Universidad San Carlos de Guatemala
Centro Universitario de Occidente
División de Ciencias de la Ingeniería
Laboratorio Lenguajes Formales de Programación
Ing. Oliver Sierra.
Segundo Semestre 2021.

Practica 1.

Analizador Léxico

Nombre: Estuardo Israel Ramos Gómez

Carné: 201830358

Quetzaltenango 6 de octubre de 2021.

Practica No 1

Token Enteros

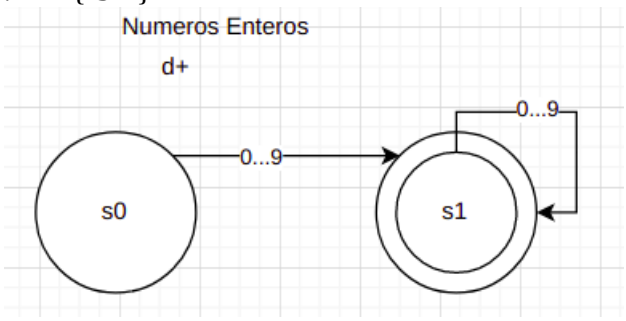
Definición formal AFD: A = (Q, Σ, ∂, A, F)

Q = { S0, S1}

2. S0

3. Σ = { 0, 1, 2,3 ,4 ,5, 6, 7,8, 9}

4. F = { S1 }



Token decimal

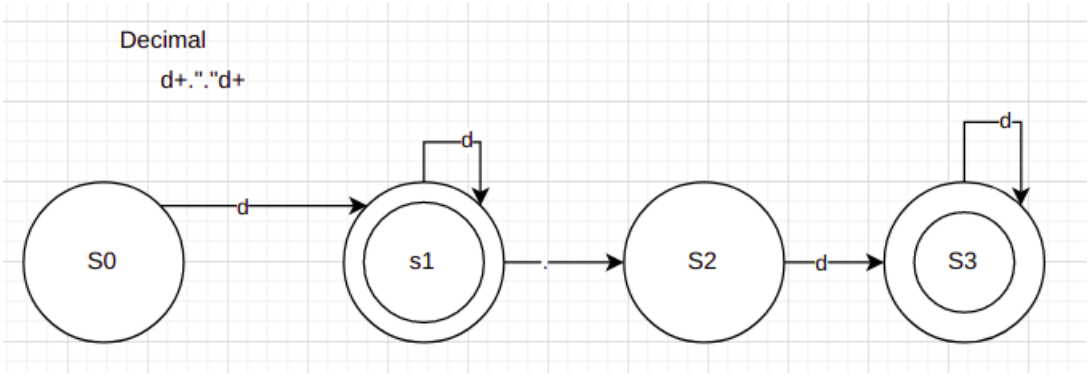
Definición formal AFD: A = (Q, Σ, ∂, A, F)

Q = { S0, S1, S2 ,S3}

2. S0

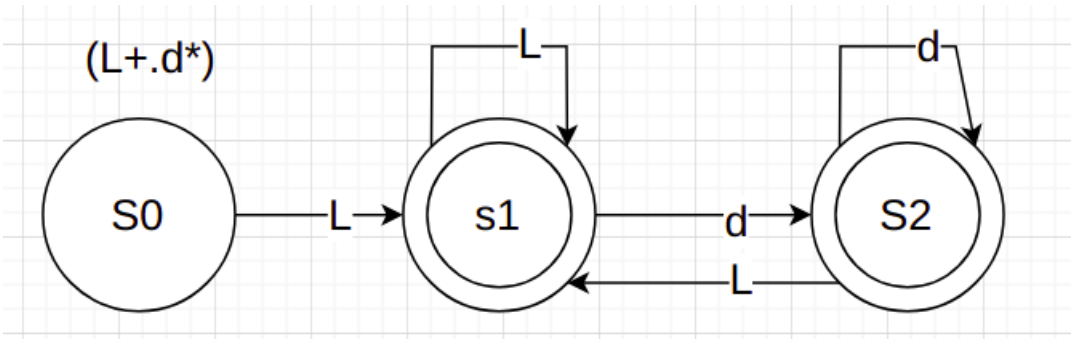
3. Σ = { 0, 1, 2,3 ,4 ,5, 6, 7,8, 9, .}

4. F = { S1, S3}



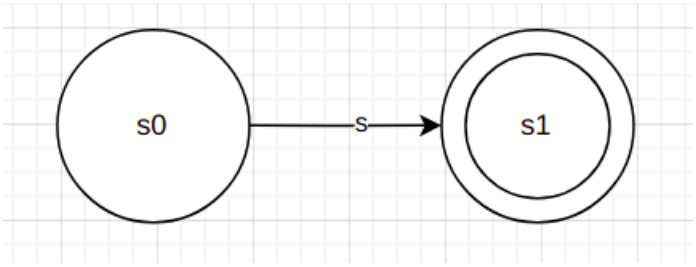
Token Identificador
Definición formal AFD: A = (Q, Σ, ∂, A, F)
Expresión regular L+.d*
L= Letras de la a a la z.
d = dígitos de 0 a 9.

Q = { S0, S1, S2 }
2. S0
3. Σ = { a,b, c, d, e, f, g, h, i, j, k, l, m, n, o, p, q, r, s, t, u, v, w, x, y, z}
4. F = { S1, S3}



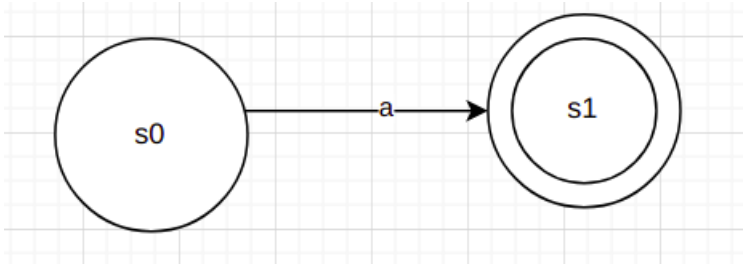
Token Signos de puntuación
Definición formal AFD: A = (Q, Σ, ∂, A, F)
Expresión regular L+.d*
p= signos de puntuación

Q = { S0, S1, S2 }
2. S0
3. Σ = { “.”, “,”, “:”, “:” }
4. F = { S1}



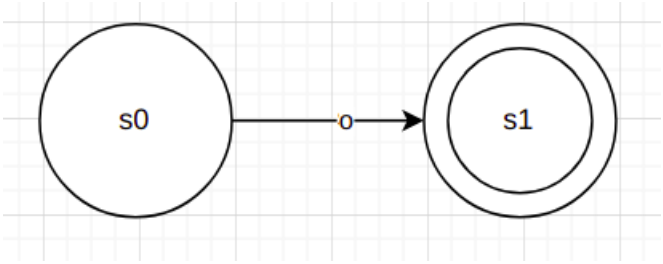
Token Signos de Agrupación
Definición formal AFD: A = (Q, Σ, ∂, A, F)
Expresión regular s
a= signos de agrupacion

Q = { S0, S1}
2. S0
3. Σ = { (,), {, }, [,] }
4. F = { S1}



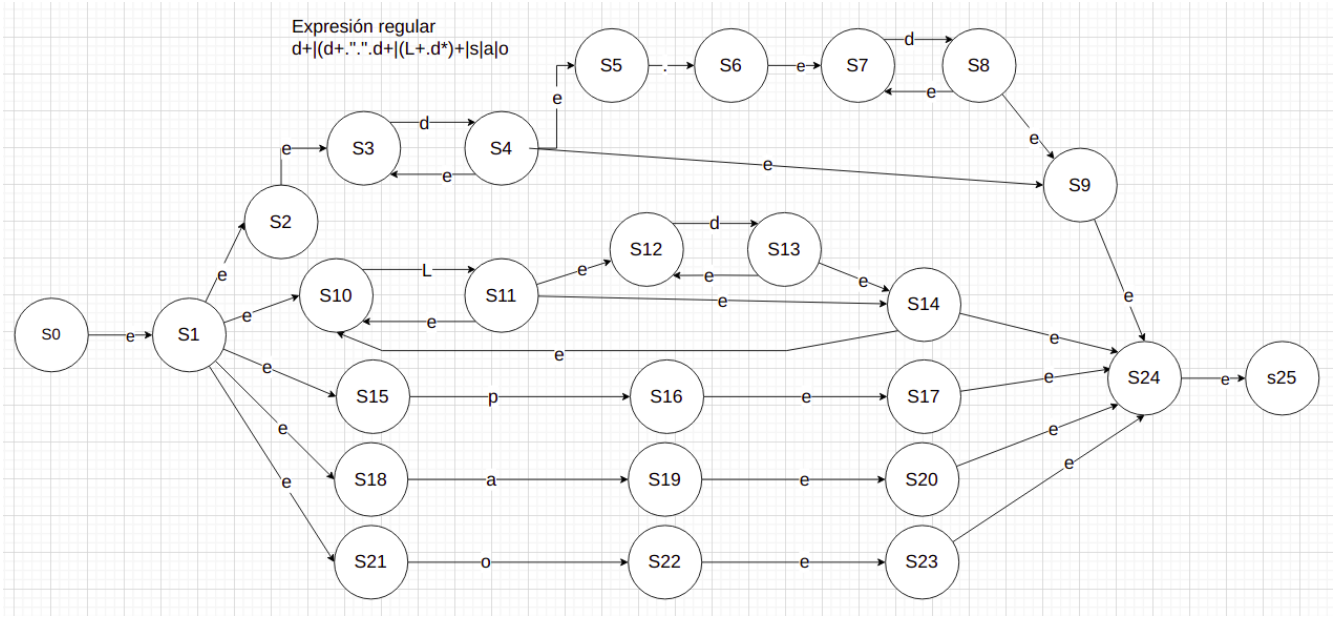
Token Operadores
Definición formal AFD: A = (Q, Σ, ∂, A, F)
Expresión regular s
o= operadores -|+|*|/|%

Q = { S0, S1 }
2. S0
3. Σ = { -, +, /, *, %}
4. F = { S1}



AFD de todos los tokens

Utilizamos el método de Thompson



FT	e	d	.	L	p	a	o
so	s1,s2,s3,s10,s15,s18,s21=A	∂(A,d)=s4	∂(A,.)=	∂(A,L)=s11	∂(A,p)=s16	∂(A,a)=s19	∂(A,0)=s22
s4	S3,s5,s9,s24,s25=B	∂(B,d)=s4	∂(B,.)=s6	∂(B,L)	∂(B,p)	∂(B,a)	∂(B,o)
s11	s10,s12,s14,s24,s25=C	∂(C,d)=s13	∂(C,.)=	∂(C,L)=s11	∂(C,)=	∂(C,)=	∂(C,)=
s16	s17,s24,s25=D	∂(D,d)=	∂(D,)=	∂(D,)=	∂(D,)=	∂(D,)=	∂(D,)=
s19	s20,s24,s25=E	∂(E,)=	∂(E,)=	∂(E,)=	∂(E,)=	∂(E,)=	∂(E,)=
s22	s23,s24,s25=F	∂(F,)=	∂(F,)=	∂(F,)=	∂(F,)=	∂(F,)=	∂(F,)=
S6	S7=G	∂(G,d)=s8	∂(G,)=				
s13	S10,S12,s14=H	∂(H,d)=s13		∂(H,d)=s11			
s8	s7,s9,s24,s25=I	∂(I,d)=s8					

	d	,	L	p	a	o
A	∂(A,d)=B	∂(A,.)=	∂(A,L)=C	∂(A,p)=D	∂(A,a)=E	∂(A,0)=F
B	∂(B,d)=B	∂(B,.)=G	∂(B,L)	∂(B,p)	∂(B,a)	∂(B,o)
C	∂(C,d)=H	∂(C,.)=	∂(C,L)=C	∂(C,)=	∂(C,)=	∂(C,)=
D	∂(D,d)=	∂(D,)=	∂(D,)=	∂(D,)=	∂(D,)=	∂(D,)=
E	∂(E,)=	∂(E,)=	∂(E,)=	∂(E,)=	∂(E,)=	∂(E,)=
F	∂(F,)=	∂(F,)=	∂(F,)=	∂(F,)=	∂(F,)=	∂(F,)=
G	∂(G,d)=I	∂(G,)=				
H	∂(H,d)=H		∂(F,)=C			
I	∂(I,d)=I					

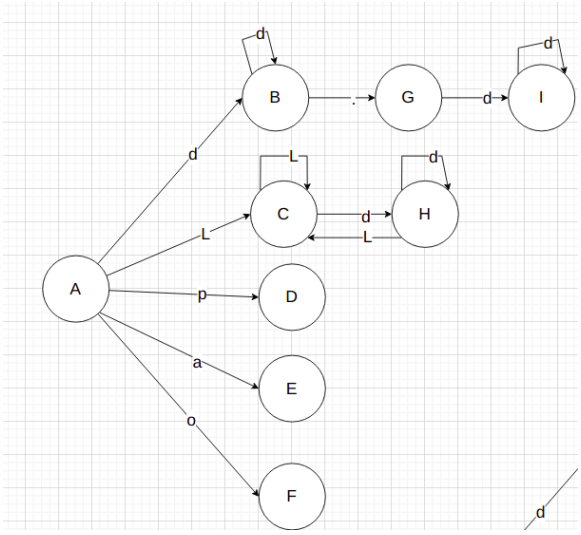


Tabla de transiciones

	d	.	L	p	a	o
A	B	error	C	D	E	F
B	B	G	error	error	error	error
C	H	error	C	error	error	error
D	error	error	error	error	error	error
E	error	error	error	error	error	error
F	error	error	error	error	error	error
G	I	error	error	error	error	error
H	H	error	C	error	error	error

Por motivos de facilidad al interpretar y programar se realizo cambio de variables

S0=A
S1=B
S2=G
S3=I
S4=C
S5=H
S6=D
S7=E
S8=F

Entonces nuestro diagrama de transiciones quedaría de la siguiente manera

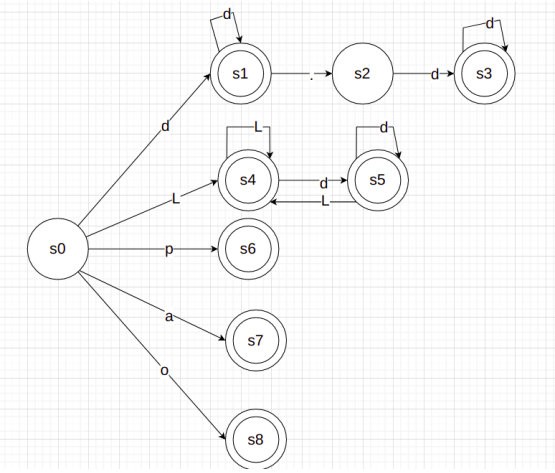


Tabla de transiciones

	d	.	L	p	a	o
s0	s1	e	s4	s6	s7	s8
s1	s1	s2	e	e	e	e
s2	s3	e	e	e	e	e
s3	s3	e	e	e	e	e
s4	s5	e	s4	e	e	e
s5	s5	e	s4	e	e	e
s6	e	e	e	e	e	e
s7	e	e	e	e	e	e
s8	e	e	e	e	e	e

Definición formal AFD: A = (Q, Σ, ∂, A, F)
Expresión regular d+|d+."."d+|(L+.d*)+|p|a|o
L= Letras de la a a la z.
d = dígitos de 0 a 9.
p= signos de puntuación
a = signos de agrupación
o = operadores
Q = { S0, S1, S2, S3, S4, S5, S6, S7, S8 }
2. S0
3. Σ = { a,b, c, d, e, f, g, h, i, j, k, l, m, n, o, p, q, r, s, t, u, v, w, x, y, z, 0, 1, 2, 3 ,4 ,5, 6, 7,8, 9, ., “.”, “,”, “:”, “:” , (,), {, }, [,], -, +, /, *, %}
4. F = { S1, S3, S4, S5, S6, S7, S8}