Universidad Da Vinci De Guatemala Facultad de Ingeniería, Industria y Tecnología Carrera: Licenciatura en ingeniería de Sistemas



# FACULTAD DE INGENIERÍA

## UNIVERSIDAD DA VINCI DE GUATEMALA

"Proyecto No. 1 Analizador léxico"

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Curso: Compiladores - Grupo 1 - LISCC-L

## Proyecto No. 1 Analizador léxico

#### Desarrollo del programa en Java 21 y JFlex

#### A. Buenas prácticas de documentación y estilo de programación:

- El código está bien documentado con comentarios que explican su funcionalidad.
- Se sigue un estilo de programación limpio y organizado, con nombres de variables y métodos descriptivos.
- Se utiliza el estándar de codificación de Java (nombres en camelCase, sangrías consistentes, etc.).

#### B. Pruebas con un escenario de entrada:

- Se proporciona un archivo de entrada (html.txt) con código HTML para probar el programa.
- El programa genera una salida (salida.txt) con los tokens detectados, y los resultados también se muestran en una interfaz gráfica.

## Código del programa Lexer.jflex

```
2
3
      %public
5
      %class Lexer
      %type Token
 8
      %column
10
      % {
11
          public static class Token {
12
             public String type;
13
             public String value;
14
             public int line;
             public int column;
15
16
17
             public Token(String type, String value, int line, int column) {
18
                 this.type = type;
19
                  this.value = value;
                  this.line = line + 1;
21
                  this.column = column;
22
23
24
25
              public String toString() {
26
                 return String.format("Token[tipo=%s, valor='%s', linea=%d, columna=%d]",
                     type, value, line, column);
28
29
30
      응}
31
32
     /* Expresiones regulares */
33
      WhiteSpace = [ \t r\n] +
     OpenTag = "<" [a-zA-Z1-6]+
35
     CloseTag = "</" [a-zA-Z1-6]+ ">"
36
     Attribute = [a-zA-Z]+ "=\"" [^\"]* "\""
     Comment = "<!--" [^\-]* "-->"
37
     Entity = "&" [a-zA-Z]+ ";"
38
     Text = [^<>&]+
39
40
41
42
                    { /* ignorar */ }
43
     {WhiteSpace}
                     { return new Token("ETIQUETA_APERTURA", yytext(), yyline, yycolumn); }
44
      {OpenTag}
45
      {CloseTag}
                     { return new Token("ETIQUETA_CIERRE", yytext(), yyline, yycolumn); }
      {Attribute}
                    { return new Token("ATRIBUTO", yytext(), yyline, yycolumn); }
                     { return new Token("COMENTARIO", yytext(), yyline, yycolumn); }
                     { return new Token("ENTIDAD", yytext(), yyline, yycolumn); }
48
     {Entity}
                   { return new Token("TEXTO", yytext().trim(), yyline, yycolumn); }
49
     {Text}
                   { return new Token("FIN_ETIQUETA", yytext(), yyline, yycolumn); }
                   { return new Token("MENOR_QUE", yytext(), yyline, yycolumn); }
51
                   { return new Token("ERROR", yytext(), yyline, yycolumn); }
     [^]
     <<EOF>>
                   { return null; }
```

#### AnalizadorForm.java

```
package analizadorlexicohtml;
3 - import java.io.*;
     import java.util.ArrayList;
     import java.util.List;
     import javax.swing.JFileChooser;
   import javax.swing.filechooser.FileNameExtensionFilter;
     public class AnalizadorForm extends javax.swing.JFrame {
11 🖃
        public AnalizadorForm() {
12
13
            initComponents();
             setTitle("Analizador Léxico HTML");
             setLocationRelativeTo(null); // Centrar la ventana
16
         java.io.File file = new java.io.File("E:\\OneDrive - Grupo Disresa\\Otros\\Documentos\\NetBeansProjects\\AnalizadorLexicoHTML\\logo.png");
java.net.URL imgURL = file.toURL().toURL();
17
18
         if (imgURL != null) {
            java.awt.Image img = new javax.swing.ImageIcon(imgURL).getImage();
java.awt.Image scaledImg = img.getScaledInstance(190, 110, java.awt.Image.SCALE_SMOOTH);
21
22
23
             lblLogo.setIcon(new javax.swing.ImageIcon(scaledImg));
            lblLogo.setText("Logo no encontrado");
24
catch (Exception e) {
27 | lblLogo.setText("Err
28 - }
         lblLogo.setText("Error al cargar el logo");
29
31 📮
         * This method is called from within the constructor to initialize the form * WARNING: Do NOT modify this code. The content of this method is always
34
          * regenerated by the Form Editor.
         @SuppressWarnings("unchecked")
            // <editor-fold defaultstate="collapsed" desc="Generated Code">
37 🖃
38
            private void initComponents() {
39
40
                 jLabel1 = new javax.swing.JLabel();
                jColorChooser1 = new javax.swing.JColorChooser();
jColorChooser2 = new javax.swing.JColorChooser();
41
42
43
                btnAnalizar = new javax.swing.JButton();
                jScrollPane2 = new javax.swing.JScrollPane();
44
45
                 jScrollPanel = new javax.swing.JScrollPane();
                txtResultados = new javax.swing.JTextArea();
46
47
                 jLabel2 = new javax.swing.JLabel();
48
                btnLimpiar = new javax.swing.JButton();
49
                lblLogo = new javax.swing.JLabel();
50
51
                jLabel1.setText("jLabel1");
52
53
                setDefaultCloseOperation(javax.swing.WindowConstants.EXIT ON CLOSE);
54
                setBackground(new java.awt.Color(153, 255, 153));
55
                setPreferredSize(new java.awt.Dimension(716, 600));
56
57
                btnAnalizar.setBackground(new java.awt.Color(255, 204, 0));
58
                btnAnalizar.setFont(new java.awt.Font("Segoe UI", 1, 14)); // NOI18N
59
                 btnAnalizar.setForeground(new java.awt.Color(255, 255, 255));
60
                btnAnalizar.setText("Analizar");
61
                btnAnalizar.addActionListener(new java.awt.event.ActionListener() {
(I)
                     public void actionPerformed(java.awt.event.ActionEvent evt) {
63
                          btnAnalizarActionPerformed(evt);
64
65
                });
66
67
                txtResultados.setEditable(false);
                 txtResultados.setColumns(20);
68
                txtResultados.setRows(5);
69
70
                jScrollPanel.setViewportView(txtResultados);
71
72
                jScrollPane2.setViewportView(jScrollPanel);
73
74
                jLabel2.setFont(new java.awt.Font("Segoe UI Historic", 1, 36)); // NOI18N
75
                 jLabel2.setForeground(new java.awt.Color(0, 102, 51));
76
                 iLabel2.setText("Analizador Léxico HTML"):
77
78
                btnLimpiar.setBackground(new java.awt.Color(102, 102, 255));
79
                btnLimpiar.setFont(new java.awt.Font("Segoe UI", 1, 14)); // NOI18N
80
                 btnLimpiar.setForeground(new java.awt.Color(255, 255, 255));
81
                 btnLimpiar.setText("Limpiar");
82
                btnLimpiar.addActionListener(new java.awt.event.ActionListener() {
 1
                     public void actionPerformed(java.awt.event.ActionEvent evt) {
84
                          btnLimpiarActionPerformed(evt);
```

```
85
86
87
88
89
90
91
92
93
94
95
96
97
98
                     javax.swing.GroupLayout layout = new javax.swing.GroupLayout(getContentPane());
                     getContentPane().setLayout(layout);
                     layout.setHorizontalGroup(
                          layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING).addGroup(layout.createSequentialGroup()
                                .addGap(6, 6, 6)
                                 .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
.addGroup(layout.createSequentialGroup()
                                           .addComponent(jLabel2, javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
                                            .addGap(18, 18, 18)
.addComponent(lblLog
                                      .addComponent(lblLogo, javax.swing.GroupLayout.PREFERRED_SIZE, 215, javax.swing.GroupLayout.PREFERRED_SIZE))
.addGroup(layout.createSequentialGroup()
                                            .addGap(6, 6, 6)
.addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
100
101
                                                 .addGroup(layout.createSequentialGroup()
                                                 .addComponent()ScrollPane2, javax.swing.GroupLayout.PREFERRED_SISE, 654, javax.swing.GroupLayout.PREFERRED_SISE)
.addContainerGap(javax.swing.GroupLayout.DEFAULT_SISE, Short.MAX_VALUE))
.addGcoup(javax.swing.GroupLayout.Alignment.TRAILING, Layout.oreateSequentialGroup()
.addComponent(bthAnalizer, javax.swing.GroupLayout.DEFAULT_SISE, javax.swing.GroupLayout.DEFAULT_SISE, Short.MAX_VALUE)
.addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
103
104
105
106
                                                       .addComponent(btnLimpiar, javax.swing.GroupLayout.PREFERRED_SIZE, 105, javax.swing.GroupLayout.PREFERRED_SIZE)
.addGap(57, 57, 57)))))
108
109
110
                     layout.setVerticalGroup(
                          layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING).addGroup(layout.createSequentialGroup()
114
                                .addContainerGap()
                                 .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
.addComponent(lblLogo, javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
.addComponent(jlabel2, javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE))
115
116
118
                                 .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
.addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.B
                                 .addComponent(btnAnalizar, javax.swing.GroupLayout.PREFERRED_SIZE, 35, javax.swing.GroupLayout.PREFERRED_SIZE)
.addComponent(btnLimpiar, javax.swing.GroupLayout.FREFERRED_SIZE, 35, javax.swing.GroupLayout.FREFERRED_SIZE))
.addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
120
121
                                                           ollPane2, javax.swing.GroupLayout.PREFERRED_SIZE, 374, javax.swing.GroupLayout.PREFERRED_SIZE)
                                 .addComponent (†
                                 .addGap(42, 42, 42))
124
126
127
                    pack();
129
         private void btnAnalizarActionPerformed(java.awt.event.ActionEvent evt) {
    JFileChooser fileChooser = new JFileChooser();
    fileChooser.setDialogTitle("Selectiona un archivo .txt con contenido HTML");
    fileChooser.setFileFiler(new FileNameExtensionFilter("Archivos de texto (".txt)", "txt"));
130
131
132
                     int result = fileChooser.showOpenDialog(this);
135
136
                    if (result == JFileChooser.APPROVE OPTION) {
137
138
                           File selectedFile = fileChooser.getSelectedFile();
                          139
140
142
143
                                 // Lista para almacenar los token:
                               List<Lexer.Token> tokens = new ArrayList<>();
Lexer.Token token;
146
147
148
                                        ((token = lexer.yylex()) != null) {
                                     tokens.add(token);
149
150
                               153
154
155
         StringBuilder displayText = new StringBuilder(header);
for (Lexer.Token t : tokens) {
156
                                    Mostrar los tokens en el JTextArea con el nuevo formato
157
158
159
               displayText.append(String.format("%-20d%-20d%-45s%-35s%n",
160
                    t.line, t.column, t.type, t.value));
          txtResultados.setText(displayText.toString());
163
164
          // Exportar los tokens a salida.txt con el mismo form
165
166
          try (PrintWriter writer = new PrintWriter("salida.txt")) {
               writer.print(header);
               167
168
169
171
172
173
               System.out.println("Resultados exportados a salida.txt");
174
175
                          } catch (IOException e) {
                                                 s.setText("Error al procesar el archivo: " + e.getMessage());
                               e.printStackTrace();
```

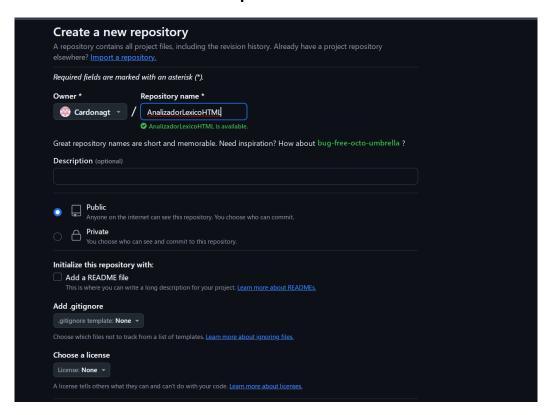
```
178 }
 180 private void btnLimpiarActionPerformed(java.awt.event.ActionEvent evt) {
 182 txtResultados.setText("");
183 }
 184
 185 E
                    * @param args the command line arguments
 187
  188 📮
                   public static void main(String args[]) {
 189
190 +
211 - try {
212 -
213 -
                                for (javax.swing.UIManager.LookAndFeelInfo info : javax.swing.UIManager.getInstalledLookAndFeels()) {
   if ("Nimbus".equals(info.getName())) {
        javax.swing.UIManager.setLookAndFeel(info.getClassName());
    }
}
 214
215
216
217
219
                         } catch (ClassNotFoundException ex) {
                         java.util.logging.Logger.getLogger(AnalizadorForm.class.getName()).log(java.util.logging.Level.SEVERE, null, ex);
} catch (InstantiationException ex) {
    java.util.logging.Logger.getLogger(AnalizadorForm.class.getName()).log(java.util.logging.Level.SEVERE, null, ex);
 220 =
221
 222
                          } catch (IllegalAccessException ex) {
                         java.util.logging.Logger.getLogger(AnalizadorForm.class.getName()).log(java.util.logging.Level.SEVERE, null, ex);
} catch (javax.swing.UnsupportedLookAndFeelException ex) {
                          . Savon \Javan.swing.unsupportedLookAndFeelException ex) {
    javan.util.logging.Logger.getLogger(AnalizadorForm.class.getName()).log(java.util.logging.Level.SEVERE, null, ex);
}
 224
 225
                         //</editor-fold>
 227
228
                          /* Create and display the form */
                          java.awt.EventQueue.invokeLater(new Runnable() {
   public void run() {
      new AnalizadorForm().setVisible(true);
}
 232
 233
234
                         });
 235
                    // Variables declaration - do not modify
 237
                   // variables declaration - do not modify
private javax.swing.JButton btnAnelizar;
private javax.swing.JButton btnLimplar;
private javax.swing.JColorChooser jColorChooser!;
private javax.swing.JColorChooser jColorChooser!;
 238
239
 240
                   private javax.swing.JLabel jlabel!;
private javax.swing.JLabel jlabel!;
private javax.swing.JLabel jlabel2;
private javax.swing.JScrollPane jScrollPane1;
private javax.swing.JScrollPane jScrollPane2;
 242
 243
244
```

#### Archivo de entrada (html.txt):

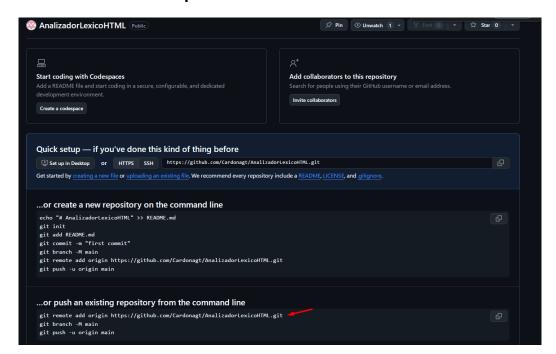
## Archivo de salida (salida.txt):

```
Columna
                                                                                     Valor
Línea
MENOR_QUE
              0
                                              !DOCTYPE html
                      TEXT0
                      FIN ETIQUETA
              14
                      ETIQUETA_APERTURA
2
2
3
                                              <html
                      FIN_ETIQUETA
                      ETIQUETA_APERTURA
                                              <head
                      FIN_ETIQUETA
3
4
4
4
5
6
                      ETIQUETA_APERTURA
                                              <title
              10
                      FIN_ETIQUETA
                                              Mi Página
                      TEXT0
                      ETIQUETA_CIERRE
              20
                                              </title>
                      ETIQUETA_CIERRE
ETIQUETA_APERTURA
              0
                                              </head>
                                              <body
                      FIN_ETIQUETA
                      ETIQUETA_APERTURA
                       TEXT0
                                              class="titulo"
                      FIN_ETIQUETA
              22
                      TEXT0
                                              Bienvenidos
                      ETIQUETA_CIERRE
ETIQUETA_APERTURA
              34
                                              </h1>
                                              <p
8
                      TEXTO
                                              id="intro"
              6
              17
                      FIN_ETIQUETA
              18
                      TEXT0
                                              Esta es una página de prueba.
                      ETIQUETA_CIERRE
              47
                      COMENTARIO
                                              <!-- Esto es un comentario -->
10
                      ETIQUETA_APERTURA
                                              ≺a
10
                       TEXT0
                                              href="https://example.com"
                      FIN_ETIQUETA
10
10
              34
                      TEXT0
                                              Enlace
10
              40
                      ETIQUETA CIERRE
                                              </a>
                                              </body>
                      ETIQUETA_CIERRE
12
                      ETIQUETA_CIERRE
                                              </html>
```

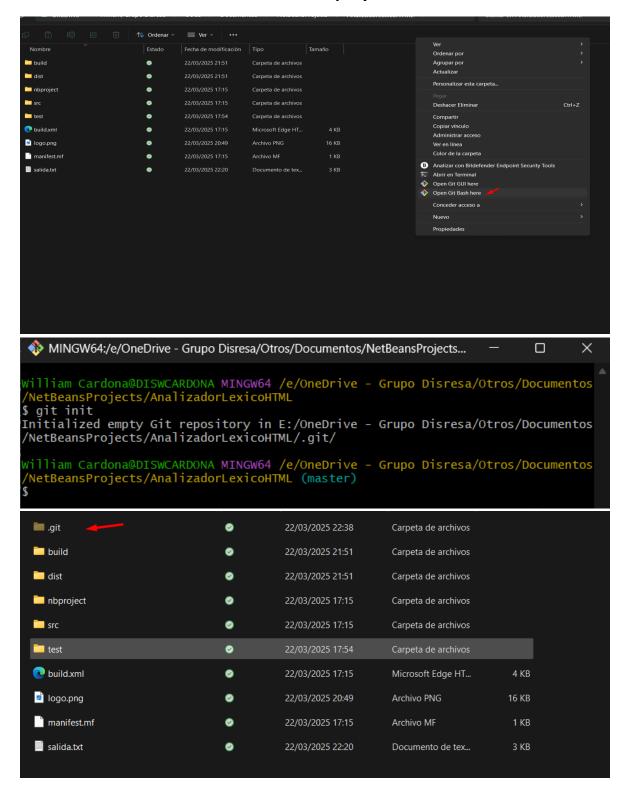
## Crear el repositorio en GitHub



## Repositorio Creado en GitHub



## Inicializar Git en tu proyecto local



#### Vincular tu repositorio local con el remoto

#### ...or push an existing repository from the command line

git remote add origin https://github.com/Cardonagt/AnalizadorLexicoHTML.git

william Cardona@DISWCARDONA MINGW64 /e/OneDrive - Grupo Disresa/Otros/Documentos
/NetBeansProjects/AnalizadorLexicoHTML (master)
\$ git remote add origin https://github.com/Cardonagt/AnalizadorLexicoHTML.git

#### Agrega todos los archivos al staging

```
William Cardona@DISWCARDONA MINGW64 /e/OneDrive - Grupo Disresa/Otros/Documentos /NetBeansProjects/AnalizadorLexicoHTML (master)

$ git add .
warning: in the working copy of 'build/classes/analizadorlexicohtml/AnalizadorFo 'rm.form', LF will be replaced by CRLF the next time Git touches it warning: in the working copy of 'build/classes/analizadorlexicohtml/Lexer.jflex', LF will be replaced by CRLF the next time Git touches it warning: in the working copy of 'dist/README.TXT', LF will be replaced by CRLF the next time Git touches it warning: in the working copy of 'src/analizadorlexicohtml/AnalizadorForm.form', LF will be replaced by CRLF the next time Git touches it warning: in the working copy of 'src/analizadorlexicohtml/AnalizadorForm.java', LF will be replaced by CRLF the next time Git touches it warning: in the working copy of 'src/analizadorlexicohtml/Lexer.jflex', LF will be replaced by CRLF the next time Git touches it
```

```
NetBeansProjects/AnalizadorLexicoHTML (master)

igit commit - m 'Entrega Final: Proyecto completo con interfaz gráfica, logo, y irchivos de entrada/salida"

master (root-commit) cf2c8F9] Entrega Final: Proyecto completo con interfaz gráfica, logo, y archivos de entrada/salida

is files changed, 3616 insertions(+)

reate mode 100644 build/built-jar.properties

create mode 100644 build/built-jar.properties

create mode 100644 build/classes/.netbeans_automatic_build

create mode 100644 build/classes/.netbeans_automatic_build

create mode 100644 build/classes/.netbeans_automatic_build

create mode 100644 build/classes/.netbeans_automatic_build

create mode 100644 build/classes/analizadorlexicohtml/AnalizadorForm$1.class

create mode 100644 build/classes/analizadorlexicohtml/AnalizadorForm$2.class

create mode 100644 build/classes/analizadorlexicohtml/AnalizadorForm.class

create mode 100644 build/classes/analizadorlexicohtml/AnalizadorForm.class

create mode 100644 build/classes/analizadorlexicohtml/Lexer.class

create mode 100644 build/classes/analizadorlexicohtml/hain.class

create mode 100644 build/classes/analizadorlexicohtml/html.txt

create mode 100644 dist, Analizadorlexicohtml/Lexer.class

create mode 100644 hpproject/private/config.properties

create mode 100644 hpproject/private/config.properties

create mode 100644 hpproject/private/config.properties

create mode 100644 src/analizadorlexicohtml/hain.java

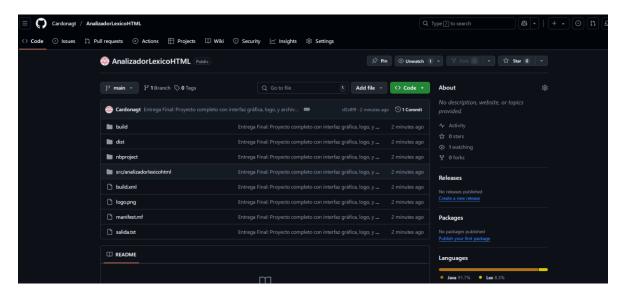
create mode 100644 src/analizad
```

#### Subir los cambios a GitHub

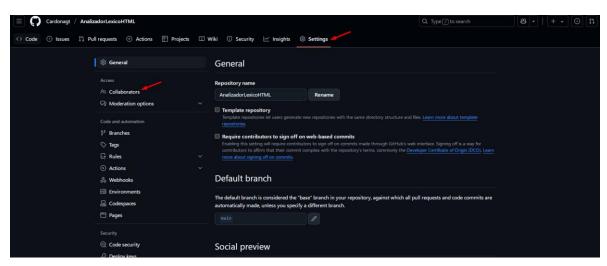
```
william Cardona@DISWCARDONA MINGW64 /e/OneDrive - Grupo Disresa/Otros/Documentos
//NetBeansProjects/AnalizadorLexicoHTML (master)
5 git branch -M main

william Cardona@DISWCARDONA MINGW64 /e/OneDrive - Grupo Disresa/Otros/Documentos/NetBeansProjects/AnalizadorLexicoHTML (main)
5 git push -u origin main
Enumerating objects: 40, done.
Counting objects: 100% (40/40), done.
Delta compression using up to 14 threads
Compressing objects: 100% (40/40), 1.74 MiB | 1.20 MiB/s, done.
Writing objects: 100% (40/40), 1.74 MiB | 1.20 MiB/s, done.
Total 40 (delta 1), reused 0 (delta 0), pack-reused 0 (from 0)
remote: Resolving deltas: 100% (1/1), done.
To https://github.com/Cardonagt/AnalizadorLexicoHTML.git
* [new branch] main -> main
branch 'main' set up to track 'origin/main'.
```

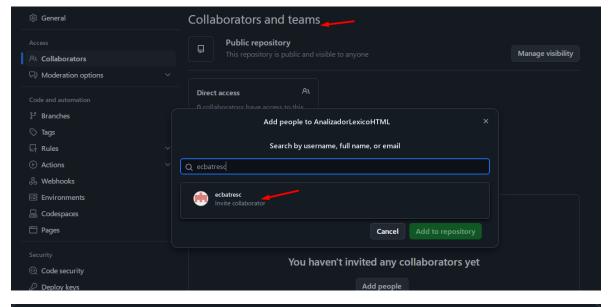
## Verificación de Código en GitHub



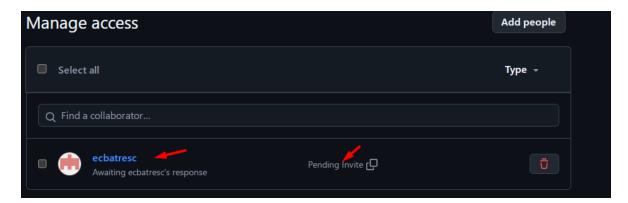
## Agregar a tu catedrática al repositorio



## Agregar colaborador "ecbatresc"







#### Enlace de invitación:

https://github.com/Cardonagt/AnalizadorLexicoHTML/invitations

#### Creación de README.md



#### **Subir cambios:**

```
William Cardona@DISWCARDONA MINGW64 /e/OneDrive - Grupo Disresa/Otros/Documentos/NetBeansProjects/AnalizadorLexicoHTML (main)

§ git add README.md

William Cardona@DISWCARDONA MINGW64 /e/OneDrive - Grupo Disresa/Otros/Documentos/NetBeansProjects/AnalizadorLexicoHTML (main)

§ git commit - m "Agregado de README.md con descripción del proyecto"

[fain 9e13259] Agregado de README.md con descripción del proyecto

1 file changed, 40 insertions(+)

create mode 100644 README.md

William Cardona@DISWCARDONA MINGW64 /e/OneDrive - Grupo Disresa/Otros/Documentos/NetBeansProjects/AnalizadorLexicoHTML (main)

§ git push origin main

Enumerating objects: 4, done.

Counting objects: 100% (4/4), done.

Delta compression using up to 14 threads

Compression using up to 14 threads

Compressing objects: 100% (3/3), done.

Writing objects: 100% (3/3), done.

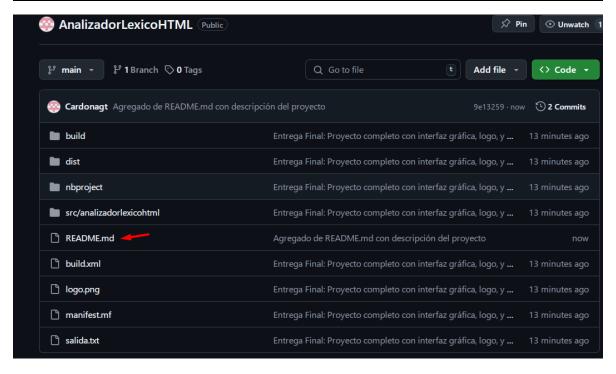
Writing objects: 100% (3/3), done.

Total 3 (delta 1), reused 0 (delta 0), pack-reused 0 (from 0)

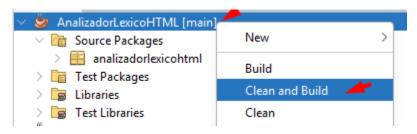
remote: Resolving deltas: 100% (1/1), completed with 1 local object.

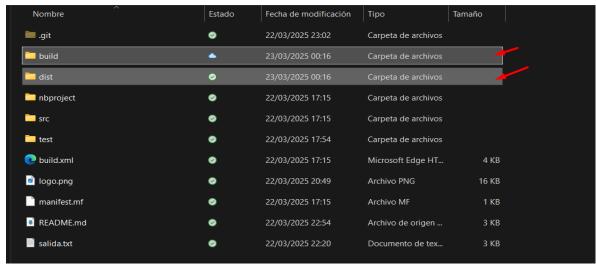
To https://github.com/Cardonagt/AnalizadorLexicoHTML.git

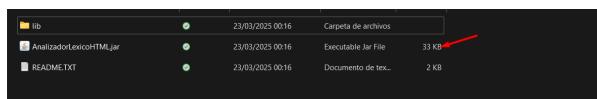
cf2c8f9.9e13259 main -> main
```

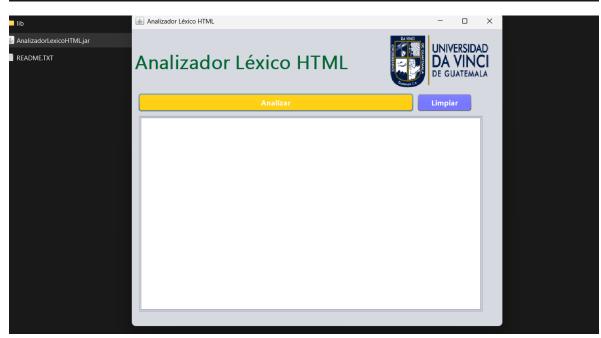


## Hacer el programa ejecutable (crear un archivo .jar)









## **Enlace del Video**

Video Proyecto Analizador Léxico