

Preparatory Steps and Work Environment

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1 Preparatory steps

Download the Github repository <https://github.com/jamieyap/CountSMART> and save contents to a folder named CountSMART on your machine. Prior to performing calculations, let us first set up our work environment. Run the following lines of code in an R console:

```
# Creates or reads existing user-specific .Renviron file
user.renvirion = path.expand(file.path("~", ".Renviron"))

# Opens user-specific .Renviron file
file.edit(user.renvirion)
```

After running this, an .Renviron file will pop up. Specify the location of the folder for input data, output data, and code. For example on a machine running on a Windows OS, to reproduce example 1 when $\tau_{MAX} = 0.75$, specify the following in the .Renviron file

```
path.input_data = "~/CountSMART/run-examples/dat-example-01a"
path.output_data = "~/CountSMART/run-examples/output-example-01a"
path.code = "~/CountSMART/code"
```

while to reproduce example 1 when $\tau_{MAX} = 0.10$, specify the following in the .Renviron file

```
path.input_data = "~/CountSMART/run-examples/dat-example-01b"
path.output_data = "~/CountSMART/run-examples/output-example-01b"
path.code = "~/CountSMART/code"
```

In the above, replace `~` with the path where the CountSMART folder is stored.

Now, restart R so that these paths can be loaded into R's namespace.

2 List of packages used

- dplyr
- purrr
- assertthat
- rootSolve
- mvtnorm
- geeM
- parallel
- ggplot2

3 Display session information

To facilitate reproducibility, we display details on the set-up of our work environment when running power calculation computations in illustrative examples below.

```
sessionInfo()
```

```
## R version 3.6.1 (2019-07-05)
```

```

## Platform: x86_64-w64-mingw32/x64 (64-bit)
## Running under: Windows 10 x64 (build 18362)
##
## Matrix products: default
##
## locale:
## [1] LC_COLLATE=English_United States.1252
## [2] LC_CTYPE=English_United States.1252
## [3] LC_MONETARY=English_United States.1252
## [4] LC_NUMERIC=C
## [5] LC_TIME=English_United States.1252
##
## attached base packages:
## [1] parallel stats graphics grDevices utils datasets methods
## [8] base
##
## other attached packages:
## [1] ggplot2_3.2.1 geeM_0.10.1 Matrix_1.2-17 mvtnorm_1.0-11
## [5] rootSolve_1.7 assertthat_0.2.1 purrr_0.3.2 dplyr_0.8.3
## [9] formatR_1.7 kableExtra_1.1.0 knitr_1.25 rmarkdown_1.15
##
## loaded via a namespace (and not attached):
## [1] Rcpp_1.0.2 pillar_1.4.2 compiler_3.6.1
## [4] tools_3.6.1 zeallot_0.1.0 digest_0.6.20
## [7] gtable_0.3.0 lattice_0.20-38 evaluate_0.14
## [10] tibble_2.1.3 viridisLite_0.3.0 pkgconfig_2.0.2
## [13] rlang_0.4.0 rstudioapi_0.10 yaml_2.2.0
## [16] xfun_0.9 withr_2.1.2 stringr_1.4.0
## [19] httr_1.4.1 xml2_1.2.2 vctrs_0.2.0
## [22] hms_0.5.1 grid_3.6.1 webshot_0.5.1
## [25] tidyselect_0.2.5 glue_1.3.1 R6_2.4.0
## [28] readr_1.3.1 magrittr_1.5 backports_1.1.4
## [31] scales_1.0.0 htmltools_0.3.6 rvest_0.3.4
## [34] colorspace_1.4-1 stringi_1.4.3 lazyeval_0.2.2
## [37] munsell_0.5.0 crayon_1.3.4

```