

Software Failure and Reliability Assessment Tool: Report

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July 16, 2018

Tab 1: Select, Apply, and Analyze Data

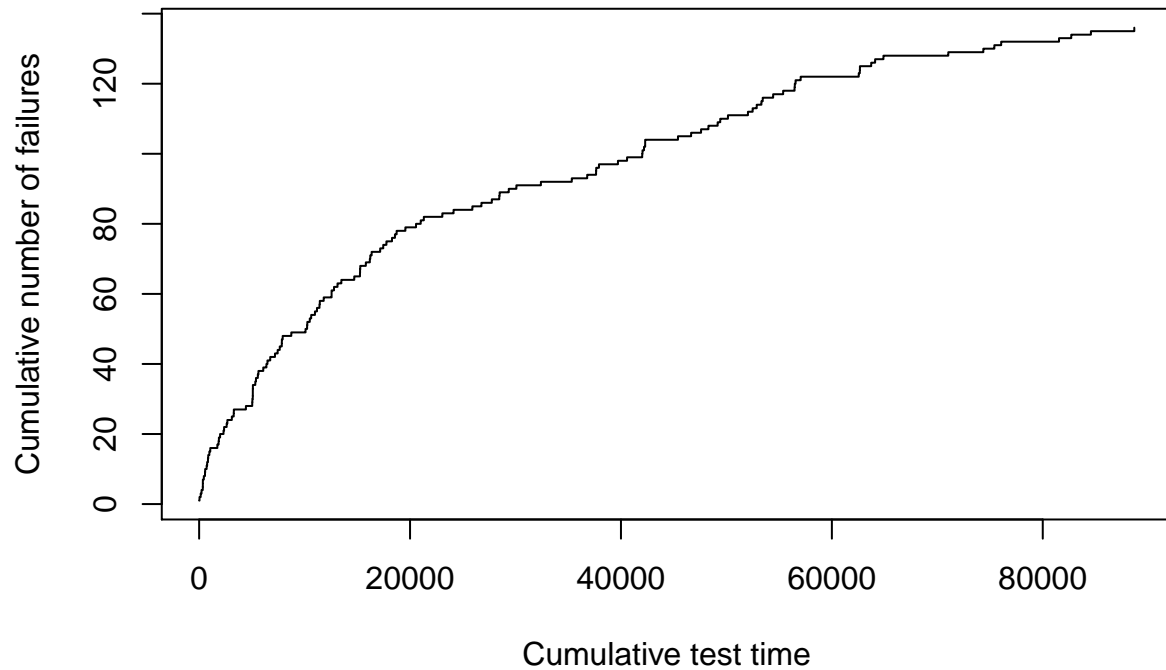
Sample of the updated data ('SYS1') in different formats:

Table 1: First ten points of the input data

FN	IF	FT
1	3	3
2	30	33
3	113	146
4	81	227
5	115	342
6	9	351
7	2	353
8	91	444
9	112	556
10	15	571

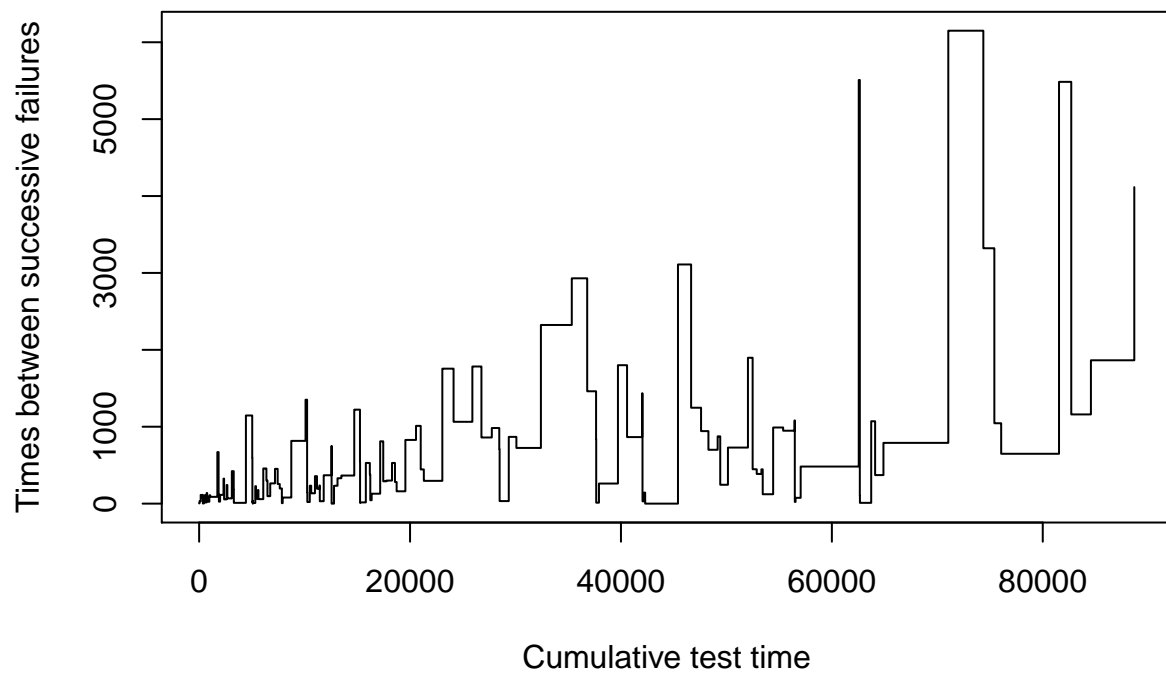
Cumulative failures

Cumulative Failures vs. cumulative test time: SYS1



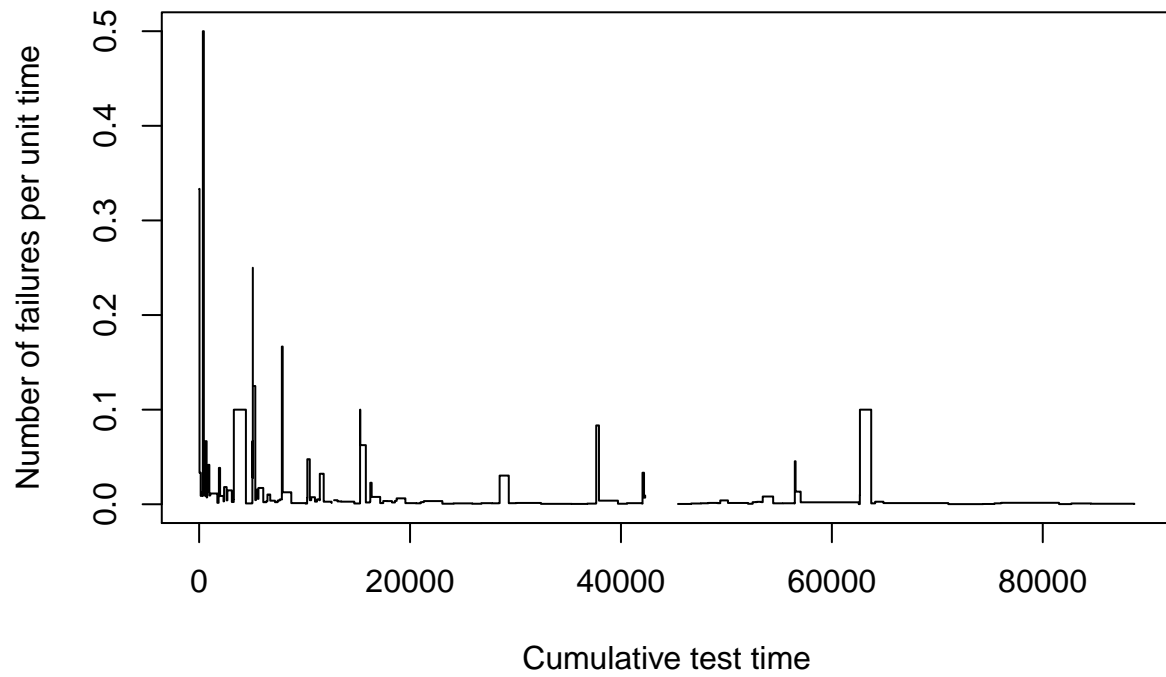
Times between failures/Interfailure times

Interfailure times vs. cumulative test time: SYS1

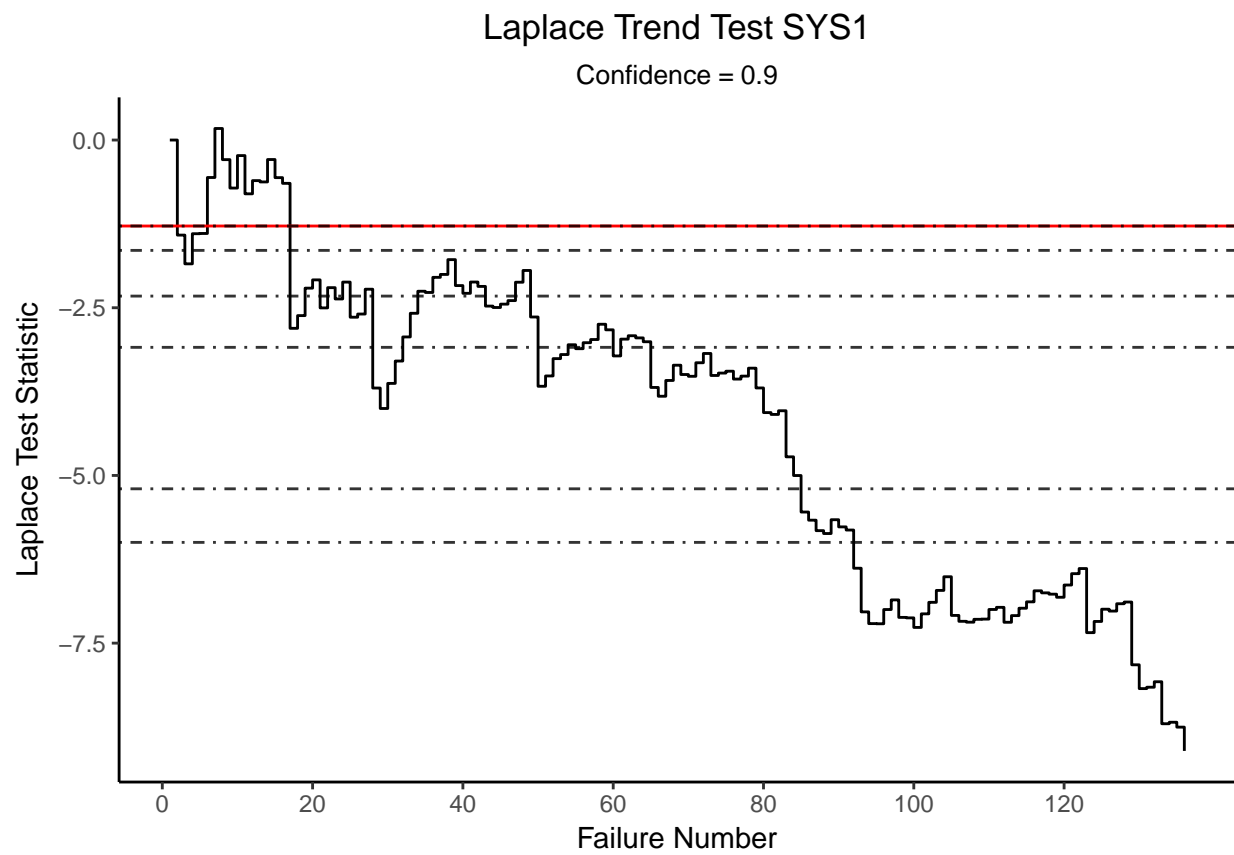


Failure intensity

Empirical failure intensity vs. cumulative test time: SYS1

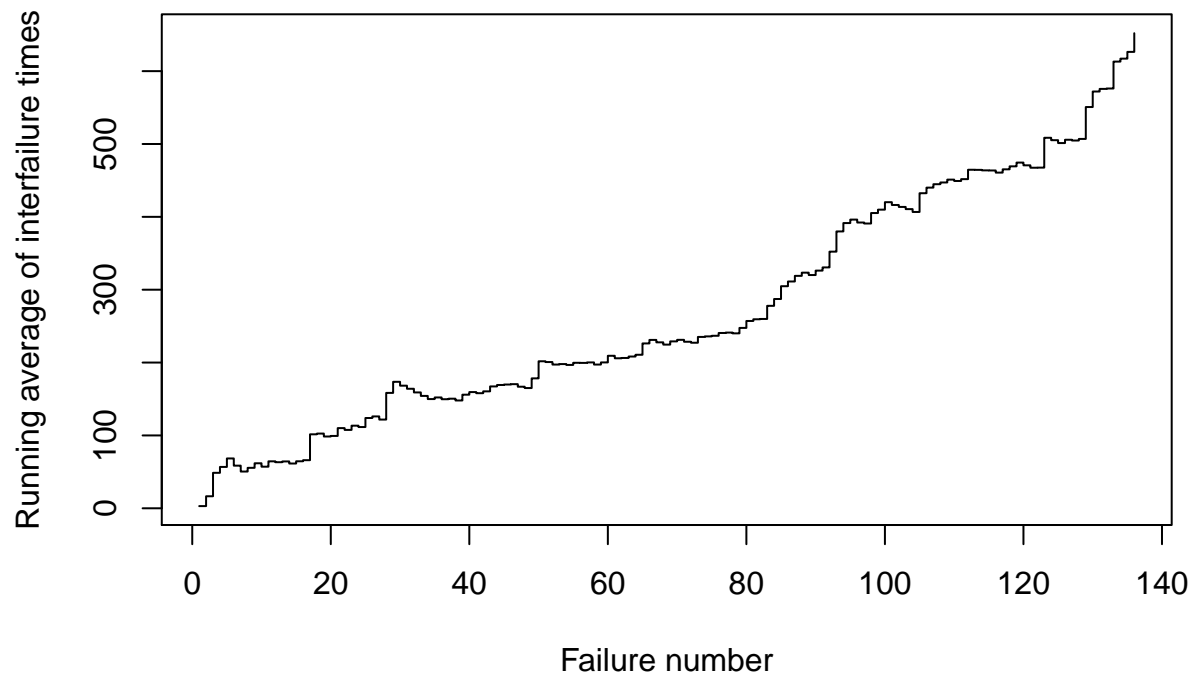


Laplace Trend Test



Running arithmetic average

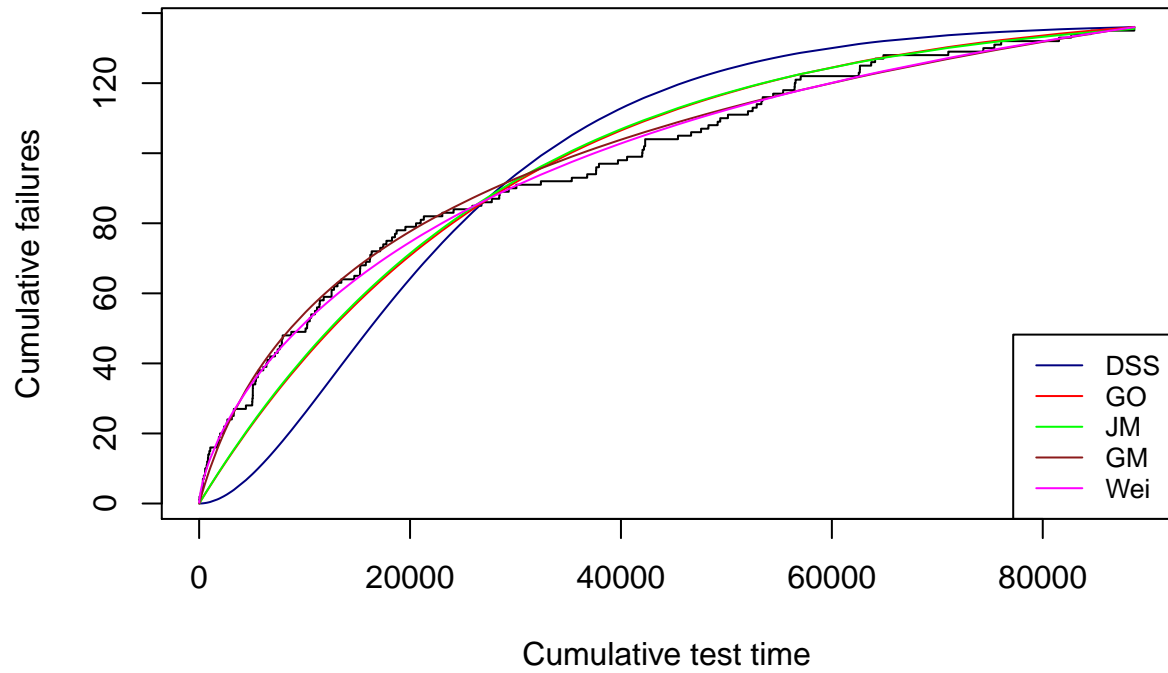
Running arithmetic average test: SYS1



Tab2: Set Up and Apply Models

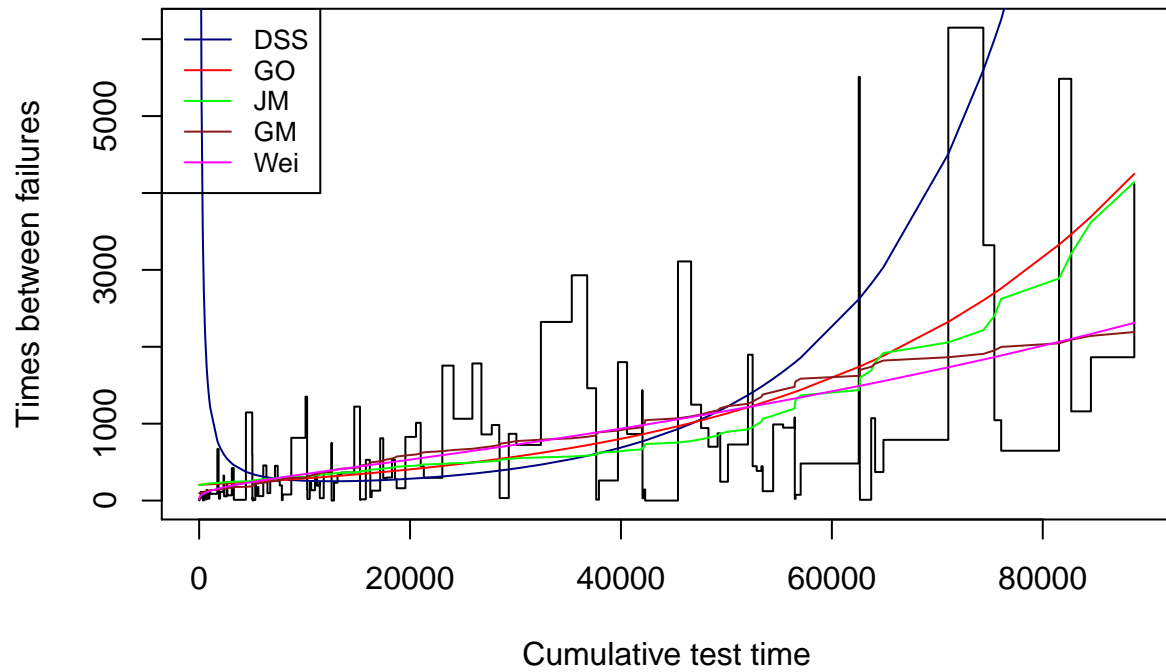
Cumulative failures

Cumulative failures vs. cumulative test time: SYS1



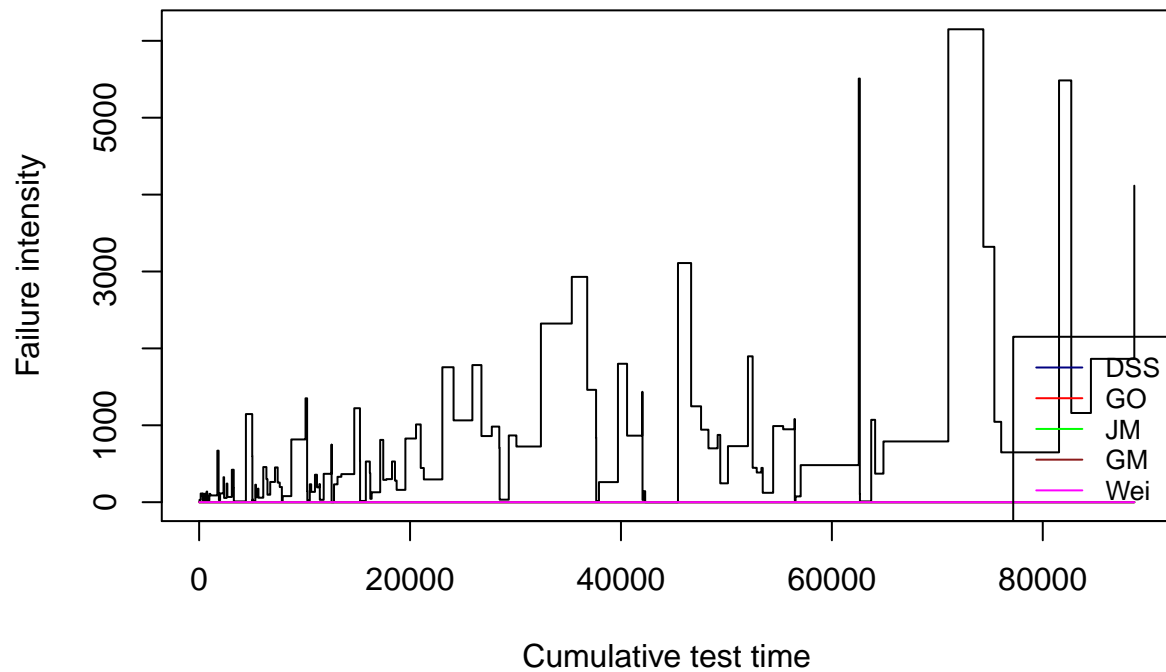
Times between failures

Times between failures vs. cumulative test time SYS1



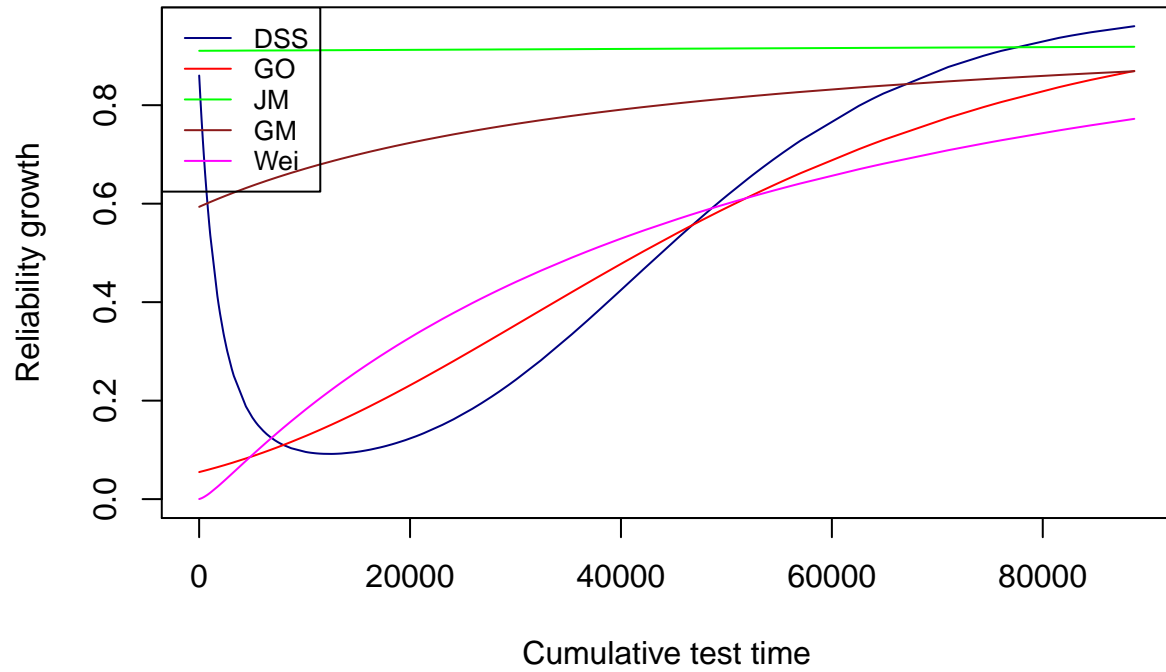
Failure intensity

Failure intensity vs. Cumulative test time SYS1



Reliability growth

Reliability growth vs. cumulative test time SYS1



Tab3: Query Model Results

	Time to achieve specified reliability	Expected number of failures	Expected time to N failure
DSS	R = 0.9 achieved	0.246856262199799	NA
GO	8263.13681952821	0.903615409906593	4591.28466949961
JM	91142.2377161945	0.85612548252314	4869.80650205625
GM	153028.269493869	1.87747308675807	2170.03088926781
Wei	66732.9968495319	1.72595369956707	2353.05254648438

Tab4: Evaluate Models

	Akaike Information Criterion (AIC)	“Predictive sum of squares error (PSSE)” ~ 0.9
DSS	2075.15	296.35
GO	1953.61	23.07
JM	1950.53	*19.6
GM	*1937.03	84.33
Wei	1938.16	74.94

Smaller values of AIC and PSSE values are preferred.