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(54) **SYSTEMS AND METHODS FOR DATAFLOW GRAPH OPTIMIZATION**

(57) At least one non-transitory computer-readable storage medium storing processor-executable instructions that, when executed by at least one computer hardware processor, cause the at least one computer hardware processor to perform: obtaining an automatically generated initial dataflow graph, the initial dataflow graph comprising a first plurality of nodes representing a first plurality of data processing operations and a first plurality of links representing flows of data among nodes in the first plurality of nodes; and generating an updated dataflow graph by iteratively applying dataflow graph optimization rules to update the initial dataflow graph, the updated dataflow graph comprising a second plurality of nodes representing a second plurality of data processing operations and a second plurality of links representing flows of data among nodes in the second plurality of nodes, wherein the second plurality of nodes includes a node representing a first data processing operation and another node representing the second data processing operation, the generating comprising: identifying a first portion of the initial dataflow graph to which to apply a first optimization rule at least in part by identifying a first

node representing a first data processing operation that commutes with a second data processing operation represented by a second node connected to the first node; and applying the first optimization rule to the first portion of the initial dataflow graph.

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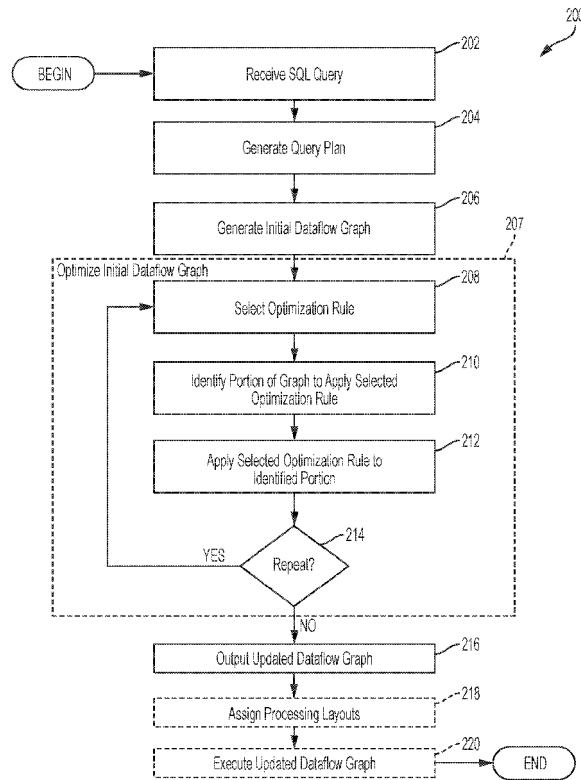


FIG. 2