installation

The latest stable version can be installed from CRAN:

```r
install.packages('IBMPopSim')
```

The latest development version can be installed from github:

```r
# install.packages("devtools")
devtools::install_github('DaphneGiorgi/IBMPopSim')
```

First example to check installation

To illustrate the use of the package and to check the installation, a simple model with Poisson arrivals and exits is implemented. Starting from an initial population `pop`, we define two Poissonian events `birth` and `death`, we create the model `birth_death` and simulate the population evolution over 10 years.

```r
library(IBMPopSim)

init_size <- 100000
pop <- data.frame(birth = rep(0, init_size), death = NA)

birth = mk_event_poisson(type = 'birth', intensity = 'lambda')
death = mk_event_poisson(type = 'death', intensity = 'mu')
params = list('lambda' = 100, 'mu' = 100)

# mk_model compiles C++ code using sourceCpp from Rcpp
birth_death <- mk_model(events = list(birth, death),
                        parameters = params)

sim_out <- popsim(model = birth_death,
                  initial_population = pop,
                  events_bounds = c('birth' = params$lambda, 'death' = params$mu),
                  parameters = params,
                  time = 10)

num_births <- length(sim_out$population$birth) - init_size
num_deaths <- sum(!is.na(sim_out$population$death))
print(c("births" = num_births, "deaths" = num_deaths))
```

```
## births deaths
##   1035    983
```