

Code Evaluation questionnaire

this document aims to provide a guideline how to evaluate (R) code

Please note: not all item might be applicable - please cross-out any non-relevant parts.

Please also use dedicated R package for code diagnostics e.g. lintr, codetools, goodpractice, devtools::spell_check().

1. Informative naming of the file(s)/package?

☐ absolutely ☐ not really because: _____

Meta-Information

2. Meta-information does exist? ☐ Yes ☐ No

3. Authors name: _____

4. Contact details are provided (email, URL, git)? ☐ Yes ☐ No

5. Date of development is listed? ☐ Yes ☐ No

6. Main purpose of the analysis is explained? ☐ yes ☐ not really because: _____

7. Needed input is defined?(format incl. which information are required e.g. shp with column of type x and content of y) ☐ yes ☐ not really because: _____

8. Output is defined? (incl. explanations, format etc.) ☐ yes ☐ not really because: _____

9. R version used and R packages needed are listed? ☐ yes ☐ not really because: _____

10. Operating system used is listed or on which one it has been tested? ☐ yes ☐ no

11. Required other scripts/commands are listed? (e.g. script with functions called via source())
☐ yes ☐ not really because: _____

12. If other software is required, it is explained? (download url, installation etc.)
☐ yes ☐ no, because pure R code is used ☐ no, but it is desparately needed: _____

13. Informative header is well formatted? ☐ yes ☐ not really because: _____

14. All necessary details are provided?

- ☐ Yes, I understand its aim and needed input
☐ No, I need to check the code carefully
☐ just some parts are provided.

15. What do you think until now what the output/results will be? Describe it briefly before checking the actual code:

Actual Code for the Analysis

16. The script is actually a package? ☐ yes ☐ no

17. Proper documentation (manual pages) is provided for this package? ☐ yes ☐ no ☐ partly

18. Data import is generic? (no full paths, direct import possible) yes ☐ ☐ ☐ ☐ ☐ no

19. Well commented? could be improved ☐ ☐ ☐ ☐ ☐ fantastic

remarks: _____

20. Ratio of Comments vs. Code is adequate? no comments ☐ ☐ ☐ ☐ ☐ too many comments

21. Easy to read? (appropriate indentation and spacing) could be improved ☐ ☐ ☐ ☐ ☐ fantastic

22. The code is written for generic data analysis? (not just one specific data set can be used)
☐ absolutely ☐ not really because: _____
23. The analysis can be run easily on other data sets? (generic code)
☐ absolutely ☐ not really because: _____
24. Is the code flexible? (i.e allows inputs of different data types, e.g geoPackage instead of shp)
☐ absolutely ☐ not really because: _____
25. Does the code require a rigid data structure? (e.g. specific column names in data frame)
☐ absolutely ☐ no, quite flexible
26. Data can be retrieved without contacting the author?
☐ absolutely ☐ not really because: _____
27. Code follows a logical structure? ☐ absolutely ☐ partly ☐ not really because: _____
28. Analysis only includes relevant codes? (no code or output which is not used afterwards)
☐ absolutely ☐ partly ☐ not really because: _____
29. Are the derived variables self-explanatory? (e.g. through clear variable names and/or comments)
☐ absolutely ☐ partly ☐ not really because: _____
30. A consistent documentation structure/naming convention is applied?
☐ absolutely ☐ partly ☐ not really because: _____
31. Appropriate use of commands - no unnecessary complex code snippets?
☐ absolutely ☐ partly ☐ not really because: _____
32. If a function or command is provided: are example code/data provided/explained?
☐ yes for all ☐ partly ☐ not really because: _____
33. Does the code minimize the storage of data? (e.g. removal of unused variables)
☐ yes ☐ no ☐ partly
34. Does the code minimize the use of RAM? (e.g. appropriate subsetting, no re-reading data)
☐ yes ☐ no ☐ partly
35. Data handling and transformation is coherent and well commented?
 yes, fully ☐—☐—☐—☐—☐ no, not at all
36. Novel code not covered in the course is used? a lot ☐—☐—☐—☐—☐ just known commands
37. Analysis is fast (based on performance measures) yes ☐—☐—☐—☐—☐ no

Which parts could be improved?

38. The code can be executed without any fixes? ☐ absolutely ☐ not really because: _____

Code Impression

39. The analysis triggered interest and you learned new things?

yes, a lot ☐—☐—☐—☐—☐ no, not a bit

40. Please describe what was special/interesting:

41. What is missing from the code?

42. What do you especially dislike about the code:

43. Please describe your impression of the code:

Graphs and Maps

44. Plots or maps are providing key messages? ☐ absolutely ☐ not really because: _____

45. Plots/maps are self-explanatory? ☐ absolutely ☐ not really because: _____

46. Graphs or Maps are providing key messages?

☐ absolutely ☐ partly ☐ not really because: _____

47. Plots/Maps are self-explanatory?

☐ absolutely ☐ partly ☐ not really because: _____

48. Plots/maps are informative? yes ☐—☐—☐—☐—☐ no

49. Graphs include all necessary items? (legend, axis title etc.)

☐ absolutely ☐ partly ☐ not really because: _____

50. Plots/maps are not overloaded? yes, clean ☐—☐—☐—☐—☐ no, totally cluttered

51. Plots/maps layout is consistent through-out the analysis?

☐ absolutely ☐ partly ☐ not really because: _____

52. Plots/maps have appropriate colour scheme?

☐ absolutely ☐ partly ☐ not really because: _____

53. Plots/maps have appropriate font size/type/orientation?

☐ absolutely ☐ partly ☐ not really because: _____

54. Maps have scale bars, legend, coordinates?

☐ yes, all ☐ partly ☐ not really because: _____

55. Maps include landmarks, cities, roads for orientation?

☐ yes ☐ partly ☐ not really because: _____

56. Please write what you (dis-)liked in the graphs/maps:

Overall Impression of the Coding

Please evaluate the following parts:

57. **Readability** could be improved ☐—☐—☐—☐—☐ fantastic
58. **Information** could be improved ☐—☐—☐—☐—☐ fantastic
59. **Structure** could be improved ☐—☐—☐—☐—☐ fantastic
60. **Innovation** could be improved ☐—☐—☐—☐—☐ fantastic

61. Do you think it qualifies for being reproducible?

- ☐ yes
- ☐ no
- ☐ needs some more work: _____

62. Is the code really worth the effort for you to check it out?

- ☐ yes, totally. ☐ rather not. ☐ don't know, not fully understood yet.

63. Would you be interested to use this code for your analysis?

- ☐ yes, would love to
- ☐ no, not really anything I couldn't do myself
- ☐ yes, definitely parts of it.
- ☐ No clue what is does. I just can't figure it out.

64. Correct spelling? yes ☐—☐—☐—☐—☐ no, lots of errors and typos

Overall Rating of the Analysis

Please evaluate the following parts:

65. **Goal of the analysis is obvious?** could be improved ☐—☐—☐—☐—☐ fantastic
66. **Research questions and hypothesis properly defined?** could be improved ☐—☐—☐—☐—☐ fantastic
67. **Triggered interest?** could be improved ☐—☐—☐—☐—☐ fantastic
68. **Innovation of the Analysis** could be improved ☐—☐—☐—☐—☐ fantastic
69. **Analytical mistakes exist** ☐ non, none ☐ yes, the following:

70. Do you think it qualifies for being a scientific analysis?

- ☐ yes
- ☐ no
- ☐ needs some more work: _____

71. When you check your anticipated results/output (Q 15) at the beginning - are your expectations met? and if no, why not:

72. What is missing from the analysis?

73. What do you especially like about this analysis:

74. What do you especially dislike about this analysis:

75. How do you think the analysis can be improved or which crucial parts need to be fixed/added:
