

Universidad Rey Juan Carlos

Procesadores de lenguajes

Práctica Obligatoria. Parte 1: Análisis léxico y sintáctico

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Descripción de la práctica

En la práctica hemos realizado la especificación léxica, en la que hemos detectado los identificadores, las constantes numéricas, que pueden ser del tipo real o decimal y con base decimal, octal o hexadecimal, las constantes literales y los comentarios.

Para la sintaxis, hemos definido las declaraciones de funciones y procedimientos, declaraciones de variables, asignaciones y llamadas a las funciones y procedimientos.

Además de esto, hemos definido las sentencias de control de flujo if, for y while, y los tipos de datos para distintas estructuras y matrices.

Para el control de errores, hemos detectado si no se ha escrito un principio de comentario y se ha puesto un final de comentario, si se ha declarado mal un número hexadecimal, tanto dejándolo a medias, como si se ha puesto más de un signo o más de un punto y si se ha abierto de forma incorrecta un comentario o si se ha cerrado de forma incorrecta.

Casos de uso

Caso correcto 1:

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| |  | | --- | | struct registro { | |  | //Este es el registro | |  | int campo\_a; | |  | float campo\_b; | |  | }; | |  |  | |  | void intercambio (int v1, int v2){ | |  | //Este es el intercambio | |  | int auxiliar; | |  |  | |  | auxiliar = v1; | |  | v1 = v2; | |  | v2 = auxiliar; | |  | } | |  |  | |  | float formula (float p1, int p2){ | |  | /\* Esta | |  | es la formula | |  | \*/ | |  | float auxiliar; | |  |  | |  | intercambio( p1 \* 10, p2); | |  | while(p1 == 10.5 \* p2){ | |  | if( auxiliar < 10.5 and auxiliar >= 8.6 or not auxiliar == 9) then { | |  | auxiliar = auxiliar + -3 + p2 % 045 \* 0-3 / 0+67; | |  | auxiliar = auxiliar - (+98 - p1 \* 0x+ABD % 0xFC4D); | |  | } else { | |  | auxiliar = -3.98 + p2 % 045.27 \* 0-3.11 / 0+67.34; | |  | } | |  | auxiliar = auxiliar - (+98.5 - p1 \* 0x+ABD.EE % 0xFC4D.F4); | |  | } | |  | return auxiliar \* 0x-FF; | |  | } | |  |  | |  | void Main (int args){ | |  | /\* Esta | |  | es una prueba | |  | de la practica | |  | \*/ | |  | int entero1, entero2; | |  | float real1, real2; | |  |  | |  | printf('Esto es el programa \'principal\'...'); | |  | intercambio(entero2, entero1); | |  | real1 = formula(real2,entero1 + registro.campo\_a); | |  | registro.campo\_b = real1; | |  | } | |

Caso correcto 2:

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| |  | | --- | | int formula (int p1, int p2){ | |  | int auxiliar; | |  |  | |  | intercambio( p1 \* 10, p2); | |  | auxiliar = auxiliar + -3 + p2 % 045 \* 0-3 / 0+67; | |  | auxiliar = auxiliar - (+98 - p1 \* 0x+ABD % 0xFC4D); | |  | auxiliar = -3.98 + p2 % 045.27 \* 0-3.11 / 0+67.34; | |  | auxiliar = auxiliar - (+98.5 - p1 \* 0x+ABD.EE % 0xFC4D.F4); | |  | return auxiliar \* 0x-FF; | |  | } | |  |  | |  | void Main (int args){ | |  | int entero1, entero2; | |  |  | |  | printf('Esto es el programa \'principal\'...'); | |  | real1 = formula(entero1, entero2); | |  | } | |

Caso correcto 3:

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| |  | | --- | | struct registro { | |  | //registro | |  | int campo\_a; | |  | float campo\_b; | |  | }; | |  |  | |  | void intercambio (int v1, int v2){ | |  | int auxiliar; | |  | //intercambio | |  | auxiliar = v1; | |  | v1 = v2; | |  | v2 = auxiliar; | |  | } | |  |  | |  | float formula (float p1, int p2){ | |  | float auxiliar; | |  | //formula | |  | intercambio( p1 \* 10, p2); | |  | while(p1 == 10.5 \* p2){ | |  | if( auxiliar < 10.5 and auxiliar >= 8.6 or not auxiliar == 9) then { | |  | auxiliar = auxiliar + -3 + p2 % 045 \* 0-3 / 0+67; | |  | auxiliar = auxiliar - (+98 - p1 \* 0x+ABD % 0xFC4D); | |  | } else { | |  | auxiliar = -3.98 + p2 % 045.27 \* 0-3.11 / 0+67.34; | |  | } | |  | auxiliar = auxiliar - (+98.5 - p1 \* 0x+ABD.EE % 0xFC4D.F4); | |  | } | |  | return auxiliar \* 0x-FF; | |  | } | |  |  | |  | void Main (int args){ | |  | int entero1, entero2; | |  | float real1[10][20], real2; | |  | /\* | |  | Esta es la funcion | |  | principal | |  | \*/ | |  | for( entero1 = 1 ; entero1 < 21 ; entero1 = entero1 + 1){ | |  | entero2 = 1; | |  | do { | |  | real1[1][10] = 1.0; | |  | entero2 = entero2 + 1; | |  | } until (entero2 == 11) | |  | } | |  | printf('Esto es una prueba \'de la practica\'...'); | |  | { | |  | intercambio(entero2, entero1); | |  | real1[1][1] = formula(real2,entero1 + registro.campo\_a); | |  | } | |  | registro.campo\_b = real1[3][1]; | |  | } | |

Caso correcto 4:

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| |  | | --- | | struct registro { | |  | //Este es el registro | |  | int campo\_a; | |  | float campo\_b; | |  | }; | |  |  | |  | void intercambio (int v1, int v2){ | |  | //Este es el intercambio | |  | int auxiliar; | |  |  | |  | auxiliar = v1; | |  | v1 = v2; | |  | v2 = auxiliar; | |  | } | |  |  | |  | float formula (float p1, int p2){ | |  | //Este es la formula | |  | float auxiliar; | |  |  | |  | intercambio( p1 \* 10, p2); | |  | while(p1 == 10.5 \* p2){ | |  | if( auxiliar < 10.5 and auxiliar >= 8.6 or not auxiliar == 9) then { | |  | auxiliar = auxiliar + -3 + p2 % 045 \* 0-3 / 0+67; | |  | auxiliar = auxiliar - (+98 - p1 \* 0x+ABD % 0xFC4D); | |  | } else { | |  | auxiliar = -3.98 + p2 % 045.27 \* 0-3.11 / 0+67.34; | |  | } | |  | auxiliar = auxiliar - (+98.5 - p1 \* 0x+ABD.EE % 0xFC4D.F4); | |  | } | |  | return auxiliar \* 0x-FF; | |  | } | |  |  | |  | int suma (int v1, int v2){ | |  | return v1 + v2; | |  | } | |  |  | |  | void Main (int args){ | |  | /\* Esta | |  | es la formula | |  | \*/ | |  | int entero1, entero2; | |  | float real1[10][20], real2; | |  |  | |  | for( entero1 = 1 ; entero1 < 21 ; entero1 = entero1 + 1){ | |  | entero2 = 1; | |  | do { | |  | real1[1][10] = 1.0; | |  | entero2 = entero2 + 1; | |  | } until (entero2 == 11) | |  | } | |  | printf('Esto es el programa \'principal\'...'); | |  | { | |  | intercambio(entero2, entero1); | |  | real1[1][1] = formula(real2,entero1 + registro.campo\_a); | |  | } | |  | registro.campo\_b = real1[3][1]; | |  | suma(3,2); | |  | printf('Esto es el final del programa \'principal\'...'); | |  | } | |

Caso error 1:

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| |  | | --- | | struct registro { | |  | int campo\_a; | |  | float campo\_b; | |  | }; | |  |  | |  | void intercambio (int v1, int v2){ | |  | int auxiliar; | |  |  | |  | auxiliar = v1; | |  | v1 = v2; | |  | v2 = auxiliar; | |  | } | |  |  | |  | float formula (float p1, int p2){ | |  | float auxiliar; | |  |  | |  | intercambio( p1 \* 10, p2); | |  | while(p1 == 10.5 \* p2){ | |  | if( auxiliar < 10.5 and auxiliar >= 8.6 or not auxiliar == 9) then { | |  | auxiliar = auxiliar + -3 + p2 % 045 \* 0-3 / 0+67; | |  | //Aqui esta el error | |  | 0x | |  | auxiliar = auxiliar - (+98 - p1 \* 0x34 % 0xFC4D); | |  | } else { | |  | auxiliar = -3.98 + p2 % 045.27 \* 0-3.11 / 0+67.34; | |  | } | |  | auxiliar = auxiliar - (+98.5 - p1 \* 0x+ABD.EE % 0xFC4D.F4); | |  | } | |  | return auxiliar \* 0x-FF; | |  | } | |  |  | |  | void Main (int args){ | |  | int entero1, entero2; | |  | float real1[10][20], real2; | |  |  | |  | for( entero1 = 1 ; entero1 < 21 ; entero1 = entero1 + 1){ | |  | entero2 = 1; | |  | do { | |  | real1[1][10] = 1.0; | |  | entero2 = entero2 + 1; | |  | } until (entero2 == 11) | |  | } | |  | printf('Esto es el programa \'principal\'...'); | |  | { | |  | intercambio(entero2, entero1); | |  | real1[1][1] = formula(real2,entero1 + registro.campo\_a); | |  | } | |  | registro.campo\_b = real1[3][1]; | |  | } | |

Caso error 2:

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| |  | | --- | | struct registro { | |  | int campo\_a; | |  | float campo\_b; | |  | }; | |  |  | |  | void intercambio (int v1, int v2){ | |  | int auxiliar; | |  |  | |  | auxiliar = v1; | |  | v1 = v2; | |  | v2 = auxiliar; | |  | } | |  |  | |  | float formula (float p1, int p2){ | |  | float auxiliar; | |  |  | |  | intercambio( p1 \* 10, p2); | |  | while(p1 == 10.5 \* p2){ | |  | if( auxiliar < 10.5 and auxiliar >= 8.6 or not auxiliar == 9) then { | |  | auxiliar = auxiliar + -3 + p2 % 045 \* 0-3 / 0+67; | |  | auxiliar = auxiliar - (+98 - p1 \* 0x34 % 0xFC4D); | |  | } else { | |  | auxiliar = -3.98 + p2 % 045.27 \* 0-3.11 / 0+67.34; | |  | } | |  | auxiliar = auxiliar - (+98.5 - p1 \* 0x+ABD.EE % 0xFC4D.F4); | |  | } | |  | return auxiliar \* 0x-FF; | |  | } | |  |  | |  | void Main (int args){ | |  | int entero1, entero2; | |  | float real1[10][20], real2; | |  | //Aqui esta el error al cerrar el comentario mal | |  | \*/ | |  | for( entero1 = 1 ; entero1 < 21 ; entero1 = entero1 + 1){ | |  | entero2 = 1; | |  | do { | |  | real1[1][10] = 1.0; | |  | entero2 = entero2 + 1; | |  | } until (entero2 == 11) | |  | } | |  | printf('Esto es el programa \'principal\'...'); | |  | { | |  | intercambio(entero2, entero1); | |  | real1[1][1] = formula(real2,entero1 + registro.campo\_a); | |  | } | |  | registro.campo\_b = real1[3][1]; | |  | } | |

Caso error 3:

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| |  | | --- | | struct registro { | |  | int campo\_a; | |  | float campo\_b; | |  | }; | |  |  | |  | void intercambio (int v1, int v2){ | |  | int auxiliar; | |  |  | |  | auxiliar = v1; | |  | v1 = v2; | |  | v2 = auxiliar; | |  | } | |  |  | |  | float formula (float p1, int p2){ | |  | float auxiliar; | |  |  | |  | intercambio( p1 \* 10, p2); | |  | while(p1 == 10.5 \* p2){ | |  | if( auxiliar < 10.5 and auxiliar >= 8.6 or not auxiliar == 9) then { | |  | auxiliar = auxiliar + -3 + p2 % 045 \* 0-3 / 0+67; | |  |  | |  | auxiliar = auxiliar - (+98 - p1 \* 0x34 % 0xFC4D); | |  | } else { | |  | auxiliar = -3.98 + p2 % 045.27 \* 0-3.11 / 0+67.34; | |  | } | |  | auxiliar = auxiliar - (+98.5 - p1 \* 0x+ABD.EE % 0xFC4D.F4); | |  | } | |  | return auxiliar \* 0x-FF; | |  | } | |  |  | |  | void Main (int args){ | |  | int entero1, entero2; | |  | float real1[10][20], real2; | |  | //Comentario mal cerrado | |  | \\ | |  | for( entero1 = 1 ; entero1 < 21 ; entero1 = entero1 + 1){ | |  | entero2 = 1; | |  | do { | |  | real1[2][10] = 1.0; | |  | entero2 = entero2 + 1; | |  | } until (entero2 == 11) | |  | } | |  | printf('Esto es el programa \'principal\'...'); | |  | { | |  | intercambio(entero2, entero1); | |  | real1[1][1] = formula(real2,entero1 + registro.campo\_a); | |  | } | |  | registro.campo\_b = real1[3][1]; | |  | } | |

Caso error 4:

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| |  | | --- | | struct registro { | |  | int campo\_a; | |  | float campo\_b; | |  | }; | |  |  | |  | void intercambio (int v1, int v2){ | |  | int auxiliar; | |  |  | |  | auxiliar = v1; | |  | v1 = v2; | |  | v2 = auxiliar; | |  | } | |  |  | |  | float formula (float p1, int p2){ | |  | float auxiliar; | |  |  | |  | intercambio( p1 \* 10, p2); | |  | while(p1 == 10.5 \* p2){ | |  | if( auxiliar < 10.5 and auxiliar >= 8.6 or not auxiliar == 9) then { | |  | auxiliar = auxiliar + -3 + p2 % 045 \* 0-3 / 0+67; | |  | //Aqui esta el error | |  | 0x++34 | |  | auxiliar = auxiliar - (+98 - p1 \* 0x34 % 0xFC4D); | |  | } else { | |  | auxiliar = -3.98 + p2 % 045.27 \* 0-3.11 / 0+67.34; | |  | } | |  | auxiliar = auxiliar - (+98.5 - p1 \* 0x+ABD.EE % 0xFC4D.F4); | |  | } | |  | return auxiliar \* 0x-FF; | |  | } | |  |  | |  | void Main (int args){ | |  | int entero1, entero2; | |  | float real1[10][20], real2; | |  | //Aqui esta el error al cerrar el comentario mal | |  | \*/ | |  | for( entero1 = 1 ; entero1 < 21 ; entero1 = entero1 + 1){ | |  | entero2 = 1; | |  | do { | |  | real1[1][20] = 1.0; | |  | entero2 = entero2 + 1; | |  | } until (entero2 == 11) | |  | } | |  | printf('Esto es el programa \'principal\'...'); | |  | { | |  | intercambio(entero2, entero1); | |  | real1[1][1] = formula(real2,entero1 + registro.campo\_a); | |  | } | |  | registro.campo\_b = real1[3][1]; | |  | } | |