University of Toronto at Scarborough
Department of Computer and Mathematical Sciences

CSCC11: Introduction to Machine Learning

Winter 2021

Take-Home Open Book Final Exam

April 17, 03:00 PM – April 19, 03:00 PM

Preamble: The goal in this exam is to apply what you have learned. You are encouraged to use the online notes, your class notes, and you are encouraged to use your assignment code in solving the problems below. Your work should be your own. Do not post problems online or ask others for help.

Instructions: Download the starter file called `exam.tgz` on Quercus. Once downloaded and unpacked, a directory called `Exam` will exist. Please do not change the directory structure or the headers of functions in python files. All modified python files and others you generate (e.g., plots) should be left in the Exam directory (which you'll submit). Remember to read all instructions and comments in the python files very carefully.

Written work: For written answers you can either write on paper or use an editor that supports equations (e.g. Word or LaTeX). If writing on paper, please scan or photograph and save as a png file or perhaps pdf (and make sure it is easily legible). If formatting your answers in Word or LaTeX etc, please save as pdf. All such png or pdf files should be left in the Exam directory for submission.

Programming work: You'll use the same environment you've been using on assignments. You will need Python3, Numpy, Matplotlib, and Pickle; you **may not** import or use any other python packages. Please pre-install if working on your own computer. If you'd rather work on a UTSC machine, remote login to one of these lab machines:

1. IC lab (ranging from 01 to 50): i406-[01-50]
2. BV lab (ranging from 01 to 40): b473-[01-40]

with addresses `iits-<machine_to_use>.utsc-labs.utoronto.ca`. E.g. to access IC406 machine 1 from MACOS or linux, use `ssh -X <utorid>@iits-i406-01.utsc-labs.utoronto.ca`.

NOTE: You are not required to vectorize your programs to earn full marks.

Submission: Submit your exam on the Quercus (like assignments). Do not modify the Exam directory tree or method/function headers therein.

For submission, all code, pdf files etc should be in a single directory called `Exam`. Tar up that directory into a file named `ExamSol_<utorid>.tar`; the command should be
`tar -cf <name>.tar Exam/**/*.py Exam/**/*.txt Exam/**/*.png Exam/**/*.pdf`
Before the actual submission, make sure that you did not tar up the datasets, can untar the file and see all the necessary files it should contain. To submit the compressed file onto Quercus, click on the `Assignments`, and then on `Final Exam`, or alternatively, you can find it on the `Final Exam` module located at the bottom of the home page.

Important Note: Submission must be received by 3 PM on April 19, 2020. We strongly suggest you upload well before 3 PM (especially if you require VPN connection to upload), and then, if you have modifications to your code or written solutions, you can resubmit as many times as you like on Quercus.

Questions during the exam? You may send questions **(privately)** through Piazza. We will respond to individuals or the entire class as necessary. We aim to log in at the following times: 8pm and 11pm Saturday; 9am, noon, 4pm, 8pm, and 11pm on Sunday; and 9am and noon on Monday.