Input: The sets of Categories, Documents, CodeGroups, and DocGroups
$Categories = \{cat_1, cat_2, ..., cat_n\}$
$Documents = \{doc_1, doc_2, ..., doc_m\}$
$CodeGroups = \{codeGroup_1, codeGroup_2, ..., codeGroup_o\}$
$DocGroups = \{docGroup_1, docGroup_2, ..., docGroup_p\}$

Input: The mappings of categories to documents, of categories to code groups, and of documents to document groups
$Occurrence : (category \subseteq Categories) \mapsto (document \subseteq Document)$
$CodeGroup : (category \subseteq Categories) \mapsto (codeGroup \subseteq CodeGroups)$
$DocGroup : (doc \subseteq Documents) \mapsto (docGroup \subseteq DocGroups)$

Result: A directed graph: $G = (Nodes, Links)$ with elements as nodes, and direct and indirect links

$Nodes \longleftarrow Codes \cup Documents \cup CodeGroups \cup DocGroups$
$Links \longleftarrow \emptyset$

foreach $category \in Categories$ **do**
1 | **if** $(category \mapsto document) \in Occurrence$ **then**
| | $Links \leftarrow Links \cup (category, document)$
| **end**
2 | **if** $(category \mapsto codeGroup) \in CodeGroup$ **then**
| | $Links \leftarrow Links \cup (category, codeGroup)$
| **end**
end

foreach $document \in Documents$ **do**
3 | **if** $(document \mapsto docGroup) \in DocGroup$ **then**
| | $Links \leftarrow Links \cup (document, docGroup)$
| **end**
end

foreach $category \in Categories$ **do**
4 | **if** $(category \mapsto document) \in Occurrence$ **and** $(document \mapsto docGroup) \in DocGroup$ **then**
| | $Links \leftarrow Links \cup (category, docGroup)$
| **end**
5 | **if** $(category \mapsto document) \in Occurrence$ **and** $(document \mapsto docGroup) \in DocGroup$ **and**
| $(category \mapsto codeGroup) \in CodeGroup$ **then**
| | $Links \leftarrow Links \cup (codeGroup, docGroup)$
| **end**
end

return $G = (Nodes, Links)$