COURSE NAME **Question Catalog** **July 7, 2023**

The `Auto Multiple Choice` can be used alongside `Lua` or `Python` code to generate random numbers so that each realization or copy of the exam has different numbers for these questions.

There are some tipes of questions that are well suited for use with the software:

Multiple Choice: questions with only one correct answer, multiple correct answers, and even questions with no correct answers.

Range: It is also possible to have a numeric question with a range of accepted answers.

Open Questions: open space for the student to write a short answer or a long answer. These questions can be corrected by the teacher.

1 Question Samples

These questions do not make use of any external or internal code with `Lua` or `Python`.

Question [`example-true-false`] This proposition is true.

■ True ☐ False

Explanation: A true statement is true.

Question [`example-one-choice`] What is equal to one in $\mathbb{Z}$?

■ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5

Explanation: There is only one 1 in the set of integers.

Question [`example-multiple-choice`] ♣ Which below are the odd numbers?

■ 1 ☐ 2 ■ 3 ☐ 4 ■ 5

Explanation: All odd numbers are divisible by 2.

Question [`example-lastchoices`] Which color do you prefer?

■ red ■ green ■ blue ■ I don't care ■ I don't know

Explanation: There is no wrong answer.

Question [`example-open`] Write π with two decimal places. ☐w ☐p ■c

3.14 .....

Explanation: $\pi = 3.14$.

2 Question Samples with Lua Code

These questions use the `Auto Multiple Choice` package with `Lua` code. Code can be used to generate random numbers so that each realization or copy of the exam has different numbers for these questions.

It is necessary to use the `LuaTex` engine to compile the document when lua code is present.

There are some minor inconveniences, such as the need to use the commands `\luadirect` or `\directlua` to run lua code inside questions.

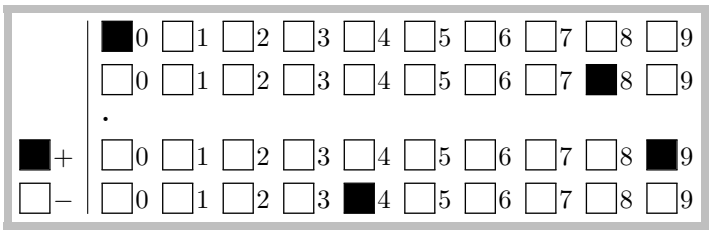
Some examples can be found below:

Question [`example-lua-random`] How much is $4 + 8$?

☐ 10 ☐ 11 ■ 12 ☐ 13 ☐ 14

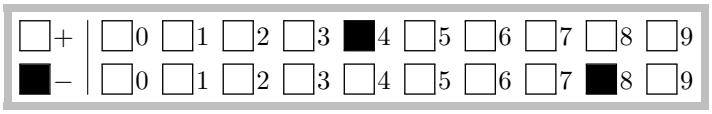
Explanation: The value is 12.

Question [`example-lua-random-open`] How much is $\sqrt{80}$?



Explanation: The value is 8.9442719099992.

Question [`example-lua-import`] How much is 8×-6?



Explanation: The value is -48.

While `Lua` is a very powerful language, it does not have all the libraries and packages such as a more popular language such as `Python`.

3 Question Samples with Python Code

These questions use the `Auto Multiple Choice` package with `Python` code. Code can be used to generate random numbers so that each realization or copy of the exam has different numbers for these questions.

It is necessary to use the `pythontex` package to compile the document when python code is present.

There are some minor inconveniences, such as the need to use the commands `\pyc` and `\py` to run python code inside questions.

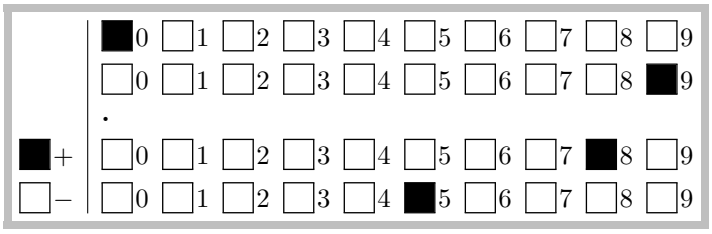
However due to the popularity of `Python`, it is possible to use many libraries and packages to generate questions.

Question [`example-python-random`] How much is $2 + 9$?

☐ 9 ☐ 10 ■ 11 ☐ 12 ☐ 13

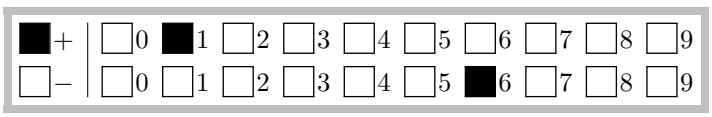
Explanation: The value is 11.

Question [`example-python-random-open`] How much is $\sqrt{97}$?



Explanation: The value is 9.848857801796104.

Question [`example-python-import`] How much is -8×-2?



Explanation: The value is 16.