Task 0:

Project2Task0ClientConsole

```
The client is running.
Input a server side port number: 6789
1
Reply: 1
2
Reply: 2
3
Reply: 3
4
Reply: 4
5
Reply: 5
halt!
Client side quitting


Process finished with exit code 0
```

Project2Task0ServerConsole

```
The server is running.
Input a server port number to listen on: 6789
Echoing: 1
Echoing: 2
Echoing: 3
Echoing: 4
Echoing: 5
Echoing: halt!
Server side quitting
Process finished with exit code 0
```

Task 1:

Project2Task1ThreeConsoles
Client using 6798:
Echo Server UDP

```
The server is running.
Input a server port number to listen on: 6789
Echoing: 1
Echoing: 2
Echoing: 3
Echoing: halt!
Server side quitting
Process finished with exit code 0
```

Eavesdropper

```
The eavesdropper is running.
Input a server port number to listen to: 6798
Input a server port number to masquerade as: 6789

From Client: 1
Sending to Server: 1
From Server: 1
Sending to client: 1

From Client: 2
Sending to Server: 2
From Server: 2
Sending to client: 2

From Client: 3
Sending to Server: 3
From Server: 3
Sending to client: 3

From Client: halt!
Sending to Server: halt!
From Server: halt!
Sending to client: halt!
************** halt! message arrived **************
```

Client

```
The client is running.
Input a server side port number: 6798
1
Reply: 1
2
Reply: 2
3
Reply: 3
halt!
Client side quitting
```

Client using 6789

Echo Server UDP

```
The server is running.
Input a server port number to listen on: 6789
Echoing: 1
Echoing: 2
Echoing: 3
Echoing: halt!
Server side quitting
Process finished with exit code 0
```

Eavesdropper

```
The eavesdropper is running.
Input a server port number to listen to: 6798
Input a server port number to masquerade as: 6789
```

Client

```
The client is running.
Input a server side port number: 6789
1
Reply: 1
2
Reply: 2
3
Reply: 3
halt!
Client side quitting

Process finished with exit code 0
```

Task 2:

Project2Task2ClientConsole

```
The client is running.
Input a server side port number: 6789
1
The server returned: 1.
2
The server returned: 3.
-3
The server returned: 0.
4
The server returned: 4.
5
The server returned: 9.
halt!
Client side quitting.

Process finished with exit code 0
```

```
The client is running.
Input a server side port number: 6789
6
The server returned: 15.
7
The server returned: 22.
-8
The server returned: 14.
9
The server returned: 23.
10
The server returned: 33.
halt!
Client side quitting.

Process finished with exit code 0
```

Project2Task2ServerConsole

```
The server is running.
Input a server port number to listen on: 6789
Adding 1 to 0
Returning sum of 1 to client.

Adding 2 to 1
Returning sum of 3 to client.

Adding -3 to 3
Returning sum of 0 to client.

Adding 4 to 0
Returning sum of 4 to client.

Adding 5 to 4
Returning sum of 9 to client.

Adding 6 to 9
Returning sum of 15 to client.

Adding 7 to 15
Returning sum of 22 to client.

Adding -8 to 22
Returning sum of 14 to client.

Adding 9 to 14
Returning sum of 23 to client.

Adding 10 to 23
Returning sum of 33 to client.
```

Task 3:

Project2Task3ClientConsole

```
The client is running.
Input a server side port number: 6789

1. Add a value to your sum.
2. Subtract a value from your sum.
3. Get your sum.
4. Exit client
1
Enter value to add:
10
Enter your ID:
1
The result is: 10

1. Add a value to your sum.
2. Subtract a value from your sum.
3. Get your sum.
4. Exit client
2
Enter value to subtract:
5
Enter your ID:
1
The result is: 5

1. Add a value to your sum.
2. Subtract a value from your sum.
3. Get your sum.
4. Exit client
3
Enter your ID:
1
The result is: 5
```

```
1. Add a value to your sum.
2. Subtract a value from your sum.
3. Get your sum.
4. Exit client
1
Enter value to add:
10
Enter your ID:
2
The result is: 10

1. Add a value to your sum.
2. Subtract a value from your sum.
3. Get your sum.
4. Exit client
2
Enter value to subtract:
7
Enter your ID:
2
The result is: 3

1. Add a value to your sum.
2. Subtract a value from your sum.
3. Get your sum.
4. Exit client
3
Enter your ID:
2
The result is: 3
```

```
1. Add a value to your sum.
2. Subtract a value from your sum.
3. Get your sum.
4. Exit client
1
Enter value to add:
16
Enter your ID:
3
The result is: 16

1. Add a value to your sum.
2. Subtract a value from your sum.
3. Get your sum.
4. Exit client
2
Enter value to subtract:
3
Enter your ID:
3
The result is: 13

1. Add a value to your sum.
2. Subtract a value from your sum.
3. Get your sum.
4. Exit client
3
Enter your ID:
3
The result is: 13
```

```
1. Add a value to your sum.
2. Subtract a value from your sum.
3. Get your sum.
4. Exit client
4

Client side quitting. The remote variable server is still running.


Process finished with exit code 0
```

Run client again:

```
The client is running.
Input a server side port number: 6789

1. Add a value to your sum.
2. Subtract a value from your sum.
3. Get your sum.
4. Exit client
3

Enter your ID:
1

The result is: 5


1. Add a value to your sum.
2. Subtract a value from your sum.
3. Get your sum.
4. Exit client
3

Enter your ID:
2

The result is: 3


1. Add a value to your sum.
2. Subtract a value from your sum.
3. Get your sum.
4. Exit client
3

Enter your ID:
3

The result is: 13
```

Project2Task3ServerConsole

```
The server is running.
Input a server port number to listen on: 6789

VisitorID: 1
Operation #: 1
Return Variable 10

VisitorID: 1
Operation #: 2
Return Variable 5

VisitorID: 1
Operation #: 3
Return Variable 5

VisitorID: 2
Operation #: 1
Return Variable 10

VisitorID: 2
Operation #: 2
Return Variable 3

VisitorID: 2
Operation #: 3
Return Variable 3
```

```
VisitorID: 3
Operation #: 1
Return Variable 16

VisitorID: 3
Operation #: 2
Return Variable 13

VisitorID: 3
Operation #: 3
Return Variable 13

VisitorID: 1
Operation #: 3
Return Variable 5

VisitorID: 2
Operation #: 3
Return Variable 3

VisitorID: 3
Operation #: 3
Return Variable 13
```

Task 4:

Project2Task4ClientConsole

```
The client is running.
Input a server side port number: 6789

1. Add a value to your sum.
2. Subtract a value from your sum.
3. Get your sum.
4. Exit client
1
Enter value to add:
10
Enter your ID:
1
The result is: 10

1. Add a value to your sum.
2. Subtract a value from your sum.
3. Get your sum.
4. Exit client
2
Enter value to subtract:
5
Enter your ID:
1
The result is: 5

1. Add a value to your sum.
2. Subtract a value from your sum.
3. Get your sum.
4. Exit client
3
Enter your ID:
1
The result is: 5
```

```
1. Add a value to your sum.
2. Subtract a value from your sum.
3. Get your sum.
4. Exit client
1
Enter value to add:
45
Enter your ID:
2
The result is: 45

1. Add a value to your sum.
2. Subtract a value from your sum.
3. Get your sum.
4. Exit client
2
Enter value to subtract:
75
Enter your ID:
2
The result is: -30

1. Add a value to your sum.
2. Subtract a value from your sum.
3. Get your sum.
4. Exit client
3
Enter your ID:
2
The result is: -30
```

```
1. Add a value to your sum.
2. Subtract a value from your sum.
3. Get your sum.
4. Exit client
1
Enter value to add:
63
Enter your ID:
3
The result is: 63

1. Add a value to your sum.
2. Subtract a value from your sum.
3. Get your sum.
4. Exit client
2
Enter value to subtract:
5
Enter your ID:
3
The result is: 58

1. Add a value to your sum.
2. Subtract a value from your sum.
3. Get your sum.
4. Exit client
3
Enter your ID:
3
The result is: 58
```

```
1. Add a value to your sum.
2. Subtract a value from your sum.
3. Get your sum.
4. Exit client
4

Client side quitting. The remote variable server is still running.
```

Client rerun:

```
The client is running.
Input a server side port number: 6789

1. Add a value to your sum.
2. Subtract a value from your sum.
3. Get your sum.
4. Exit client
3
Enter your ID:
1
The result is: 5

1. Add a value to your sum.
2. Subtract a value from your sum.
3. Get your sum.
4. Exit client
3
Enter your ID:
2
The result is: -30

1. Add a value to your sum.
2. Subtract a value from your sum.
3. Get your sum.
4. Exit client
3
Enter your ID:
3
The result is: 58
```

Project2Task4ServerConsole

```
The server is running.
Input a server port number to listen on: 6789

VisitorID: 1
Operation #: 1
Return Variable 10

VisitorID: 1
Operation #: 2
Return Variable 5

VisitorID: 1
Operation #: 3
Return Variable 5

VisitorID: 2
Operation #: 1
Return Variable 45

VisitorID: 2
Operation #: 2
Return Variable -30

VisitorID: 2
Operation #: 3
Return Variable -30
```

```
VisitorID: 3
Operation #: 1
Return Variable 63

VisitorID: 3
Operation #: 2
Return Variable 58

VisitorID: 3
Operation #: 3
Return Variable 58

VisitorID: 1
Operation #: 3
Return Variable 5

VisitorID: 2
Operation #: 3
Return Variable -30

VisitorID: 3
Operation #: 3
Return Variable 58
```

Task 5:

Project2Task5ClientConsole 1
Client 1

```
The client is running.

RSA public key: (65537,343794297500214835632
RSA private key: (2168353340429281204650034

Input a server side port number: 6789

1. Add a value to your sum.
2. Subtract a value from your sum.
3. Get your sum.
4. Exit client
1
Enter value to add:
10
The result is: 10

1. Add a value to your sum.
2. Subtract a value from your sum.
3. Get your sum.
4. Exit client
2
Enter value to subtract:
5
The result is: 5

1. Add a value to your sum.
2. Subtract a value from your sum.
3. Get your sum.
4. Exit client
3
The result is: 5
```

```
1. Add a value to your sum.
2. Subtract a value from your sum.
3. Get your sum.
4. Exit client
4
Client side quitting. The remote variable server is still running.

Process finished with exit code 0
```

Project2Task5ServerConsole 1
Server Out 1

```
The server is running.
Input a server port number to listen on: 6789


Visitor Public Key: (65537,3437942975002148356336018308676036781
VisitorID: -28467000548475911340007804269424617601758770889
ID and Signature Verified: Yes
Operation #: 1
Return Variable 10


Visitor Public Key: (65537,3437942975002148356336018308676036781
VisitorID: -28467000548475911340007804269424617601758770889
ID and Signature Verified: Yes
Operation #: 2
Return Variable 5


Visitor Public Key: (65537,3437942975002148356336018308676036781
VisitorID: -28467000548475911340007804269424617601758770889
ID and Signature Verified: Yes
Operation #: 3
Return Variable 5
```

Project2Task5ClientConsole 2
Client 2

```
The client is running.

RSA public key: (65537,2817043330487931
RSA private key: (13362010615613749667G

Input a server side port number: 6789

1. Add a value to your sum.
2. Subtract a value from your sum.
3. Get your sum.
4. Exit client
1
Enter value to add:
46
The result is: 46

1. Add a value to your sum.
2. Subtract a value from your sum.
3. Get your sum.
4. Exit client
2
Enter value to subtract:
42
The result is: 4

1. Add a value to your sum.
2. Subtract a value from your sum.
3. Get your sum.
4. Exit client
3
The result is: 4
```

```
1. Add a value to your sum.
2. Subtract a value from your sum.
3. Get your sum.
4. Exit client
4
Client side quitting. The remote variable server is still running.

Process finished with exit code 0
```

Project2Task5ServerConsole 2
Server Out 2

```
Visitor Public Key: (65537,281704333048793126144314890⁴
VisitorID: -18337298822191133259399525665627188999821⁹⁰
ID and Signature Verified: Yes
Operation #: 1
Return Variable 46

Visitor Public Key: (65537,281704333048793126144314890⁴
VisitorID: -18337298822191133259399525665627188999821⁹⁰
ID and Signature Verified: Yes
Operation #: 2
Return Variable 4

Visitor Public Key: (65537,281704333048793126144314890⁴
VisitorID: -18337298822191133259399525665627188999821⁹⁰
ID and Signature Verified: Yes
Operation #: 3
Return Variable 4
```

Project2Task5ClientConsole 3
Client 3

```
The client is running.

RSA public key: (65537,40045103259968238097156
RSA private key: (26823626165514834127699815791

Input a server side port number: 6789

1. Add a value to your sum.
2. Subtract a value from your sum.
3. Get your sum.
4. Exit client
1
Enter value to add:
234
The result is: 234

1. Add a value to your sum.
2. Subtract a value from your sum.
3. Get your sum.
4. Exit client
2
Enter value to subtract:
7654
The result is: -7420

1. Add a value to your sum.
2. Subtract a value from your sum.
3. Get your sum.
4. Exit client
3
The result is: -7420
```

```
1. Add a value to your sum.
2. Subtract a value from your sum.
3. Get your sum.
4. Exit client
4
Client side quitting. The remote variable server is still running.

Process finished with exit code 0
```

Project2Task5ServerConsole 3
Server Out 3

```
Visitor Public Key: (65537,4004510325996
VisitorID: -5683443064072533185844125885
ID and Signature Verified: Yes
Operation #: 1
Return Variable 234


Visitor Public Key: (65537,4004510325996
VisitorID: -5683443064072533185844125885
ID and Signature Verified: Yes
Operation #: 2
Return Variable -7420


Visitor Public Key: (65537,4004510325996
VisitorID: -5683443064072533185844125885
ID and Signature Verified: Yes
Operation #: 3
Return Variable -7420
```