

Peer Review File

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Reviewer Comments

Eddington et al. describe a tutorial for creating clinical prediction calculators using R/Shiny framework. The manuscript is well written and it can help beginners get started with Shiny for scientific/clinical data analysis. I congratulate the authors for creating this paper which can facilitate bridging the gap between disciplines. I find this paper worthy of publication and recommend authors to address a few minor points:

Comment 1- There are a few typos in the text. Ones that come to mind are i) the section where the authors refer to the rds file as an R file (it can get confusing for the reader), and ii) mismatches between figure numbers and figure citations in the text. Please give it another read to fix these issues.

Reply 1. Thank you for your careful review of our manuscript. We have reviewed the manuscript again for typos and have made the changes mentioned.

Comment 2- The text reads well for someone who has done coding/ML/shiny before, but considering the wider readership of this journal, it would be good to provide short details about the introduced concepts. I recommend adding a few sentences for ML/modeling in R, 1-0 encoding for variables, Shiny framework, ui/server workings, the concept of reactivity etc.

Reply 2. We have addressed this recommendation by adding the principles referenced in this comment.

Changes: Lines 42-47, 108-111, 166-167, 174-176

Comment 3- Can authors comment on why it is preferred to host model R objects (rds files) on Github as opposed to pushing it to shinyapps.io server along with ui/server? I see why it would be a bad idea to hard-code the model into the code using model coefficients, but I fail to see the added benefit of Github over files that can be packaged together with the Shiny app.

Reply 3. Thank you for this excellent point. Our reasons for doing this in our own practice were related to multiple calculators utilizing the same model, as well as maintaining a single location where models can be easily updated at the same time. However, in reviewing this comment we agree that packaging them together is more intuitive, especially for a learner audience.

Changes: We have redeployed the calculator and significantly revised the text on lines 128-152 to describe using packaging with the app as the primary method of model deployment, and our previous GitHub option as a secondary method.

Comment 4- It would be better if the authors break the code down into multiple lines to improve readability. If possible, syntax color coding will be also good for readers (different colored function names, rainbow color-coded parentheses etc)

Reply: We have added spacing between blocks of code and added syntax coloring consistent with Rstudio.

Comment 5- Please consider increasing the font sizes in figure 1. Red font over dark gray left panel is not easily discernible

Reply: We have made the text more readable, including changing the coloring of the text.

Comment 6- It would be a good idea to cite a few recent scientific analysis interfaces created using R/Shiny to further emphasize that this approach is gaining popularity to facilitate data analysis in various areas of science. These papers can be fitting: PMIDs: 34928943, 32070336, 32414321, 30567491, 26817711

Reply: Thank you for these suggestions, we have added them to our reference list as well as a sentence on line 16 providing relevant preface.

Comment 7 - Please consider adding a short paragraph (possibly in discussion) to give a more generic example for a use case scenario. The selection of the current example (mortality after hip fracture) is based on the prior work of the authors, and it is fine. However, the wide readership of this journal may benefit from a simpler example. Maybe something like this? Heart attack prediction (response variable), chest pain, age, abnormal ECG, gender (as predictor variables). R's built-in heart dataset can be referred to as ready to use dataset for prototype development. I'm not recommending changing the code altogether, but giving an example like this can increase appreciation for the wide-range applicability of the tutorial.

Reply: This is an excellent point that we had not considered regarding the scope of our own clinical scenario.

Changes: We have added a paragraph using the scenario as the reviewer described in lines 250-256.