* 1. One data structure I know is Linked Lists, the elements are stored as nodes. This nodes contains their value and the reference address for the next node in the list. The connections are easy to restore after deletion or insertion, we just must connect the previous node address reference to the next node after the node we want to delete.
     1. I use Linked List to implement Stacks and Queues
     2. To make operations with long integers or with polynomials
  2. Another Data Structure I know is Binary Search Tree(BST), the elements represent the nodes of the tree. They are composed of the key, that represent the value, and have two children, the left node, and the right node, that represent another tree. The left tree of the node contains value lower than the key, and the right tree of the node contains value bigger than the key.
     1. I use BST in the sorting algorithm for the efficiency
     2. To make Priority Queues, the key of each element represents its priority, and you can efficiently extract the element with the highest (or lowest) priority.

1. I used the ping command and for the website <https://tss-yonder.com/> and this server is answered me 104.26.0.62, and when I use the nslookup command, the address was 192.168.1.1.
   1. The browser uses a DNS server to translate the domain name into an IP address and then we can retrieve the website
2. Two transport protocols are UDP (User Datagram Protocol) and TCP (Transmission Control Protocol).
   1. UDP is a communication protocol used for time-sensitive transmission or DNS lookups.
   2. TCP is a communication standard that defines the rules of the internet and used to deliver data in digital network communication.
3. I should have more servers around the world to have faster access to the data, and a data base, where all the servers have access to manage. Then use a Content Delivery Network (CDN) to serve the web application from the closest location to the user.
4. 1. One way is the HTTP Basic Authentication, implementing username and password authentication to restrict access to authorized users.
   2. Another way is using temporary access tokens or keys that grant access to the chat web application for limited time period.
5. I improve my application implementing end-to-end encryption. This ensures that only the sender and intended recipient can read the messages.
6. Cookies are small pieces of data stored on a user's device by a web browser while the user is browsing a website.
   1. This is the cookie I extract:
      1. cookieconsent\_status dismiss – the role for this cookie I think is used to manage user consent regarding the use of cookies on a website.
7. In the faculty, I use the C program working with processes and I used the fork() function.
   1. The states can be:
      1. Running
      2. Ready
      3. Blocked
      4. Terminated
8. I extract the PID of the application from the Task Manager. After I have the PID I can debug the application to identify and fix any issues causing occasional error pages.
9. I would still choose PostgreSQL as the DBMS for storing application data. PostgreSQL offers robust support for relational data modeling, which can be beneficial for managing user profiles, chat messages, and relationships between users and conversations.

To store the password of each user in the database I use a secure hashing algorithm by choosing a strong hashing function designed for passwords.