MAKERERE UNIVERSITY

College Of Computing and Information Sciences (CoCIS)

Bachelor of Science in Software Engineering

BSE 1301: Professional Min SE

Practical Project 1

Group Members

Name	Student Number	Registration Number
Amoko Ivan	217014453	17/U/2680/EVE
Tindyebwa Fortunate Allan	217005376	17/U/10441/EVE
Bwayo Joel	217010218	17/U/3777/EVE
Ssemakula Rajab	217011090	17/U/10165/EVE

Project Procedures to follow in using the Word task server.

The Client enters different commands to be processed via the command line interface, such commands include the following.

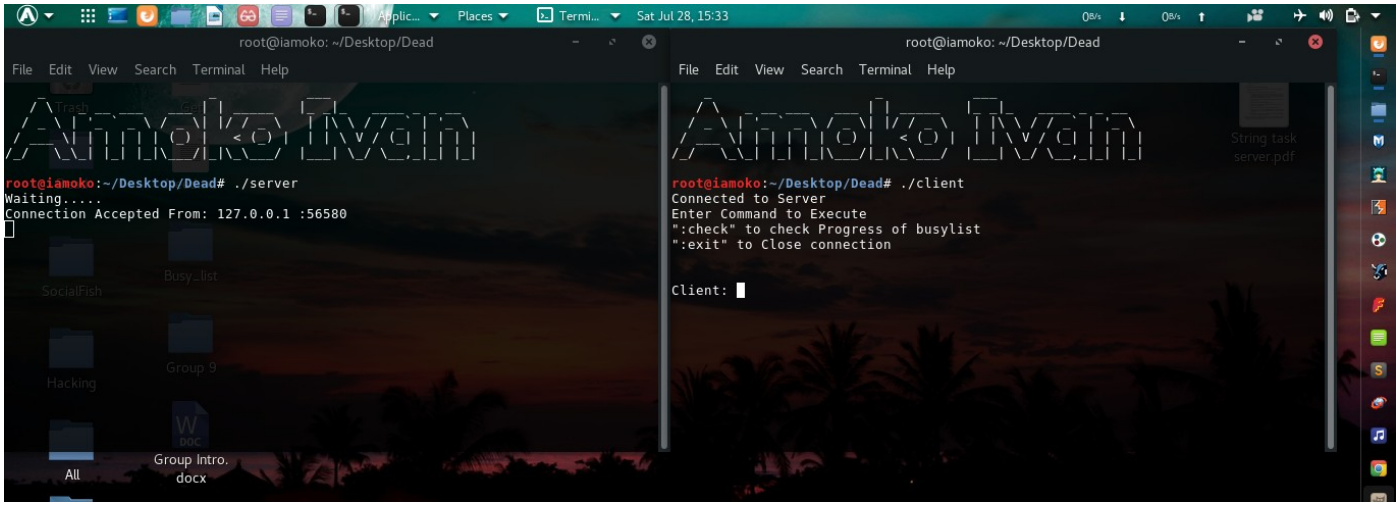
Command	**Example**	**Result**
Double	double word	wordword
Reverse	rev word	drow
Delete	people 1,3	eple
Replace	replace middle 1-h,2-u,3-s,4-t	hustle
Encryption	encrypt zoo	2y1Hp761nF51nF5
Decryption	decrypt 1oG6E1nF51oG61kC2E	people

The client program ca only run when the server is already running, the client is able to enter the command and string to be processed by the server and at the same time is also able to exit from the server's connection after he/she is done with submitting tasks and has got all the results needed.

To compile server program gcc -o server $(mysql_config --cflags) server.c $(mysql_config --libs)

The server and client interfaces are as shown in the images below.

Server Program Client Program



A client can send as many tasks as possible, these tasks are processed and for any task, the logs are stored directly into the database and the processed results are stored into the ready_job file.

The ready file is arranged line by line with

line 1 – Client's ID

line 2 – Time in which the task was sent

line 3 – Date in which the task was sent

line 4 – Task ID

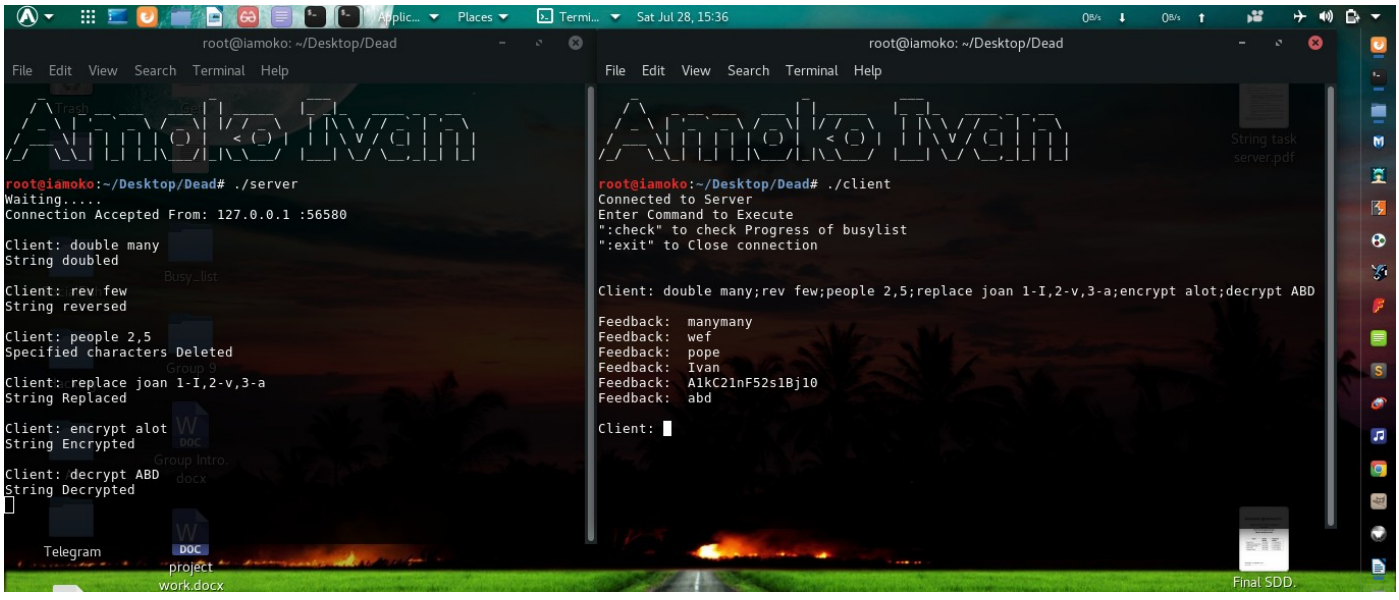
line 5 – Task Type

line 6 – String

line 7 – Result

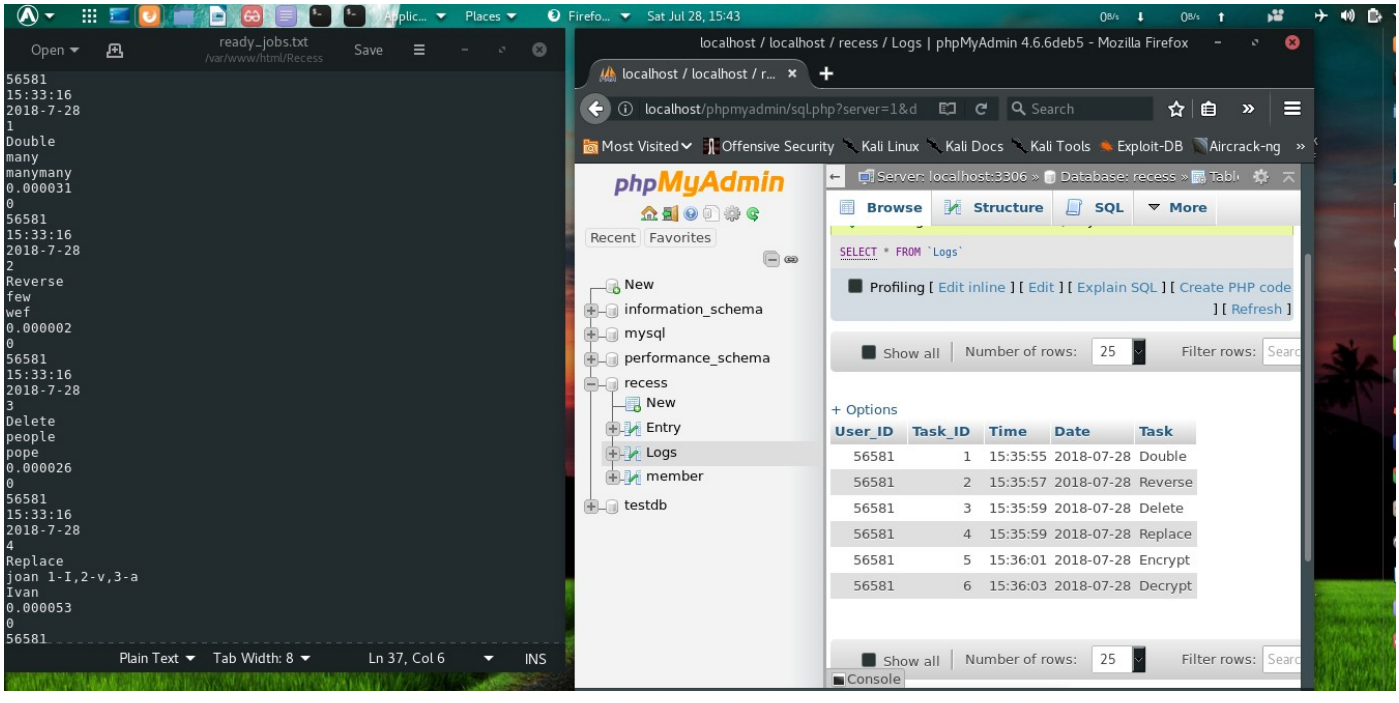
line 8 – Processing duration of the task

line 9 – Priority



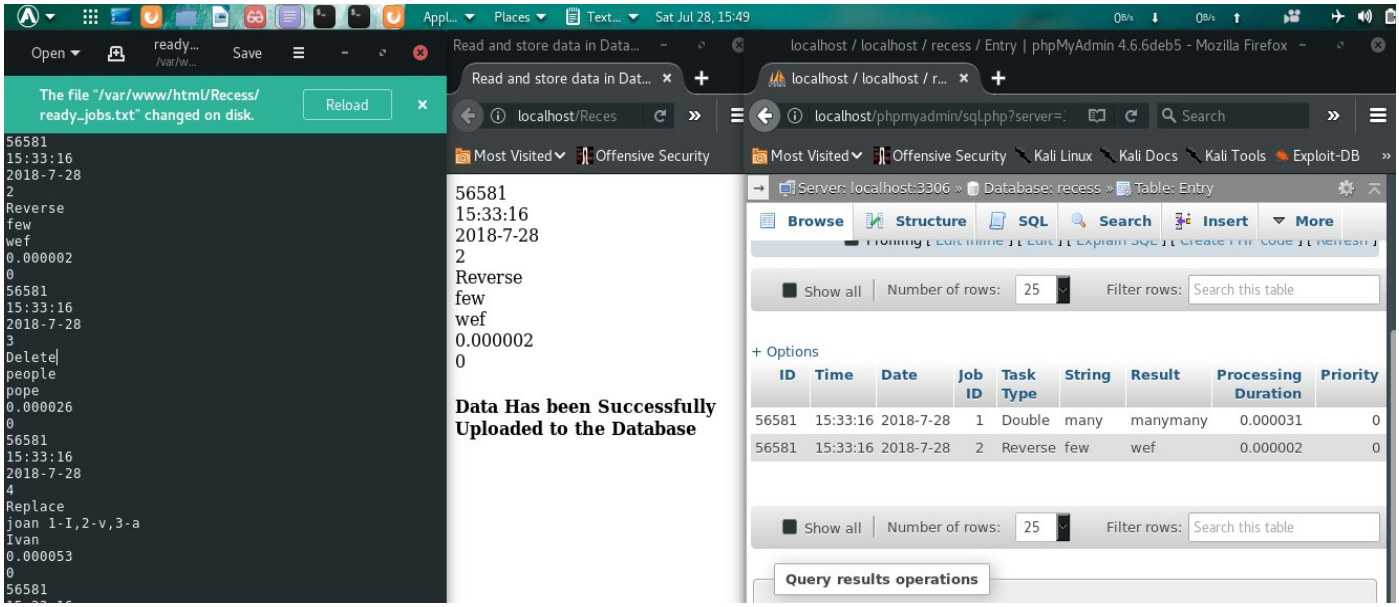
The ready list file

Database Table showing Logs

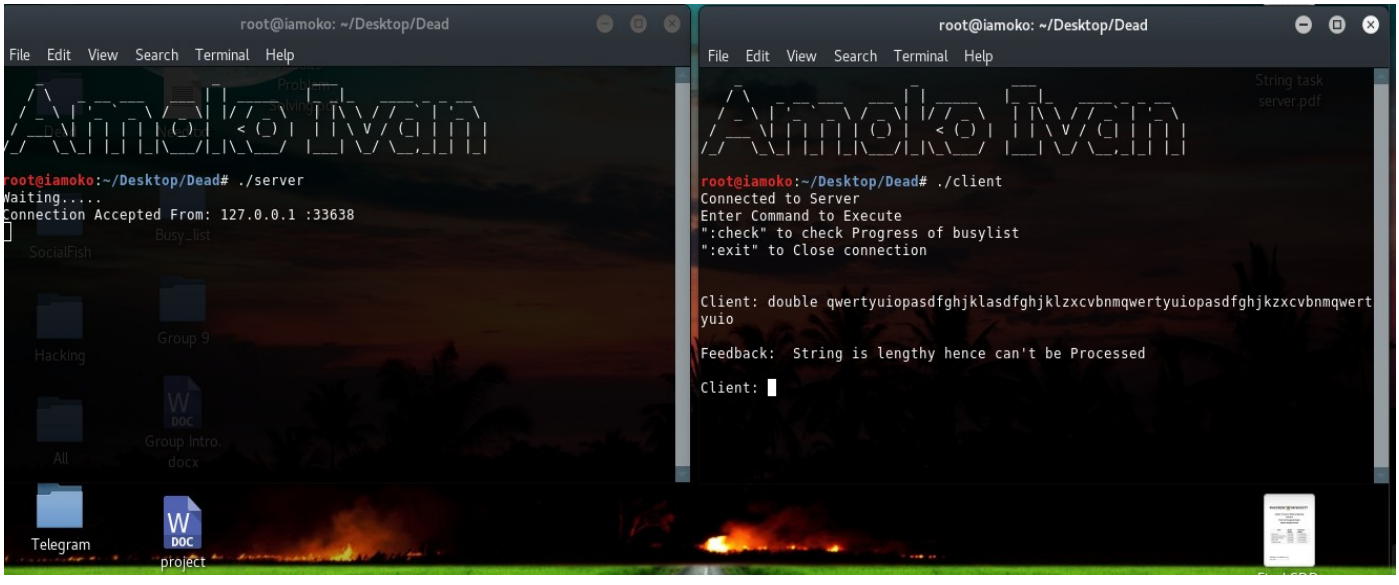


When a PHP Script that reads data from the ready_job file is run, it records the data from the file into the database table and each read data that has been entered into the database tables, is immediately deleted from the ready_job file every 1 minute.

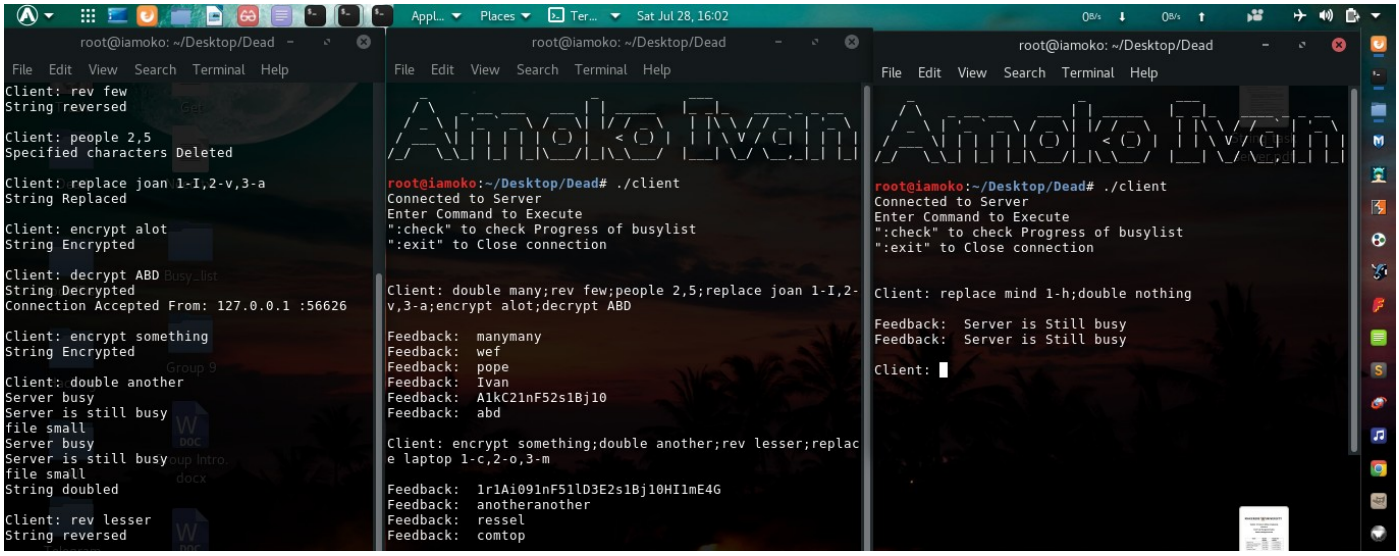
read_jobs file PHP Scripts that reads data Database into which data is stored



Task whose strings have more than 50 characters are not processed by the server. Such tasks are saved in the file called “blacklisted.txt”.



Tasks that are sent by client2 when the server is still handling tasks from client1 are stored into the busy_list file as shown below.



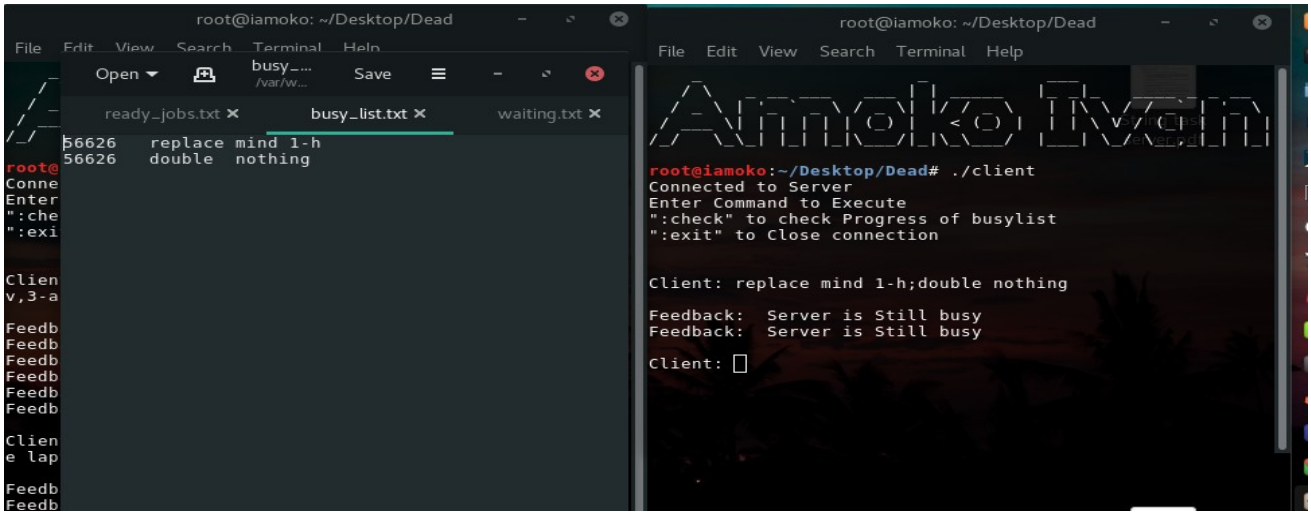
Busy_list file is as shown.

Where;

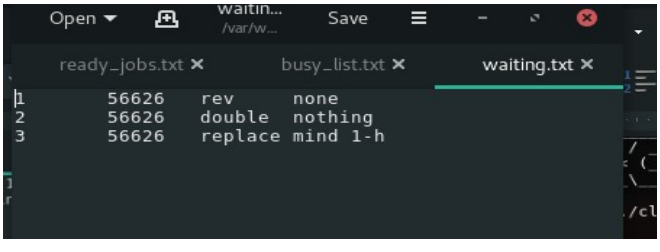
Column 1 – Client ID.

Column 2 – Task Type.

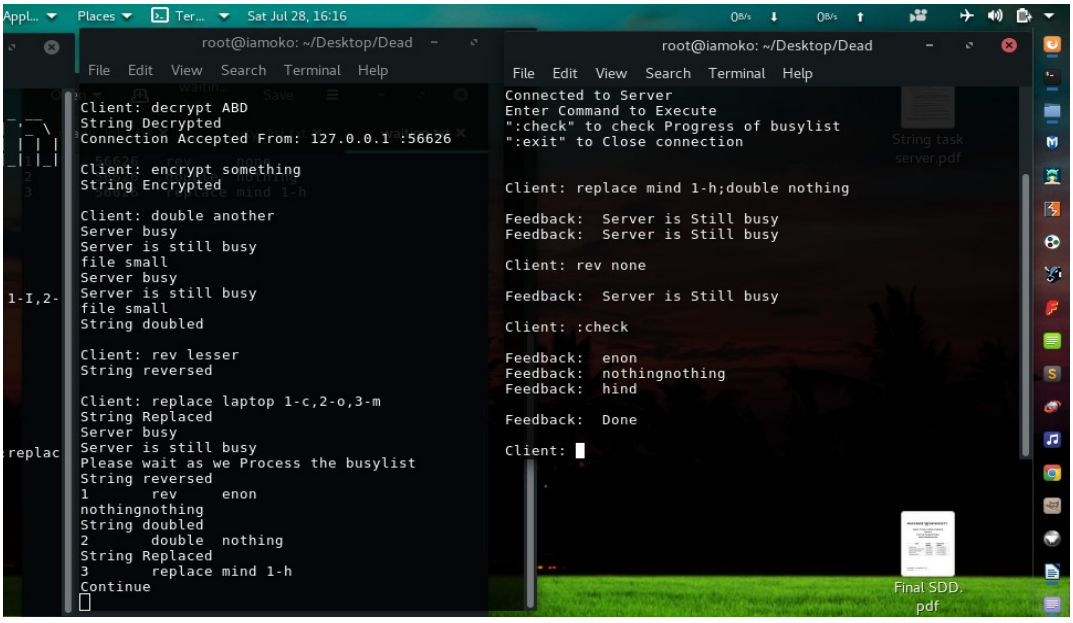
Column 3 -String to be processed.



When the server is done processing the other client's tasks, It's going to Process the tasks in the Busy_list file by assigning priorities to them and they are stored into a different file called "waiting" as shown below.

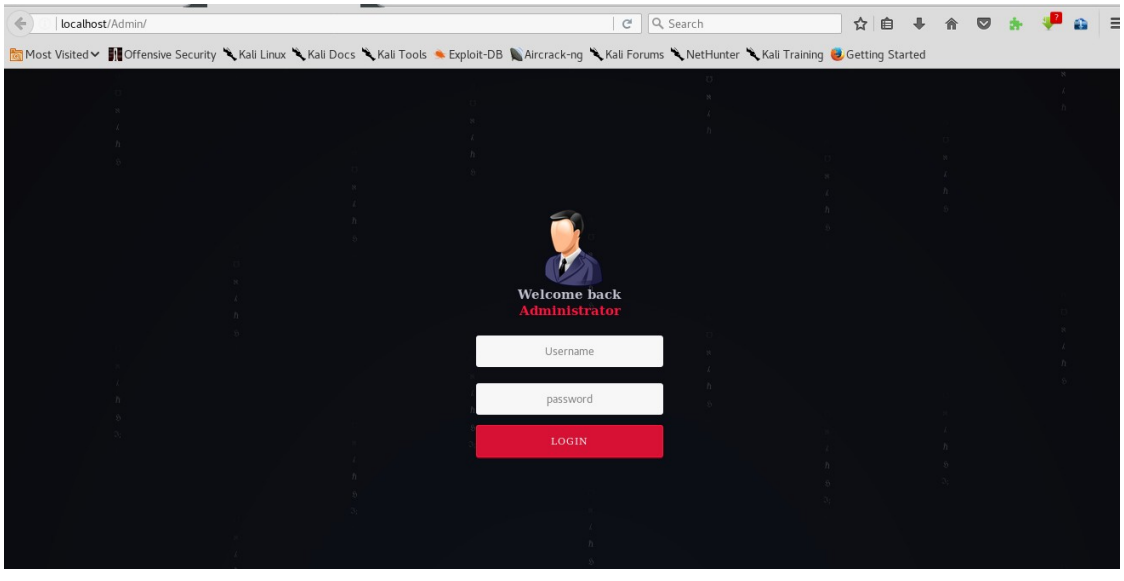


Client 2 Enters the ':check' command to retrieve his\her results that were send when the server was busy. On retrieving the results, the server reads the "waiting" list file line by line and processes the tasks. Tasks are read from the file, processed, cleared from the waiting file and the results are stored into the ready_list file which is again read by the PHP script and stored into the database.



The Administrator is able to monitor the operation of the entire system via the web interface.

The Admin has to login via web interface and the details used to log into the web interface are in the database.

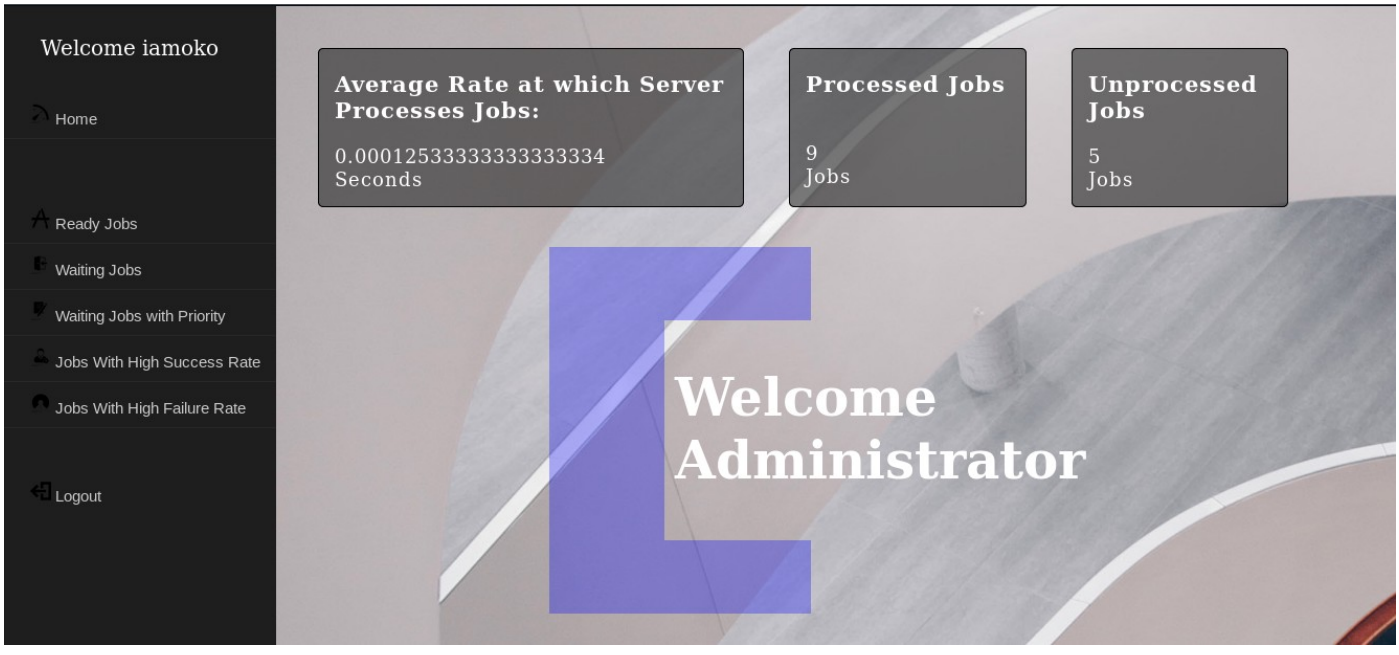


On Logging into the web page, the administrator is able to view;

Average rate at which server Processes Jobs.

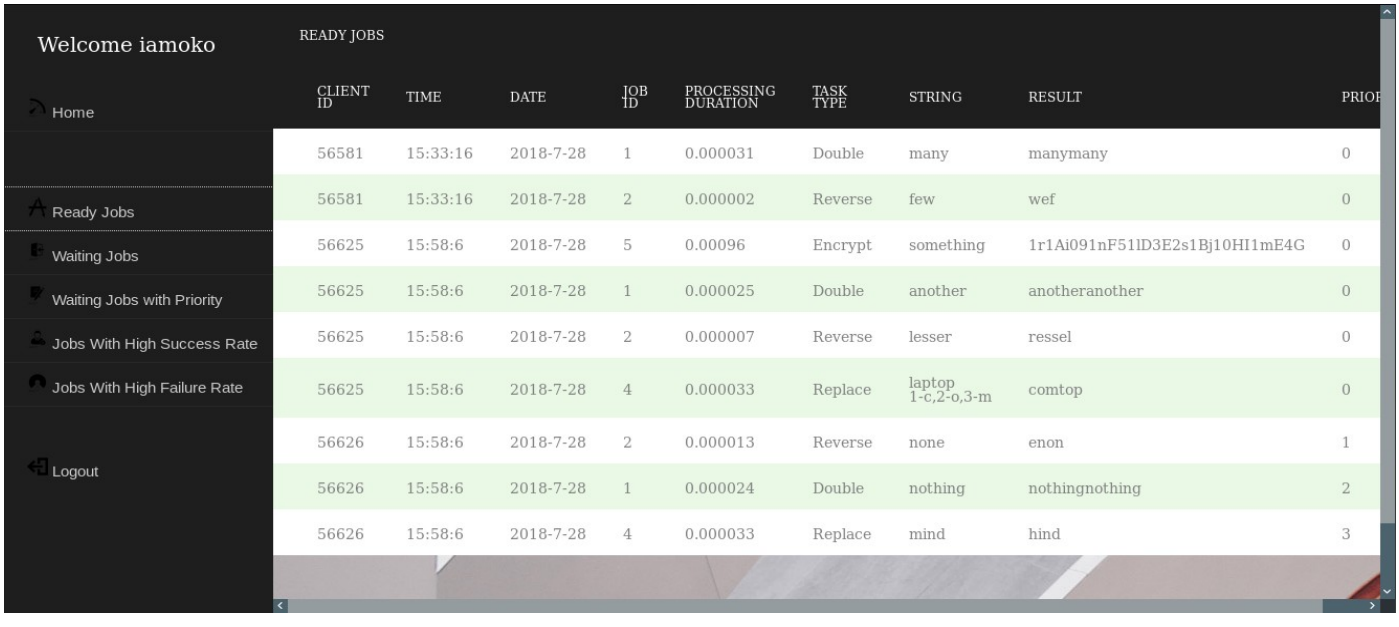
Ready jobs, Waiting Jobs, Waiting Jobs with Priority, Jobs with high Success rate and the jobs with High failure rate.

Administrator's Home page.



Ready Jobs;

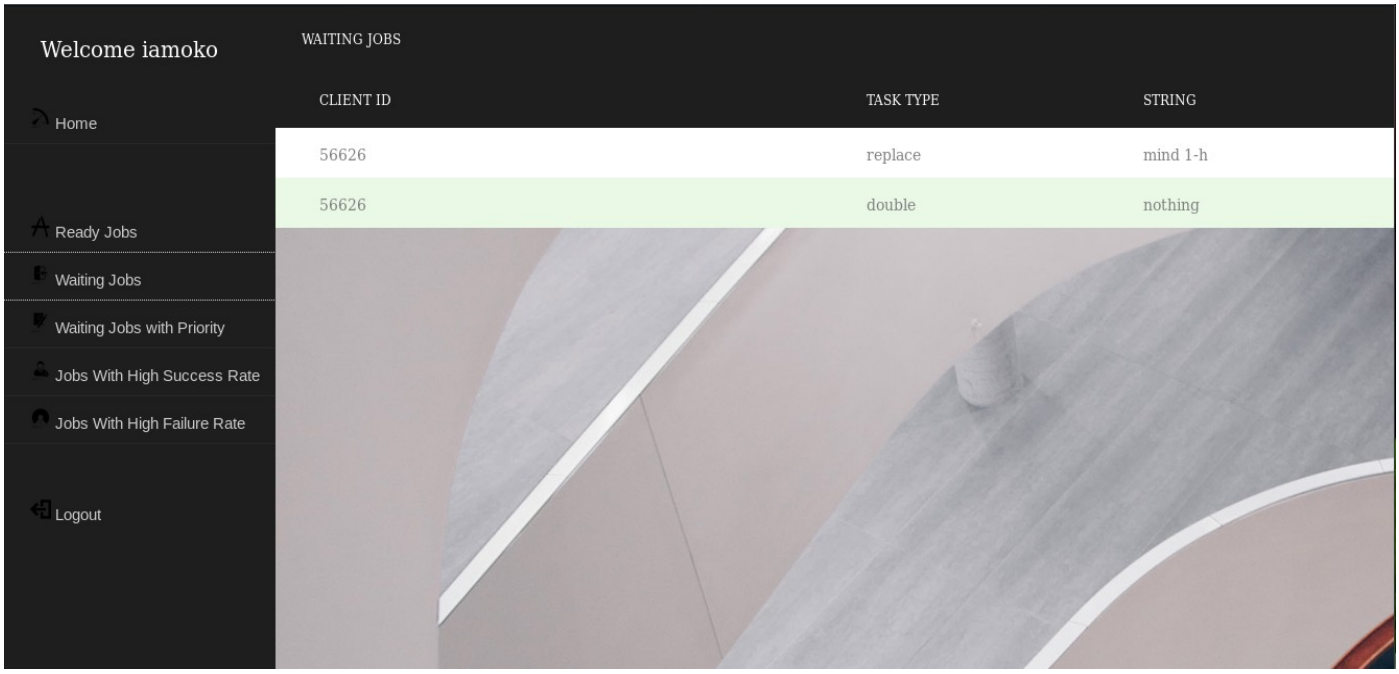
These are jobs are read from the database who processing was successful and the clients got results.



CLIENT ID	TIME	DATE	JOB ID	PROCESSING DURATION	TASK TYPE	STRING	RESULT	PRIOR
56581	15:33:16	2018-7-28	1	0.000031	Double	many	manymany	0
56581	15:33:16	2018-7-28	2	0.000002	Reverse	few	wef	0
56625	15:58:6	2018-7-28	5	0.00096	Encrypt	something	1r1Ai091nF51lD3E2s1Bj10HI1mE4G	0
56625	15:58:6	2018-7-28	1	0.000025	Double	another	anotheranother	0
56625	15:58:6	2018-7-28	2	0.000007	Reverse	lesser	ressel	0
56625	15:58:6	2018-7-28	4	0.000033	Replace	laptop 1-c,2-o,3-m	comtop	0
56626	15:58:6	2018-7-28	2	0.000013	Reverse	none	enon	1
56626	15:58:6	2018-7-28	1	0.000024	Double	nothing	nothingnothing	2
56626	15:58:6	2018-7-28	4	0.000033	Replace	mind	hind	3

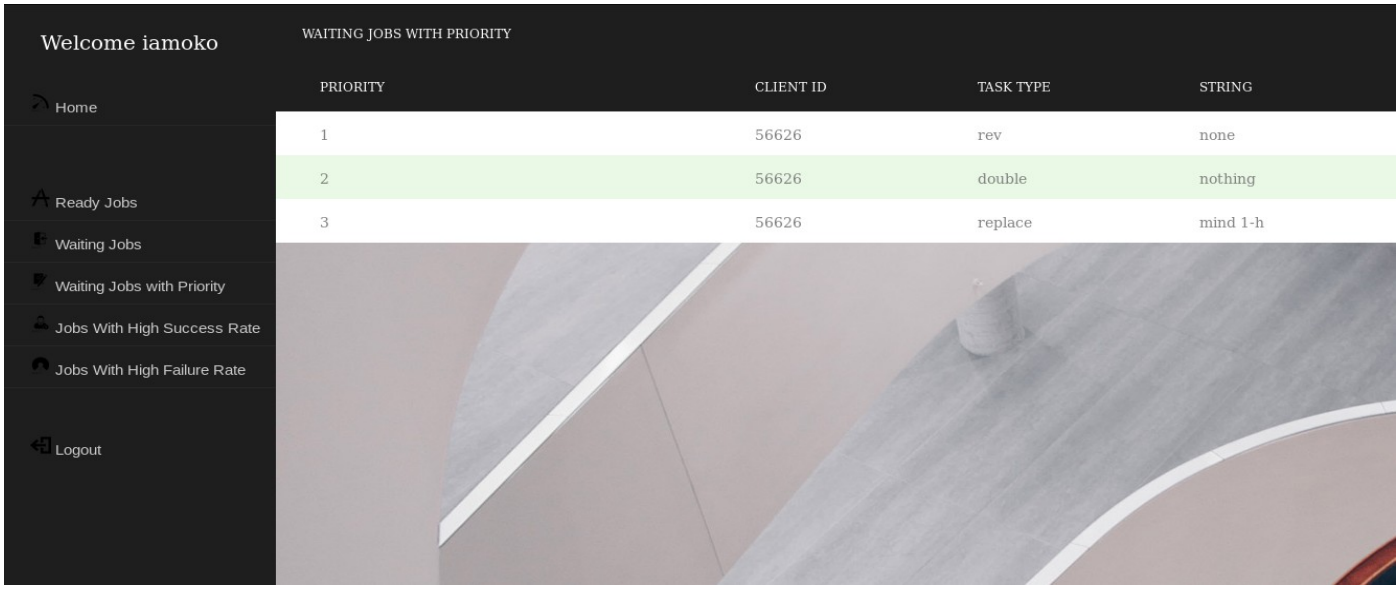
Waiting Jobs;

These are the jobs which haven't been assigned priorities yet, and so the chances of their success would be low.



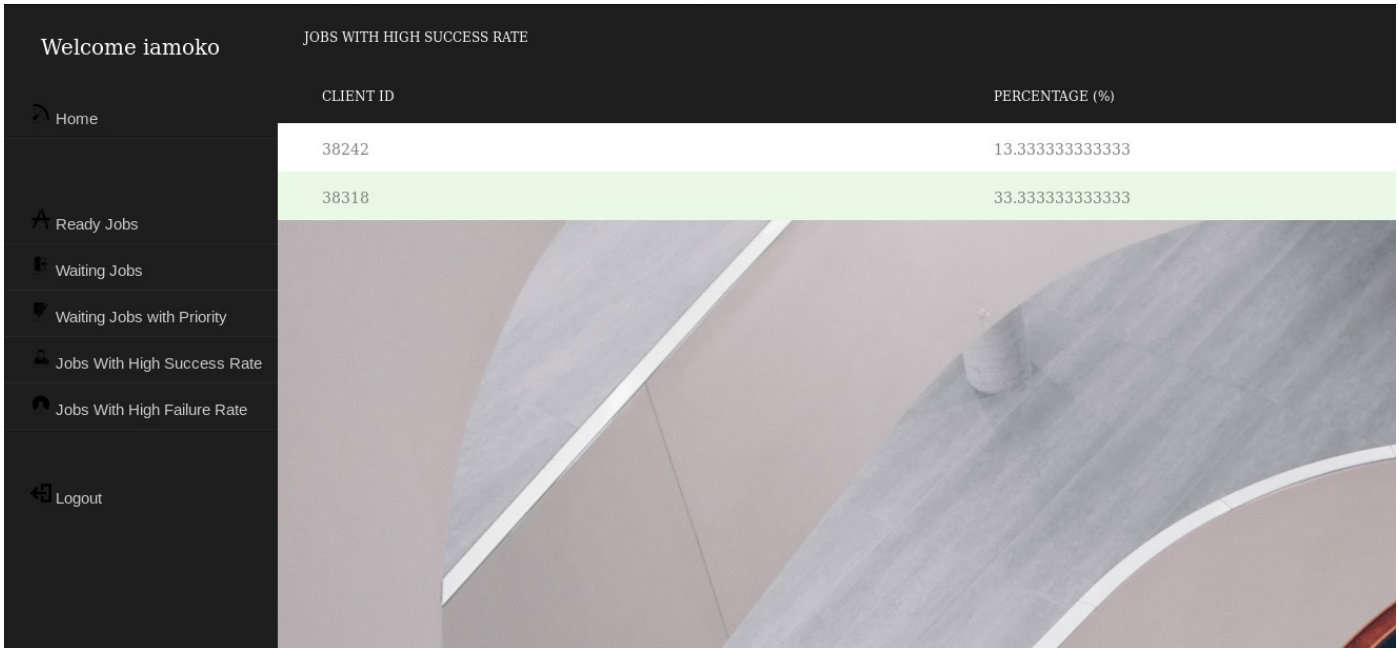
Waiting Jobs with Priority;

Jobs that have been assigned priorities meaning that they are going to be processed by the server and hence their success rate is high.



Jobs With High Success Rate;

This is calculated from = $\frac{\text{(Number of Jobs for a student in ready list) *100 \%}}{\text{(Sum of jobs in ready list) + (Sum of jobs in busy list)}}$



Jobs With High Failure Rate;

This is calculated from = $\frac{\text{(Number of Jobs for a student in busy list) *100 \%}}{\text{(Sum of jobs in ready list) + (Sum of jobs in busy list)}}$