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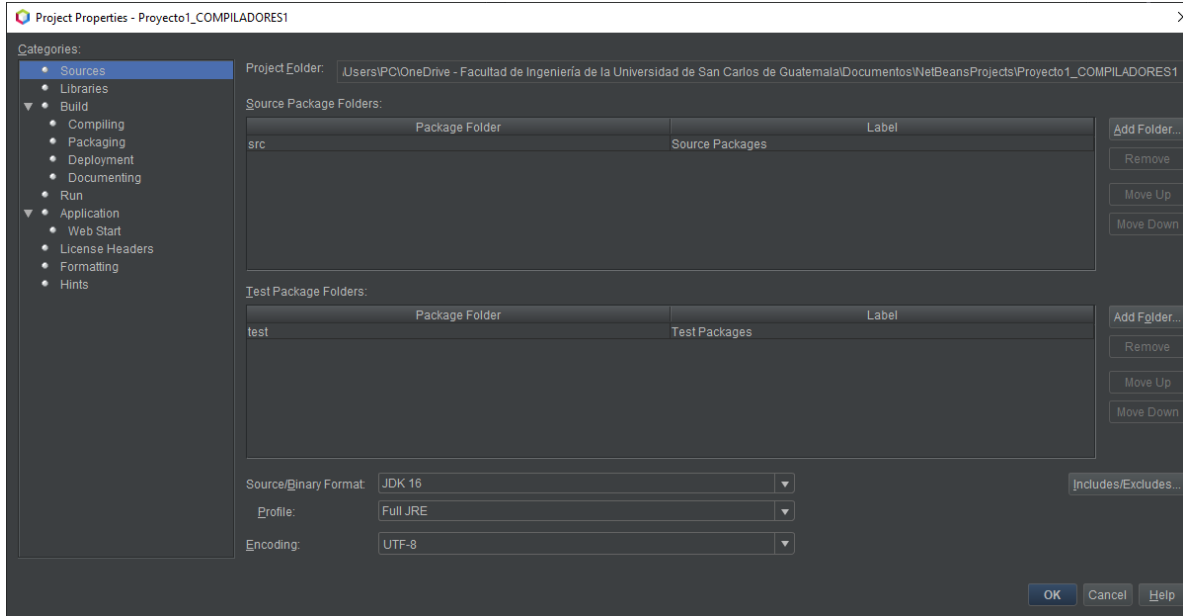
Especificaciones:

IDE utilizado: NetBeans.

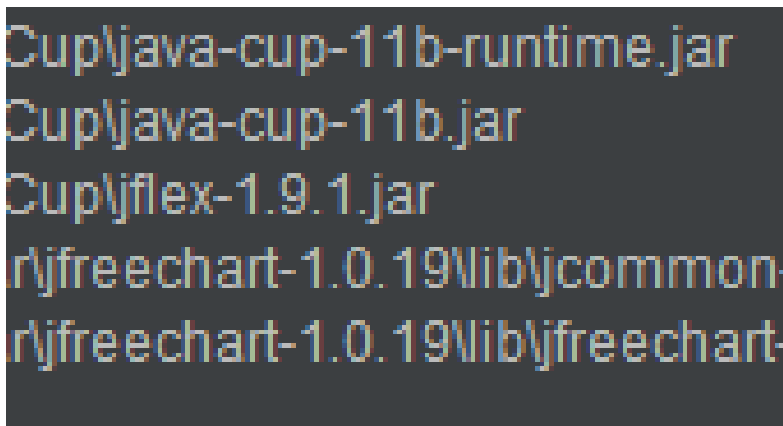
Lenguaje Utilizado: JAVA

Sistema Operativo: Windows 10 (64)

Acerca del Proyecto:



Librerías Utilizadas :



Analizadores:

“[léxico.jflex](#)”: Utilizado para analizar lexicamente el código statpy.

```
"&&" {Tabla_Simbolos.DataSimbolos.addSimbolo(yyline ,yycolumn, "AND", yytext().toString()); System.out.println("AND: "+yytext()); return new Symbol(sym.AND, yyline, yycolumn, yytext());}
"|" {Tabla_Simbolos.DataSimbolos.addSimbolo(yyline ,yycolumn, "OR", yytext().toString()); System.out.println("OR: "+yytext()); return new Symbol(sym.OR, yyline, yycolumn, yytext());}
"/" {Tabla_Simbolos.DataSimbolos.addSimbolo(yyline ,yycolumn, "DIVISION", yytext().toString()); System.out.println("DIVISION: "+yytext()); return new Symbol(sym.DIVISION, yyline, yycolumn, yytext());}
"!=" {Tabla_Simbolos.DataSimbolos.addSimbolo(yyline ,yycolumn, "DISTINTO", yytext().toString()); System.out.println("DISTINTO: "+yytext()); return new Symbol(sym.DISTINTO, yyline, yycolumn, yytext());}
"^" {Tabla_Simbolos.DataSimbolos.addSimbolo(yyline ,yycolumn, "POTENCIA", yytext().toString()); System.out.println("POTENCIA: "+yytext()); return new Symbol(sym.POTENCIA, yyline, yycolumn, yytext());}
"%" {Tabla_Simbolos.DataSimbolos.addSimbolo(yyline ,yycolumn, "CBOOL", yytext().toString()); System.out.println("CBOOL: "+yytext()); return new Symbol(sym.CBOOL, yyline, yycolumn, yytext());}
"%" {Tabla_Simbolos.DataSimbolos.addSimbolo(yyline ,yycolumn, "PORCENTAJE", yytext().toString()); System.out.println("PORCENTAJE: "+yytext()); return new Symbol(sym.PORCENTAJE, yyline, yycolumn, yytext());}
"." {Tabla_Simbolos.DataSimbolos.addSimbolo(yyline ,yycolumn, "PCOMA", yytext().toString()); System.out.println("PCOMA: "+yytext()); return new Symbol(sym.PCOMA, yyline, yycolumn, yytext());}
"!" {Tabla_Simbolos.DataSimbolos.addSimbolo(yyline ,yycolumn, "NOT", yytext().toString()); System.out.println("NOT: "+yytext()); return new Symbol(sym.NOT, yyline, yycolumn, yytext());}
"<" {Tabla_Simbolos.DataSimbolos.addSimbolo(yyline ,yycolumn, "MENORK", yytext().toString()); System.out.println("MENORK: "+yytext()); return new Symbol(sym.MENORK, yyline, yycolumn, yytext());}
">" {Tabla_Simbolos.DataSimbolos.addSimbolo(yyline ,yycolumn, "MAYORK", yytext().toString()); System.out.println("MAYORK: "+yytext()); return new Symbol(sym.MAYORK, yyline, yycolumn, yytext());}
"<=" {Tabla_Simbolos.DataSimbolos.addSimbolo(yyline ,yycolumn, "MENORIK", yytext().toString()); System.out.println("MENORIK: "+yytext()); return new Symbol(sym.MENORIK, yyline, yycolumn, yytext());}
"<=" {Tabla_Simbolos.DataSimbolos.addSimbolo(yyline ,yycolumn, "EQUALS", yytext().toString()); System.out.println("EQUALS: "+yytext()); return new Symbol(sym.EQUALS, yyline, yycolumn, yytext());}
">=" {Tabla_Simbolos.DataSimbolos.addSimbolo(yyline ,yycolumn, "MAYORIK", yytext().toString()); System.out.println("MAYORIK: "+yytext()); return new Symbol(sym.MAYORIK, yyline, yycolumn, yytext());}
"|" {Tabla_Simbolos.DataSimbolos.addSimbolo(yyline ,yycolumn, "CORCHETEA", yytext().toString()); System.out.println("CORCHETEA: "+yytext()); return new Symbol(sym.CORCHETEA, yyline, yycolumn, yytext());}
"}" {Tabla_Simbolos.DataSimbolos.addSimbolo(yyline ,yycolumn, "CORCHETEC", yytext().toString()); System.out.println("CORCHETEC: "+yytext()); return new Symbol(sym.CORCHETEC, yyline, yycolumn, yytext());}

"main" {Tabla_Simbolos.DataSimbolos.addSimbolo(yyline ,yycolumn, "R_MAIN", yytext().toString()); System.out.println("MAIN: "+yytext()); return new Symbol(sym.MAIN, yyline, yycolumn, yytext());}
"char" {Tabla_Simbolos.DataSimbolos.addSimbolo(yyline ,yycolumn, "R_CHAR", yytext().toString()); System.out.println("CHAR_TYPE: "+yytext()); return new Symbol(sym.CHAR_TYPE, yyline, yycolumn, yytext());}
"int" {Tabla_Simbolos.DataSimbolos.addSimbolo(yyline ,yycolumn, "R_INT", yytext().toString()); System.out.println("INT_TYPE: "+yytext()); return new Symbol(sym.INT_TYPE, yyline, yycolumn, yytext());}
"bool" {Tabla_Simbolos.DataSimbolos.addSimbolo(yyline ,yycolumn, "R_BOOL", yytext().toString()); System.out.println("BOOL_TYPE: "+yytext()); return new Symbol(sym.BOOL_TYPE, yyline, yycolumn, yytext());}
"double" {Tabla_Simbolos.DataSimbolos.addSimbolo(yyline ,yycolumn, "R_DOUBLE", yytext().toString()); System.out.println("DOUBLE_TYPE: "+yytext()); return new Symbol(sym.DOUBLE_TYPE, yyline, yycolumn, yytext());}
"string" {Tabla_Simbolos.DataSimbolos.addSimbolo(yyline ,yycolumn, "R_STRING", yytext().toString()); System.out.println("STRING_TYPE: "+yytext()); return new Symbol(sym.STRING_TYPE, yyline, yycolumn, yytext());}
"void" {Tabla_Simbolos.DataSimbolos.addSimbolo(yyline ,yycolumn, "R_VOID", yytext().toString()); System.out.println("VOID: "+yytext()); return new Symbol(sym.VOID, yyline, yycolumn, yytext());}
"break" {Tabla_Simbolos.DataSimbolos.addSimbolo(yyline ,yycolumn, "R_BREAK", yytext().toString()); System.out.println("BREAK: "+yytext()); return new Symbol(sym.BREAK, yyline, yycolumn, yytext());}
"case" {Tabla_Simbolos.DataSimbolos.addSimbolo(yyline ,yycolumn, "R_CASE", yytext().toString()); System.out.println("CASE: "+yytext()); return new Symbol(sym.CASE, yyline, yycolumn, yytext());}
"catch" {Tabla_Simbolos.DataSimbolos.addSimbolo(yyline ,yycolumn, "R_CATCH", yytext().toString()); System.out.println("CATCH: "+yytext()); return new Symbol(sym.CATCH, yyline, yycolumn, yytext());}
"do" {Tabla_Simbolos.DataSimbolos.addSimbolo(yyline ,yycolumn, "R_DO", yytext().toString()); System.out.println("DO: "+yytext()); return new Symbol(sym.DO, yyline, yycolumn, yytext());}
"else" {Tabla_Simbolos.DataSimbolos.addSimbolo(yyline ,yycolumn, "R_ELSE", yytext().toString()); System.out.println("ELSE: "+yytext()); return new Symbol(sym.ELSE, yyline, yycolumn, yytext());}
"for" {Tabla_Simbolos.DataSimbolos.addSimbolo(yyline ,yycolumn, "R_FOR", yytext().toString()); System.out.println("FOR: "+yytext()); return new Symbol(sym.FOR, yyline, yycolumn, yytext());}
"if" {Tabla_Simbolos.DataSimbolos.addSimbolo(yyline ,yycolumn, "R_IF", yytext().toString()); System.out.println("IF: "+yytext()); return new Symbol(sym.IF, yyline, yycolumn, yytext());}
"switch" {Tabla_Simbolos.DataSimbolos.addSimbolo(yyline ,yycolumn, "R_SWITCH", yytext().toString()); System.out.println("SWITCH: "+yytext()); return new Symbol(sym.SWITCH, yyline, yycolumn, yytext());}
"null" {System.out.println("NULL: "+yytext()); return new Symbol(sym.NULL, yyline, yycolumn, yytext());}
"new" {System.out.println("NEW: "+yytext()); return new Symbol(sym.NEW, yyline, yycolumn, yytext());}
"public" {System.out.println("PUBLIC: "+yytext()); return new Symbol(sym.PUBLIC, yyline, yycolumn, yytext());}
"return" {System.out.println("RETURN: "+yytext()); return new Symbol(sym.RETURN, yyline, yycolumn, yytext());}
"while" {Tabla_Simbolos.DataSimbolos.addSimbolo(yyline ,yycolumn, "R_WHILE", yytext().toString()); System.out.println("WHILE: "+yytext()); return new Symbol(sym.WHILE, yyline, yycolumn, yytext());}
"private" {System.out.println("PRIVATE: "+yytext()); return new Symbol(sym.PRIVATE, yyline, yycolumn, yytext());}
"true" {Tabla_Simbolos.DataSimbolos.addSimbolo(yyline ,yycolumn, "R_TRUE", yytext().toString()); System.out.println("TRUE: "+yytext()); return new Symbol(sym.TRUE, yyline, yycolumn, yytext());}
"Console.WriteLine" {Tabla_Simbolos.DataSimbolos.addSimbolo(yyline ,yycolumn, "R_PRINT", yytext().toString()); System.out.println("PRINT: "+yytext()); return new Symbol(sym.PRINT, yyline, yycolumn, yytext());}

%%

%{
    public String errores="";
}%

%class Lexico
%public
%line
%column
%char
%cup
%unicode
%ignorecase

%{
    %}

ESPADO=[\t\r\n]
COMMENT_MAXLINE="/*"([^\n\r])+"*/"
COMMENT_SIMPLE="//"
NUM=[0-9]+([0-9]?)*
ESP=[\t\r\n]
ESCAPADOS="\\[\"'\\r\\n]"
NO_ESCAPADOS="[^\\t\\r\\n]"
ID=[a-zA-Z_][a-zA-Z0-9_]*
CHAR=[\t\r\n]
STRING=[\t\r\n]

%%

/* {Tabla_Simbolos.DataSimbolos.addSimbolo(yyline ,yycolumn, "NUM", yytext().toString()); System.out.println("DOS_PUNTOS: "+yytext()); return new Symbol(sym.DOS_PUNTOS, yyline, yycolumn, yytext()); }
/* {Tabla_Simbolos.DataSimbolos.addSimbolo(yyline ,yycolumn, "COMA", yytext().toString()); System.out.println("COMA: "+yytext()); return new Symbol(sym.COMA, yyline, yycolumn, yytext()); }
/* {Tabla_Simbolos.DataSimbolos.addSimbolo(yyline ,yycolumn, "LLAVE_A", yytext().toString()); System.out.println("LLAVE_A: "+yytext()); return new Symbol(sym.LLAVE_A, yyline, yycolumn, yytext()); }
/* {Tabla_Simbolos.DataSimbolos.addSimbolo(yyline ,yycolumn, "LLAVE_C", yytext().toString()); System.out.println("LLAVE_C: "+yytext()); return new Symbol(sym.LLAVE_C, yyline, yycolumn, yytext()); }
/* {Tabla_Simbolos.DataSimbolos.addSimbolo(yyline ,yycolumn, "PARA", yytext().toString()); System.out.println("PARA: "+yytext()); return new Symbol(sym.PARA, yyline, yycolumn, yytext()); }
/* {Tabla_Simbolos.DataSimbolos.addSimbolo(yyline ,yycolumn, "PARC", yytext().toString()); System.out.println("PARC: "+yytext()); return new Symbol(sym.PARC, yyline, yycolumn, yytext()); }
/* {Tabla_Simbolos.DataSimbolos.addSimbolo(yyline ,yycolumn, "PARC", yytext().toString()); System.out.println("DOT: "+yytext()); return new Symbol(sym.DOT, yyline, yycolumn, yytext()); }
/* {Tabla_Simbolos.DataSimbolos.addSimbolo(yyline ,yycolumn, "PARC", yytext().toString()); System.out.println("MAS: "+yytext()); return new Symbol(sym.MAS, yyline, yycolumn, yytext()); }
/* {Tabla_Simbolos.DataSimbolos.addSimbolo(yyline ,yycolumn, "PARC", yytext().toString()); System.out.println("MENOS: "+yytext()); return new Symbol(sym.MENOS, yyline, yycolumn, yytext()); }
/* {Tabla_Simbolos.DataSimbolos.addSimbolo(yyline ,yycolumn, "PARC", yytext().toString()); System.out.println("MULTI: "+yytext()); return new Symbol(sym.MULTI, yyline, yycolumn, yytext()); }
/* {Tabla_Simbolos.DataSimbolos.addSimbolo(yyline ,yycolumn, "DOLAR", yytext().toString()); System.out.println("DOLAR: "+yytext()); return new Symbol(sym.DOLAR, yyline, yycolumn, yytext()); }
```

Sintactico.cup :

Archivo utilizado para analizar sintácticamente el código statpy.

Gramatica recursividad por la izquierda.

Importantes:

```
// -----> Precedencia
precedence left MAYORK, MENORK, MAYORIK, MENORIK, EQUALS, DISTINTO, NOT;
precedence left OR;
precedence left AND;
precedence left MENOS;
precedence left MAS;
precedence left MULTI;
precedence left MAS;
precedence left MULTI;
precedence left PORCENTAJE, DIVISION;
precedence left POTENCIA;
```

Result:

Debe ser una variable tipo LinkedList.

```
inicio ::= VOID MAIN PARA PARC LLAVE_A lista_instr:lista LLAVE_C
{
    LinkedList<String> lista1 = new LinkedList<>();
    lista1.add("def main (): ");
    Traductor.Traduc.contador++;
    lista1.addAll(Traductor.Traduc.tabulaciones(lista));
    Traductor.Traduc.contador--;
    lista1.add("if_name_ = \"_main_\": \n \t \t main() ");
    Traductor.Traduc.traduccion = lista1;
};
```

```
// ----- Paquete e importaciones -----
package Analizadores;

import java_cup.runtime.*;
import java.util.LinkedList;

//-----> Código para el parser
//-----> Declaración de variables, funciones y funciones de error

parser code
{
    public static String errores_s = "";
    public static String errores_2s = "";
    public void syntax_error(Symbol s)
    {
        System.err.println("Error Sintactico: "+ s.value + " - Fila: " + s.right + " - Columna: " + s.left );
        Errores.DataErrores.addError(" Sintactico ", s.right, s.left, s.value.toString());
        errores_s += "<br><td>Sintactico</td> Error sintactico encontrado: '" + s.value + "'</td><td>" + (s.left + 1) + "</td><td>" + (s.right + 1) + "</td><tr></tr>";
    }

    public void unrecovered_syntax_error(Symbol s) throws java.lang.Exception
    {
        Errores.DataErrores.addError(" Sintactico sin recuperacion ", s.right, s.left, s.value.toString());
        errores_s += "<tr><td>Sintactico</td><td> Error sintactico encontrado: '" + s.value + "'</td><td>" + (s.left + 1) + "</td><td>" + (s.right + 1) + "</td><tr></tr>";
        System.err.println("Error Sintactico: "+ s.value + " - Fila: " + s.right + " - Columna: " + s.left + " Sin recuperacion.");
    }

    String TituloBarras ;
    String TituloK;
    String TituloY;
    String TituloPie;
    Object valorId;
}

//-----> Código para las acciones gramaticales (no tocar)
action code
{
}
```

Generar archivos analizadores “.java”:

Clic derecho, Run File.

```
public static void main(String[] args) {
    // TODO code application logic heretring[] args) {
    // TODO code applicati

    try{
        String ruta = "src/Analizadores/";
        String opcFlex[] = {ruta + "lexico.jflex", "-d", ruta};
        jflex.Main.generate( argv: opcFlex);
        System.out.println( x: "Lexico Listo");
        String opcCUP[] = {"-destdir", ruta, "-parser", "Parser", ruta + "sintactico.cup"};
        System.out.println( x: "Cup: ");
        java_cup.Main.main( argv: opcCUP);
    } catch (Exception e){
        System.out.println( x: "No se ha podido generar los analizadores");
        e.printStackTrace();
    }
}
```

Almacenar errores:

```
public class DataErrores {  
    public static LinkedList<Error> errores = new LinkedList<>();  
  
    public static void addError(String tipo, int fila, int columna, String valor) {  
        Error error = new Error(tipo, fila, columna, valor);  
        errores.add(e: error);  
    }  
  
    public static void showErrores() {  
        System.out.println("Lista de Errores:");  
        for (Error error : errores) {  
            System.out.println("Tipo: " + error.getTipo());  
            System.out.println("Fila: " + error.getFila());  
            System.out.println("Columna: " + error.getColumna());  
            System.out.println("Valor: " + error.getValor());  
            System.out.println("-----");  
        }  
    }  
}
```

Almacenar Símbolos:

Clase utilizada para almacenar los símbolos según su:

- Token
- Lexema
- Fila
- Columna

```
public class DataSimbolos {
    public static LinkedList<Simbolo> Simbolos = new LinkedList<>();

    public static void addSimbolo(int fila, int columna, String token, String lexema) {
        System.out.println("Fila: " + fila);
        System.out.println("Columna: " + columna);
        System.out.println("Token: " + token);
        System.out.println("Lexema: " + lexema);
        System.out.println("x: " + "-----");
        Simbolo simbolo = new Simbolo(fila, columna, token, lexema);
        Simbolos.add(e: simbolo);
    }

    public static void show() {
        System.out.println("x: " + "Simbolos:");

        for (Simbolo simbolo : Simbolos) {
            System.out.println("Fila: " + simbolo.getFila());
            System.out.println("Columna: " + simbolo.getColumna());
            System.out.println("Token: " + simbolo.getToken());
            System.out.println("Lexema: " + simbolo.getLexema());
            System.out.println("x: " + "-----");
        }
    }
}
```

Se almacenan directamente en los archivos “.jflex” de la siguiente manera:

```
"-" { Tabla_Simbolos.DataSimbolos.addSimbolo(yyline ,yycolumn, "NUM", yytext().toString()); }
"," { Tabla_Simbolos.DataSimbolos.addSimbolo(yyline ,yycolumn, "COMA", yytext().toString()); }
```

Tabulaciones y Traducción:

```
public class Traduc {
    public static HashMap variables = new HashMap();
    public static int contador = 0;
    public static LinkedList<String> traduccion = new LinkedList<>();

    public static LinkedList<String> tabulaciones(LinkedList<String> lista){
        String tabs = "";
        for (int i = 0; i < contador; i++) {
            tabs = "\t"+tabs;
        }

        for (int i = 0; i < lista.size(); i++) {
            lista.set( index: i, tabs+lista.get( index: i));
        }

        return lista;
    }

    public static String mostrar (){
        System.out.println( x: "Contenido de la LinkedList:");
        String texto = "";
        for (String elemento : traduccion) {
            texto += elemento + "\n";
            //System.out.println(texto);
        }

        return texto;
    }

    public static LinkedList<String> elif(LinkedList<String> lista){
        if (!lista.isEmpty()) {
            String primerElemento = lista.get( index: 0);
            String nuevoPrimerElemento = primerElemento.replaceFirst( regex: "if", replacement: "elif ");
            lista.set( index: 0, element: nuevoPrimerElemento);
        }

        return lista;
    }
}
```

En el archivo “sintactico.cup” se hace uso de una LinkedList en la cual se va añadiendo directamente la traducción, incrementado el contador para agregar sus tabulaciones adecuadas para Python y disminuyendo.


```

switch ::= SWITCH PARA ID PARC LLAVE_A cases:val DEFAULT DOS_PUNTOS lista_instr:inst2 LLAVE_C
{
    LinkedList<String> lista = new LinkedList<>();
    lista.add("def switch (case,valor) \n switcher { " );
    Traductor.Traduc.contador++;
    lista.addAll(Traductor.Traduc.tabulaciones((LinkedList)val));
    Traductor.Traduc.contador--;

    LinkedList<String> lista2 = new LinkedList<>();
    lista2.add("default:");
    Traductor.Traduc.contador++;
    lista2.addAll(Traductor.Traduc.tabulaciones(inst2));
    Traductor.Traduc.contador--;
    Traductor.Traduc.contador++;
    lista.addAll(Traductor.Traduc.tabulaciones((LinkedList)lista2));
    Traductor.Traduc.contador--;

    lista.add("");
    RESULT = lista;
}
;

```

Analizar archivos “json” “

```

private void jButton4ActionPerformed(java.awt.event.ActionEvent evt) {
    String codigo = txta_editor.getText();
    try{
        AnalizadoresJson.Lexico scanner = new AnalizadoresJson.Lexico(new StringReader( s: codigo));
        AnalizadoresJson.ParserJson AnalizadorJ = new AnalizadoresJson.ParserJson( s: scanner);

        AnalizadorJ.parse();

        data.dataJson.agregar();
        data.dataJson.Sho();

    }catch (Exception e) {
    }
    //Codigo omitido
}

```

Analizar archivos "sp"

```
private void jButton5ActionPerformed(java.awt.event.ActionEvent evt) {  
    String codigo = txta_editor.getText();  
    try {  
        Lexico scanner = new Lexico (new StringReader( s: codigo));  
        AnalizadorS = new Parser( s: scanner);  
        AnalizadorS.parse();  
        if(!AnalizadorS.errores_s.equals( anObject: ""))|| !scanner.errores.equals( anObject: "")){  
            System.out.println( x: "Erroreees");  
            String reporte_errores = "<!doctype html>\n"  
+ "<html lang='en'\n"  
+ " <head>\n"  
+ " <!-- Required meta tags -->\n"  
+ " <meta charset='utf-8'\n"  
+ " <meta name='viewport' content='width=device-width, initial-scale=1, shrink-to-fit=no'\n"  
+ "\n"  
+ " <!-- Bootstrap CSS -->\n"  
+ " <link rel='stylesheet' href='https://cdn.jsdelivr.net/npm/bootstrap@4.0.0/dist/css/bootstrap"  
+ "\n"  
+ " <title>Hello, world!</title>\n"  
+ " </head>\n"  
+ " <body>\n"  
+ "<table class='table table-hover table-dark'\n"  
+ " <thead>\n"  
+ " <tr>\n"  
+ " <th scope='col'>Tipo de Error</th>\n"  
+ " <th scope='col'>DescripciÃ³n</th>\n"  
+ " <th scope='col'>LÃnea</th>\n"  
+ " <th scope='col'>Columna</th>\n"  
+ " </tr>\n"  
+ " </thead>\n"  
+ " <tbody>\n" + AnalizadorS.errores_s + scanner.errores  
+ "</tbody>\n"  
+ "</table>\n"  
+ " <!-- Optional JavaScript -->\n"  
+ " <!-- jQuery first, then Popper.js, then Bootstrap JS -->\n"  
+ " <script src='https://code.jquery.com/jquery-3.2.1.slim.min.js' integrity='sha384-KJ3o2DKtk
```

Agregar el c3digo traducido y generar el reporte de s3mbolos:

```
crearArchivo( dir: "src/REPORT_SIMBOLOS/", nombre: "Reporte de simbolos.html ", texto: codigo1);  
consola.setText( t: Traductor.Traduc.mostrar());
```

Graficar:

Código utilizado para generar las gráficas, al hacerlo reiniciar los valores:

```
Graficas.Graficar.barras( Titulo: data.Valores.TituloBarras, TituloX: data.Valores.TituloX, TituloY: data.Valores.TituloY, valores: data.Valores.valores, ejex: data.Valores.ejex);

Graficas.Graficar.Pie( Titulo: data.Valores.TituloPie, TituloX: data.Valores.TituloX, TituloY: data.Valores.TituloY, valores: data.Valores.valoresP, ejex: data.Valores.ejexP);
data.Valores.TituloBarras = "";
data.Valores.TituloX = "";
data.Valores.TituloY = "";
data.Valores.valores.clear();
data.Valores.ejex.clear();
data.Valores.TituloPie = "";
data.Valores.valoresP.clear();
data.Valores.ejexP.clear();
```

Crear archivo:

Código para crear un archivo y si el archivo existe, escribir sobre el

```
public void crearArchivo(String dir, String nombre, String texto) {
    File file = new File( parent: dir, child: nombre);

    try {
        if (!file.exists()) {
            file.createNewFile();
        }

        try (PrintWriter pw = new PrintWriter(file)) {
            pw.write( s: texto);
        }
    } catch (IOException ex) {
        // Manejo de excepciones aquí (puedes imprimir mensajes de
        ex.printStackTrace();
    }
}
```