

A unified approach to generating questions & answers of accessible materials using Rmarkdown

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Setting the scene

Goal

1. Questions in pdf
2. Questions in html
3. Solutions in pdf
4. Solutions in html

Recipe

1. ~~questions.tex~~, ~~solutions.tex~~
2. An Rmarkdown (Rmd) file
3. A makefile
4. RStudio (recommended)

LaTeX – The traditional way

```
\documentclass{beamer}
\title{A unified approach to generating questions & answers of
accessible materials using Rmarkdown}
\author{Clement Lee}
\date{2021-03-17 (Wed)}

\begin{document}
\frame{\titlepage}

\begin{frame}
\frametitle{Setting the scene}
Goal

\begin{enumerate}
\item Questions in pdf
```

Markdown – A simpler syntax

title: A unified approach to generating questions & answers of
accessible materials using Rmarkdown

author: Clement Lee

date: 2021-03-17 (Wed)

output: beamer_presentation

Setting the scene

Goal

1. Questions in pdf

R Markdown = R + Markdown

- ▶ Markdown for the text
- ▶ R code chunks
- ▶ Reproducible documents
- ▶ The use of backticks

Questions & Solutions in same document

- ▶ Code chunk options
- ▶ `include = FALSE`: Questions only
- ▶ `include = TRUE`: Questions + solutions
- ▶ Still need to toggle this option manually

Level up

- ▶ Parametrise the Rmd file
- ▶ Make: builds file from source code
- ▶ Bundling four commands in one makefile

What if you ...

- ▶ ... don't know about / need R?
- ▶ ... just want maths beautifully typeset in LaTeX?

I would still recommend this approach

- ▶ R code chunks are really optional
- ▶ Not all is lost - R Markdown accepts some LaTeX environments

Caveats

- ▶ Trade-off between:
 - ▶ Ability to generate pdf & html using the same source code
 - ▶ Full capabilities within LaTeX: environments, user-defined commands, etc.
- ▶ For maths typeset in solutions, need double backslash `\\` to represent escape character in LaTeX
- ▶ Beware of what environment you are in as there are multiple types (R, Markdown, LaTeX) of syntax in one file
 - ▶ The same special characters have different roles
 - ▶ Comments are written in different ways

Resources

- ▶ GitHub repository: <https://github.com/clement-lee/talmo>
- ▶ Exams package: <https://cran.r-project.org/package=exams>