

# Socket Communication and Remote Objects

CS403/534 - Distributed Systems  
Assignment #1 for Spring 2020 - Inclass

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## Abstract

You are required to implement simple client-server communication using sockets and remote objects. The further details are given in the subsequent sections of this document.

## 1 Socket Communication - Part I

You are given `client.py` and `server.py` which implements client and server parts. At the end of the communication, both server and clients terminates. However, we want the server to continue and accept subsequent requests from clients. Modify the Python codes to achieve this and save them in `server1.py` and `client1.py`.

## 2 Socket Communication - Part II

In this part of the assignment, the server holds a secret polynomial (i.e., unknown to clients) and evaluates it at integer values sent by clients. You will use the secret polynomial  $Q(x) = a_0 + a_1x + a_2x^2 + a_3x^3 + a_4x^4 \bmod p$  and all the operations will be performed modulo  $p$ , where  $p$  is a prime number. The modulus  $p$  and polynomial coefficients are as follows:

$p = 82774018375762036230659850750851711854039699313175216914470363560945323457727$   
 $a_0 = 26748908084769669758664722731140522800875206292361297608046702271758631669759$   
 $a_1 = 59489944712712493230446426050522902095714591665803937192613571374709152682872$   
 $a_2 = 71257019652372732006624209284281187993740077445682918560838974809666187201576$   
 $a_3 = 55315635592811832356973556884353215645720087042315880077665613542569819620485$   
 $a_4 = 20411929856341763513465955098957309007252776763418101366798367886225234827183$

Your codes will be tested using the following test vectors:

$Q(1) = 67675401147484418404855168547551713835223340583231700977022502763038379086421$   
 $Q(2) = 41036581302979952088060238115529782292514033575464471924143448926769471632437$   
 $Q(3) = 20267516427286316666977447293436604059691379247903937146500103191135399316581$   
 $Q(4) = 72045480694063664939528129809499200073527918022377554657521675888053347253657$   
 $Q(5) = 7967899447316147950877885009254600758505538824170263043564934570338225291318$

Save your codes in `server2.py` and `client2.py`.

### 3 Remote Objects with Pyro4

Repeat the part in Section 2 with remote objects using Pyro4 and save your programs in `server3.py` and `client3.py`.

### 4 Notes and Grading

- You are required to work alone.
- Compress all your Python codes using winzip, name it as “cs403-534\_assign01\_yourname.zip” and submit it to SUCourse.

	Credits
Section 1	30
Section 2	40
Section 3	30

Table 1: Grading Policy