Detailed Project Report
on

IDLE: Client to Client Computing Application

By:

Gurdeep Singh Bhambra

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OBJECTIVE

Utilizing computing power of unused computers and providing it to clients in need.

ABSTRACT

This application provides a innovative solution to utilize the computing power of personal computers while they are idle. This application provides extra computing power to the clients in need for more computing power.

The application uses TCP protocol for exchange of data between clients and server. The server maintains the privacy of clients by being the middle agent. All the exchange of data happens in a handshake style. Every request, response or data chunk gets reponded with a status key, stating if the request was satisfied or not.

There are 2 roles a client can play:

Lenders: These are the ones lending their computing power.

Runners: These are the users wanting more computing power.

Following is the model of server client connection:

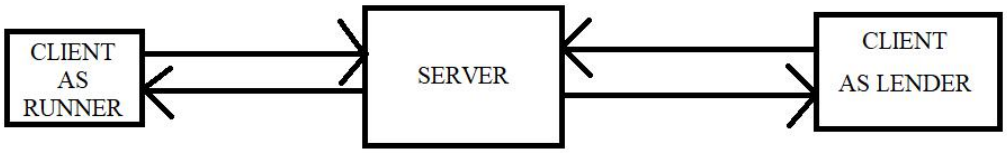

Fig: Runner Client - Server - Lender Client Model

There are 4 main functions a client and server does, which are as follows:

1. Login: Only Authenticated users are allowed access.
2. Logout: A user session gets completed, and goes offline.
3. Run Script: A user can run their program scripts.
4. Be Lender: A user can lend their computing power.

Every request to server is entertained after it gets the user id, if the user is authenticated then only the request is entertained otherwise an illegal request response or failed request response is sent.

Following are the commands used to create the handshake protocol:

Request Commands:

GID: Get User ID

GPW: Get User Password

GIP: Get IP

GPT: Get Port

EXF: Execute File

GOF: Get Output File

TOF: Take Output File

SDN: Shutdown Client's Server

Response Commands:

SCF: Successfully full filled the request

FLD: Failed to Full Fill the request

OK: File Chunk Received Successfully

EOF: End of File Transmission

SSD: Client's Server got Shutdown Successfully

BYE: User Logged out successfully

ILR: Illegal Request

NLA: No Available Lenders

Function Commands:

LCS: Login Client

DCN: Disconnect Client

MML: Make Client Lender

WBL: Withdraw Client from Being Lender

RCS: Run Script

Currently, this application only allows for python3.X scripts to be executed.

Screenshots

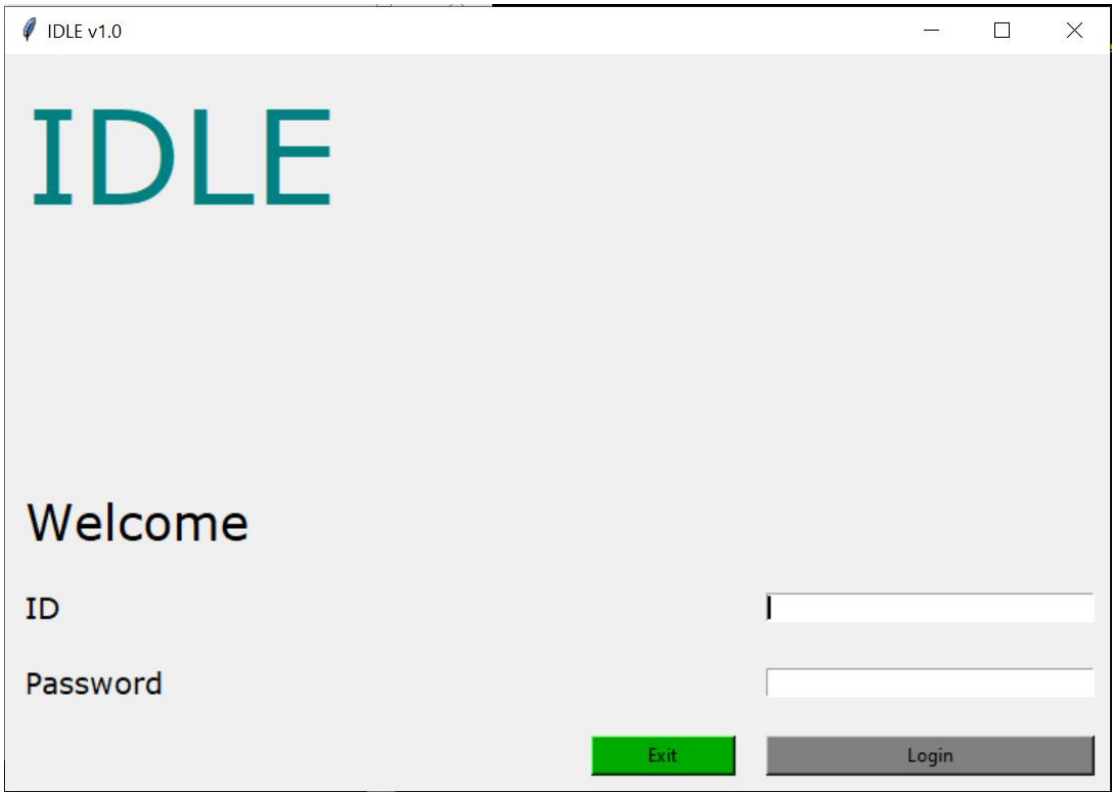

Fig: Login Screen

Fig: Logged In Screen (Become IDLEr refers to Becoming Lender)

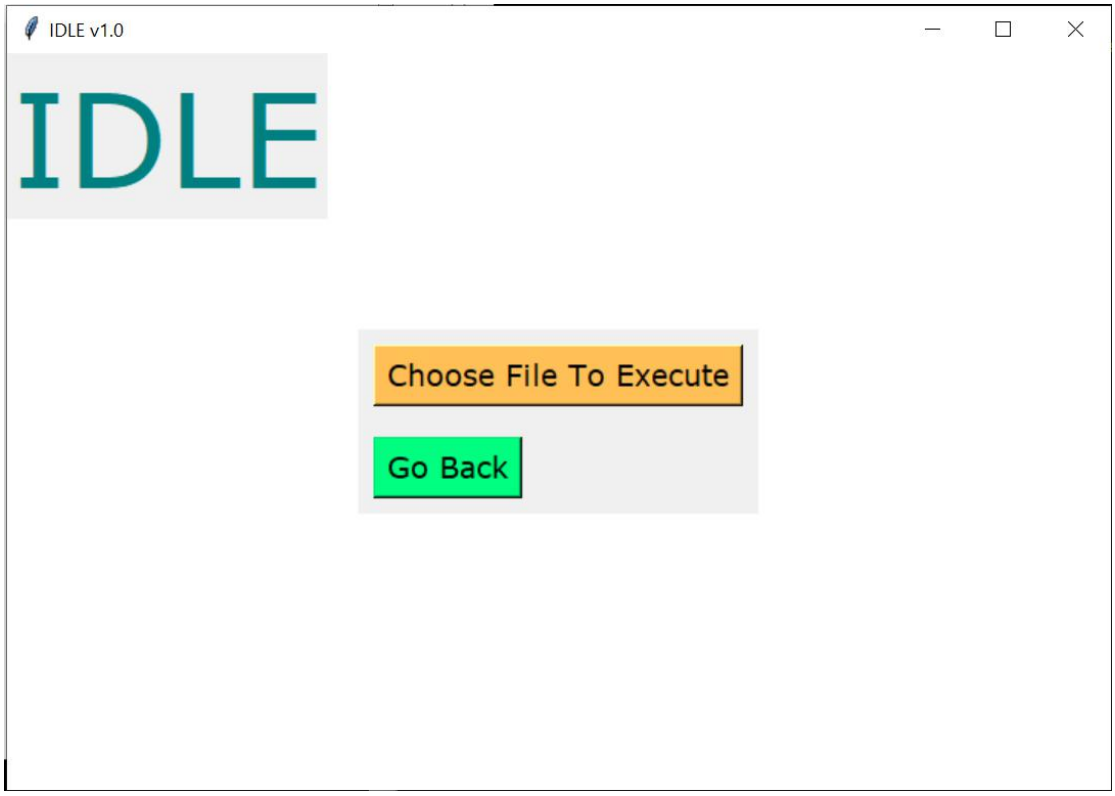

Fig: Upon Selecting Run Scripts, This window frame is displayed.

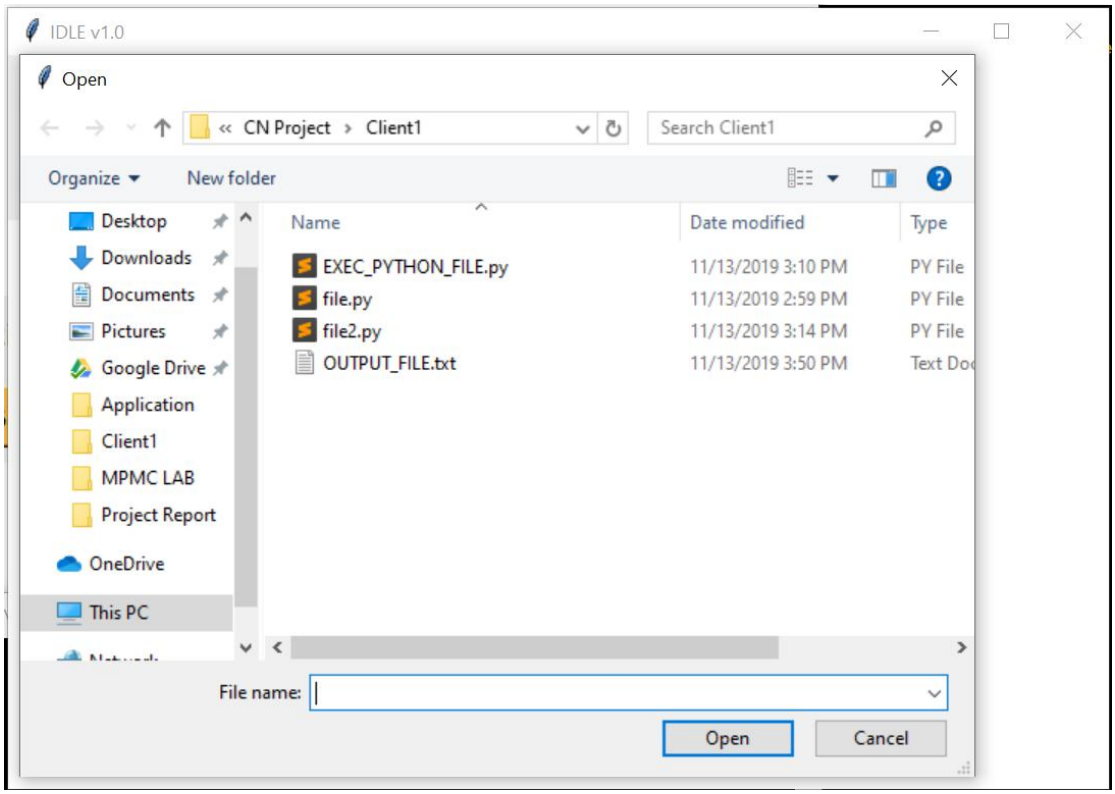

Fig: Select File to execute

Fig: Output is shown if The Lender is available (Left Terminal: Lender Screen for showing requests, Right Window: Output of a script).

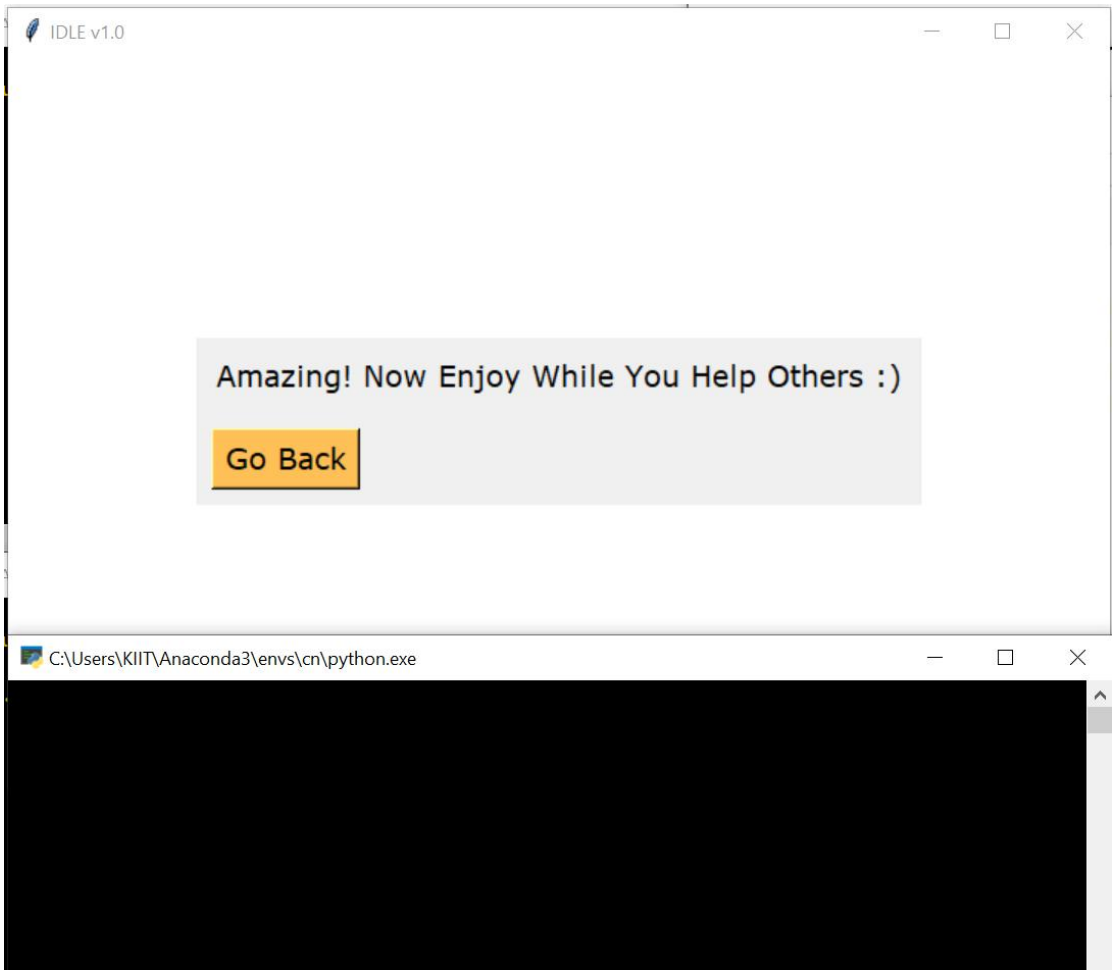

Fig: This window frame is displayed upon selecting “Become IDLEr”. Terminal Displays the info of the work the client does as lender.

Conclusion

I created an application as a solution to utilize the unused computing power and provided it to the users in need.