The AIExam Package

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Preliminaries

You can use AIExam R package from the student portal to generate practice exam questions and even complete exams. See the R FAQ document for information about installing and using R packages and general R questions.

Generating sample exam questions and answers in R

You can generate sample questions in R. In all cases, you are able to obtain the answer to the generated question.

There are nine algorithmic questions, and each one will differ each time only in the values used. The answer given will be specific to the values generated.

There are also nine text questions. You can generate n random text questions sampled from these nine, or you can request specific text questions from these nine. The answers to these questions are always the same (and will be the same on the exam too - rote learning is a successful strategy with these, but after all we want you to remember these things).

Look at the documentation for each function for more details.

Function	What it does
makeQuestionAStar	Generates the A* question with random values and (optionally) its answer.
makeQuestionMCMC	Generates the Bayesian Network/MCMC sampling question with random values and (optionally) its answer.
makeQuestionHMM_FB	Generates the HMM question that requires the use of the forward-backward algorithm with random values and (optionally) its answer.
makeQuestionHMM_Vit	Generates the HMM question that requires the use of the Viterbi algorithm with random values and (optionally) its answer.
makeQuestionAlphaBeta	Generates the alpha-beta pruning question with random values and (optionally) its answer.

makeQuestionSchedule	Generates the resource-constrained scheduling question with random action characteristics and (optionally) its answer.
makeQuestionMultiArmedBandit	Generates the multi-armed bandit question with random values and (optionally) its answer.
makeQuestionFFNN	Generates the feed-forward neural network question with random values and (optionally) its answer.
makeQuestionCNN	Generates the convolutional neural network question with random values and (optionally) its answer.
makeTextQuestions	Generates random text questions and (optionally) answers. This will select the specified number of questions from the set of 9 that exist.
makeTextQuestions2	Generates specified text questions and (optionally) answers.

Generating a sample exam

You can generate an entire exam using the createExam function. By default, this will generate every question within the question set. You will need to pass a filename, and the function will save the generated exam as latex script in this file. It will also output the required graphics for the exam.

Once this is done, you will need to compile the latex script. Make sure that you keep the generated graphics in the same location as the latex file when you compile it (otherwise the latex compiler will have trouble finding them). I use MikeTex, which you can download for free online. The latex compiler will produce a pdf of your sample exam.

Note that there are no answers included in the generated exam.

Relation to the Actual Exam

This script will be used to generate the actual exam, and so the actual questions will be in the same form as you see here. You can expect 5-8 questions on the real exam. They will be selected so as to get a spread of questions from different sections of the course, and so as not to include pairs of questions that are quite similar.