**Algorithm Design**

**Request Flow**

*“Request Flow”* is the main functionality of *Data4Help*. Within this service, registered third parties are allowed to request both individual and anonymous data. The overall process of *“Request Flow”* is composed of steps that are needed to be performed in order to make a successful data request.

*Pseudocode of the process;*

3rd party indicates its intention of data request and states the type of request it wants to make

if(individual data is requested)

system asks the SSN of the individual

if(SSN is valid)

if(3rd party is on the pre-confirmed list)

provide the requested data

save the request and data sharing info into the request history of the individual

/\*not on the pre-confirmed list\*/

else

ask for the individual permission

if(individual accepts the request)

provide the requested data

save the request and data sharing info into the request history of the individual

/\*if individual not accept\*/

else

reject the request of 3rd party

/\*SSN not valid\*/

else

reject the request of 3rd party

/\*anonymous data is requested\*/

else

prepare the requested data

check the anonymity constraint of data

if(anonymity constraint is satisfied)

provide the requested data

/\*anonymity constraint is not satisfied\*/

else

reject the request of 3rd party

**Checking Threshold**

*“Checking Threshold”* is the core operation of *AutomatedSOS*. Whole flow of *AutomatedSOS* relies on getting data of individual, comparing this data with a threshold value, and then based on the result of the comparison determining whether there is an emergency case to inform the nearest hospital.

*Pseudocode of the process;*

while (individual data flows)

monitor individual data

if(data < threshold)

detect the location of the individual

find the nearest hospital

notify the hospital

save SOS info of the individual to the application db

go on with data monitoring

/\*no emergency case, everything is normal\*/

else

go on with data monitoring

**Checking Anonymity Constraint**

*Checking anonymity constraint is the core operation of Anonym Data Request. After a anonym data request is received. Data manager prepares requested data according to defined filter criteria and after query is executed if number of clients is lower than 1000 request is rejected, and a rejection notification is sent to the third party; else data is sent.*

*Pseudocode of the process;*

Anonym data request is received

Data := prepareData(requestedData,filter);

if (size (Data)<1000)

sendRejection(ThirdParty,request)

else

sendData(ThirdParty,Data)