Set up Markdown report

Markdown dynamic reporting allows for a streamlined, reliable, and reproducible way to generate reports. This is especially useful when the report is generated on a regular basis, or when the report is generated by multiple people. The report is generated from a single source - which is the R Markdown file. This means that the report is always up-to-date and consistent.

Setting up markdown report within a project involves the following steps:

* Create a template word document, sutuate in folder **“Utils”**.
* Create an **.R** files for chapters, situate in folder **“Chapters”**. “Index.Rmd” is the main file that calls all the chapters.
* Create a **.R** scripts containing functions for report elements, situate in folder **“R”**.
* Create **.R** for parameter setting, situate in **WD**, source via **.Rprofile** file.

To further divide the volume of code create the following additional files (use \_ in front of all of them):

* **bookdown.yml** contains the configuration for the bookdown package, situate in **WD**.
* **bookdown\_(param).yml** contains configuration for the bookdown package for each parameter, situate in folder **“YML”**.
* **output.yml** contains the configuration for the output format, situate in **WD**.

## Index.Rmd

1. Specify the fillowing on top of the file:

---  
output:   
 word\_document:  
 keep\_md: true  
 html\_document:  
 toc: true  
 number\_sections: true  
description: give\_report\_a\_description  
site: bookdown::bookdown\_site  
---

1. Set up knitr options:

{r knitr\_setup, echo = FALSE, eval = TRUE, error = TRUE}  
rm(list = ls())  
# Set global chunk options  
knitr::opts\_chunk$set(  
 echo = FALSE, # Show code in the output  
 eval = TRUE, # Evaluate code  
 warning = FALSE, # Suppress warnings  
 message = FALSE, # Suppress messages  
 error = TRUE, # Show errors  
 cache = FALSE # Cache the results (not recommended)  
 )

1. Ensure the appropriate locale:

{r eng\_locale, echo=FALSE, results='hide'}  
#change locale to English  
Sys.setlocale("LC\_TIME", "English")

1. Load the necessary libraries:

{r load\_libraries}  
#rm(list = ls())  
options(repos = c(CRAN = "https://cran.r-project.org"))  
  
  
packages <- c("labelled", "openxlsx", "MASS", "geepack", "emmeans",  
 "brms", "posterior", "bayesplot",  
 "tidyverse", "data.table", "lubridate", "glue",  
 "survival", "survminer", "ggsurvfit",  
 "gtsummary", "gt", "gtExtras", "kableExtra",  
 "officer", "officedown", "flextable", "lorem", "knitr",  
 "effectsize", "consort",  
 "showtext", "extrafont", "ftExtra", "patchwork", "here", "wrappedtools",  
 "WRS2", "rstatix"  
 )  
   
 for (package in packages) {  
 suppressMessages(  
 suppressWarnings({  
 if (!require(package, character.only = TRUE)) {  
 install.packages(package, dependencies = TRUE)  
 library(package, character.only = TRUE)  
 }  
 })  
 )  
 }

1. Load the necessary data:

{r load\_data}  
load("./Data/data\_all.RData")  
var\_labels <- openxlsx::read.xlsx(here::here("Utils", "var\_labels.xlsx"), sheet = 1)

1. Load all scripst from **.R** folder:

{r source\_functions}  
# Define the folder containing the R scripts  
r\_folder\_path <- here::here("R")  
  
# Get all .R files in the folder  
r\_scripts <- list.files(path = r\_folder\_path, pattern = "\\.R$", full.names = TRUE)  
   
# Loop through each R file and source it  
for (r\_script in r\_scripts) {  
 source(r\_script, local = knitr::knit\_global())  
 }

1. All r chunks must be enveloped in three tics **```**.
2. Cover page can be included in Index file.

## Rendering the report with parameters

1. In **.Rprofile** file call the following function:

source("render\_report.R")

1. in **render\_report.R** file specify the following function:

# Function to render individual mini reports  
# Loaded at project start-up (sourced in the .Rprofile file)  
# Options are:  
# - "full" - Full report  
# - "intro" - only Introductory chapters (Signatures, Abbreviations, Introduction, etc)  
# - "demo" - only Demographics chapter  
# - "res" - only Results chapters  
# - "prim" - only Primary efficacy results chapter  
# - "ksec" - only Key Secondary efficacy results chapter  
# - "sec" - only Secondary efficacy results chapter  
# - "safe" - only Safety results chapter  
# - "all" - all tables and figures  
# example RUN: render\_report("prim")  
  
render\_report <- function(config) {  
   
 config\_file <- paste0("YML/\_bookdown\_", config, ".yml")  
   
 if (!file.exists(config\_file)) {  
 stop("Configuration file does not exist: ", config\_file)  
 }  
  
 file.copy(config\_file, "\_bookdown.yml", overwrite = TRUE)  
  
 params <<- list(report\_type = config)  
  
 bookdown::render\_book("index.Rmd")  
  
}

Parameters must be connected to each chapters name in **Chapters** and **YML** folders. As a result of calling **render\_report(“prim”)** function, the report will be rendered with only Primary efficacy results chapter and cover page. The specific chapter **.yml** in **YML** folder will substitute the general **bookdown.yml** file in **WD**.

1. In **YML** folder create **bookdown\_prim.yml** file with the following content:

book\_filename: 'Linola-Primary'  
new\_session: no  
rmd\_files: ["index.Rmd", "./chapters/06.2-results-efficacy-primary.Rmd"]  
delete\_merged\_file: yes

Other chapters must follow the same principal, use chapter names from **Chapters** folder.

1. It rendering a chain of chapters is necessary (ex. all results chapters OR full report), specify the following information at the end of each chapter in a chain:

{r chapter\_name, eval = params$report\_type %in% c("full", "res"), child = here::here("Chapters", "name\_of\_next\_chapter.Rmd")}

## Output.yml

1. In **output.yml** file in **WD** specify the following:

bookdown::markdown\_document2:  
 base\_format: officedown::rdocx\_document  
 reference\_docx: utils/template2.docx  
 keep\_md: yes  
 mapstyles:  
 Normal: ['First Paragraph', 'Body Text']  
 tables:  
 style: Table  
 layout: autofit  
 width: 1.0  
 topcaption: true  
 tab.lp: 'tab:'  
 caption:  
 style: Caption Table  
 pre: 'Table '  
 sep: ': '  
 tnd: 2  
 tns: '-'  
 fp\_text: !expr officer::fp\_text\_lite(bold = TRUE)  
 plots:  
 style: Normal  
 align: left  
 fig.lp: 'fig:'  
 topcaption: false  
 caption:  
 style: Caption Figure  
 pre: 'Figure '  
 sep: ': '  
 tnd: 2  
 tns: '-'  
 fp\_text: !expr officer::fp\_text\_lite(bold = TRUE)  
 fig.width: 6  
 fig.height: 4  
 fig.align: 'center'  
 dev: 'png'  
 dpi: 300  
 page\_size:  
 width: 8.3  
 height: 11.7  
 orient: "portrait"  
 page\_margins:  
 bottom: 1  
 top: 1  
 right: 1  
 left: 1  
 header: 1  
 footer: 1  
 gutter: 0  
 reference\_num: false  
  
bookdown::gitbook:  
 config:  
 toc:  
 collapse: subsection  
 scroll\_highlight: true  
 before: null  
 after: null  
 toolbar:  
 position: fixed  
 download: ["pdf", "epub", "mobi"]   
 search:  
 engine: lunr  
 options: null  
 fontsettings:  
 theme: white  
 family: sans  
 size: 2  
 info: true