KU LEUVEN kulak

Bachelor Informatica
Gegevensstructuren & Algoritmen
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grafenkleuring pseudocode

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Pseudocode GCP

Algorithm 1: General algorithm for the GCP

```
Data: fileLocation
Result: graph
graph ← import(fileLocation);
preprocess(graph);
contructColoring(graph);
improveColoring(graph, A, d);
```

Function preprocess(graph)

```
foreach vertex1 ∈ graph.vertices do
    foreach vertex2 ∈ graph.vertices do
        if vertex1.adjacentVertices ⊆ vertex2.adjacentVertices then
            vertex1 ← vertex2;
            graph.remove(vertex1);
        end
    end
end
```

Function constructColoring(graph, k)

```
uncoloredCount ← graph.vertices.size;
while uncoloredCount ≠ 0 do
    vertex ← maxSaturation(graph.vertices);
    colorClass = vertex.saturation + 1;
    if colorClass >= k then
        vertex.color ← randint(0, k-1);
    else
        vertex.color ← colorClass
    end
end
```

Function improveColoring(graph, A, d)

tti $\leftarrow$ 0