System Call Implementation in Linux

Objective

Objective of this task is to implement four system calls in Linux and a user space application to use these system calls.

Responsibilities

1. create_queue

create_queue system call creates a msg queue in kernel space if it's already not created, otherwise return the one that has already been created.

2. delete_queue

delete_queue system call cleans up the msg queue from the kernel space.

3. msg_send

msg_send sends a message to a process. The arguments are message, size of message, msg-queue. This is a blocking call. It should be unblocked when the server process acknowledges the message.

4. msg_receive

msg_receive receives a message from the client. It's a blocking call, waiting for the client to send something. It should be unblocked when the client sends the message. Arguments are buffer to message, reference argument to get the size of message received, msg queue.

5. msg_ack

When msg_receive is unblocked, the server process should acknowledge the message by using msg_ack.

Deliverables

1. Modify LibC to add support for new system calls
2. Implementation of Linux system calls
3. Implementation of a client/server application to test the calls.