

CSPA Exam 3 - Predictive Modeling - Methods and Techniques

Practice Exam

This Practice Exam will not be graded. Some of the instructions below will refer to grading. These instructions were intentionally left in the Practice Exam Instructions to simulate "exam-day" instructions.

Instructions Relating to the Virtual Exam Environment

- 1) Once this exam begins it will be available for up to FOUR hours. If you take a break, the exam timer will continue to run.
- 2) With the exception of questions entitled "R question...", please answer the questions in the Excel workbook.
- 3) For the R questions, you will save all of your work in an R script (.R) file that is provided for that question.
- 4) Because you are able to choose which R questions you want graded, it is very important to indicate this by modifying cell B1 on the relevant sheets of the Excel workbook.
- 5) Do not save exam files under different names from those they already have. Only the original files will be graded.
- 6) Control and Alt keyboard shortcuts may not work in the virtual environment. They have not been intentionally turned off, but these features may work differently in the virtual environment than they do normally and may vary for different types of computers. Some people have found that Ctrl-C (copy) and Ctrl-V (paste) work, while Ctrl-Page Down (switch tabs) does not. In fact, for them using Ctrl-Page Down creates an unusual behavior where additional tabs are grouped with the current tab until the Ctrl key is pressed again. Candidates may want to avoid using this shortcut.

Instructions Relating to the Multiple Choice and Free Answer Questions

- 7) Each question is asked on a single sheet, with the sheet name matching the question number (e.g. Question 1 is on sheet "1"). The question number is also shown in cell A1 on each question sheet.
- 8) On each question sheet, the exam question is provided in a protected grey area; while you may modify the formatting within this area, you may not change the content of the area, insert any rows/columns, or delete any rows/columns. **If the content or cell range of the grey area is changed in any way, your answer to that question will not be graded.**
- 9) In the event that you accidentally delete a question or question sheet, there is a read-only copy of the workbook available on the desktop. You can copy question sheets back in from that workbook if you accidentally delete a sheet here. Please then copy and paste any work you may have done for that question to the sheet you have.
- 10) For each question, the number of points for the full question is indicated in cell A3. The number of points for each subpart may be indicated in some cases.
- 11) In cell B1 of each question sheet you have the option to identify the status of your answer as "Incomplete", "Finished", or "Review". Any selections made will also appear in the Point Grid sheet. With the exception of R questions, these selections are optional and solely for your benefit, and they will not be provided to the grader.
- 12) Candidates can change the size of the Excel content by changing the zoom slider in the lower right corner of the workbook. Multiple sheets can be adjusted at the same time by selecting them before zooming.
- 13) DO NOT use "Clear Formats" or "Clear All" to remove cell contents. Doing so will lock the cell. Instead use "Clear Contents" or just delete the contents of the desired cell.
- 14) Enter answers in the white space below or to the right of the grey question box. Any cell content beyond Row 200 or Column AZ will NOT be graded.
- 15) The answer should be concise and confined to the question as posed. When a specified number of items is requested, do not offer more items than requested. For example, if you are requested to provide three items, only the first three responses will be graded. Also, for multiple choice questions, only the choice will be graded.

and not any work that may have been required to get there. In other words, there is no partial credit for multiple choice questions. Please ensure that you clearly indicate a choice, which should always be A, B, C, D, and be sure that that indication is NOT in the grey area of the sheet.

- 16) In order to receive full credit or to maximize partial credit on mathematical and computational questions, clearly outline your approach in either verbal or mathematical form, showing calculations where necessary. While Excel tools can assist in calculations, candidates should ensure there is sufficient documentation of their work.
- 17) Use of Excel functions (for example SUM, AVERAGE, SUMPRODUCT, etc.) is allowed and encouraged but not required.
- 18) You must clearly specify any additional assumptions you have made to answer the question.
- 19) Only work shown on the question sheets will be graded; a copy of the sheets will be provided to the graders such that the graders can consider both the formula entered in a cell and the result of that formula. A scratch sheet is available for candidates to use for side work. Any contents included on the Point Grid sheets will not be provided to the graders.
- 20) DO NOT use named ranges as they may not copy over correctly to the graders.
- 21) DO NOT use Visual Basic code. It will not be provided to the graders.
- 22) DO NOT use cell comments. Content in cell comments will not be graded.
- 23) DO NOT include links to other sheets; linked values in candidate answers will not carry over correctly to the grading files.
- 24) Cell contents do not need to be printer-friendly. Text within a cell can extend beyond what can be seen on the screen.

Instructions Relating to the R Questions (R1 to R5)

- 25) The text of the questions is in the Excel workbook.
- 26) **The R questions are "Do any 4 of 5". Please indicate in cell B1 of the workbook which questions you want to have graded by marking them "Finished".**
- 27) **When R questions are graded, they will be sorted primarily in order "Finished", "Review", and "Incomplete" and within each category by question number. The first four (4) questions when sorted in this order will be graded.**
- 28) To start the R questions in general, sign into RStudio in the remote version of Chrome using the ID and password provided in the Notepad document. If the browser is not already set to RStudio, please click on the RStudio icon on the TaskBar.
- 29) To start a given R question, please go to File...Open Project, and open the folder for the given question. The .Rproj file that then appears.
- 30) The upper-left pane within RStudio will contain a script, with a few lines already in it that will load the necessary libraries and packages. Do not remove or modify these lines. After executing them, you will add whatever code you need to answer the question. If this script does not appear when the project opens (this will probably be the first time you open each project), there will be a file under the FILES tab in the lower right pane with a name like question4.R in the same folder as the Rproj file. Click on it to open the script.
- 31) Answer the question by appending code and comments to the script and running the script. The graders will grade your code in order. To run only the lines you have recently entered, you can select them with your mouse and click the "->Run" button at the top of the script page.
- 32) Questions also call for interpretation and commentary. Please insert your interpretation and commentary in your script. As a reminder, comments in R begin with a # and extend to the end of the line.

- 33) Question reviewers will only rely on information contained in your script to grade your answer. They are not able to run that script to recreate your answer, so be sure that your script records every relevant action you have taken. If you execute lines at the console, be sure to copy them to the script if they are necessary for the code to run properly. For example, if you create an object or a variable from the console and then refer to that object or variable in your script, the script will not run later for the grader, since that object or variable has never been created. **Candidates are strongly encouraged to run their script top to bottom (previously having cleared objects from the environment) to ensure that it will run as intended for the grader.**
- 34) When you have completed a question, or wish to switch to working on a different R question, use "File...Close Project". You will be prompted to save any changes to your script file. You should do so. You may wish to use "File...Save As" (but do NOT change the filename) while working to save changes specific to a question.
- 35) The environment is set up so that only one RStudio session may be open at a time, so you must Close the current R question to work on a different one.

orkbook. (Details below.)