WHAT IS CLAIMED IS:

1. A method performed by a computer system in automatically transforming a specification into an executable computer program that processes one or more values of one or more fields in a structured data item, including:

accessing a specification that specifies a plurality of modules to be associated with the executable computer program for processing the one or more values of the one or more fields in the structured data item;

automatically transforming the specification into the executable computer program based on the plurality of modules, wherein the automatically transforming includes:

for each of one or more first modules of the plurality of modules:

identifying one or more second modules of the plurality of modules that each receives input that is at least partly based on an output of the first module, wherein fields are accessible to the first module;

identifying which of (i) the fields accessible to the first module, correspond to (ii) one or more fields relied upon by one or more operations to be performed by the one or more second modules,

identifying one or more fields to not include in an output data format of the first module, by:

identifying which of the fields accessible to the first module, do not correspond to any field relied upon in any operation to be performed by any of the one or more second modules; and

formatting the output data format of the first module such that an output of the first module specifies only one or more values of one or more identified fields corresponding to (i) one or more fields accessible to the first module, and (ii) one or more fields relied upon by the one or more operations to be performed by the one or more second modules, wherein the output data format does not specify the one or more fields that are not relied on by any operation to be performed by any of the one or more second modules; and

saving, in persistent memory, the executable computer program, with the saved, executable computer program specifying the formatted output data format for each of the one or more first modules.

2. The method of claim 1, wherein contents of one or more portions of the executable computer program are distinct from the specification and are generated automatically without user input.

3. The method of claim 1, wherein the executable computer program is persistent and editable.

4. The method of claim 1, wherein the executable computer program is a dataflow graph, wherein each of the modules is a dataflow graph component represented by a node of the dataflow graph, and wherein dataflow graph components are coupled by data flows represented by links between nodes.

5. The method of claim 4, further including:

accessing, in data storage system, a data structure that maps data representing portions of the specification to the dataflow graph components;

identifying, in the data structure, an item of data representing a particular portion of the specification;

identifying, in the data structure, which dataflow graph component is mapped to the particular portion of the specification; and

adding the identified dataflow graph component to the dataflow graph in accordance with an order of execution of operations specified by the specification.

6. The method of claim 5, further including: identifying dependencies among the dataflow graph components; and at least partly based on these identified dependencies, specifying output data formats of the dataflow graph components.

7. The method of claim 1, further including:

for a particular first module,

determining that only one of one or more second modules accesses a particular one of one or more fields that are accessible to the particular first module;

determining that the only one of the one or more second modules accesses the particular one of the one or more fields from a third module of the plurality of modules that is distinct from each of the particular first module and the one or more second modules; and

formatting the output data format to not output one or more values for the particular one of the one or more fields accessed by the only one of the one or more second modules.

8. The method of claim 1, further including:

providing data for display of a user interface;

receiving, via the user interface, data representing a selection, from among a plurality of modules, of one or more modules for inclusion in the executable computer program; and

receiving, via the user interface and for each selected module, a value of a parameter of an operation implemented by that selected one or more modules.

9. The method of claim 8, further including:

determining whether the value received via the user interface complies with a predetermined criterion associated with the operation; and

outputting a notification via the user interface indicating whether the received value complies with the predetermined criterion, wherein in case the received value is determined not to comply with the predetermined criterion, the notification including guiding information how the received value has to be changed to comply with the predetermined criterion.

10. The method of claim 8, further including:

configuring a selected module with the value of the parameter; and

storing the configured module for subsequent inclusion in and implementation by another executable computer program.

11. The method of claim 1, further including:

executing, before executing the executable computer program, first, second and third passes for each particular module of the plurality of modules to determine and save the formatted output data format for the particular module specifying which fields are required by modules downstream to the particular module and to determine and save an input data format for the particular module specifying which fields are accessible to the particular module, the executing including:

during the first pass, the particular module broadcasts, to modules upstream to the particular module, one or more messages that include data representing those one or more fields that are required by itself and by any modules downstream of the particular module, wherein the particular module that performs the broadcast is a broadcasting module and wherein the upstream modules that receive the broadcast are recipient modules;

during the second pass, the recipient modules transmit to the broadcasting module one or more messages specifying which recipient modules can provide values of the required fields; and

during the third pass, the broadcasting module analyzes the messages received from the recipient modules and, in response, the broadcasting module transmits back to the recipient modules one or more messages specifying which recipient module is responsible for transmitting which field to the broadcasting module.

12. The method of claim 1, further including:

receiving, in a data stream, the structured data item including one or more data records; and

for at least one of the one or more data records,

executing the executable computer program to process the at least one of the one or more data records; and

based on a saved output data format of at least one of the one or more first modules, removing, prior to submission of the at least one of the one or more records to one of the one or more second modules, one or more fields from the at least one of the

records that are not specified as input into at least one of the one or more second modules at least partly based on the output of the first module.

13. The method of claim 1, further including:

defining, in the specification, one or more new modules; and

saving at least one of the one or more new modules to a global palette that specifies entities that are available for inclusion in other specifications.

14. The method of claim 1, further including:

defining, in the specification, one or more new modules; and

saving at least one of the one or more new modules to a local palette that specifies entities that are available for inclusion only in the specification and not in other specifications.

15. The method of claim 1, further including:

accessing a previously defined module that is included in a global palette for specification definition;

modifying one or more attributes of the previously defined module; and

performing an operation including:

storing the modified previously defined module to a local palette that specifies entities that are available for inclusion only in the specification and not in other specifications; or

saving the modified previously defined module to the global palette such that the modified previously defined module is accessible to other specifications.

16. The method of claim 1, further including:

defining, in the specification, one or more new first modules;

defining, in the specification, one or more new second modules; and

configuring at least one of the one or more new first modules to be a data source for at least one of the one or more new second modules.

17. The method of claim 1, wherein a module includes one or more other modules.

18. The method of claim 1, further including configuring a selected module with a value of a parameter; and

storing the configured module for subsequent inclusion in another program.

19. The method of claim 1, further including:

determining that only one of the one or more second modules accesses a particular one of the one or more fields that are accessible to the first module;

determining that the only one of the one or more second modules accesses the particular one of the one or more fields from a third module that is distinct from the first module; and

formatting the output data format to not output one or more values for the particular one of the one or more fields accessed by the only one of the one or more second modules.

20. The method of claim 1, wherein a structured data item includes a data record.

21. The method of claim 1, wherein the computer program is associated with the plurality of modules by:

the computer program including at least one or more of the modules in the plurality; or

the computer program referencing at least one or more of the modules in the plurality.

22. The method of claim 1, further including:

generating a graphical user interface that includes one or more visual representations of one or more of the modules, wherein a visual representation is selectable, with selection of the visual representation causing the specification to specify that a module represented by the selected visual representation is included in the executable computer program.

23. The method of claim 22, wherein the graphical user interface further includes a selectable control, selection of which causes the specification to be automatically transformed into the executable computer program.

24. The method of claim 1, wherein the executable computer program includes an executable dataflow graph that includes nodes and links, with the nodes in the executable dataflow graph representing data processing components, and with the links in the executable dataflow graph indicating flows of data among the data processing components.

25. The method of claim 1, wherein identifying the one or more second modules includes:

determining if each of the one or more second module receives input that is at least partly based on the output of the first module; and

wherein the method further includes formatting the first module such that input is provided to the one or more second modules based on the results of that determining step.

26. The method of claim 25, further including,

identifying values of fields of the structured data item that are accessed by the first module;

wherein determining if each of the one or more second module receives input includes:

determining that input to each of the one or more second modules is at least partly based on at least one of the values of at least one of the fields of the structured data item accessed by the first module; and

wherein formatting includes:

formatting the first module to only output the at least one of the values of the at least one of the fields of the structured data item.

27. The method of claim 1, wherein formatting includes:

if:

(i) the one or more fields are specified as input into the first module, and

(ii) the one or more fields are specified as input into at least one of the one or more second modules,

then:

formatting an output data format of the first module such that an output of the first module specifies only one or more values of one or more identified fields corresponding

to (i) one or more fields specified as input into the first module, and (ii) one or more fields specified as input into at least one of the one or more second modules.

28. The method of claim 1, wherein identifying one or more fields to not include in the output data format of the first module, includes:

identifying which fields to remove from output of the first module, when the structured data item is processed.

29. A computer system for automatically transforming a specification into an executable computer program that processes one or more values of one or more fields in a structured data item, the computer system including:

one or more processing devices; and

one or more machine-readable hardware storage devices storing instructions that are executable by the one or more processing devices to perform operations of the method of any one of claims 1 to 28.

30. One or more machine-readable hardware storage devices for automatically transforming a specification into an executable computer program that processes one or more values of one or more fields in a structured data item, the one or more machine-readable hardware storage devices storing instructions that are executable by one or more processing devices to perform operations of the method of any one of claims 1 to 28.