TAB: DISTRIBUTION CALCULATOR   DISABLE   **Calculation Enabled**

Distribution Object

Object Description	Abbr	Object value	Parameters	
Matched or alternative distribution based on generated sampe				
Distribution index		9	mean	stdev
Distribution		Log-Normal	-478.60%	67.51%
Distribution object parameters		java.util.LinkedHashMap@Thu, 4 Jan 2018 06:02:56:962..8722		
Distribution object	D	jmathkr.lib.stats.distribution.R1.standard.apache.DistributionL		
Matched distribution based on historical sample				
Distribution index		9	mean	stdev
Distribution		Log-Normal	-478.60%	67.51%
Distribution object parameters		java.util.ArrayList@Thu, 4 Jan 2018 06:02:56:952..5114012637		
Distribution object		jmathkr.lib.stats.distribution.R1.standard.apache.DistributionL		

Distribution Histogram

Object Description	Abbr	Object value
Matched or alternative distribution based on generated sampe		
Histogram parameters		java.util.LinkedHashMap@Thu, 4 Jan 20:
Histogram object	H(x)	jmathkr.lib.stats.basic.calc.Histogram@T
Histogram output object		java.util.ArrayList@Thu, 4 Jan 2018 06:1
Histogram domain		java.util.ArrayList@Thu, 4 Jan 2018 06:1
Sample pdf values	pdf(x)	java.util.ArrayList@Thu, 4 Jan 2018 06:1
Matched distribution based on historical sample		
Histogram parameters		java.util.LinkedHashMap@Thu, 4 Jan 20:
Histogram object	H(x)	jmathkr.lib.stats.basic.calc.Histogram@T
Histogram output object		java.util.ArrayList@Thu, 4 Jan 2018 06:0
Histogram domain		java.util.ArrayList@Thu, 4 Jan 2018 06:0
Sample pdf values	pdf(x)	java.util.ArrayList@Thu, 4 Jan 2018 06:0

Distribution Sample

|		
Sample size	#x	51
Generated sample		
Sample object	x	java.util.ArrayList@Thu, 4 Jan 2018 06:17:14:969..5676452754
Sorted sample object	x-sorted	java.util.ArrayList@Thu, 4 Jan 2018 06:17:14:969..2975917340
Sample pdf values	pdf(x)	java.util.ArrayList@Thu, 4 Jan 2018 06:17:14:970..7361169409
Sample cdf values	cdf(x)	java.util.ArrayList@Thu, 4 Jan 2018 06:17:14:969..5004508971
Historical sample		
Sample object	x	java.util.ArrayList@Thu, 4 Jan 2018 06:02:56:721..5690026093
Sorted sample object	x-sorted	java.util.ArrayList@Thu, 4 Jan 2018 06:02:56:953..7302328540
Sorted sample object	pdf(x)	java.util.ArrayList@Thu, 4 Jan 2018 06:03:15:273..4249023983
Sample cdf values	cdf(x)	java.util.ArrayList@Thu, 4 Jan 2018 06:02:56:954..6479935110

Distribution Testing

|		
Test historical sample		1
Test name		Kolmogorov-Smirnov
Distribution test object	T(D, x)	jmathkr.lib.stats.testing.distribution.Tes
Test against multiple distributions		
List of distributions		java.util.ArrayList@Thu, 4 Jan 2018 06:0
List of distribution test objects		java.util.ArrayList@Thu, 4 Jan 2018 06:1
Estimated distribution parameters	D-params	java.util.ArrayList@Thu, 4 Jan 2018 06:0
Estimated tests p-values	P-value	java.util.ArrayList@Thu, 4 Jan 2018 06:0

*Log-Normal probability distribution function (pdf)*
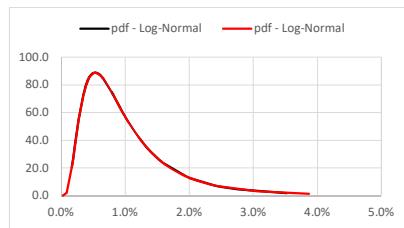
Log-Normal cumulative probability distribution function (cdf,
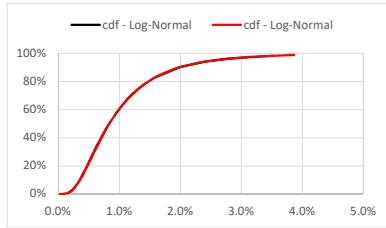

Historical sample
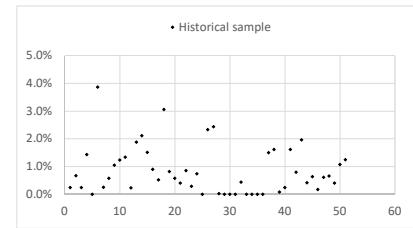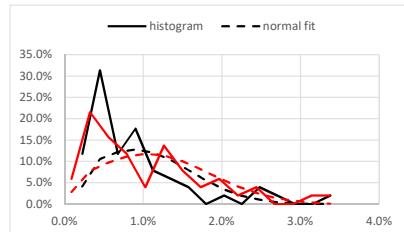
Histogram

Transformation of Log-Normal-distributed sample into uniform sample
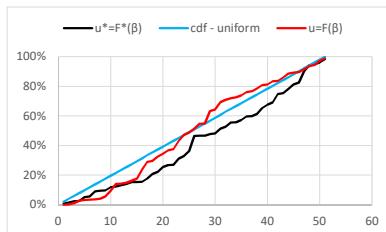
Histogram and pdf fit
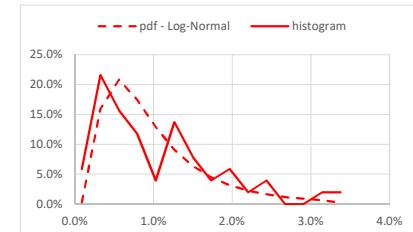
TAB: DISTRIBUTION TESTS AND SAMPLE HISTOGRAM

Selected distribution   *Histogram*   *Distribution tests*

Sample size   51   Matched or alternative distribution based on ger Matched distribution based on historical sample   Test   Kolmogorov-Smirnov

Sample   Historical

Name	Parameters		
	p1	p2	p3
Log-Normal	mean	stdev	
	-4.79	0.68	

Matching between generated and theoretical statistics

Matched or alternative distribution based on generated san

Statistics	Generated	Theoretical	Sample
Mean	1.05%	1.05%	0.89%
Standard deviation	0.59%	0.80%	0.70%
Mode	0.54%		0.42%

Matched distribution based on historical sample

Statistics	Generated	Theoretical	Sample
Mean	1.05%	1.05%	1.05%
Standard deviation	0.64%	0.80%	0.80%
Mode	0.52%		0.25%

Histogram parameters

Parameter	Key	Value	
		generated	historical
Minimum value	x-min	-0.01	-0.01
Maximum value	x-max	0.03	0.03
Number of bins	bin-count	15	15

Histogram table:

		1.00	0.94		1.00	0.97
#	x	histogram	normal fit	pdf - Log-Normal	x	histogram	normal fit	pdf - Log-Normal

#	x	histogram	normal fit	pdf - Log-Normal	x	histogram	normal fit	pdf - Log-Normal
1	0.22%	0.12	0.04	0.04	0.09%	0.06	0.03	0.00
2	0.45%	0.31	0.11	0.19	0.32%	0.22	0.08	0.16
3	0.68%	0.12	0.12	0.19	0.56%	0.16	0.10	0.21
4	0.90%	0.18	0.13	0.15	0.79%	0.12	0.11	0.17
5	1.13%	0.08	0.12	0.11	1.03%	0.04	0.12	0.13
6	1.35%	0.06	0.10	0.08	1.26%	0.14	0.11	0.09
7	1.58%	0.04	0.08	0.05	1.50%	0.08	0.10	0.06
8	1.80%	0.00	0.05	0.04	1.73%	0.04	0.08	0.04
9	2.03%	0.02	0.03	0.03	1.97%	0.06	0.06	0.03
10	2.25%	0.00	0.02	0.02	2.20%	0.02	0.04	0.02
11	2.48%	0.04	0.01	0.01	2.44%	0.04	0.03	0.02
12	2.70%	0.02	0.00	0.01	2.67%	0.00	0.01	0.01
13	2.93%	0.00	0.00	0.01	2.91%	0.00	0.01	0.01
14	3.15%	0.00	0.00	0.01	3.14%	0.02	0.00	0.01
15	3.38%	0.02	0.00	0.00	3.38%	0.02	0.00	0.00

Distribution tests table:

#	Distribution	statistics	p-value	Parameters			Statistics		
				p1	p2	p3	mean	stdev	mode
1	Log-Normal		41.29%	-4.79	0.68				
1	Beta		85.96%	1.30	122.78		1.05%		0.25%
2	Chi-squred		0.00%	1.05%			1.05%		
3	Exponential		0.00%	95.41			1.05%		
4	Fisher		0.00%	1.00	2.01		-100.00%		0.25%
5	Gamma		0.00%	1.73	165.27		1.05%	0.80%	
6	Geometric		0.00%	1.00			100.00%		
7	Laplace		7.95%	0.01	0.01		1.05%	0.80%	
8	Logistic		30.31%	1.05%	0.44%		1.05%	0.80%	
9	Log-Normal		41.29%	-4.79	0.68		1.05%	0.80%	
10	Normal		41.58%	1.05%	0.80%		1.05%	0.80%	
11	Poisson		7.24%	1.73	165.27		1.05%	0.80%	
12	Student T		0.00%	1.00					
13	Triangular		10.38%	0.03%	3.87%	0.03%	1.31%		
14	Uniform		0.00%	0.03%	3.87%		1.95%		

3.14%   2.39%

TAB: GENERATED AND HISTORICAL SAMPLES AND DISTRIBUTIONS

	Mean	0.89%	1.05%				1.05%	1.05%			
	Stdev	0.70%	0.59%				0.80%	0.64%			
	Mode		0.54%	20				0.52%	16		
	Generated sample			51		u*=F*(β)	*Historical sample*				u=F(β)
#	cdf - uniform	sample	sorted sample	sample increment	pdf - Log-Normal	cdf - Log-Normal	sample	sorted sample	sample increment	pdf - Log-Normal	cdf - Log-Normal
1	0.02	1.13%	0.17%	0.02%	20.52	0.01	0.24%	0.03%	0.06%	0.01	0.00
2	0.04	0.38%	0.19%	0.03%	27.95	0.01	0.67%	0.08%	0.09%	2.00	0.00
3	0.06	0.19%	0.22%	0.00%	37.22	0.02	0.25%	0.18%	0.05%	23.94	0.01
4	0.08	0.50%	0.22%	0.05%	38.55	0.02	1.43%	0.23%	0.01%	40.81	0.03
5	0.10	1.52%	0.28%	0.01%	55.83	0.05		0.24%	0.01%	44.52	0.03
6	0.12	0.98%	0.28%	0.05%	57.90	0.05	3.87%	0.24%	0.00%	46.24	0.03
7	0.14	0.48%	0.34%	0.01%	71.36	0.09	0.26%	0.25%	0.01%	47.30	0.04
8	0.16	0.94%	0.34%	0.00%	72.59	0.09	0.58%	0.26%	0.03%	49.78	0.04
9	0.18	0.39%	0.35%	0.03%	73.22	0.10	1.05%	0.28%	0.06%	58.37	0.06
10	0.20	1.02%	0.38%	0.01%	78.14	0.12	1.24%	0.34%	0.06%	72.28	0.09
11	0.22	0.62%	0.38%	0.01%	79.04	0.12	1.34%	0.40%	0.00%	81.90	0.14
12	0.24	1.57%	0.39%	0.01%	80.43	0.13	0.23%	0.41%	0.01%	82.31	0.14
13	0.25	0.60%	0.40%	0.02%	81.91	0.14	1.89%	0.41%	0.02%	83.09	0.15
14	0.27	0.34%	0.42%	0.00%	83.61	0.15	2.11%	0.43%	0.01%	84.73	0.16
15	0.29	0.34%	0.42%	0.00%	83.65	0.15	1.52%	0.44%	0.07%	85.91	0.17
16	0.31	0.28%	0.42%	0.03%	83.95	0.16	0.90%	0.52%	0.06%	88.88	0.24
17	0.33	0.92%	0.45%	0.03%	86.19	0.18	0.52%	0.57%	0.01%	88.32	0.29
18	0.35	0.55%	0.48%	0.02%	88.03	0.21	3.05%	0.58%	0.03%	88.08	0.30
19	0.37	2.41%	0.50%	0.04%	88.56	0.22	0.82%	0.62%	0.02%	86.72	0.33
20	0.39	0.17%	0.54%	0.01%	88.92	0.26	0.57%	0.64%	0.02%	85.55	0.35
21	0.41	3.52%	0.55%	0.00%	88.80	0.27	0.40%	0.66%	0.01%	84.16	0.37

TAB: CONFIGURATION FILE

Standard distributions

Matched or alternative distribution based on generated sampe

#	Distribution name	Notation	Parameters			Default values		Parameter values			Statistics			Distribution support			Name	Parameters		
			p1	p2	p3			v1	v2	v3	mean	stdev	mode	min	max			p1	p2	p3
1	Beta	Beta	alpha	beta										0.00%	100.00%		Log-Normal	mean	stdev	
2	Chi-squred	Chi2	mu											0.00%				-4.79	0.68	
3	Exponential	Exponential	mu											0.00%						
4	Fisher	F	df1	df2										0.00%						
5	Gamma	Gamma	alpha	beta										0.00%			*Matched distribution based on historical sample*			
6	Geometric	Geometric	mu											0.00%						
7	Laplace	Laplace	mu	b																
8	Logistic	Logistic	mu	s													Name	Parameters		
9	Log-Normal	Log-Normal	mean	stdev		$\mu = 0; \sigma = 1$		-4.79	0.68		1.05%	0.80%		-1.34%	3.44%			p1	p2	p3
10	Normal	Normal	mean	stdev		$\mu = 0; \sigma = 1$											Log-Normal	mean	stdev	
11	Poisson	Poisson	lambda	scale										0.00%				-4.79	0.68	
12	Student T	T	nu																	
13	Triangular	Triangular	a	b	c															
14	Uniform	Uniform	a	b		$a = 0; b = 1$														
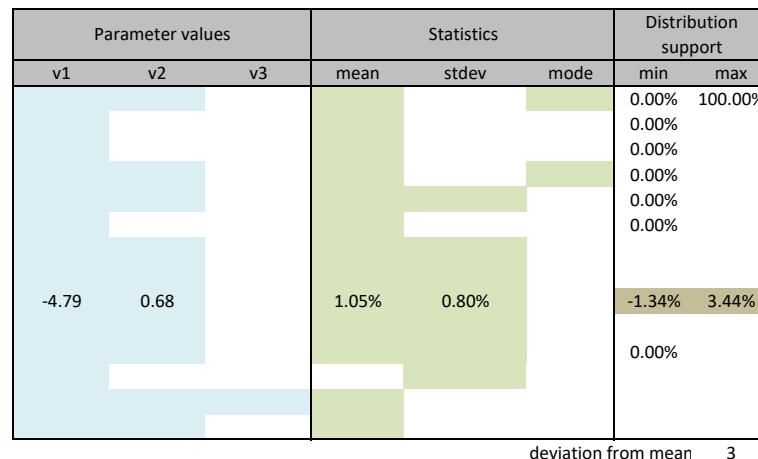
deviation from mean   3

Array parameters

#	Cell address	Row count	Col count	Comment
1	'data'!$D$9	51	1	generated sample
2	'data'!$E$9	51	1	sorted generated sample
3	'data'!$G$9	51	1	pdf of generated sample
4	'test'!$K$11	15	1	pdf of generated sample
5	'data'!$H$9	51	1	cdf of generated sample
6	'test'!$H$11	15	3	histogram of generated sample
7	'data'!$K$9	51	1	sorted historical sample
8	'data'!$M$9	51	1	pdf of historical sample
9	'test'!$P$11	15	1	pdf of historical sample
10	'data'!$N$9	51	1	cdf of historical sample
11	'test'!$M$11	15	3	histogram of historical sample

Distribution tests

Name	Description
Kolmogorov-Smirnov	
Pearson-Chi2	

Output keys

Key	Description
distrib-params	Parameters of tested distributions
stats-value	Estimated statistics
p-value	Estimated statistics p-values

Path to xlloop jar file	C:\Projects\java\data\jcalc\xlloop\xlloop-ecolab.jar
Test connection	1