3 ExpoTidy module

3.1 Application domain

3.2 Theory

3.3 Work pipeline

```
# The following two packages should be installed in advance

# devtools::install_github("ExposomeX/extidy", force = TRUE)

# library(extidy)
library(tidyverse)

# devtools::install_github("ExposomeX/exposomex", force = TRUE)
library(exposomex)
```

```
res = InitTidy()
res1 = LoadTidy(PID=res$PID,
                UseExample="example#1")
res1$Expo$Data
```

```
## # A tibble: 241 x 239
##    SampleID Subjec~1 Group    Y1    Y2    C1    C2    C3    C4    C5    C6    X1
##    <chr>    <chr>    <chr> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl>
##  1 Tr1      S1       train     1  -101  26.9  25.4     3     0     1     3 NA
##  2 Tr2      S2       train     0   -51  30.9  23.9     1     1     2     2  1.23
##  3 Tr3      S3       train     0   -37  25.8  23.0     2     3     1     2  1.18
##  4 Tr4      S4       train     1   -61  38.0  21.2     1     2     2     3  1.90
##  5 Tr5      S5       train     0   -28  31.6  19.5     1     0     2     2 NA
##  6 Tr6      S6       train     0    -8  25.9  20.8     3     3     1     2  1.99
##  7 Tr7      S7       train     1   -63  32.4  27.0     2     3     2     1  1.69
##  8 Tr8      S8       train     0   -35  33.7  22.1     2     0     2     3  1.31
##  9 Tr9      S9       train     0   -14  32.9  19.8     2     2     1     2  1.84
## 10 Tr10     S10      train     1   -99  28.5  29.6     1     3     2     2  1.40
## # ... with 231 more rows, 227 more variables: X2 <dbl>, X3 <dbl>, X4 <dbl>,
## #   X5 <dbl>, X6 <dbl>, X7 <dbl>, X8 <dbl>, X9 <dbl>, X10 <dbl>, X11 <dbl>,
## #   X12 <dbl>, X13 <dbl>, X14 <dbl>, X15 <dbl>, X16 <dbl>, X17 <dbl>,
## #   X18 <dbl>, X19 <dbl>, X20 <dbl>, X21 <dbl>, X22 <dbl>, X23 <dbl>,
## #   X24 <dbl>, X25 <dbl>, X26 <dbl>, X27 <dbl>, X28 <dbl>, X29 <dbl>,
## #   X30 <dbl>, X31 <dbl>, X32 <dbl>, X33 <dbl>, X34 <dbl>, X35 <dbl>,
## #   X36 <dbl>, X37 <dbl>, X38 <dbl>, X39 <dbl>, X40 <dbl>, X41 <dbl>, ...
```

```
res2 = TransImput(PID=res$PID,
                  Group="T",
                  Vars="all.x",
                  Method="lod")

res3 = DelNearZeroVar(PID = res$PID)

res4 = DelMiss(PID = res$PID)

res5 = TransType(PID=res$PID,
                 Vars="Y1",
```

```
                To="factor")

res6 = TransClass(PID=res$PID,
                  Group="F",
                  Vars="X1",
                  LevelTo="4")

res7 = TransScale(PID=res$PID,
                  Group="T",
                  Vars="X4,X5",
                  Method="normal")

res8 = TransDistr(PID=res$PID,
                  Vars="X6,X7",
                  Method="log10")

res9 = TransGroup(PID=res$PID,
                  Vars="X4,X5",
                  ToGroup = "G1")

res10 = TransDummy(PID=res$PID,
                   Vars="default")

res10$Expo$Data
```

```
## # A tibble: 241 x 218
##    SampleID Subjec~1 Group Y1       Y2    C1    C2    C3    C4    C5    C6  X1.2
##    <chr>    <chr>    <chr> <fct> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl>
##  1 Tr1      S1       train 1      -101  26.9  25.4     3     0     1     3     0
##  2 Tr2      S2       train 0       -51  30.9  23.9     1     1     2     2     1
##  3 Tr3      S3       train 0       -37  25.8  23.0     2     3     1     2     0
##  4 Tr4      S4       train 1       -61  38.0  21.2     1     2     2     3     0
##  5 Tr5      S5       train 0       -28  31.6  19.5     1     0     2     2     0
##  6 Tr6      S6       train 0        -8  25.9  20.8     3     3     1     2     0
##  7 Tr7      S7       train 1       -63  32.4  27.0     2     3     2     1     0
##  8 Tr8      S8       train 0       -35  33.7  22.1     2     0     2     3     1
##  9 Tr9      S9       train 0       -14  32.9  19.8     2     2     1     2     0
## 10 Tr10     S10      train 1       -99  28.5  29.6     1     3     2     2     1
## # ... with 231 more rows, 206 more variables: X1.3 <dbl>, X1.4 <dbl>, X4 <dbl>,
## #   X5 <dbl>, X6 <dbl>, X7 <dbl>, X8 <dbl>, X9 <dbl>, X10 <dbl>, X11 <dbl>,
## #   X12 <dbl>, X13 <dbl>, X14 <dbl>, X15 <dbl>, X16 <dbl>, X17 <dbl>,
## #   X18 <dbl>, X19 <dbl>, X20 <dbl>, X21 <dbl>, X22 <dbl>, X23 <dbl>,
## #   X24 <dbl>, X25 <dbl>, X26 <dbl>, X27 <dbl>, X28 <dbl>, X30 <dbl>,
## #   X32 <dbl>, X34 <dbl>, X35 <dbl>, X36 <dbl>, X37 <dbl>, X38 <dbl>,
## #   X39 <dbl>, X41 <dbl>, X43 <dbl>, X45 <dbl>, X46 <dbl>, X47 <dbl>, ...
```

```
FuncExit(PID = res$PID)
```

```
## [1] "Success to exit. Thanks for using ExposomeX platform!"
```