TRADUCTOR PARA GRAFICAS

LENGUAJE JSON

```
// #%#%#%#% TERMINALES #%#%#%#%
terminal String MI_TEXTO, MI_URL, MI_INTEGER, MI_COLOR;
terminal IZQLLAVE, DERLLAVE, IZQCORCH, DERCORCH, COMA;
terminal KD_DATA, KD_CHART, KD_LABEL, KD_TITLE, KD_DESCRIP, KD_COPYR, KD_BACKGR, KD_FONTFAM,
KD_FONTSIZE, KD_CATEGORY, KD_VALUE, KD_COLOR;
terminal KD_ICON, KD_LINK, KD_XLABEL, KD_YLABEL, KD_LEGEND, KD_X, KD_Y, KD_SIZE, KD_HEADER,
KD_FOOTER, KD_KEYWORDS, KD_PONTS, KD_LINE, KD_NAME ;
// #%#%#%#% NO TERMINALES #%#%#%#%
non terminal Dashb dashboard;
non terminal ArrayList<Par> content, content2, content3;
non terminal Par property;
non terminal ArrayList<Par> properties, propertyList ;
non terminal Object grafico;
non terminal ArrayList<Object> graficos ;
non terminal Barras barras ;
non terminal Barras.Data barrasDataValue;
non terminal ArrayList<Barras.Data> barrasData, barrasDataList, barrasDataList2;
non terminal BarrasXt barrasXt ;
non terminal BarrasXt.Data barrasXtDataValue ;
non terminal ArrayList<BarrasXt.Data> barrasXtData, barrasXtDataList, barrasXtDataList2;
non terminal Pastel pastel;
non terminal Pastel.Data pastelDataValue ;
non terminal ArrayList<Pastel.Data> pastelData, pastelDataList, pastelDataList2 ;
non terminal PastelXt pastelXt;
non terminal PastelXt.Data pastelXtDataValue ;
non terminal ArrayList<PastelXt.Data> pastelXtData, pastelXtDataList, pastelXtDataList2;
non terminal Chart2 pastelXtChart ;
non terminal Chart1 chart;
non terminal Puntos puntos ;
non terminal Puntos.Data puntosDataValue ;
non terminal ArrayList<Puntos.Data> puntosData, puntosDataList, puntosDataList2 ;
non terminal PuntosXt puntosXt ;
non terminal PuntosXt.Data puntosXtDataValue ;
non terminal ArrayList<PuntosXt.Data> puntosXtData, puntosXtDataList, puntosXtDataList2 ;
non terminal Lineas lineas ;
```

```
non terminal Lineas.Data lineasDataValue ;
non terminal ArrayList<Lineas.Data> lineasData, lineasDataList, lineasDataList2 ;
non terminal LineasXt lineasXt ;
non terminal LineasXt.Data lineasXtDataValue ;
non terminal ArrayList<LineasXt.Data> lineasXtData, lineasXtDataList, lineasXtDataList2;
non terminal Tarjeta tarjeta, tarjetaData ;
non terminal TarjetaXt tarjetaXt, tarjetaXtData ;
non terminal ArrayList<String> keywords, keywordList, keywordList2;
non terminal Lineas.Data.Punto pointValue ;
non terminal ArrayList<Lineas.Data.Punto> points, pointList, pointList2;
non terminal LineasXt.Data.Punto pointXtValue ;
non terminal ArrayList<LineasXt.Data.Punto> pointsXt, pointXtList, pointXtList2 ;
non terminal String title, description, header, footer, backgr, fontFam, fontSize;
non terminal String category, value;
non terminal String xLabel, yLabel;
non terminal String color;
non terminal String legend;
non terminal String xValue;
non terminal String yValue;
non terminal String name ;
non terminal String size ;
non terminal String label;
non terminal String icon;
non terminal String link;
non terminal String copyright;
non terminal String lineStyle ;
// PRODUCCIONES
// definicion de la produccion inicial
start with dashboard;
dashboard ∷=
    IZQLLAVE content:w1 DERLLAVE
content ::=
    properties:w1
    | properties:w1 content2:w2
    | properties:w1 content2:w2 properties:w3
    | graficos:w1 content3:w2
    | graficos:w1 content3:w2 graficos:w3
content2 ::=
    graficos:w1
    | content2:w1 properties:w2 graficos:w3
content3 ∷=
    properties:w1
    | content3:w1 graficos:w2 properties:w3
// PROPERTIES >>>>>>>>>>>>
properties ::=
    property:w1
    | property:w1 COMA
    | properties:w1 property:w2
    | properties:w1 property:w2 COMA
```

```
property ::=
   title:w1
    | description:w1
    | keywords:w1
    | header:w1
    | footer:w1
    | backgr:w1
    | fontFam:w1
    | fontSize:w1
    | error:w1 MI_TEXT0:w2
    | error:w1 MI_COLOR:w2
    | error:w1 DERCORCH:w2
    | error:w1 DERLLAVE:w2
;
// GRAFICOS >>>>>>>>>>>>
graficos ∷=
    grafico:w1
    | graficos:w1 grafico:w2
grafico ∷=
    barras:w1
    | barrasXt:w1
    | pastel:w1
    | pastelXt:w1
    | puntos:w1
    | puntosXt:w1
    | lineas:w1
    | lineasXt:w1
    | tarjeta:w1
    | tarjetaXt:w1
    | IZQLLAVE:w1 error:w2 DERLLAVE:w3
// BARRAS >>>>>>>>>>>
// barras
barras ∷=
    IZQLLAVE barrasData:w1 DERLLAVE
barrasData ∷= KD_DATA IZQCORCH barrasDataList:w1 DERCORCH
barrasDataList ∷=
    barrasDataValue:w1
    | barrasDataList2:w1 barrasDataValue:w2
barrasDataList2 ∷=
    barrasDataValue:w1 COMA
    | barrasDataList2:w1 barrasDataValue:w2 COMA
barrasDataValue ::=
    IZQLLAVE category:w1 COMA value:w2 DERLLAVE
    | IZQLLAVE value:w2 COMA category:w1 DERLLAVE
// barrasXt
barrasXt ::=
IZQLLAVE barrasXtData:w1 COMA chart:w2 DERLLAVE
    | IZQLLAVE chart:w2 COMA barrasXtData:w1 DERLLAVE
barrasXtData ∷= KD_DATA IZQCORCH barrasXtDataList:w1 DERCORCH
barrasXtDataList ::=
    barrasXtDataValue:w1
    | barrasXtDataList2:w1 barrasXtDataValue:w2
```

```
barrasXtDataList2 ::=
    barrasXtDataValue:w1 COMA
    | barrasXtDataList2:w1 barrasXtDataValue:w2 COMA
barrasXtDataValue ::=
    IZQLLAVE category:w1 COMA value:w2 COMA color:w3 DERLLAVE
// PASTEL >>>>>>>>>>
// pastel
pastel ::= IZQLLAVE pastelData:w1 DERLLAVE
pastelData ::= KD_DATA IZQCORCH pastelDataList:w1 DERCORCH
pastelDataList ::=
    pastelDataValue:w1
    | pastelDataList2:w1 pastelDataValue:w2
pastelDataList2 ::=
    pastelDataValue:w1 COMA
    | pastelDataList2:w1 pastelDataValue:w2 COMA
pastelDataValue ::=
    IZQLLAVE label:w1 COMA value:w2 DERLLAVE
    | IZQLLAVE value:w2 COMA label:w1 DERLLAVE
// pastelXt
pastelXt ::=
    IZQLLAVE pastelXtData:w1 COMA pastelXtChart:w2 DERLLAVE
    | IZQLLAVE pastelXtChart:w2 COMA pastelXtData:w1 DERLLAVE
pastelXtData ::= KD_DATA IZQCORCH pastelXtDataList:w1 DERCORCH
pastelXtDataList ::=
    pastelXtDataValue:w1
    | pastelXtDataList2:w1 pastelXtDataValue:w2
pastelXtDataList2 ::=
    pastelXtDataValue:w1 COMA
    | pastelXtDataList2:w1 pastelXtDataValue:w2 COMA
pastelXtDataValue ::=
    IZQLLAVE label:w1 COMA value:w2 COMA color:w3 DERLLAVE
// PUNTOS >>>>>>>>>>>>
// puntos
puntos ::= IZQLLAVE puntosData:w1 DERLLAVE
puntosData ::= KD_DATA IZQCORCH puntosDataList:w1 DERCORCH
puntosDataList ::=
    puntosDataValue:w1
    | puntosDataList2:w1 puntosDataValue:w2
puntosDataList2 ::=
    puntosDataValue:w1 COMA
    | puntosDataList2:w1 puntosDataValue:w2 COMA
puntosDataValue ::=
    IZQLLAVE xValue:w1 COMA yValue:w2 DERLLAVE
    | IZQLLAVE yValue:w2 COMA xValue:w1 DERLLAVE
```

```
// puntosXt
puntosXt ∷=
    IZQLLAVE puntosXtData:w1 COMA chart:w2 DERLLAVE
    | IZQLLAVE chart:w2 COMA puntosXtData:w1 DERLLAVE
puntosXtData ::= KD_DATA IZQCORCH puntosXtDataList:w1 DERCORCH
puntosXtDataList ::=
    puntosXtDataValue:w1
    puntosXtDataList2:w1 puntosXtDataValue:w2
puntosXtDataList2 ::=
    puntosXtDataValue:w1 COMA
    | puntosXtDataList2:w1 puntosXtDataValue:w2 COMA
puntosXtDataValue ::=
    IZQLLAVE xValue:w1 COMA yValue:w2 COMA size:w3 COMA color:w4 DERLLAVE
// LINEAS >>>>>>>>>>>>
// lineas
lineas ∷=
    IZQLLAVE lineasData:w1 COMA chart:w2 DERLLAVE
    | IZQLLAVE chart:w2 COMA lineasData:w1 DERLLAVE
lineasData ::= KD_DATA IZQCORCH lineasDataList:w1 DERCORCH
lineasDataList ::=
    lineasDataValue:w1
    | lineasDataList2:w1 lineasDataValue:w2
lineasDataList2 ::=
    lineasDataValue:w1 COMA
    | lineasDataList2:w1 lineasDataValue:w2 COMA
lineasDataValue ::=
    IZQLLAVE name:w1 COMA points:w2 DERLLAVE
    | IZQLLAVE points:w2 COMA name:w1 DERLLAVE
;
// lineasXt
lineasXt ::=
    IZQLLAVE lineasXtData:w1 COMA chart:w2 DERLLAVE
    | IZQLLAVE chart:w2 COMA lineasXtData:w1 DERLLAVE
lineasXtData ::= KD_DATA IZQCORCH lineasXtDataList:w1 DERCORCH
lineasXtDataList ::=
    lineasXtDataValue:w1
    | lineasXtDataList2:w1 lineasXtDataValue:w2
lineasXtDataList2 ::=
    lineasXtDataValue:w1 COMA
    | lineasXtDataList2:w1 lineasXtDataValue:w2 COMA
lineasXtDataValue ::=
    IZQLLAVE name:w1 COMA pointsXt:w2 COMA color:w3 COMA lineStyle:w4 DERLLAVE
// TARJETA >>>>>>>>>>>
tarjeta ::= IZQLLAVE KD_DATA IZQLLAVE tarjetaData:w1 DERLLAVE DERLLAVE
;
```

```
tarjetaData ∷=
    value:w1 COMA label:w2 COMA description:w3
tarjetaXt ::= IZQLLAVE KD_DATA IZQLLAVE tarjetaXtData:w1 DERLLAVE DERLLAVE
tarjetaXtData ::=
    value:w1 COMA label:w2 COMA description:w3 COMA icon:w4 COMA color:w5 COMA link:w6
// CASI TERMINALES
// KD_DATA = "data":
// MI_INTEGER = 31
// MI_COLOR = "#33ff57"
// MI_URL = "https://example.com/more-info"
// MI_TEXTO = "Mi Página Web"
// PROPERTY
// KD_TITLE = "title":
title ::= KD_TITLE MI_TEXTO:w1
// KD_DESCRIP = "description":
description ::= KD_DESCRIP MI_TEXTO:w1
// KD_HEADER = "header":
header ::= KD_HEADER IZQLLAVE title:w1 DERLLAVE
// KD_FOOTER = "footer":
footer ::= KD_FOOTER IZQLLAVE copyright:w1 DERLLAVE
// KD_BACKGR = "backgroundColor":
backgr ::= KD_BACKGR MI_COLOR:w1
// KD_FONTFAM = "fontFamily":
fontFam ::= KD_FONTFAM MI_TEXTO:w1
// KD_FONTSIZE = "fontSize":
fontSize ::= KD_FONTSIZE MI_TEXTO:w1
// BARRAS.DATA
// KD_CATEGORY = "category":
category ::= KD_CATEGORY MI_TEXTO:w1
// KD_VALUE = "value":
value ::= KD_VALUE MI_INTEGER:w1
// KD_COLOR = "color":
color ::= KD_COLOR MI_COLOR:w1
// KD_LINE = "lineStyle":
lineStyle ::= KD_LINE MI_TEXTO:w1
// KD_NAME = "name":
name ::= KD_NAME MI_TEXT0:w1
// KD_LABEL = "label":
label ::= KD_LABEL MI_TEXTO:w1
```

```
// KD_ICON = "icon":
icon ::= KD_ICON MI_TEXTO:w1
// KD_LINK = "link":
link ::= KD_LINK MI_URL:w1
// KD_COPYR = "copyright":
copyright ::= KD_COPYR MI_TEXTO:w1
// KD_XLABEL = "xAxisLabel":
xLabel ::= KD_XLABEL MI_TEXTO:w1
// KD_YLABEL = "yAxisLabel":
yLabel ::= KD_YLABEL MI_TEXT0:w1
// KD_LEGEND = "legendPosition":
legend ::= KD_LEGEND MI_TEXTO:w1
// KD_X = "x":
xValue ::= KD_X MI_INTEGER:w1
// KD_Y = "y":
yValue ::= KD_Y MI_INTEGER:w1
// KD_SIZE = "size":
size ::= KD_SIZE MI_INTEGER:w1
// KD_CHART = "chart":
chart ::=
    KD_CHART IZQLLAVE title:w1 COMA xLabel:w2 COMA yLabel:w3 DERLLAVE
    | KD_CHART IZQLLAVE title:w1 COMA yLabel:w3 COMA xLabel:w2 DERLLAVE
    | KD_CHART IZQLLAVE xLabel:w2 COMA title:w1 COMA yLabel:w3 DERLLAVE
    | KD_CHART IZQLLAVE xLabel:w2 COMA yLabel:w3 COMA title:w1 DERLLAVE
    | KD_CHART IZQLLAVE yLabel:w3 COMA xLabel:w2 COMA title:w1 DERLLAVE
    | KD_CHART IZQLLAVE yLabel:w3 COMA title:w1 COMA xLabel:w2 DERLLAVE
pastelXtChart ::=
    KD_CHART IZQLLAVE title:w1 COMA legend:w2 DERLLAVE
    | KD_CHART IZQLLAVE legend:w2 COMA title:w1 DERLLAVE
// usado en properties
// KD_KEYWORDS = "keywords":
keywords ::= KD_KEYWORDS IZQCORCH keywordList:w1 DERCORCH
// keywordList = "página web", "ejemplo", "JSON"
keywordList ∷=
    /* epsilon */
    | MI_TEXTO:w1
    | keywordList2:w1 MI_TEXT0:w2
    | keywordList2:w1 error:w2
keywordList2 ::=
    MI_TEXTO:w1 COMA
    | keywordList2:w1 MI_TEXT0:w2 COMA
    | keywordList2:w1 error:w2 COMA
// usado en lineas
// KD_PONTS = "points":
points ::= KD_PONTS IZQCORCH pointList:w1 DERCORCH
```

```
pointList ∷=
    pointValue:w1
    | pointList2:w1 pointValue:w2
pointList2 ∷=
    pointValue:w1 COMA
    | pointList2:w1 pointValue:w2 COMA
pointValue ::=
    IZQLLAVE xValue:w1 COMA yValue:w2 DERLLAVE
    | IZQLLAVE yValue:w2 COMA xValue:w1 DERLLAVE
// usado en lineasXt
pointsXt ::= KD_PONTS IZQCORCH pointXtList:w1 DERCORCH
pointXtList ∷=
    pointXtValue:w1
    | pointXtList2:w1 pointXtValue:w2
pointXtList2 ∷=
    pointXtValue:w1 COMA
    | pointXtList2:w1 pointXtValue:w2 COMA
pointXtValue ::=
    IZQLLAVE xValue:w1 COMA yValue:w2 COMA label:w3 DERLLAVE
    | IZQLLAVE xValue:w1 COMA label:w3 COMA yValue:w2 DERLLAVE
    | IZQLLAVE yValue:w2 COMA xValue:w1 COMA label:w3 DERLLAVE
    | IZQLLAVE yValue:w2 COMA label:w3 COMA xValue:w1 DERLLAVE
    | IZQLLAVE label:w3 COMA yValue:w2 COMA xValue:w1 DERLLAVE
    | IZQLLAVE label:w3 COMA xValue:w1 COMA yValue:w2 DERLLAVE
```

ABSTRACCION

```
diccionario
      dashboard:
             a graphical report of various data relevant to a particular business, group, etc
app
      es un "ide" para generar dashboards
      puede tener varias pestañas
      cada pestaña
             debe tener un editor de texto
                    dicho editor sirve para escribir el codigo del «grafico»
                    quardado automatico: no debe tener boton para quardar el documento
             boton analisis/ejecucion
                    output: dashboard en una web page
             mensajes de error de codigo
             boton exportar <<<<< pendiente
      menu
             abrir documento existente
             crear nuevo documento
                    el documento es un archivo con extension .gh
                    paso: abrir dialogo para nombrar dicho archivo
procesadores de lenguaje
      paso 1:
             input: lenguaje con estructuras de control
             output: lenguaje para dashboard
      paso 2:
             input: lenguaje para dashboard
             output: dashboard
lenguaje para dashboard
      inicia y termina con llaves
      secciones del lenguaje
             seccion para configuracion
                    sirve para configurar el dashboard
                    // aclaracion2
             seccion para graficos
                    sirve para definir graficos
                    cada grafico tiene su propio lenguaje
                    cada grafico inicia y termina con llaves
      lexemas
             mi_texto = á^{\circ}-,
             mi_color = #f0f0f0
      > dashboard
             {
                    "title": "Mi Página Web", // para dashboard
                    "description": "Una página web de ejemplo", // opcional
                    "keywords": ["página web", "ejemplo", "JSON"], // aclaracion3
                    "header": { "title": "Bienvenido a mi sitio web" }, // para pagina web
                    "footer": { "copyright": "@ 2024" }, // para pagina web
                    "backgroundColor": "#f0f0f0", // predefinido: blanco hueso
                    "fontFamily": "Arial, sans-serif",
                    "fontSize": "16px"
                    {
                           "data": [],
                    }
             }
graficos
> barras simple
```

```
// aclaracion4
        "data": [
                { "category": "A", "value": 30 },
                { "category": "B", "value": 50 }, 
 { "category": "C", "value": 20 }, 
 { "category": "D", "value": 45 },
                { "category": "E", "value": 60 }
        ]
}
> barras extensa
        "data": [
        { "category": "A", "value": 30, "color": "#ff5733" },
        { "category": "B", "value": 50, "color": "#33ff57" }, { "category": "C", "value": 20, "color": "#5733ff" },
        { "category": "D", "value": 45, "color": "#ffff33" },
        { "category": "E", "value": 60, "color": "#33fffff" }
        ],
        "chart": {
              "title": "Gráfica de Barras",
                "xAxisLabel": "Categorías",
                "yAxisLabel": "Valores"
        }
}
> pastel simple
{
        "data": [
                { "label": "A", "value": 30 },
{ "label": "B", "value": 50 },
{ "label": "C", "value": 20 }
        ]
}
> pastel extensa
        "data": [
                { "label": "A", "value": 30, "color": "#ff5733" },
                { "label": "B", "value": 50, "color": "#33ff57" },
                { "label": "C", "value": 20, "color": "#5733ff" }
        "chart": {
               "title": "Gráfica de Pastel",
                "legendPosition": "bottom"
        }
}
> puntos simple
{
        "data": [
                { "x": 10, "y": 20 },
                { "x": 30, "y": 40 },
                { "x": 50, "y": 60 },
                { "x": 70, "y": 80 },
                { "x": 90, "y": 100 }
        ]
}
> puntos extensa
{
        "data": [
                { "x": 10, "y": 20, "size": 5, "color": "#ff5733" },
                { "x": 30, "y": 40, "size": 8, "color": "#33ff57" },
                { "x": 50, "y": 60, "size": 10, "color": "#5733ff" },
                { "x": 70, "y": 80, "size": 6, "color": "#ffff33" }, 
{ "x": 90, "y": 100, "size": 7, "color": "#33ffff" }
        ],
```

```
"chart": {
               "title": "Gráfico de Puntos",
               "xAxisLabel": "Eje X",
               "yAxisLabel": "Eje Y"
}
> lineas simple
       "data": [
               {
                       "name": "Serie 1",
                       "points": [
                              { "x": 1, "y": 10 }, 
{ "x": 2, "y": 20 }, 
{ "x": 3, "y": 15 },
                               { "x": 4, "y": 25 },
                               { "x": 5, "y": 30 }
                       ]
               },
               {
                       "name": "Serie 2",
                       "points": [
                              { "x": 1, "y": 15 },
                              { "x": 2, "y": 25 },
                               { "x": 3, "y": 20 },
                               { "x": 4, "y": 30 },
                               { "x": 5, "y": 35 }
                       ]
               }
       ],
       "chart": {
               "title": "Gráfico de Líneas",
               "xAxisLabel": "Eje X",
               "yAxisLabel": "Eje Y"
       }
}
> lineas extensa
       "data": [
               {
                       "name": "Serie 1",
                       "points": [
                       { "x": 1, "y": 10, "label": "Punto 1" },
                       { "x": 2, "y": 20, "label": "Punto 2" },
                       { "x": 3, "y": 15, "label": "Punto 3" },
                       { "x": 4, "y": 25, "label": "Punto 4" },
                       { "x": 5, "y": 30, "label": "Punto 5" }
                       "color": "#ff5733",
                       "lineStyle": "solid"
               },
               {
                       "name": "Serie 2",
                       "points": [
                       { "x": 1, "y": 15, "label": "Punto 1" }, 
{ "x": 2, "y": 25, "label": "Punto 2" }, 
{ "x": 3, "y": 20, "label": "Punto 3" },
                       { "x": 4, "y": 30, "label": "Punto 4" },
                       { "x": 5, "y": 35, "label": "Punto 5" }
                       ],
                       "color": "#33ff57",
                       "lineStyle": "dashed"
               }
       ],
```

```
"chart": {
              "title": "Gráfico de Líneas",
              "xAxisLabel": "Eje X",
              "yAxisLabel": "Eje Y"
      }
}
> tarjetas simple
{
       "data": {
              "value": 75,
              "label": "Porcentaje completado",
              "description": "Este es el porcentaje de completado de la tarea actual."
}
> tarjetas extensa
       "data": {
              "value": 42,
              "label": "Puntos obtenidos",
              "description": "Estos son los puntos obtenidos en la última evaluación.",
             "icon": "fa-star",
"color": "#FFD700",
              "link": "https://example.com/more-info"
      }
}
variables
      tipo
             entero
                    id = 2;
              decimal
                    id = 45.6;
              bool
                    id = true;
              cadena
                    id = "da45d65d";
      lexema
             id = [0-9a-zA-Z]*[iI][dD]
operaciones
      entre entero y decimal
              sintaxis
                     operando operador_binario operando ;
                     operando operador_unario ;
              operadores
                     *
                     id++;
                     id-- ;
                     id += 7 ;
                     id -= 7 ;
                     id *= 7 ;
                     id \not= 7;
      comparaciones
              \neq
              <
              >
              ≤
              ≥
flujo
      if-else
```

```
id = 3;
    if(id=2) {...grafico...} else {...grafico...}

for
    for ( id = 1; id ≤ 5; id++) {...grafico...}

while
    id = 3;
    while (id ≤ 64) { ...grafico... id++; }

do-while
    do{ ...grafico... id+=5; } while(id ≤ 5);

extras

graficos predefinidos
numero de linea y columna
```

TECNOLOGIAS

- android studio 2023.2: es un entorno para desarrollo de aplicaciones mobiles en dispositivos con sistema operativo android, android studio tiene soporte para java y kotlin, y usa gradle como herramienta para compilacion de proyectos
- **iflex 1.9.1:** sirve para generar un lexer a partir de una especificación
- **cup 11b**: sirve para generar un parser a partir de una especificacion