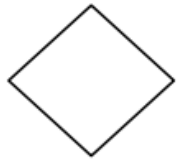
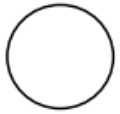
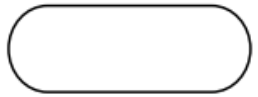
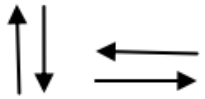
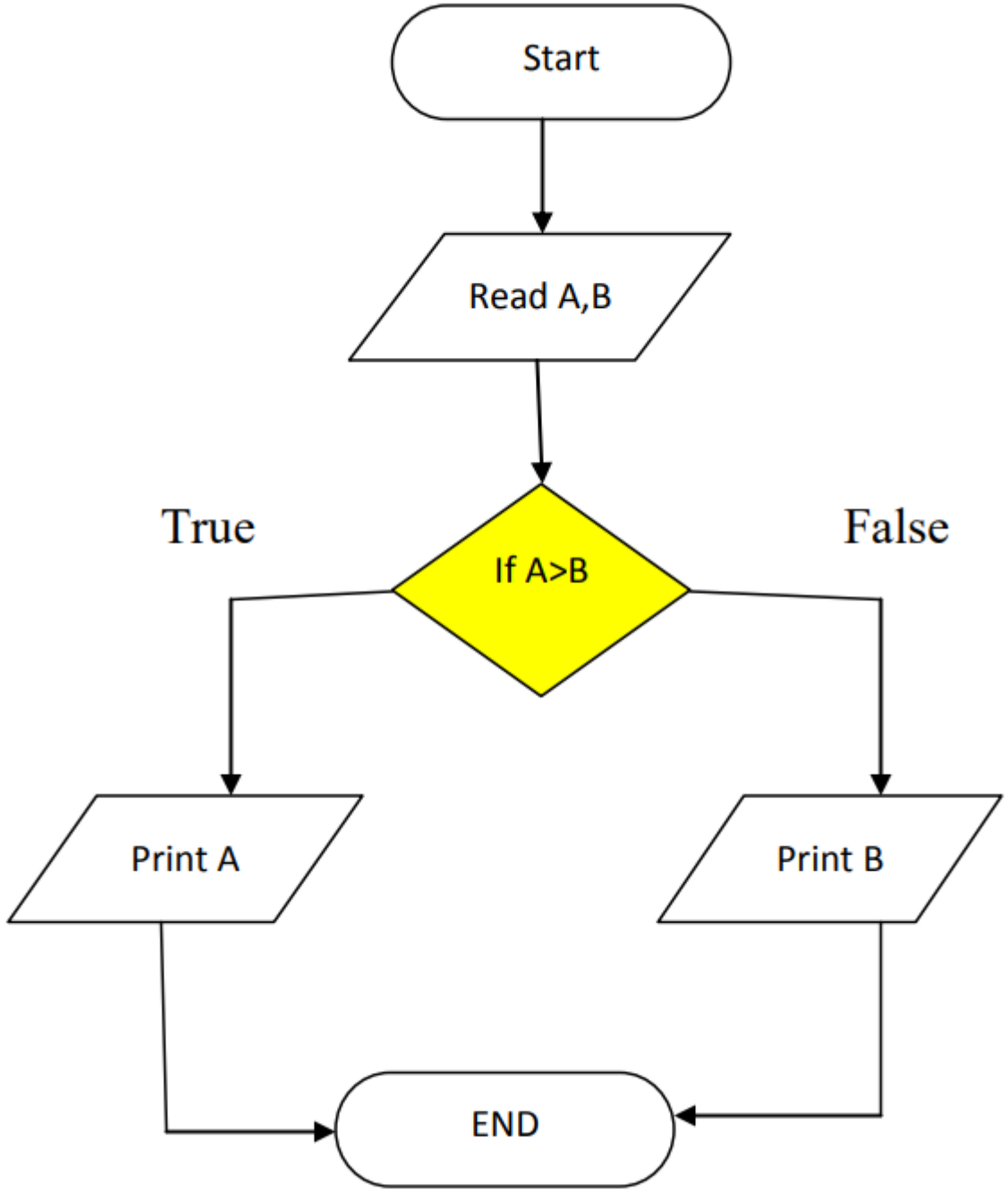
Loop control structure

Week 10 Session 1

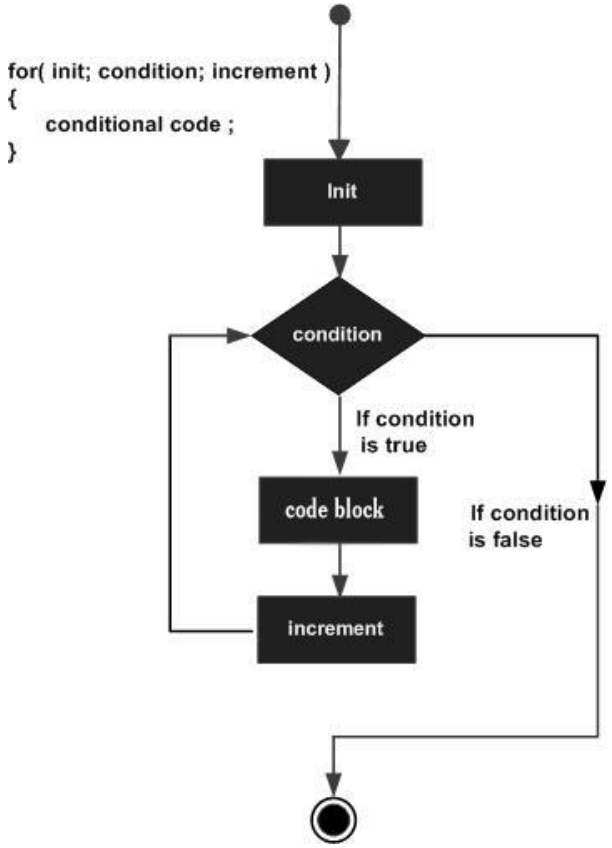
Flow chart symbol

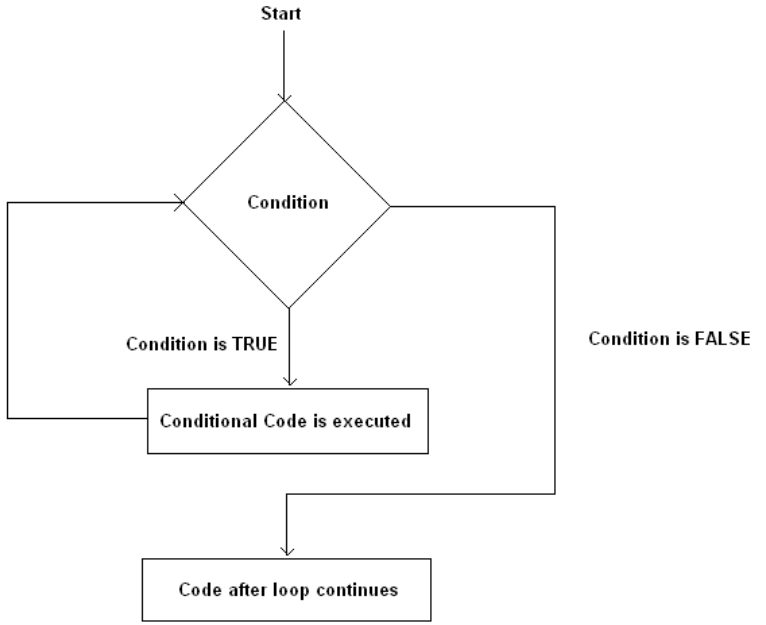
Symbol	Name	Function
	**Process**	Indicates any type of internal operation inside the Processor or Memory
	input/output	Used for any Input / Output (I/O) operation. Indicates that the computer is to obtain data or output results
	Decision	Used to ask a question that can be answered in a binary format (Yes/No, True/False)
	Connector	Allows the flowchart to be drawn without intersecting lines or without a reverse flow.
	Predefined Process	Used to invoke a subroutine or an Interrupt program.
	Terminal	Indicates the starting or ending of the program, process, or interrupt program
	Flow Lines	Shows direction of flow.

If-then-else

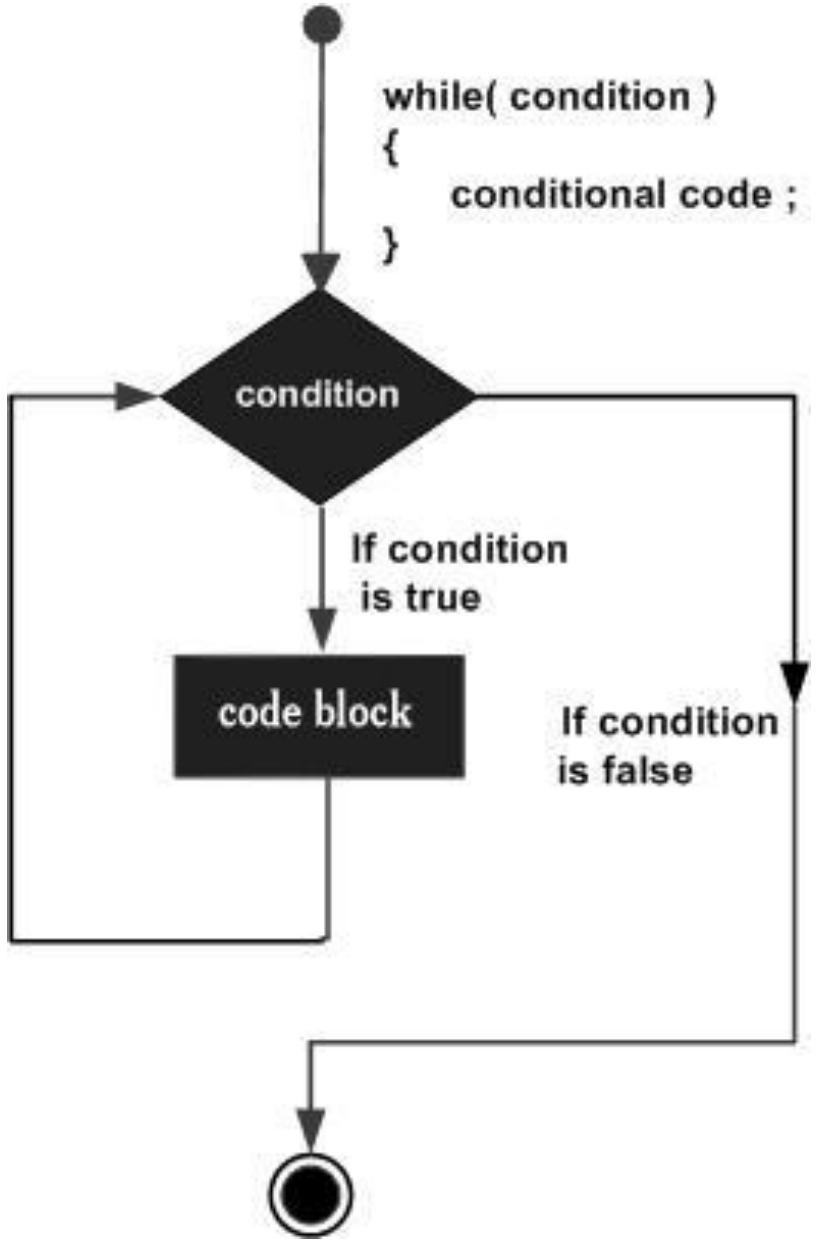


FOR Loops

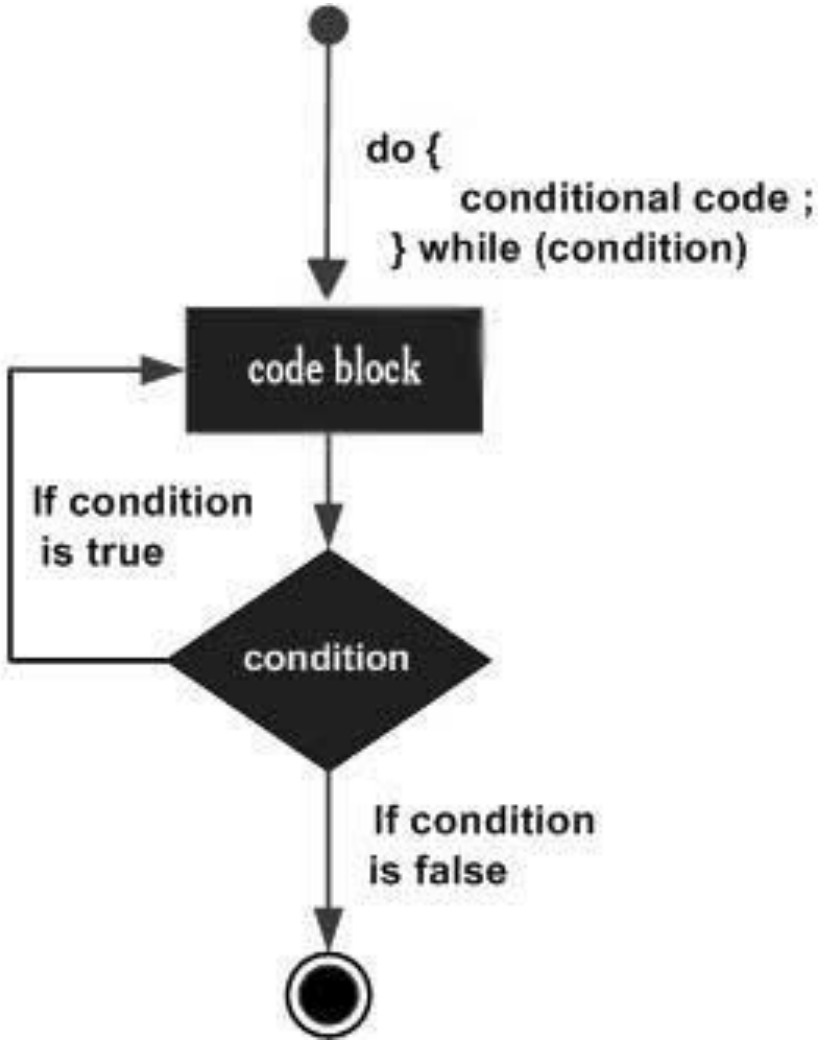

for(init; condition; increment)
{
conditional code ;
}
Init
condition
If condition
is true
code block
If condition
is false
increment


Start
Condition
Condition is TRUE
Condition is FALSE
Conditional Code is executed
Code after loop continues

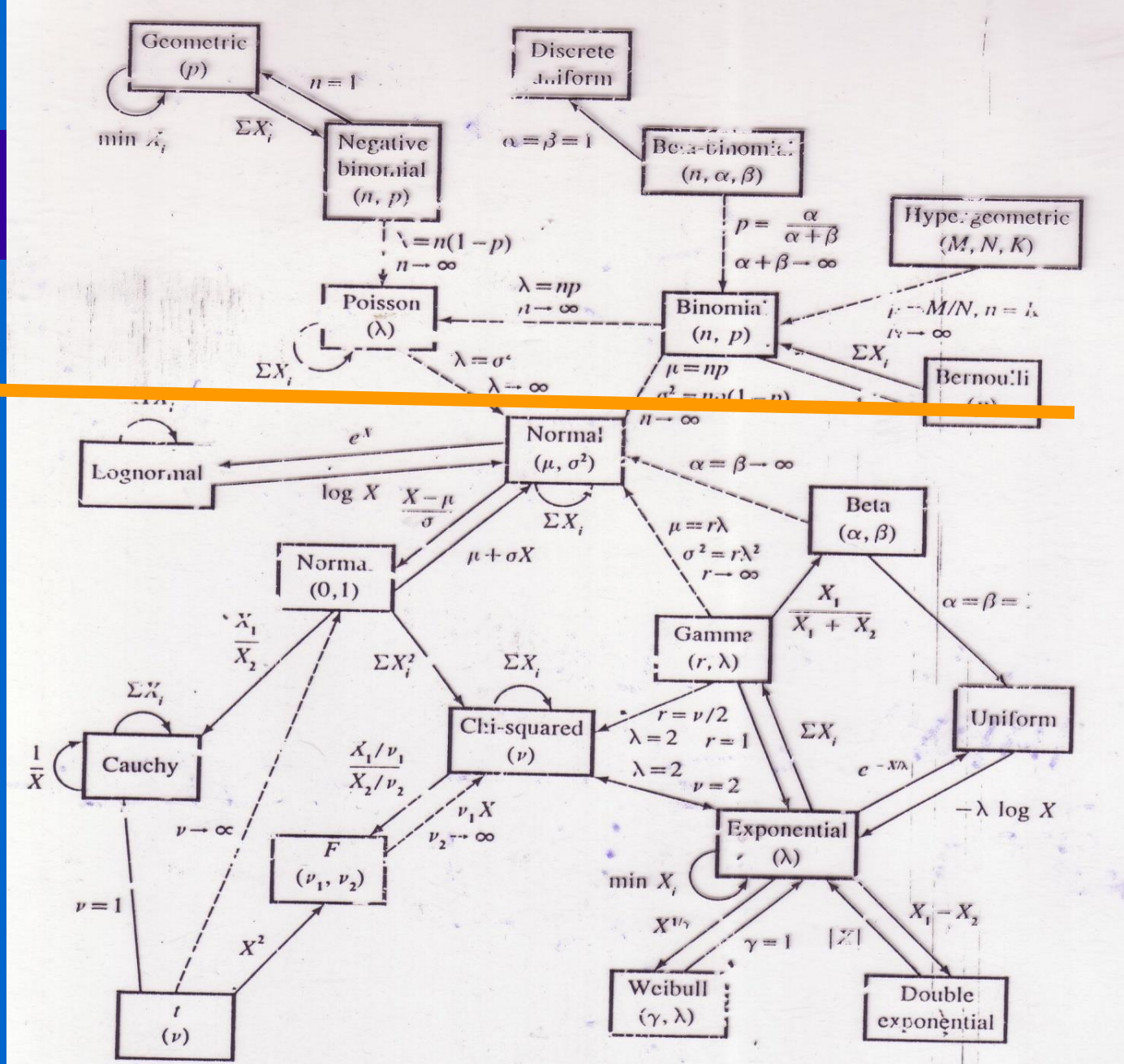
WHILE Loops


while(condition)
{
conditional code ;
}
condition
If condition
is true
code block
If condition
is false

D-WHILE Loops



Network Of Distribution



Relationships among common distributions. Solid lines represent transformations and special cases, dashed lines represent limits. Adapted from Leemis (1986).

Bernoulli-Binomial-Poisson-Geometry

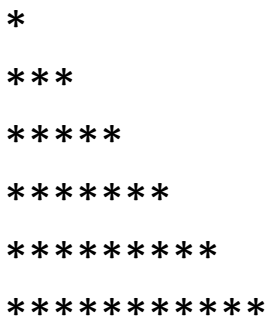
- Domain
  - (0,1) ➔ Bernoulli(p) ← ONE Object
  - (0,1,2,…,N) ➔ Binomial(N,p) ← more than one object
  - (0,1,2,…) ➔ Poisson(λ) ← more than one object
  - (1,2,3,…N) ➔ Geometry(p) ← ONE Object

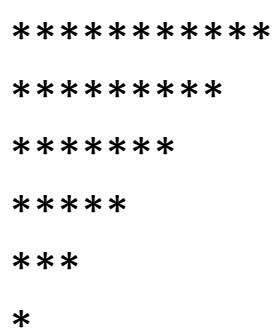
Bernoulli-Binomial-Poisson-Geometry

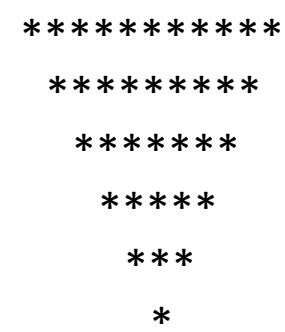
- Process 1
  - Binomial ← Cumulative of N Bernoulli
  - Poisson(λ) ← Cumulative of N ~ ∞ Bernoulli
  - Geometry(p) ← ONE Object is repeated for N times Bernoulli

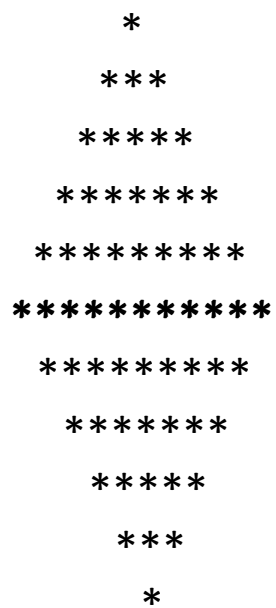
Bernoulli-Binomial-Poisson-Geometry

- Process 2
  - Bernoulli(p) ➔ IF – THEN Statement
  - Binomial ➔ IF – THEN Statement inside FOR LOOP
  - Poisson(λ) ➔ IF – THEN Statement inside WHILE LOOP
  - Geometry(p) ➔ IF – THEN Statement inside FOR LOOP for a repeated one object experiment
  - Geometry(p) ➔ DO-WHILE Statement









1
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121
1

Binomial Table Bin(n,c|p)

	c	.05	.10	.20	.30	.40
$n = 4$	0	.815	.656	.410	.240	.130
	1	.986	.948	.819	.652	.475
	2	1.000	.996	.973	.916	.821
	3	1.000	1.000	.998	.992	.974
	4	1.000	1.000	1.000	1.000	1.000
$n = 5$	0	.774	.590	.328	.168	.078
	1	.977	.919	.737	.528	.337
	2	.999	.991	.942	.837	.683
	3	1.000	1.000	.993	.969	.913
	4	1.000	1.000	1.000	.998	.990
	5	1.000	1.000	1.000	1.000	1.000
$n = 6$	0	.735	.531	.262	.118	.047
	1	.967	.886	.655	.420	.233
	2	.998	.984	.901	.744	.544
	3	1.000	.999	.983	.930	.821
	4	1.000	1.000	.998	.989	.959
	5	1.000	1.000	1.000	.999	.996
	6	1.000	1.000	1.000	1.000	1.000

t	pdf(t|lambda)
0	1
0.01	0.990049834
0.02	0.980198673
0.03	0.970445534
0.04	0.960789439
0.05	0.951229425
0.06	0.941764534
0.07	0.93239382
0.08	0.923116346
0.09	0.913931185
0.1	0.904837418
0.11	0.895834135
0.12	0.886920437
0.13	0.878095431
0.14	0.869358235
0.15	0.860707976
0.16	0.852143789
0.17	0.843664817
0.18	0.835270211
0.19	0.826959134
0.2	0.818730753
0.21	0.810584246

z	pdf(z)
-1	0.241971
-0.9	0.266085
-0.8	0.289692
-0.7	0.312254
-0.6	0.333225
-0.5	0.352065
-0.4	0.36827
-0.3	0.381388
-0.2	0.391043
-0.1	0.396953
0	0.398942
0.1	0.396953
0.2	0.391043
0.3	0.381388
0.4	0.36827
0.5	0.352065
0.6	0.333225
0.7	0.312254
0.8	0.289692
0.9	0.266085
1	0.241971

Pdf of Exponential(λ) and Normal (0,1)