we would appreciate it if you could complete the following task. Please spend no more than two hours .

# Task

“mPlan” produces a streaming pipeline engine application. Users use this to run simple pipelines on their data. Unfortunately, the engine’s users have a high rate of support requests, and mPlan frequently receives tickets. Even worse, these tickets frequently take a long time to diagnose & resolve. You have been asked to do two things:

* Reduce the immediate flood of tickets by handling some tickets from the backlog.
* Recommend and/or implement changes to the application to reduce the amount of support requests coming in and make them easier to resolve.

Please respond to the tickets (e.g. explaining, bug fixing, whatever you think is best) and return a report containing the responses to us along with your recommendations or changes for making support of this application easier. Feel free to make assumptions about users or use-cases, but please document those as well.

The application code will be provided separately. It should be a zip file containing:

1. app.py
2. stream.json

The tickets start on the next page. Please respond to all of them.

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| Ticket ID: SPE-10 |  |
| My stream runs forever and doesn’t generate any output. Help!  [  [ "count\_up", {} ],  [ "linear", { "offset": -10, "scale": 2 } ],  [ "filter\_out", { "above": 0 } ],  [ "take\_for", { "count": 10 }] ] | |
| Ticket ID: SPE-20 |  |
| I think there is a bug in your app. My stream crashed with a “type error”. I expect it to produce -5, -3, and then every odd number up to 101, but it just crashes. What’s going on?  [  [ "count\_up", {} ],  [ "linear", { "offset": -5, "scale": 2 } ],  [ "window", { "size": 3 } ],  [ "take\_until", { "threshold": 100 }] ] | |
| Ticket ID: SPE-30 |  |
| I am running into a problem with my stream. It is:  [  [ "count\_up", {} ],  [ "window", { "size": 3 } ],  [ "take\_for", { "count": 10 }]  ]  And I expect it to produce:  [0]  [0, 1]  [0, 1, 2]  [1, 2, 3] ...  But it actually produces:  [7, 8, 9]  [7, 8, 9] ...  What am I doing wrong? | |

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| Ticket ID: SPE-40 |  |
| My stream (below) produces numbers forever. It’s supposed to stop after 28! Please  [  [ "count\_up", {} ],  [ "square", {} ],  [ "take\_until", { "expected": 28 }] ] | |