Functions

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Contents

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This is to document the develpoment of functins derived from various other activities to support the FPA proejct. It is important to note tha functions developed or documente here will have to be included in an R file so they may be easily brought into the R enviroment in the future.

Data Input

this function will read the csv file in and will make required conversions to factors or date

```
get.FPA <- function(file = "./data/First Pass Acceptance.csv"){
     FPA <- read.csv( file = file,
                      stringsAsFactors = FALSE,
                      col.names = c("sqa",
                                    "project",
                                    "application",
                                    "deliverable",
                                    "version",
                                    "docID",
                                    "status",
                                    "date",
                                    "reason",
                                    "comments"))
}
```

Test

count

First the fuctin is run creating the FPA data frame. The the number of rows in the data frame is checked again the source data (66 at this time) as well as the number of columns (10)

```
FPA <- get.FPA()
nrow(FPA)
```

```
## [1] 269
```

```
ncol(FPA)
```

```
## [1] 10
```

```
dim(FPA)
```

```
## [1] 269  10
```

```
str(FPA)
```

```
## 'data.frame':    269 obs. of  10 variables:
##  $ sqa        : chr  "Wayne" "Wayne" "Wayne" "Wayne" ...
##  $ project    : chr  "LC-S 01073.000" "LC-S 01104.000" "LC-S 01104.000" "LC-S 00986.005" ...
##  $ application: chr  "Groninger" "Assay File Database" "Assay File Database" "PCN/SCN" ...
##  $ deliverable: chr  "Traceability" "Software Change Request" "Software Change Request" "Software Con
##  $ version    : int  1 1 1 NA 1 1 1 1 1 1 ...
##  $ docID      : chr  "Protrace-01" "SCR-01" "SCR-01" "SCA-01" ...
##  $ status     : chr  "A-FP" "D" "A" "D" ...
##  $ date       : chr  "16-Jan-2018" "17-Jan-2018" "17-Jan-2018" "18-Jan-2018" ...
##  $ reason     : chr  "" "Not compliant with procedure" "" "Incorrect scope" ...
##  $ comments   : chr  "" "" "" "Project name includes SMF, but Assessment links only PCN SCN" ...
```

cleaning Data

Factors and Date

```
clean.FPA <- function(FPA){
     #require(lubridate)
     FPA$sqa <- as.factor(FPA$sqa)
     FPA$application <- as.factor(FPA$application)
     FPA$deliverable <- as.factor(FPA$deliverable)
     FPA$status <- as.factor(FPA$status)
     FPA$reason <- as.factor(FPA$reason)
     levels(FPA$reason)[1] <- NA
     FPA$date <- as.Date(FPA$date, format = "%d-%B-%Y")
     return(FPA)
}
```

Test

Now a count of each factor will be tabulated to verify against the know data and look at data frame structure

```
FPA <- clean.FPA(FPA = FPA)
str(FPA)
```

```
## 'data.frame':    269 obs. of  10 variables:
##  $ sqa        : Factor w/ 6 levels "Beilah","Liz",..: 6 6 6 6 1 1 1 1 1 1 ...
##  $ project    : chr  "LC-S 01073.000" "LC-S 01104.000" "LC-S 01104.000" "LC-S 00986.005" ...
##  $ application: Factor w/ 20 levels "Abbott Transfusion Medicine",..: 10 5 5 15 20 20 20 20 16 16 ..
##  $ deliverable: Factor w/ 21 levels "CII","Design Documentation",..: 17 12 12 13 15 15 15 15 7 15 ..
##  $ version    : int  1 1 1 NA 1 1 1 1 1 1 ...
##  $ docID      : chr  "Protrace-01" "SCR-01" "SCR-01" "SCA-01" ...
##  $ status     : Factor w/ 4 levels "","A","A-FP",..: 3 4 2 4 2 2 4 2 3 3 ...
##  $ date       : Date, format: "2018-01-16" "2018-01-17" ...
##  $ reason     : Factor w/ 8 levels "Inaccurate information",..: NA 4 NA 2 NA NA 1 NA NA NA ...
##  $ comments   : chr  "" "" "" "Project name includes SMF, but Assessment links only PCN SCN" ...
```

```
table(FPA$sqa)
```

```
## 
## Beilah    Liz   nick   Nick   NIck  Wayne 
##    160      1      1     94      1     12
```

```
table(FPA$application)
```

```
## 
## Abbott Transfusion Medicine                        AFMS 
##                           1                          14 
##     Alinity Source Verifier                  Apollo/PHM 
##                           2                          11 
##         Assay File Database                     CMSNext 
##                           3                           4 
##                     DaVinci                        DFCS 
##                          49                          15 
##                         DPW                   Groninger 
##                           4                           1 
##                  GS Reports                   ideaPoint 
##                           4                           1 
##                        IRIS             Metrics Library 
##                           1                           8 
##                     PCN/SCN                       Pulse 
##                           8                          13 
##                        QIMS                         SAS 
##                          43                           5 
##                        TODS                      WWLIMS 
##                           1                          81
```

```
table(FPA$deliverable)
```

```
## 
##                              CII             Design Documentation 
##                               18                                4 
##              Design Verification                              FRS 
##                                8                                7 
##                              IDP                             IIVP 
##                                3                                8 
##                     IIVP results                             ISSD 
##                               22                                1 
##               Move to Production                     Project Plan 
##                                2                               11 
##                    Release Notes          Software Change Request 
##                                3                               11 
##   Software Compliance Assessment     System Certification Summary 
##                                9                                7 
##                    Test Protocol            Test Protocol Results 
##                               75                               46 
##                     Traceability                              URS 
##                               18                                6
##         User Acceptance Protocol User Acceptance Protocol results
##                                4                                1
##                  Validation Plan
##                                5
```

```r
table(FPA$status)
```

```
##
##         A A-FP    D
##    2   78  107   82
```

```r
table(FPA$reason)
```

```
##
##                  Inaccurate information
##                                      38
##                         Incorrect scope
##                                       1
##                    Insufficient testing
##                                       7
##            Not compliant with procedure
##                                      18
## Not following document version control
##                                       3
##                      Not using template
##                                       1
##                                   Other
##                                       7
##                  Requirement deficiency
##                                       1
```

```r
table(FPA$date)
```

```
##
## 2018-01-03 2018-01-09 2018-01-11 2018-01-15 2018-01-16 2018-01-17
##          2          1          1         14         17         11
## 2018-01-18 2018-01-19 2018-01-22 2018-01-23 2018-01-24 2018-01-25
##         16         20         25         11         24         29
## 2018-01-26 2018-01-27 2018-01-29 2018-01-30 2018-01-31 2018-02-01
##         16          1         16         14         23         26
## 2018-02-02
##          2
```

Processing

Create a seperate value for Month and Year for the date value.

Create a UID for each deliverable

```r
process <- function(FPA, Month=NULL){
     require(lubridate)
     FPA$month <- lubridate::month(FPA$date, label = TRUE)
     FPA$year <-  lubridate::year(FPA$date)
     FPA$UID <- paste(FPA$project,
                      FPA$deliverable,
                      FPA$docID,
                      FPA$version,
                      sep = "-")

     if(!(is.null(Month))){
          # print("Process for not NULL")
          if(Month %in% levels(FPA$month)){
               FPA <- subset(FPA,
                             subset =  month == Month)
          }else{
               #print("Process for invlad month")
               stop(paste("Invalid month. Month must be one of the following: NULL,",
                          "Jan,",
                          "Feb,",
                          "Mar,",
                          "Apr,",
                          "May,",
                          "Jun,",
                          "Jul,",
                          "Aug,",
                          "Sep,",
                          "Oct,",
                          "Nov or",
                          "Dec."))
          }
     }
     return(FPA)
}
```

Test

Month Selector

```
FPA <- process(FPA = FPA)
```

```
## Loading required package: lubridate

##
## Attaching package: 'lubridate'

## The following object is masked from 'package:base':
##
##     date
```

```
Junk <- FPA
table(FPA$month)
```

```
##
## Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
## 241  28   0   0   0   0   0   0   0   0   0   0
```

```
FPA <- process(FPA = FPA,Month = "Jan")
table(FPA$month)
```

```
##
## Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
## 241   0   0   0   0   0   0   0   0   0   0   0
```

```
FPA <- Junk
FPA <- process(FPA = FPA,Month = "Feb")
table(FPA$month)
```

```
##
## Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
##   0  28   0   0   0   0   0   0   0   0   0   0
```

```
FPA <- Junk
FPA <- process(FPA = FPA,Month = "J")
```

```
## Error in process(FPA = FPA, Month = "J"): Invalid month. Month must be one of the following: NULL, Ja
```

```
FPA <- Junk
rm(Junk)
```

inspect the structor of the data frame

```
str(FPA)
```

```
## 'data.frame':    269 obs. of  13 variables:
##  $ sqa        : Factor w/ 6 levels "Beilah","Liz",..: 6 6 6 6 1 1 1 1 1 1 ...
##  $ project    : chr  "LC-S 01073.000" "LC-S 01104.000" "LC-S 01104.000" "LC-S 00986.005" ...
##  $ application: Factor w/ 20 levels "Abbott Transfusion Medicine",..: 10 5 5 15 20 20 20 20 16 16 ..
##  $ deliverable: Factor w/ 21 levels "CII","Design Documentation",..: 17 12 12 13 15 15 15 15 7 15 ..
##  $ version    : int  1 1 1 NA 1 1 1 1 1 1 ...
##  $ docID      : chr  "Protrace-01" "SCR-01" "SCR-01" "SCA-01" ...
##  $ status     : Factor w/ 4 levels "","A","A-FP",..: 3 4 2 4 2 2 4 2 3 3 ...
##  $ date       : Date, format: "2018-01-16" "2018-01-17" ...
##  $ reason     : Factor w/ 8 levels "Inaccurate information",..: NA 4 NA 2 NA NA 1 NA NA NA ...
##  $ comments   : chr  "" "" "" "Project name includes SMF, but Assessment links only PCN SCN" ...
##  $ month      : Ord.factor w/ 12 levels "Jan"<"Feb"<"Mar"<..: 1 1 1 1 1 1 1 1 1 1 ...
##  $ year       : num  2018 2018 2018 2018 2018 ...
##  $ UID        : chr  "LC-S 01073.000-Traceability-Protrace-01-1" "LC-S 01104.000-Software Change Req
```

Now look at at the new values

```
table(FPA$month)
```

```
##
## Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
## 241  28   0   0   0   0   0   0   0   0   0   0
```

```
table(FPA$year)
```

```
##
## 2018
##  269
```

```
table((FPA$UID))
```

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##                                                                                 00303.099-Design Veri
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