



Automatic marking of R assessment

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Background

- Two courses I teach each year are assessed as follows:
 - Two assignments per course plus final exam
 - Each assignment has 2 things to submit:
 - 1) Report submitted & marked via Turnitin
 - 2) R script
- The courses are currently taught to UG and PGT students in both Malaysia and the UK (around 150 in Malaysia and 100 in the UK).
- **Aim:** make assignments interesting for students, assess students fairly and realistic to mark

Current practice

- Each assignment has either parameters depending on student ID (Stochastic Processes) or data depending on student ID (Survival Models).
- Students must calculate numbers, vectors or create functions with specified names which depend on their student IDs.
- Have code marked using a combination of Python and R.
- Most marks for each assignment are for the report
- Students will have different conclusions (e.g. best company / scheme for Stochastic Processes, hypothesis test results for Survival Models) depending on student ID.

Important Notes

- It is important to give very clear instructions about what is required (e.g. 0 marks for incorrect student ID, 0 marks for scripts with errors)
- Good to specify random number generator if using `set.seed` due to different versions of R using different default algorithms
- Should check what results are possible with different student IDs
- Provide detailed instructions on how to check for errors and what is submitted matches requirements, including submission testing R script and video demonstration
- Good practice to still provide feedback to students on their calculations

Demonstration

For this example, suppose students were given an R script which generates some data in a vector called `My_Data` and asked to:

- Store the first and last values of `My_Data` in variables called `Quantity1` and `Quantity2`
- Create a vector called `Quantity3` containing the squares of everything in `My_Data`
- Write a function called `Quantity4` which takes as input a number and then outputs the sum of `My_Data` multiplied by that number