Cairo University

Faculty of Computers and Information

CS252

Software Engineering II

"DRDC"

Decentralized Replicated Data Store

Team Names

Yusuf Fawzy Elnady	20160299	G:cs-1
Ahmed Ehab	20160007	G:cs-1
Ahmed Yousry	20160040	G:cs-1

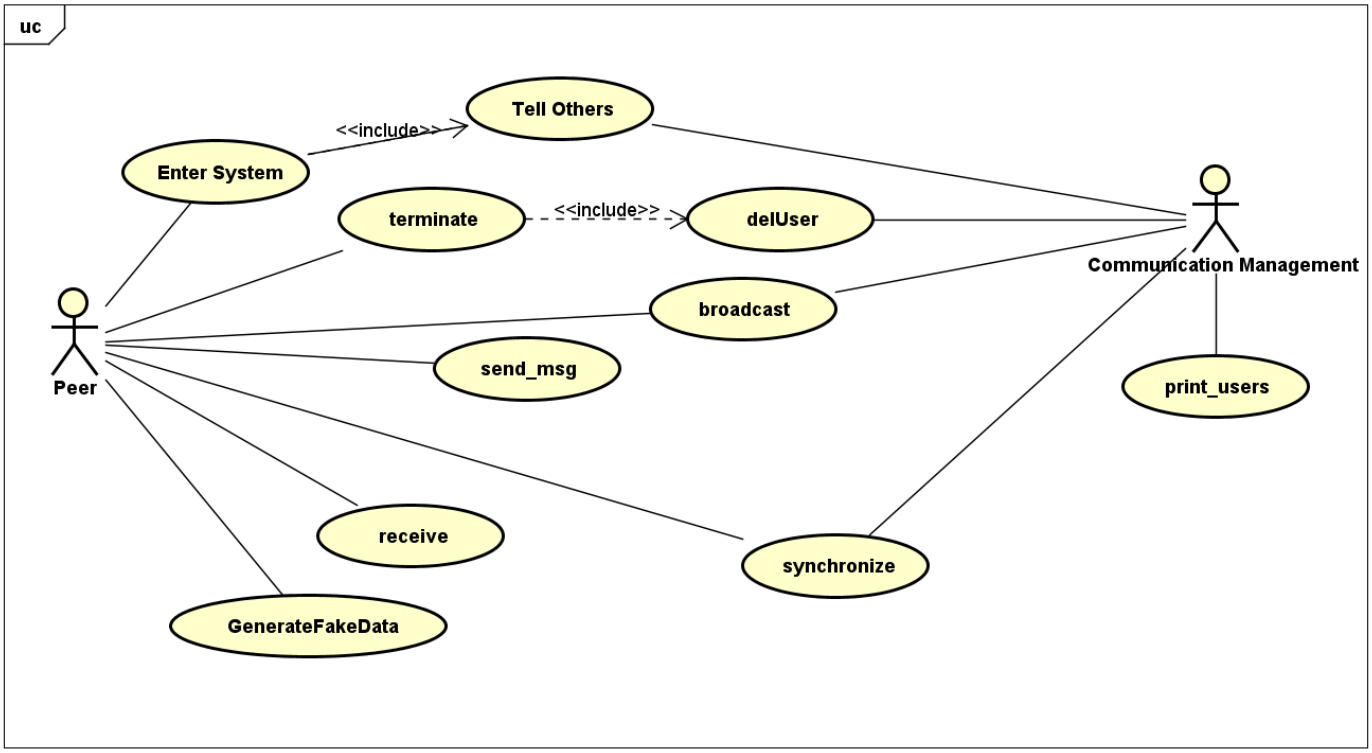
Prof: Mohammed Al-Ramly.

March – 2019

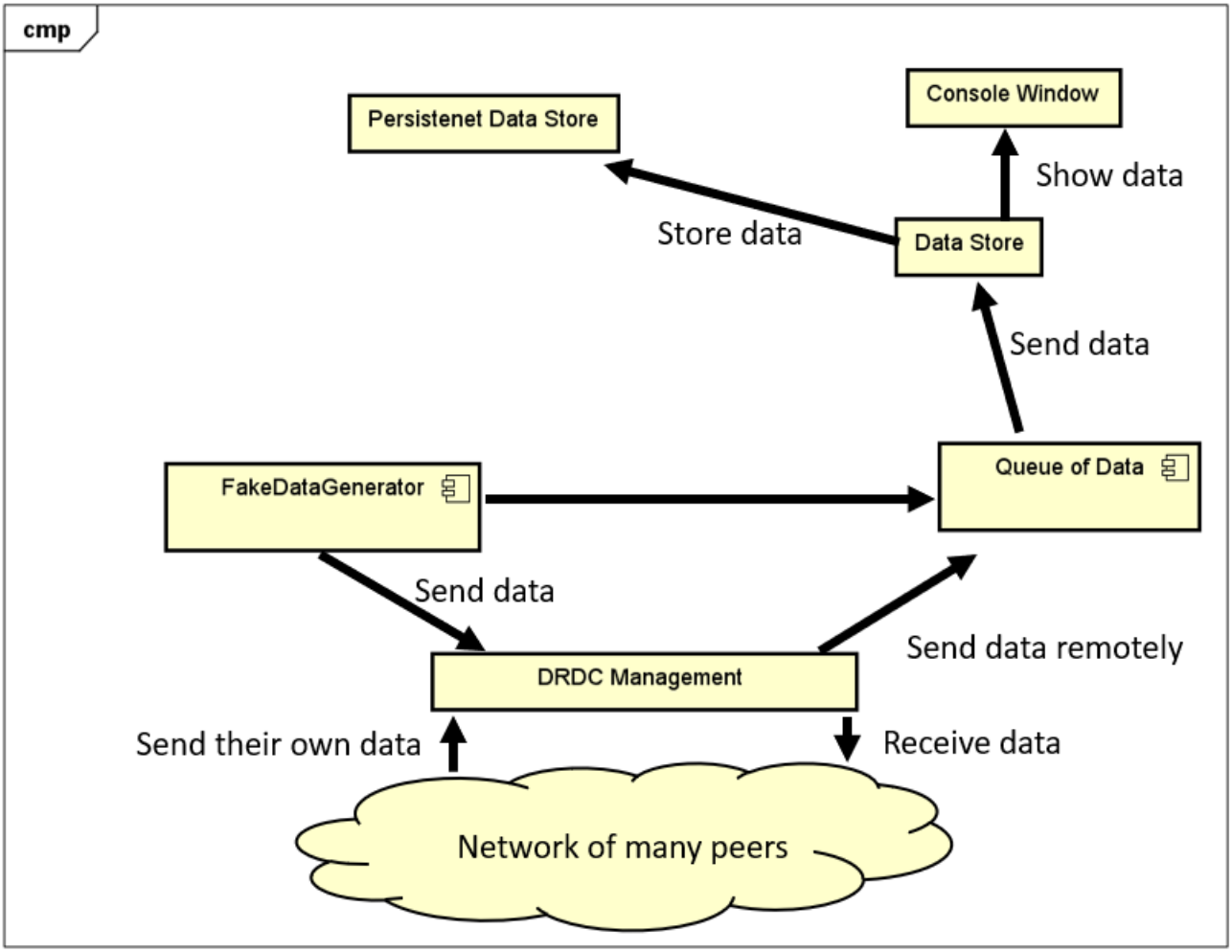
- # Introduction:

This program is about enabling the peer to peer communication. By letting the DRDC to add as many users as you want. Then they can send to each other the messages or fake data by using the port numbers of each. Our program also supports the Network Discovery and the data store consistency.
At the end each peer connected to the network will have in its data store all the transactions or messages have been sent and received from the start of the program.

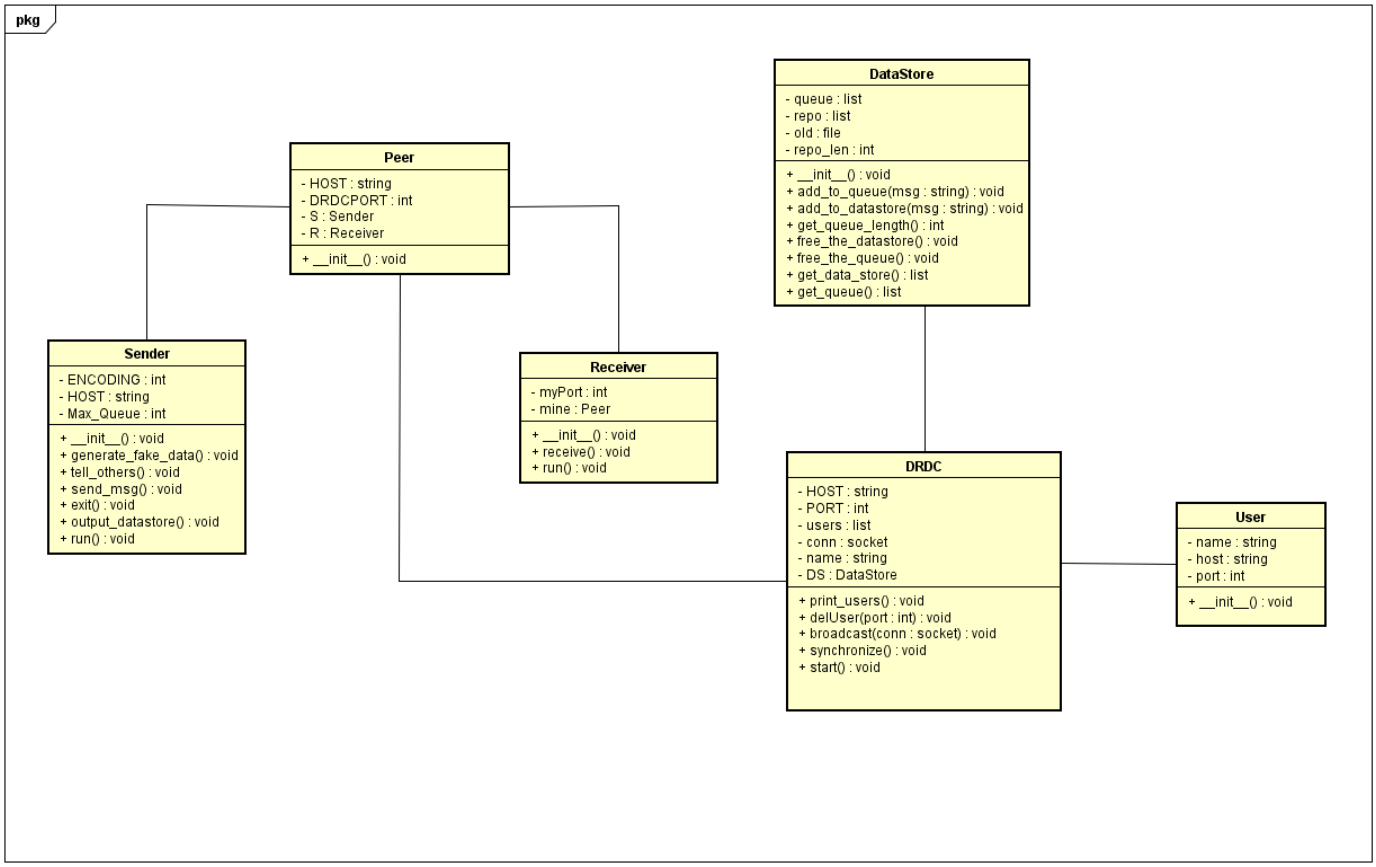
- # Implemented use case:



- System Architecture:



- System Design:



- Description:

  - **Sender: allow the peer class to run the sending functionality in a thread so it can send messages to any other peer using its port. It also has some useful methods as sending messages or broadcasting me to others.**
  - **Receiver: allowing the peer to be continuously check if there's anyone to communicate with me. It also run in another thread which is turned on by the peer instance.**
  - **Peer: It's the class the initiator of any new peer wants to be added to our Decentralized Replicated Data Store. Its responsibility to take the name of**

the user and its port, then runs the sender and receiver objects in two different threads.

- **User**: It's a small entity that holds only the name, host and the peer of the user.
- **Datastore**: This class have many useful functions such as add_to_queue which handles the problem of caching and not to overwhelm the datastore with many data. So, its responsibility to take data into queue and to free the queue and so on…
- **DRDC**: This is called the peer communication management, it can print the current users, broadcast the msg which is the network discovery, also synchronize continuously the data with the datastore of each node or each pair, so the datastore will be consistent among all others.

Installation Guide:

- To start using this application all you want is a python terminal… you can simply open the combined zip file in your windows explorer.
- First, write in the directory field in your windows explorer: "DRDC.py" → this will start your application.
- Then to start adding peers to your program or to your network, you type again in the directory field: "Peer.py" → this will add a new peer to your application.
- No need to install any modules or servers to start using this application
- You have to assure that you have python 3.7 or above if any.