

WHAT IS CLAIMED IS:

1. A building management system comprising:
 - building equipment configured to provide raw data samples of one or more data points in the building management system;
 - a data collector configured to collect the raw data samples from the building equipment and generate one or more raw data timeseries comprising a plurality of the raw data samples;
 - a timeseries processing engine configured to:
 - select one or more timeseries processing workflows from a plurality of timeseries processing workflows by analyzing inputs of the plurality of timeseries processing workflows to identify that the one or more timeseries processing workflow use the raw data timeseries as an input, each of the plurality of timeseries processing workflows comprising a predefined sequence of timeseries processing operations; and
 - process the raw data timeseries using the one or more timeseries processing workflows to generate one or more derived data timeseries; and
 - a timeseries storage interface configured to store the raw data timeseries and the one or more derived data timeseries in a timeseries database.
2. The building management system of Claim 1, wherein each of the plurality of timeseries processing workflows comprises:
 - an indication of one or more input timeseries to which the timeseries processing workflow applies;
 - the predefined sequence of timeseries processing operations; and
 - an indication of one or more derived data timeseries generated by applying the predefined sequence of timeseries processing operations to the input timeseries.
3. The building management system of Claim 2, wherein the input timeseries comprise at least one of:

the one or more raw data timeseries generated by the data collector; or
the one or more derived data timeseries generated by the timeseries processing engine.

4. The building management system of Claim 1, wherein the timeseries processing engine is configured to generate a plurality of directed acyclic graphs, each directed acyclic graph corresponding to one of the plurality of timeseries processing workflows and visually representing the predefined sequence of timeseries processing operations in the corresponding timeseries processing workflow.

5. The building management system of Claim 4, wherein each directed acyclic graph comprises:

one or more input blocks representing one or more input timeseries to which the corresponding timeseries processing workflow applies;

one or more functional blocks representing the predefined sequence of timeseries processing operations in the corresponding timeseries processing workflow; and

one or more output blocks representing one or more derived data timeseries generated by applying the predefined sequence of timeseries processing operations to the input timeseries.

6. The building management system of Claim 5, wherein the timeseries processing engine is configured to:

receive user input via a graphical workflow editor, the user input comprising an adjustment to at least one of the one or more input blocks, the one or more functional blocks, or the output blocks in one of the plurality of directed acyclic graphs;

determine an adjustment to the corresponding timeseries processing workflow based on the user input; and

automatically apply the adjustment to the corresponding timeseries processing workflow in response to receiving the user input.

7. The building management system of Claim 1, wherein the timeseries processing engine is configured to optimize each of the plurality of timeseries processing workflows by combining two or more individual timeseries processing operations in a single workflow into a combined timeseries processing operation.

8. The building management system of Claim 1, wherein the timeseries processing engine is configured to optimize the plurality of timeseries processing workflows by:

identifying multiple timeseries processing workflows that require one or more shared input timeseries; and

combining the multiple timeseries processing workflows into a single timeseries processing workflow.

9. The building management system of Claim 1, wherein the timeseries processing engine is configured to generate the one or more derived data timeseries prior to a request for the one or more derived data timeseries.

10. The building management system of Claim 1, further comprising a workflow manager configured to detect a change in one or more of the raw data timeseries or the one or more derived data timeseries;

wherein the timeseries processing engine is configured to process the changed data timeseries in response to detecting the change.

11. The building management system of Claim 10, wherein processing the changed data timeseries in response to detecting the change comprises:

identifying one or more of the plurality of timeseries processing workflows that apply to the changed data timeseries;

identifying any other timeseries indicated as required inputs to the identified timeseries processing workflows; and

providing the changed data timeseries, the other timeseries indicated as required inputs, and the identified timeseries processing workflows to the timeseries processing engine.

12. The building management system of Claim 11, wherein the workflow manager is configured to:

receive, from the timeseries processing engine, a plurality of derived data samples generated by processing the changed data timeseries; and

generate one or more additional derived data timeseries comprising the plurality of derived data samples.

13. A method for processing timeseries data in a building management system, the method comprising:

operating building equipment to generate raw data samples of one or more data points in the building management system;

collecting the raw data samples from the building equipment;

generating one or more raw data timeseries comprising a plurality of the raw data samples;

selecting one or more timeseries processing workflows from a plurality of timeseries processing workflows by analyzing inputs of the plurality of timeseries processing workflows to identify that the one or more timeseries processing workflow use the raw data timeseries as an input, each of the plurality of timeseries processing workflows comprising a predefined sequence of timeseries processing operations;

processing the raw data timeseries using the one or more timeseries processing workflows to generate one or more derived data timeseries; and

storing the raw data timeseries and the one or more derived data timeseries in a timeseries database.

14. The method of Claim 13, wherein each of the plurality of timeseries processing

workflows comprises:

- an indication of one or more input timeseries to which the timeseries processing workflow applies;
- the predefined sequence of timeseries processing operations; and
- an indication of one or more derived data timeseries generated by applying the predefined sequence of timeseries processing operations to the input timeseries.

15. The method of Claim 14, wherein the input timeseries comprise at least one of:
the one or more of the raw data timeseries; or
the one or more ~~of the~~ derived data timeseries.

16. The method of Claim 13, further comprising generating a plurality of directed acyclic graphs, each directed acyclic graph corresponding to one of the plurality of timeseries processing workflows and visually representing the predefined sequence of timeseries processing operations in the corresponding timeseries processing workflow.

17. The method of Claim 16, wherein each directed acyclic graph comprises:
one or more input blocks representing one or more input timeseries to which the corresponding timeseries processing workflow applies;
one or more functional blocks representing the predefined sequence of timeseries processing operations in the corresponding timeseries processing workflow; and
one or more output blocks representing one or more derived data timeseries generated by applying the predefined sequence of timeseries processing operations to the input timeseries.

18. The method of Claim 17, further comprising:
receiving user input via a graphical workflow editor, the user input comprising an adjustment to at least one of the one or more input blocks, the one or more functional blocks, or the output blocks in one of the plurality of directed acyclic graphs;

determining an adjustment to the corresponding timeseries processing workflow based on the user input; and

automatically applying the adjustment to the corresponding timeseries processing workflow in response to receiving the user input.

19. The method of Claim 13, further comprising optimizing each of the plurality of timeseries processing workflows by combining two or more individual timeseries processing operations in a single workflow into a combined timeseries processing operation.

20. The method of Claim 13, further comprising optimizing the plurality of timeseries processing workflows by:

identifying multiple timeseries processing workflows that require one or more shared input timeseries; and

combining the identified timeseries processing workflows into a single timeseries processing workflow.