find-packages

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Creating a task view for physical activity researchers

First step is use the `cranly` package to see what is out there. I found this tutorial to help https://rviews.rstudio.com/2018/05/31/exploring-r-packages/. Now I have a tidy dataframe with all the packages.

```
library(cranly)
package_db <- clean_CRAN_db(tools::CRAN_package_db())
```

Search dataframe for physical activity related packages

I have used the search terms:

- physical activity
- actigraph
- fitbit
- garmin
- geneactiv
- apple health
- google fit
- samsung health

I had originally included the term `exercise` but that search included many packages that were not related to physical activity. I also did the same search in title but that did not help and only returned 1 result that was already captured in the description search.

```
library(stringr)
library(dplyr)
```

```
##
## Attaching package: 'dplyr'
```

```
## The following objects are masked from 'package:stats':
##
##     filter, lag
```

```
## The following objects are masked from 'package:base':
##
##     intersect, setdiff, setequal, union
```

```
library(kableExtra)
```

```
##
## Attaching package: 'kableExtra'
```

```
## The following object is masked from 'package:dplyr':
##
##     group_rows
```

```
pa_search <- c("physical activity", "actigraph", "Actigraph", "fitbit", "garmin", "geneactiv", "apple h
               "exercise", "omron", "actilife", "cycling", "swimming", "activity counts", "sedentary",
```

```
#pa_search <- c("polar")
package_db$pa <- str_extract_all(package_db$description, paste(pa_search, collapse="|"))
pa_packages <- filter(package_db, pa != "character(0)")
```

From this search there are 10 packages are designed to analyse some type of physical activity data.

```
pa_pkg_names <- pa_packages$package
```

Packages' description

```
pa_packages %>% select(package, description) %>%
   kable() %>%
  kable_styling("striped", full_width = T) %>%
  column_spec(2, width = "30em")
```

package	description
abn	Bayesian network analysis is a form of probabilistic graphical models which derives from empirical data a directed acyclic graph, DAG, describing the dependency structure between random variables. An additive Bayesian network model consists of a form of a DAG where each node comprises a generalized linear model, GLM. Additive Bayesian network models are equivalent to Bayesian multivariate regression using graphical modelling, they generalises the usual multivariable regression, GLM, to multiple dependent variables. 'abn' provides routines to help determine optimal Bayesian network models for a given data set, where these models are used to identify statistical dependencies in messy, complex data. The additive formulation of these models is equivalent to multivariate generalised linear modelling (including mixed models with iid random effects). The usual term to describe this model selection process is structure discovery. The core functionality is concerned with model selection - determining the most robust empirical model of data from interdependent variables. Laplace approximations are used to estimate goodness of fit metrics and model parameters, and wrappers are also included to the INLA package which can be obtained from <http://www.r-inla.org>. A comprehensive set of documented case studies, numerical accuracy/quality assurance exercises, and additional documentation are available from the 'abn' website <http://r-bayesian-networks.org>.
ActFrag	Recent studies haven shown that, on top of total daily active/sedentary volumes, the time accumulation strategies provide more sensitive information. This package provides functions to extract commonly used fragmentation metrics to quantify such time accumulation strategies based on minute level actigraphy-measured activity counts data.
Actigraphy	Functional linear modeling and analysis for actigraphy data.
activityCounts	ActiLife software generates activity counts from data collected by Actigraph accelerometers <https://s3.amazonaws.com/actigraphcorp.com/wp-content/uploads/2017/11/26205758/ActiGraph-White-Paper_What-is-a-Count_.pdf>. Actigraph is one of the most common research-grade accelerometers. There is considerable research validating and developing algorithms for human activity using ActiLife counts. Unfortunately, ActiLife counts are proprietary and difficult to implement if researchers use different accelerometer brands. The code creates ActiLife counts from raw acceleration data for different accelerometer brands and it is developed based on the study done by Brond and others (2017) <doi:10.1249/MSS.0000000000001344>.
activPAL	Contains functions to generate pre-defined summary statistics from activPAL events files <http:www.palt.com>. The package also contains