DETECCIÓN DE PLAGIO

A través de Control Flow Graphs

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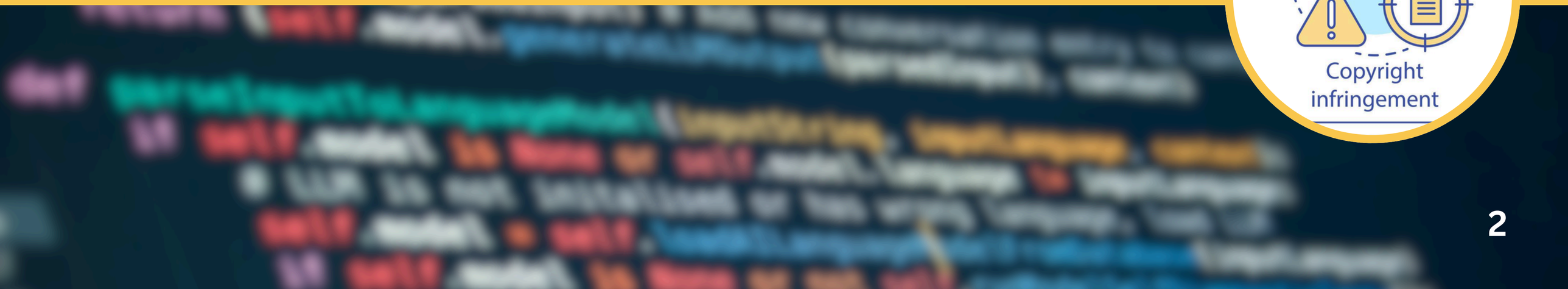
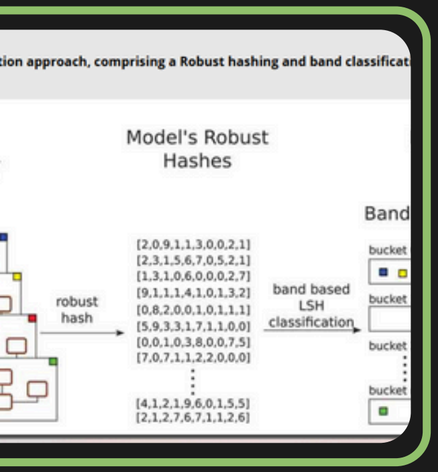
INTRODUCCIÓN



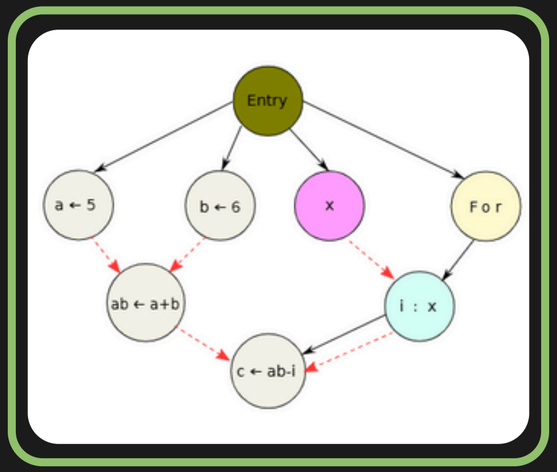
MARCO TEÓRICO

Hashing



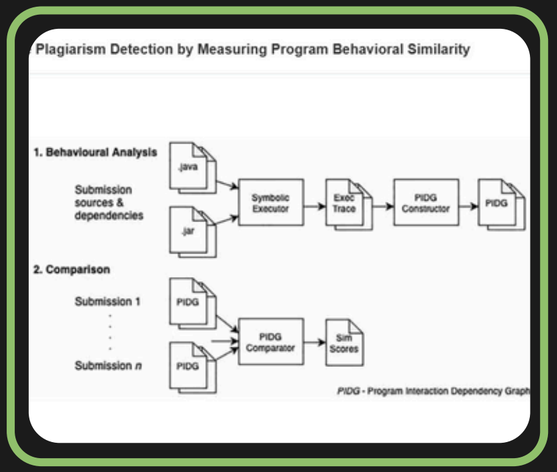
Model Driven Engineering

Abstract Syntax Tree
Program Dependence Graphs



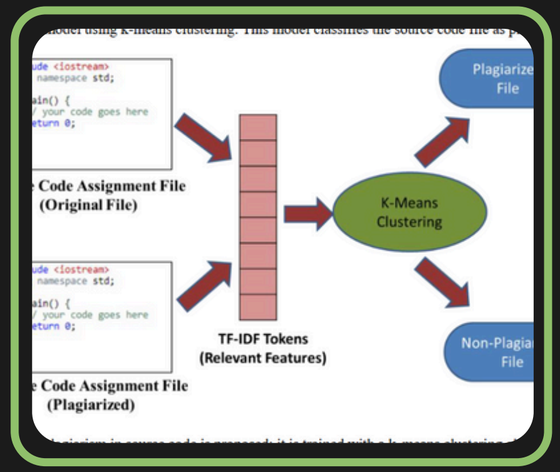
Control and data dependency

Interaction Dependence Graphs



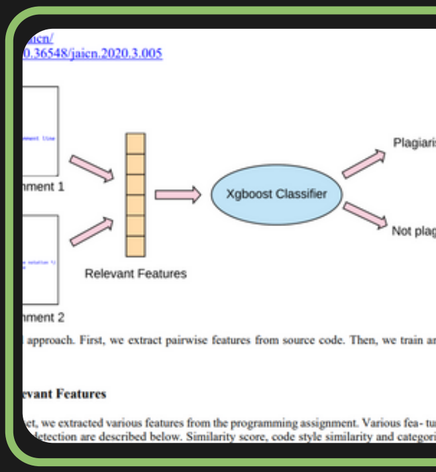
Symbolic execution

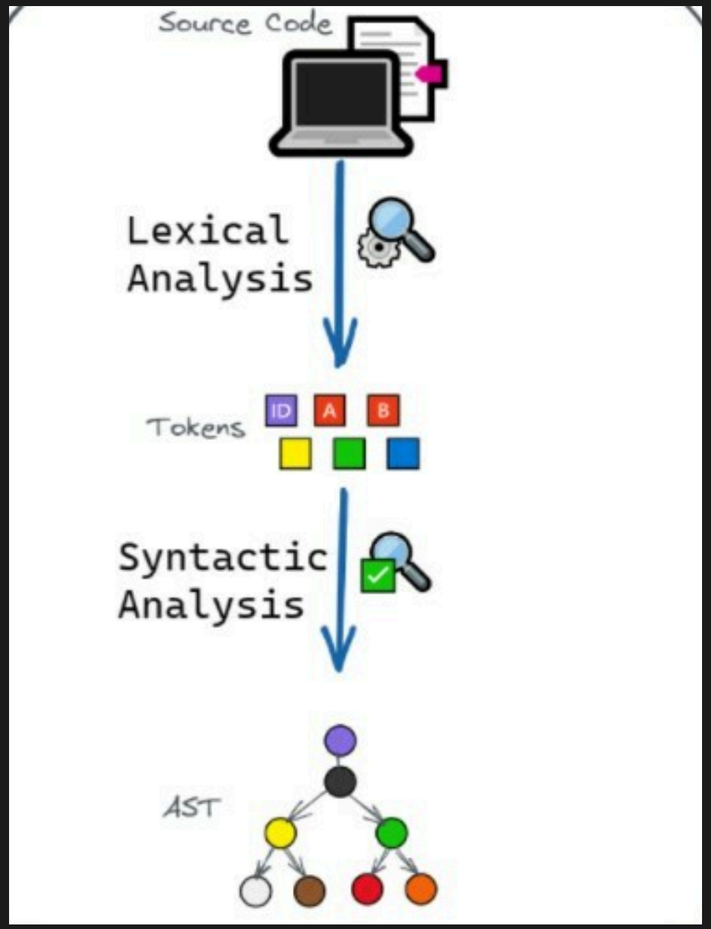
TF-IDF + clustering techniques



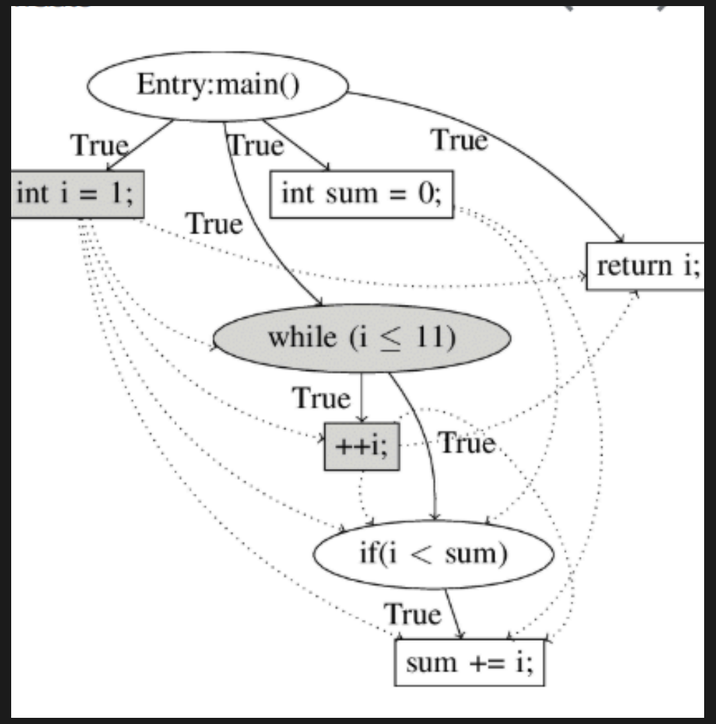
Classification tasks with feature extraction

XGboost model

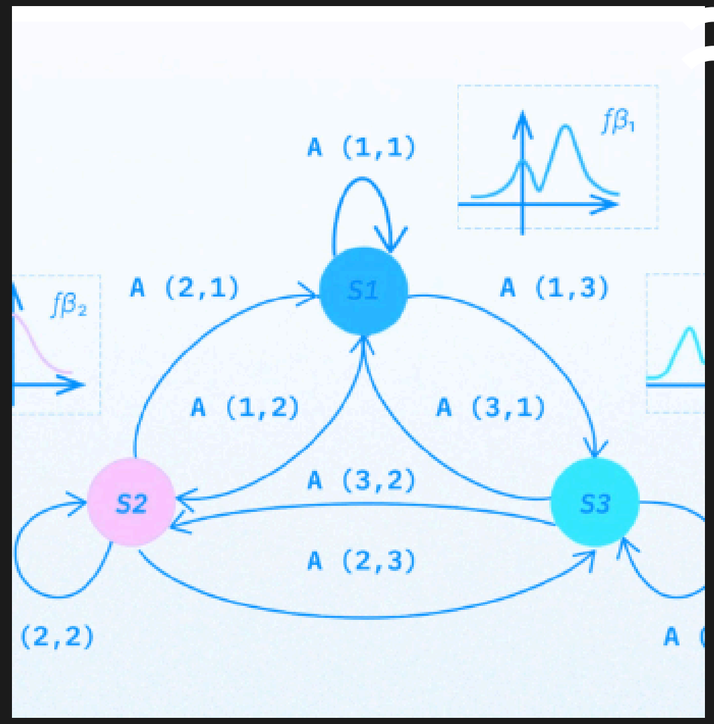




Abstract Syntax Tree

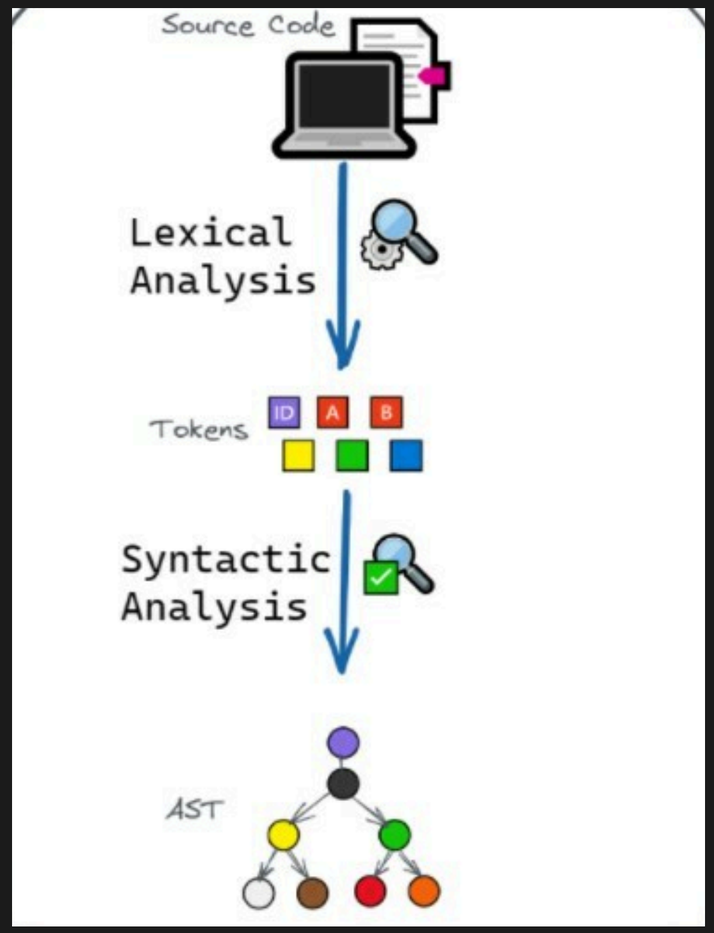


Program Dependency Graph

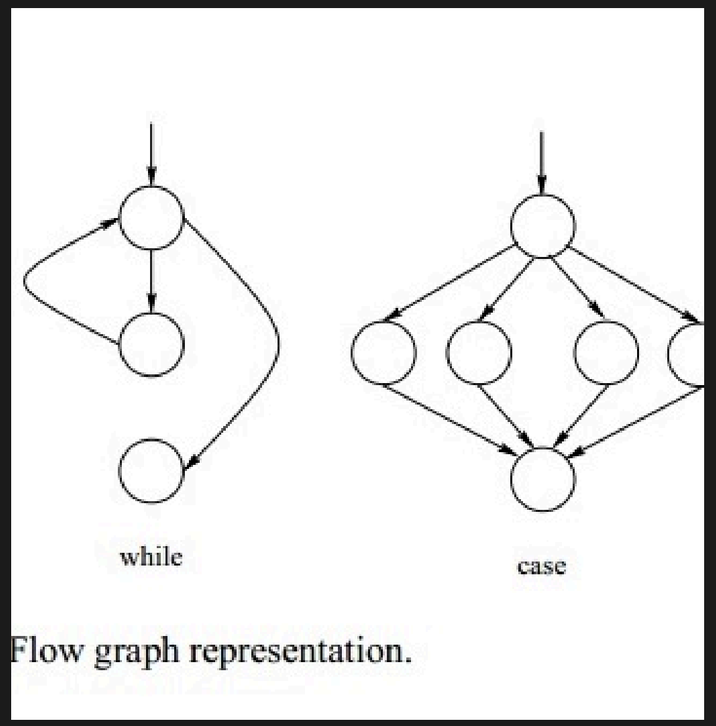


Análisis de similitud con cadenas de Markov

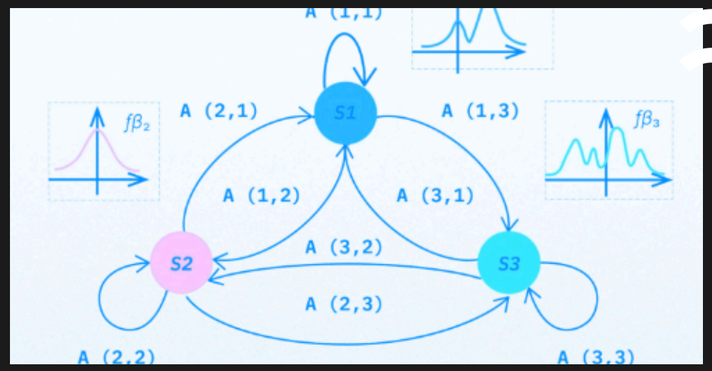
PROPUESTA INICIAL

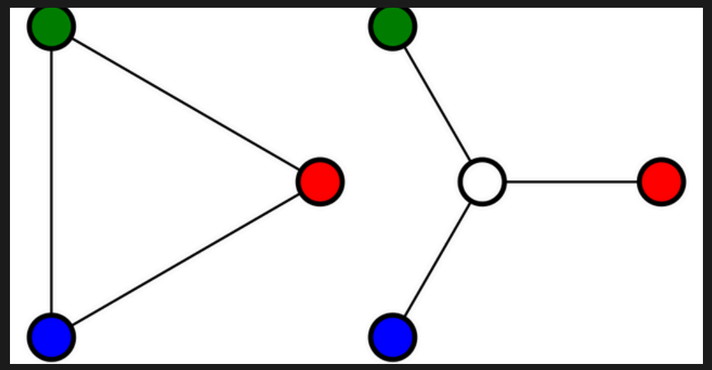


Abstract Syntax Tree



Control Flow Graph

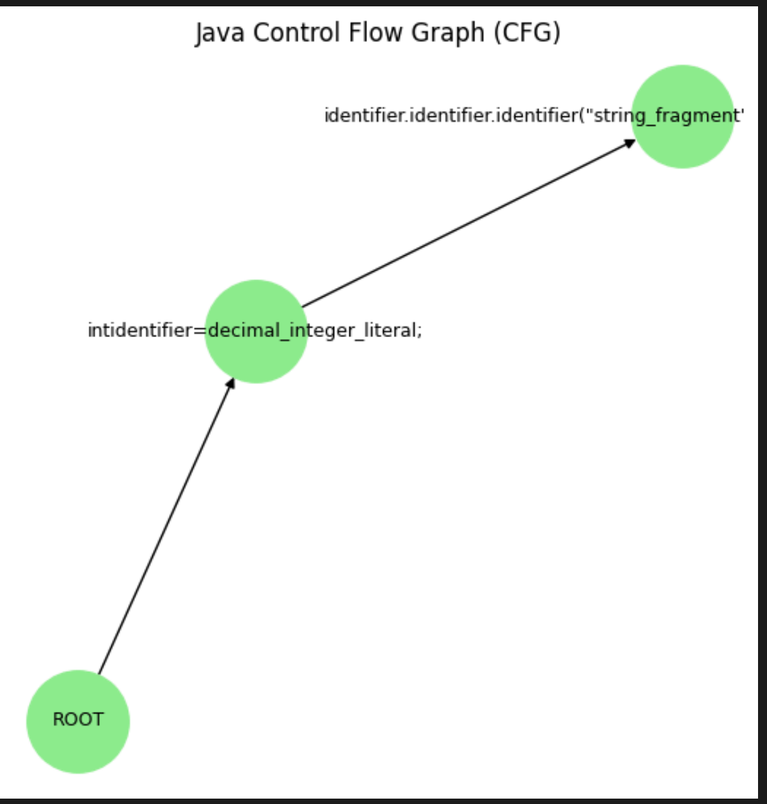




Cadenas de Markov
+
Graph Edit Distance (GED)

PROPUESTA FINAL

* VARIABLES




```
translation_unit [0, 0] - [4, 0]
  function_definition [0, 0] - [3, 1]
    type: primitive_type [0, 0] - [0, 3]
    declarator: function_declarator [0, 4] - [0, 10]
      declarator: identifier [0, 4] - [0, 8]
      parameters: parameter_list [0, 8] - [0, 10]
        "(" [0, 8] - [0, 9]
        ")" [0, 9] - [0, 10]
    body: compound_statement [0, 11] - [3, 1]
      "{" [0, 11] - [0, 12]
      declaration [1, 1] - [1, 17]
        type: primitive_type [1, 1] - [1, 4]
        declarator: init_declarator [1, 5] - [1, 16]
          declarator: identifier [1, 5] - [1, 9]
          "=" [1, 10] - [1, 11]
          value: number_literal [1, 12] - [1, 16]
        ";" [1, 16] - [1, 17]
      expression_statement [2, 1] - [2, 32]
        binary_expression [2, 1] - [2, 31]
          left: binary_expression [2, 1] - [2, 24]
            left: binary_expression [2, 1] - [2, 16]
              left: identifier [2, 1] - [2, 5]
              operator: "<<" [2, 6] - [2, 8]
              right: string_literal [2, 9] - [2, 16]
                """ [2, 9] - [2, 10]
                string_content [2, 10] - [2, 15]
                """ [2, 15] - [2, 16]
            operator: "<<" [2, 17] - [2, 19]
            right: identifier [2, 20] - [2, 24]
          operator: "<<" [2, 25] - [2, 27]
          right: string_literal [2, 28] - [2, 31]
            """ [2, 28] - [2, 29]
            string_content [2, 29] - [2, 30]
            """ [2, 30] - [2, 31]
        ";" [2, 31] - [2, 32]
      "}" [3, 0] - [3, 1]
```

Tags de los nodos en el AST

Estructuras de control procesadas

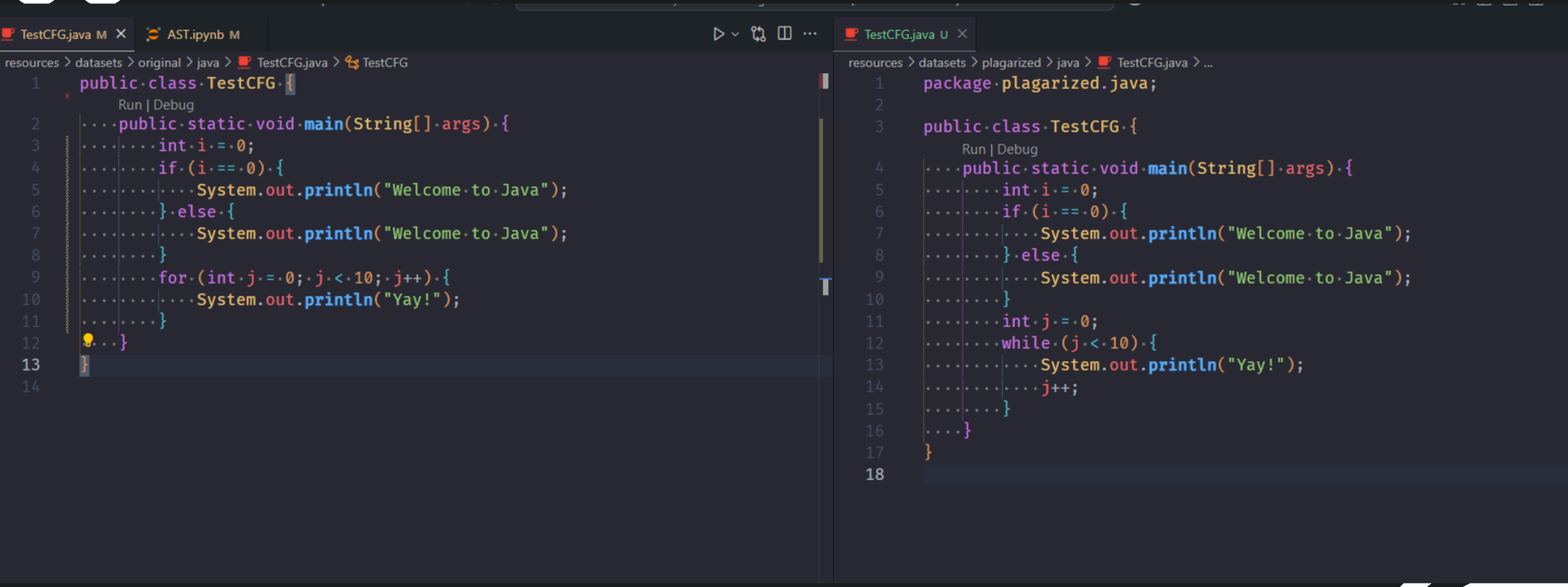
```
1  int main() {
2      int year = 2025;
3      cout << "Hello" << year << "!";
4  }
```

🎯Específicos

🔓No dependen del programador

📈Consistentes

RESULTADOS OBTENIDOS



Markov-based similarity: 0.6000

GED-based similarity: 0.9118

COMPARACIÓN CON EL ESTADO DEL ARTE

PROPUESTA IDEADA	ESTADO DEL ARTE
Menor complejidad en los algoritmos a implementar y utilizar	**Mayor eficiencia y capacidad para reconocer codigos complejos**
Escalabilidad del codigo. Mayor área de mejora	Algoritmos robustos. Mayor precisión al reconocer plagio
Reproducible con los conocimientos del curso	Requiere de un gran trasfondo de conocimientos
Posibilidad de agregar nuevos lenguajes	Usualmente enfocados a un lenguaje en particular

CONCLUSIÓN

Desarrollamos un sistema de detección de plagio inspirado en el artículo SimilaR (Bartoszuk et al., 2020), adaptando su enfoque a una versión más sencilla y accesible. Si bien nuestras técnicas son menos precisas que las propuestas en el artículo original, su implementación es más directa y práctica, lo que permite una aplicación funcional con menor complejidad técnica.

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