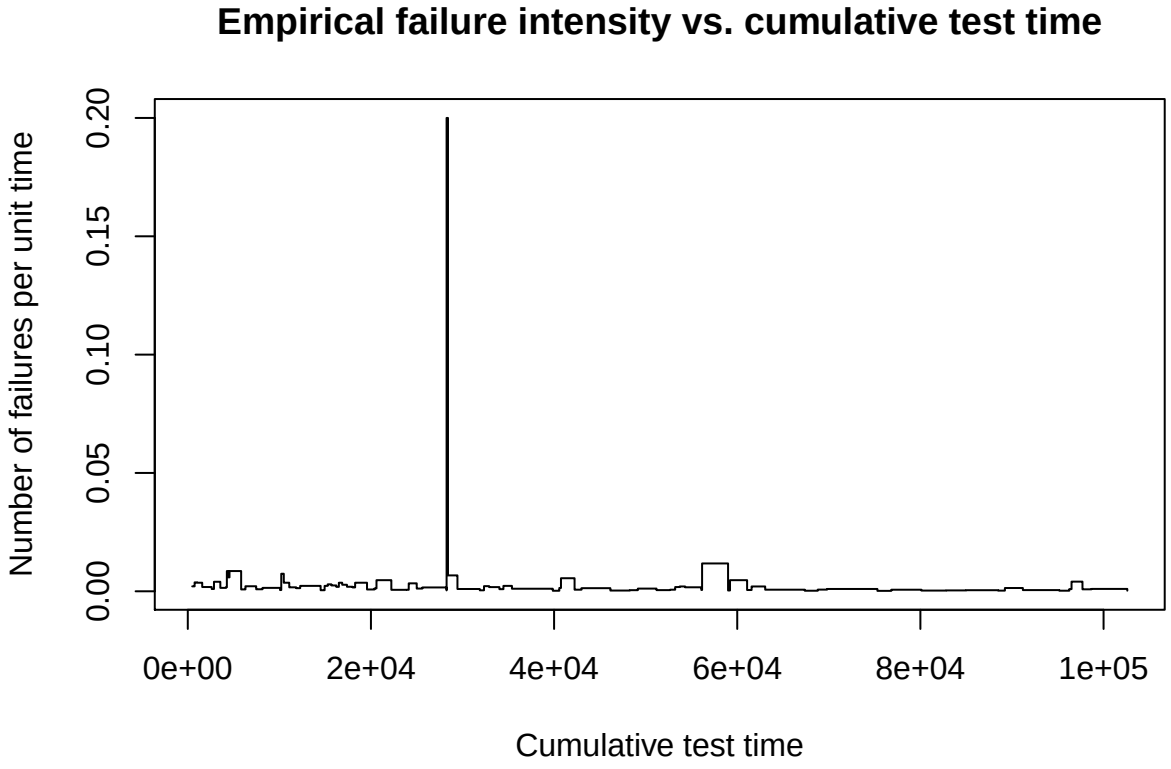
Sample of the updated data different formats:

Table 1: First ten points of the input data

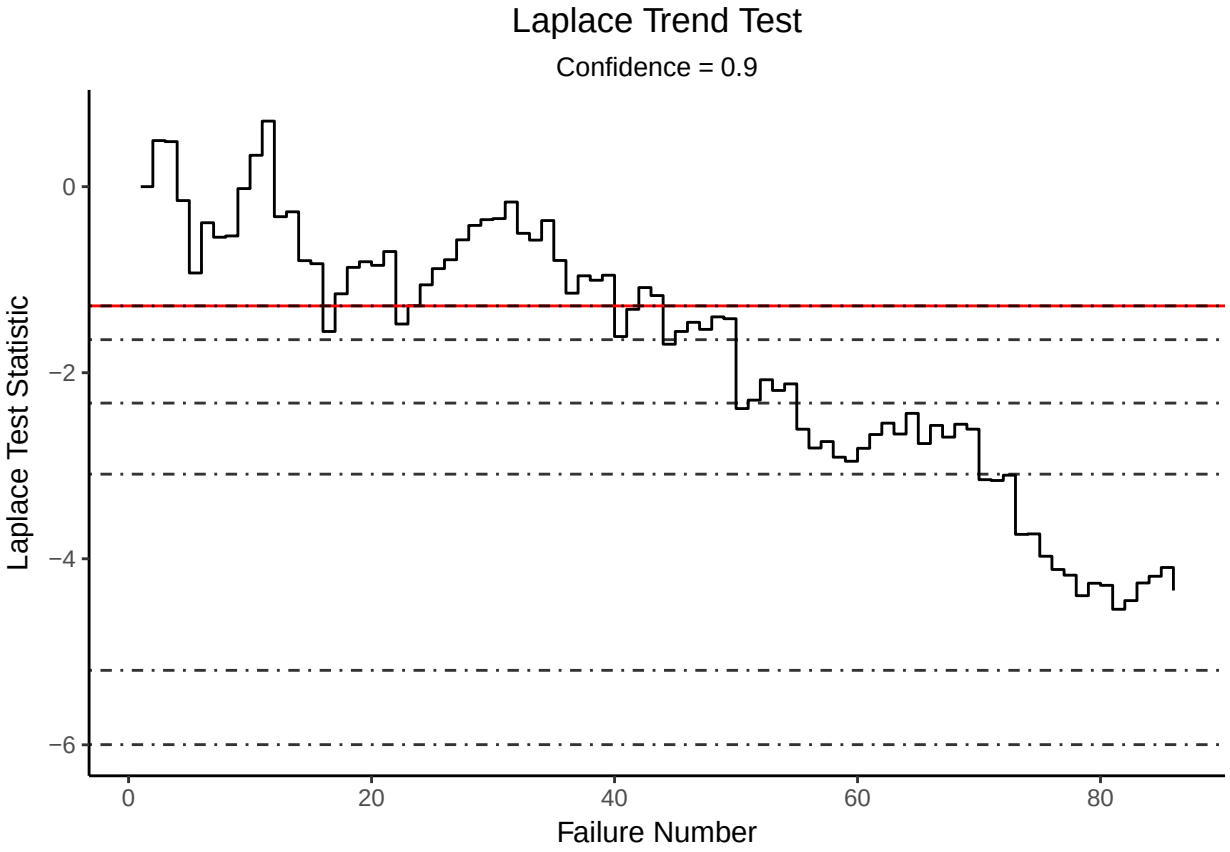
FN	IF	FT
1	479	479
2	266	745
3	277	1022
4	554	1576
5	1034	2610
6	249	2859
7	693	3552
8	597	4149
9	117	4266
10	170	4436



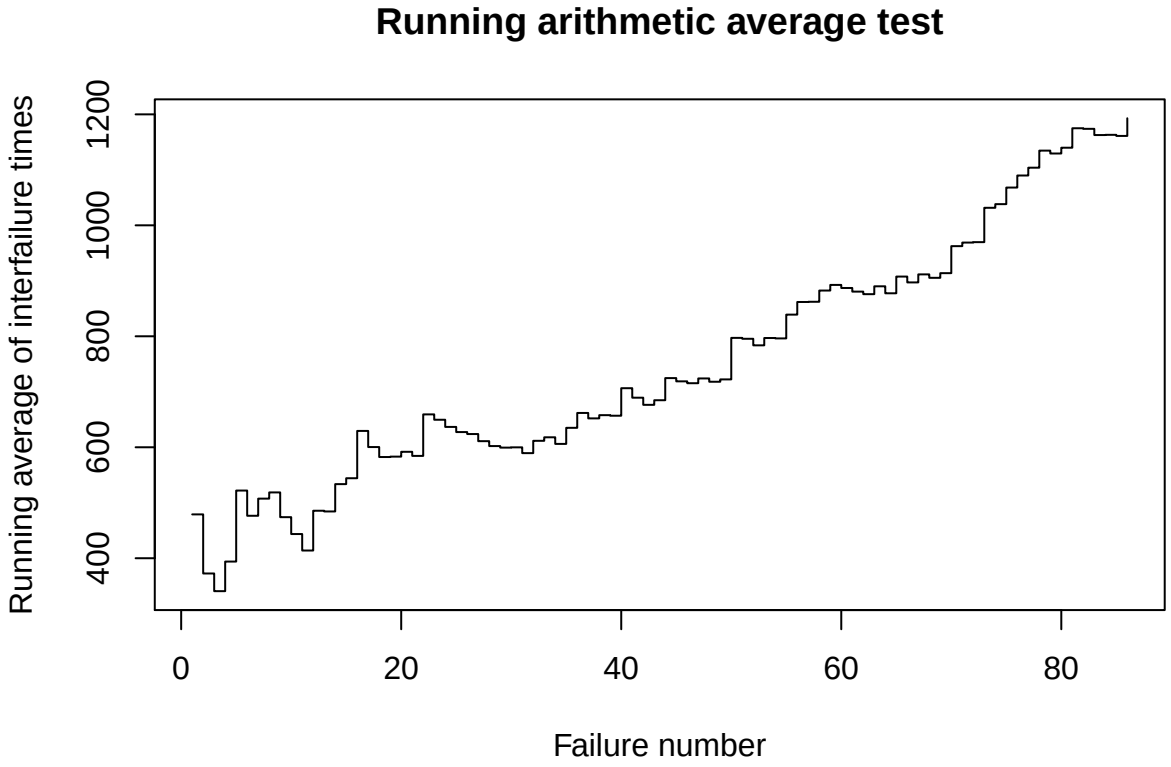

Interfailure times vs. cumulative test time
Times between successive failures
0
1000
3000
5000
0e+00
2e+04
4e+04
6e+04
8e+04
1e+05
Cumulative test time


Empirical failure intensity vs. cumulative test time
Number of failures per unit time
0.00
0.05
0.10
0.15
0.20
0e+00
2e+04
4e+04
6e+04
8e+04
1e+05
Cumulative test time

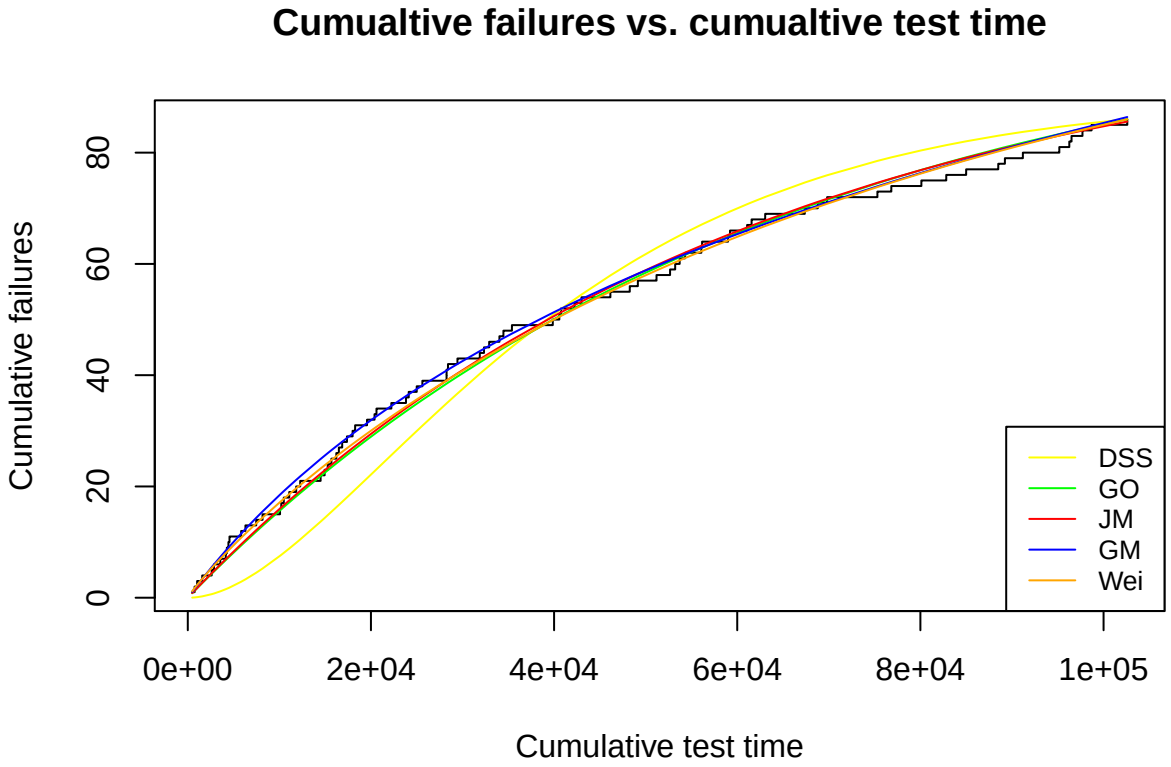
The Laplace test is the default trend test, which possesses a statistical interpretation and allows the user to specify a confidence level between 0 and 1 to quantify a desired level of significance that the data exhibits (or does not exhibit) reliability growth. Decreasing trend indicates reliability growth and the red line indicates the user specified significance level.

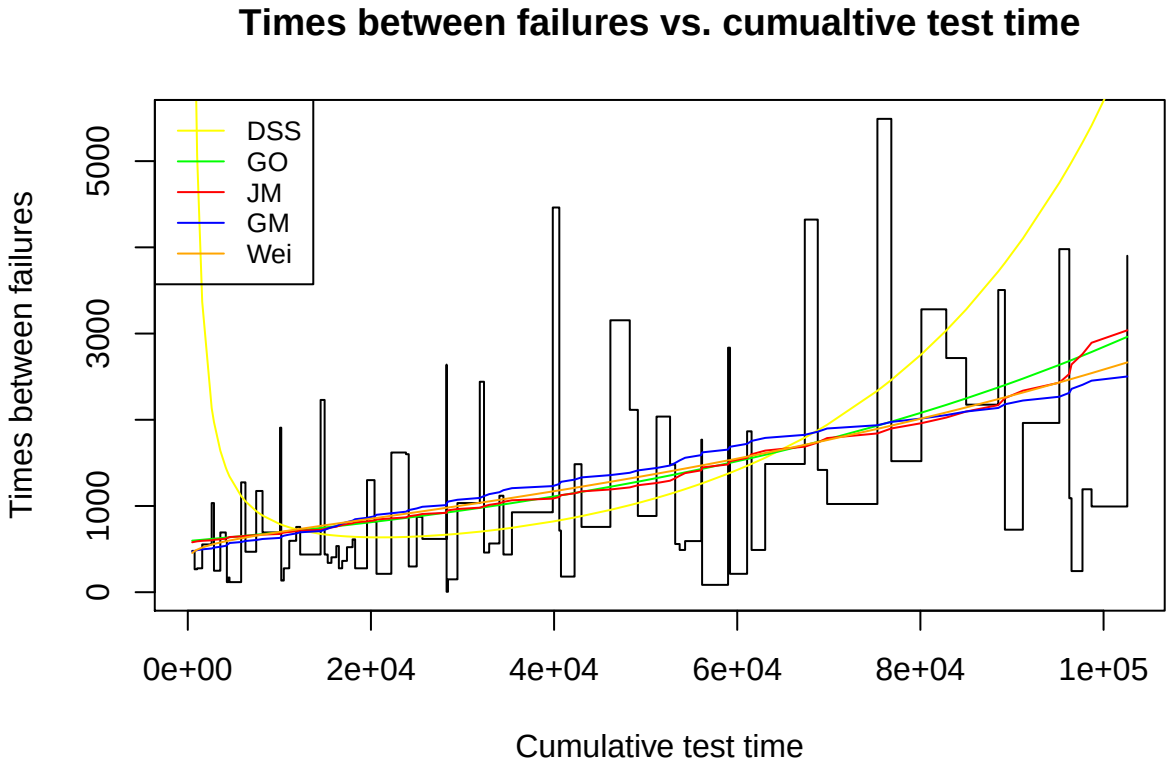


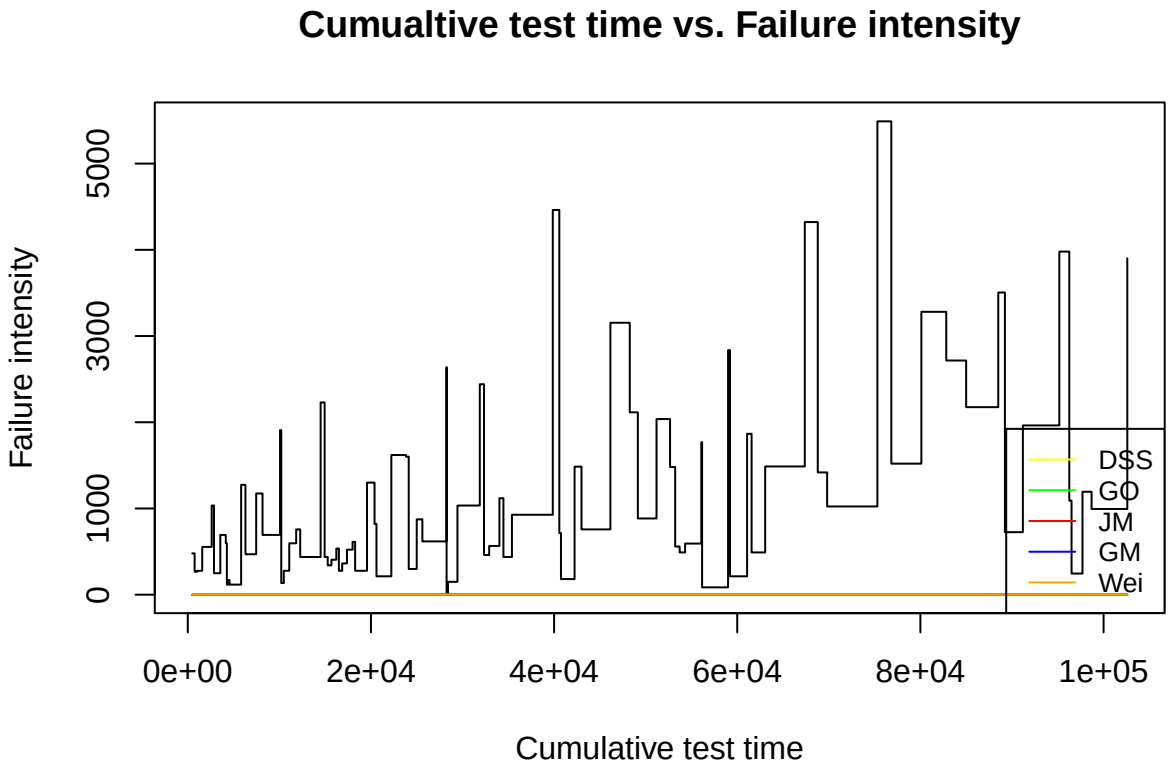
The running arithmetic average, computes and plots a running average of the times between failures. A plot exhibiting a positive slope indicates that the times between failures are increasing, suggesting reliability growth during testing.

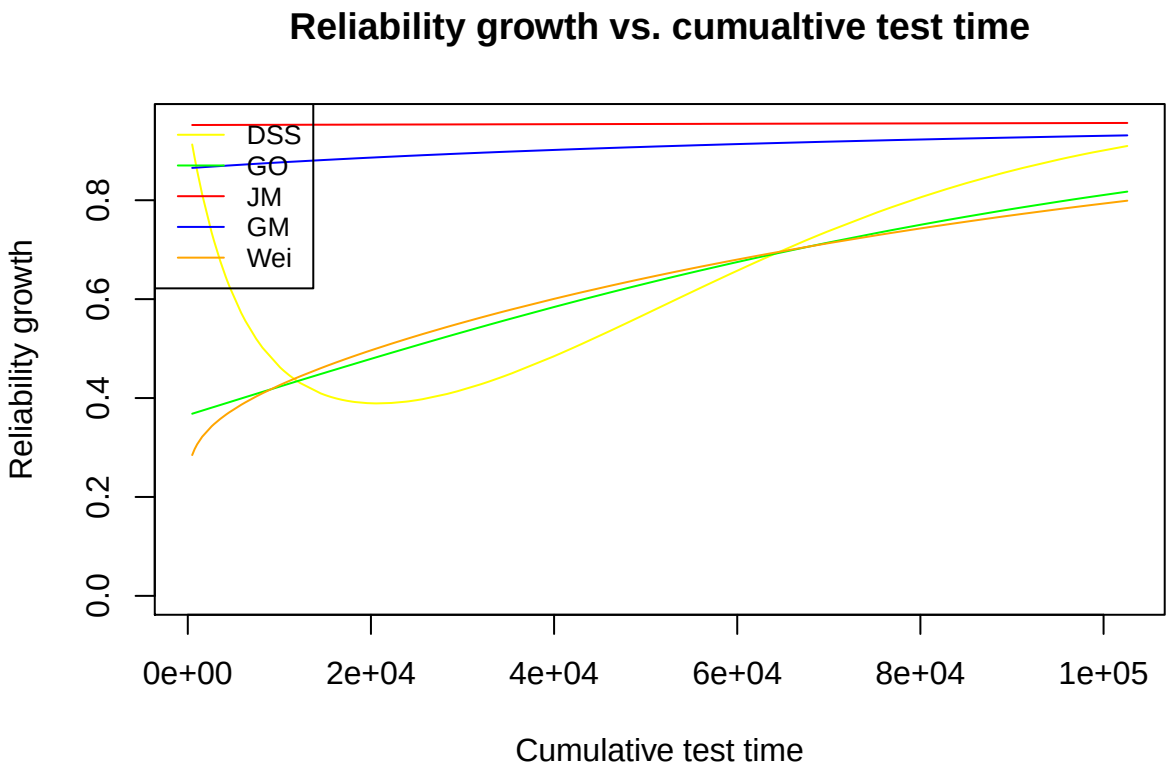


Tab2: Set Up and Apply Models









Tab3: Query Model Results

	Time to achieve specified reliability	Expected number of failures	Expected time to N failure
DSS	R = 0.9 achieved	0.608204969854356	7155.85550142973
GO	41417.8636095795	0.00337610784515618	3032.6955669415
JM	134777.342808246	0.0031946911875167	3213.38811748737
GM	163171.423572481	0.00404421904345043	2497.09587537723
Wei	64413.1125231065	0.00375159830321081	2709.63524438377

Tab4: Evaluate Models

Smaller values of AIC and PSSE values are preferred.

	AIC	PSSE
DSS	1405.137	83.72126
GO	1377.076	23.72695
JM	1375.425	19.51057
GM	1374.400	20.35225
Wei	1378.583	16.67166