Issue #16389:

"Size" ignored if placed before fontproperties

Potential source of the bug:

This bug appears to be caused by the Artist.update() function, which handles the two properties "size" and "fontproperties" in different ways depending on their parameter order when passed into update(). It seems that when the update() is called, if "size" is listed before "fontproperties" in the call parameters, then size will get set first, followed by the creation of a FontProperties instance with non-given defaults. Herein lies the problem; a FontProperties instance comes with a default font "size" when then overwrites the size that was set. This also explains why "size" works as intended when placed after "fontproperties", as "size" is able to overwrite the default set by "fontproperties", since update() processes "size" after "fontproperties".

Impact on other parts of the system:

Implementing a fix to this bug should in no way affect other parts of the system because the fix should only prevent the overwriting of "size" caused by the default initialization of FontProperties.

Work estimates:

Software Design: 5 hours

The issue post has very good comments from the developer hinting at where the bug might be. Following that, finding the bug won't be too difficult, but properly understanding the surrounding code will take the most time this phase.

Implementing and Unit Testing: 4 hours

With the difficult part of finding the location of the bug completed, fixing the bug should be simple, and writing unit tests for the fix just as simple. Due to the relative simplicity of the fix, other bugs should not be encountered.

Integration and System Testing: 3 hours

The pre-existing tests will ensure other parts of the system remains unaffected by the bug fix. There is no expectation for complications to arise, as the fix is very targeted.

Operation and Maintenance: 2 hours

This phase requires a pull request and the closing of the issue. Making sure the pull request is up to the standards required by the developers will take some time and diligence, but otherwise closing the issue should be a quick process.

Justification for bug selection:

This bug has been selected due to the easy-to-understand nature of the bug, as well as the hints provided in the issue post regarding where the bug may be. This means that the team can quickly get their hands dirty and start understanding the inner workings of matplotlib. Also, it will ensure good headroom when working on the fix, which can translate into more efficient code, better waterfall phase-reports, and even extra time to help with other bugs.