# for Researchers

"brownbag" R user group meeting


Discussion Lead: Yong Won Jin

Date: November 15, 2022

Topic: R markdown

GEORGE & FAY YEE Centre for Healthcare Innovation

The Children's Hospital Research Institute of Manitoba

UM | SGB Statistical Genomics and Bioinformatics

# Overview

- Brief introduction for “R for Researchers”
- Introduction
- Demonstration on RStudio
- Discussion
- Topic for next session

for Researchers

# "R for Researchers" meeting

- Every 3rd Tuesday at noon JBRC501E
- Informal discussion on various topics in R programming

- Organizers:
  - Myo Minnoo
  - Yong Won Jin
- Moderator:
  - Richard LeDuc

# New to R programming? Check these out:

## MMID CODING WORKSHOP SCHEDULE

| DATE | INSTRUCTOR | TOPIC |
|---|---|---|
| January 12 | Grace E. Seo | Introduction to BASH |
| January 19 | Jill Rumore | Introduction to CONDA |
| January 26 | Aaron Petkau | Downloading and assembling microbial sequence data |
| February 2 | Grace E. Seo | Introduction to R |
| February 9 | Molly Pratt | Tidy data: combining and transforming data in R |
| February 16 | Samantha Lee | Using ggplot to visualize data and statistical results |
| February 23 | Mackenzie Wilke | Data visualization using antiviral drug-repurposing results from CLUE |
| March 2 | Taylor Davedow | Data visualization using ggtree |
| March 9 | Jessy Slota | RNA-seq data analysis in R |
| March 16 | Vasena Jayamanna | Introduction to machine learning in R |

All courses are taught by University of Manitoba students and are **FREE to ATTEND!**

Workshops are held Wednesdays from 9am-10am

**REGISTER HERE**

https://umanitobammidsc.ca/mmid-coding-workshop

(Registration is open to the general public and closes two days before the scheduled workshop at 4:30pm)

Questions? Please email MMID.coding.workshop@gmail.com

*Supported by the Department of MMID to promote knowledge translation and dissemination among students*

GEORGE & FAY YEE Centre for Healthcare Innovation | DATA SCIENCE PLATFORM WORKSHOP

## R for Absolute Beginners

October 3, 5 & 6 • 9:00 am - 12:00 pm (CDT)

## R for Data Wrangling

October 17, 19 & 20 • 9:00 am - 12:00 pm (CDT)

## R for Basic Stats

October 31 & November 2-3 • 9:00 am - 12:00 pm (CDT)

## R for Data Visualization (ggplot2)

November 14, 16 & 17 • 9:00 am - 12:00 pm (CST)

# Requirements for each session

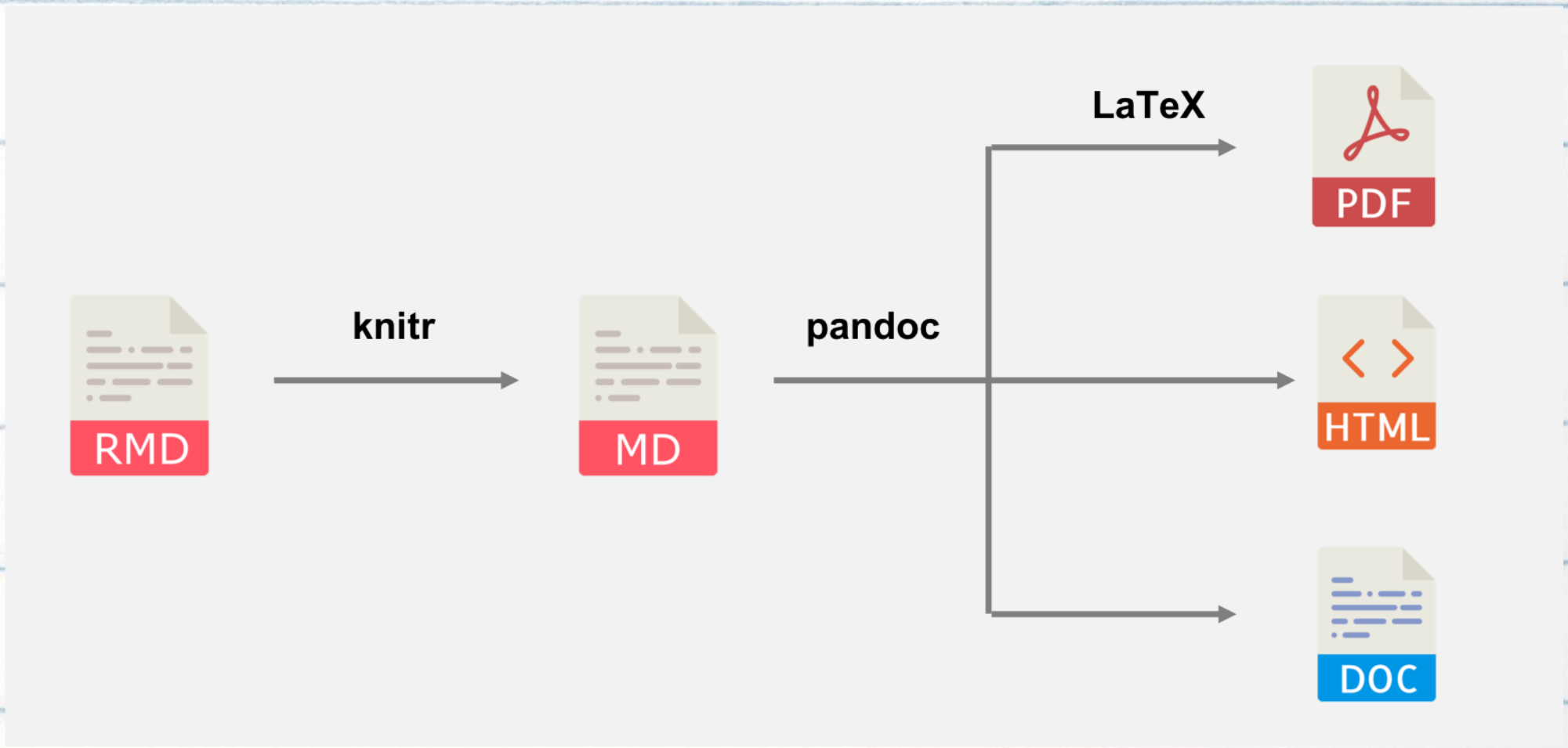
- Your lunch

- If you want to follow along
  - Laptop (in-person)
  - R (+ RStudio or other IDE)
  - Any packages required for session

# What is R Markdown?

- Reproducibility
- Accountability
- Story-telling

# How does it work?



# R Markdown Output Formats

| Feature | R Markdown | Quarto |
|---|---|---|
| Basic Formats | •html_document<br>•pdf_document<br>•word_document | •html<br>•pdf<br>•docx |
| Beamer | •beamer_presentation | •beamer |
| PowerPoint | •powerpoint_presentation | •pptx |
| HTML Slides | •xaringan<br>•ioslides<br>•revealjs | •revealjs |
| Advanced Layout | •tufte<br>•distill | •Quarto Article Layout |
| Cross References | •html_document2<br>•pdf_document2<br>•word_document2 | •Quarto Crossrefs |
| Websites & Blogs | •blogdown<br>•distill | •Quarto Websites<br>•Quarto Blogs |
| Books | •bookdown | •Quarto Books |
| Interactivity | Shiny Documents | Quarto Interactive Documents |
| Journal Articles | rticles | Quarto Journal Articles |
| Paged HTML | pagedown | Planned |
| Dashboards | flexdashboard | Planned |
| Interactive Tutorials | learnr | No equivalent planned |

# What does it look like?

YAML Header

Formatted text

Code chunk

Output

```
---
title: "html_report"
author: "Yong Won Jin"
date: "2022-11-15"
output: html_document
---

```{r setup, include=FALSE}
knitr::opts_chunk$set(echo = TRUE)
```

## R Markdown

This is an R Markdown document. Markdown is a simple formatting syntax for authoring HTML, PDF, and MS Word documents. For more details on using R Markdown see <http://rmarkdown.rstudio.com>.

When you click the **Knit** button a document will be generated that includes both content as well as the output of any embedded R code chunks within the document. You can embed an R code chunk like this:

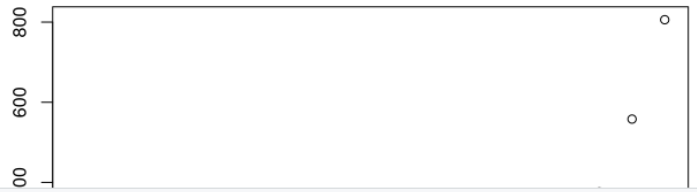
```{r cars}
summary(cars)
```

##      speed           dist
##  Min.   : 4.0   Min.   :  2.00
##  1st Qu.:12.0   1st Qu.: 26.00
##  Median :15.0   Median : 36.00
##  Mean   :15.4   Mean   : 42.98
##  3rd Qu.:19.0   3rd Qu.: 56.00
##  Max.   :25.0   Max.   :120.00

## Including Plots

You can also embed plots, for example:

```{r pressure, echo=FALSE}
plot(pressure)
```
```

# Learning Resources / References

- RStudio/Posit R Markdown Cheat Sheet
- R Markdown: The Definitive Guide by Yihui Xie, J.J. Allaire, and Garrett Grolemund
- R Markdown Cookbook by Yihui Xie, Christophe Dervieux, and Emily Riederer
- R Markdown Template Gallery from RStudio

# Demonstration on RStudio

# Discussion

- Quarto vs R Markdown
- Other output formats
  - Xaringan


# Topic for next session

- December 20 or January 17