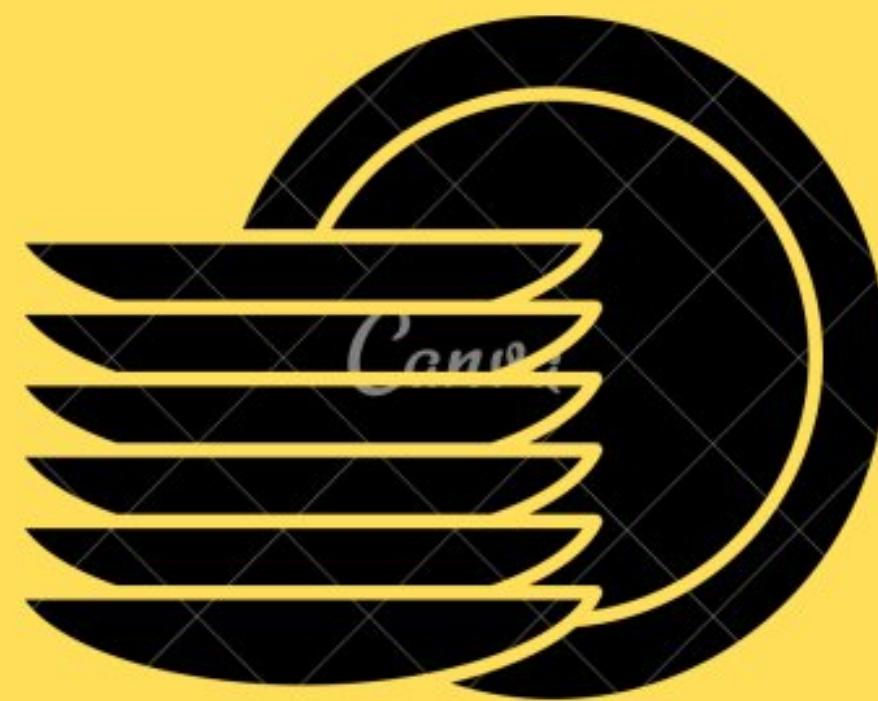


Data Structures in Real Life



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SWIPE >>>

ARRAY :

- *A grocery list, where each item is stored in a consecutive index of the array.*



- *A music playlist, where each song is stored in a separate index of the array.*



- *A deck of cards, where each card is stored in a consecutive index of the array.*

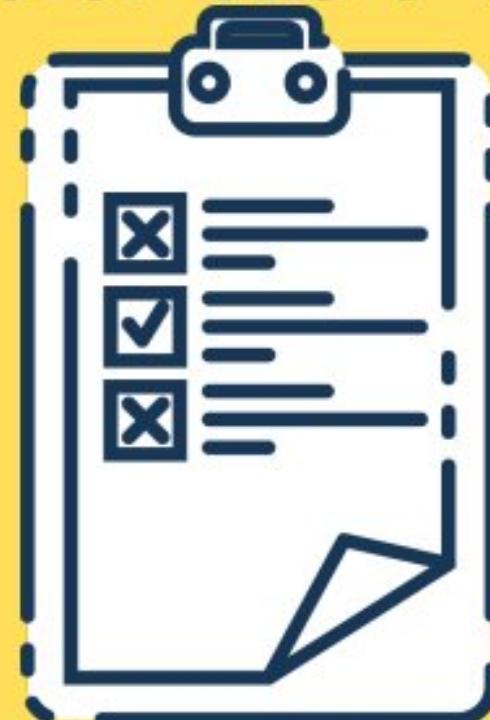


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SWIPE >>>

LINKED LIST :

- *A list of friends on a social media platform, where each friend is represented by a node in the linked list and each node points to the next friend.*
- *A to-do list, where each task is represented by a node in the linked list and each node points to the next task.*
- *A web page browsing history, where each visited web page is represented by a node in the linked list and each node points to the previous web page visited.*



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SWIPE >>>

STACK :



- A *web browser's back button, where the previous web pages are stored in a stack and can be retrieved by clicking the back button.*



- A *undo/redo feature in a text editor, where the previous actions are stored in a stack and can be undone or redone by using the undo/redo feature.*



- A *tower of plates in a cafeteria, where plates are added and removed from the top of the stack.*



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SWIPE >>>

QUEUE :

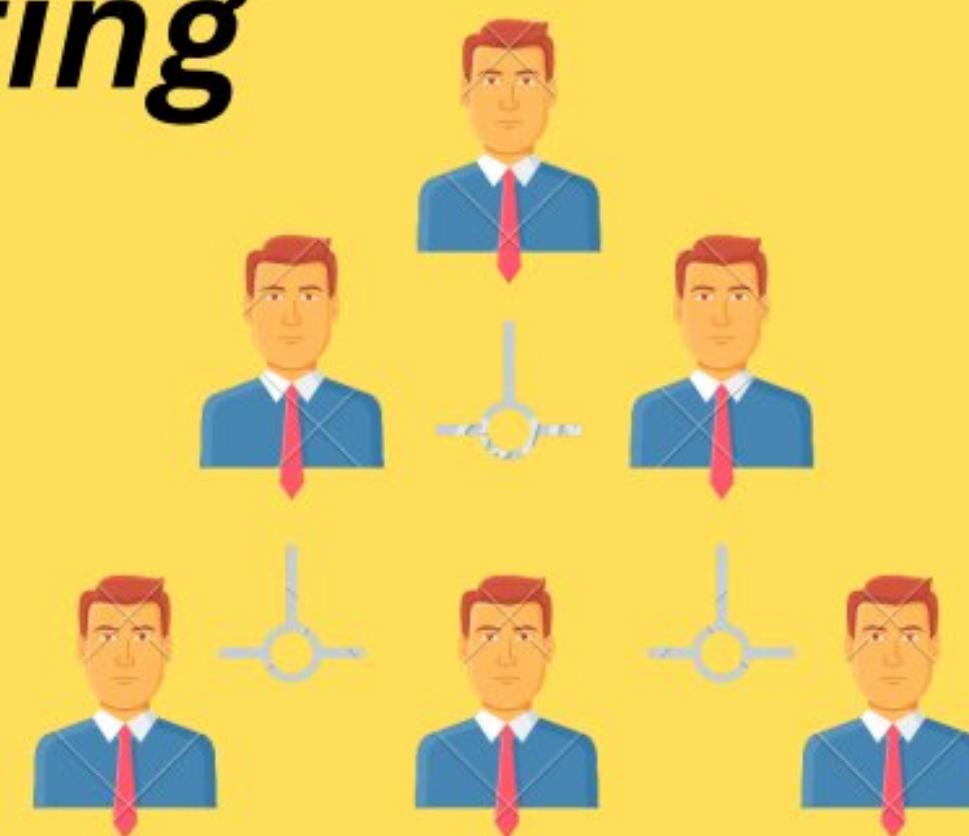
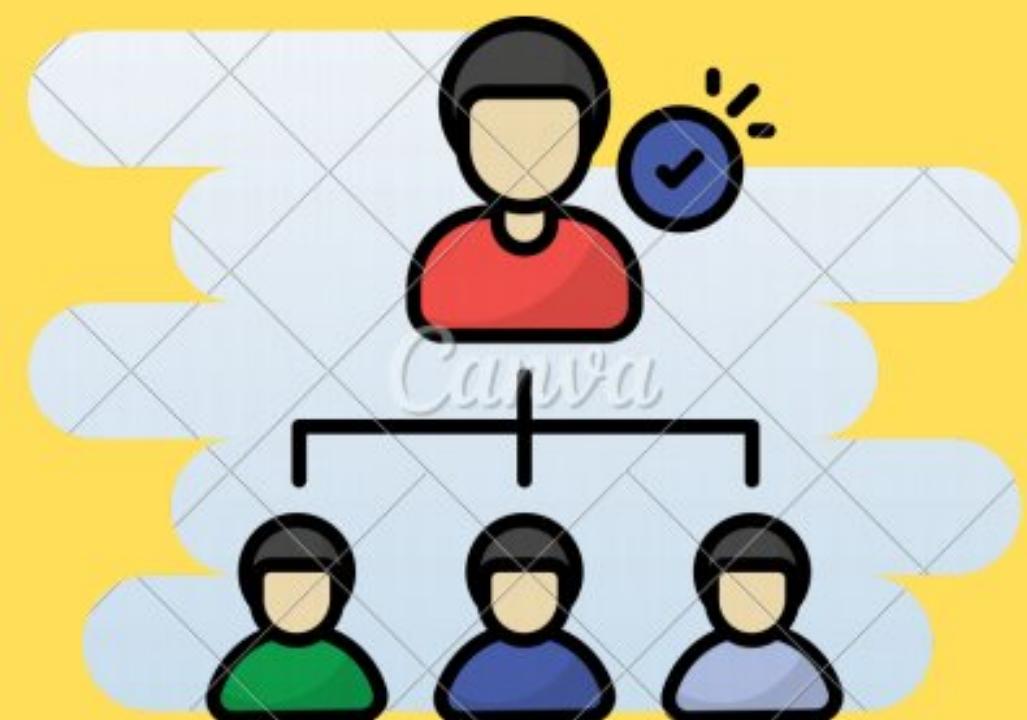


- *A line at a grocery store, where customers wait in a queue to be served by the cashier.*
- *A printer queue, where print jobs are stored in a queue and are processed one by one by the printer.*
- *An email inbox, where new emails are added to the end of the queue and are processed one by one by the user.*



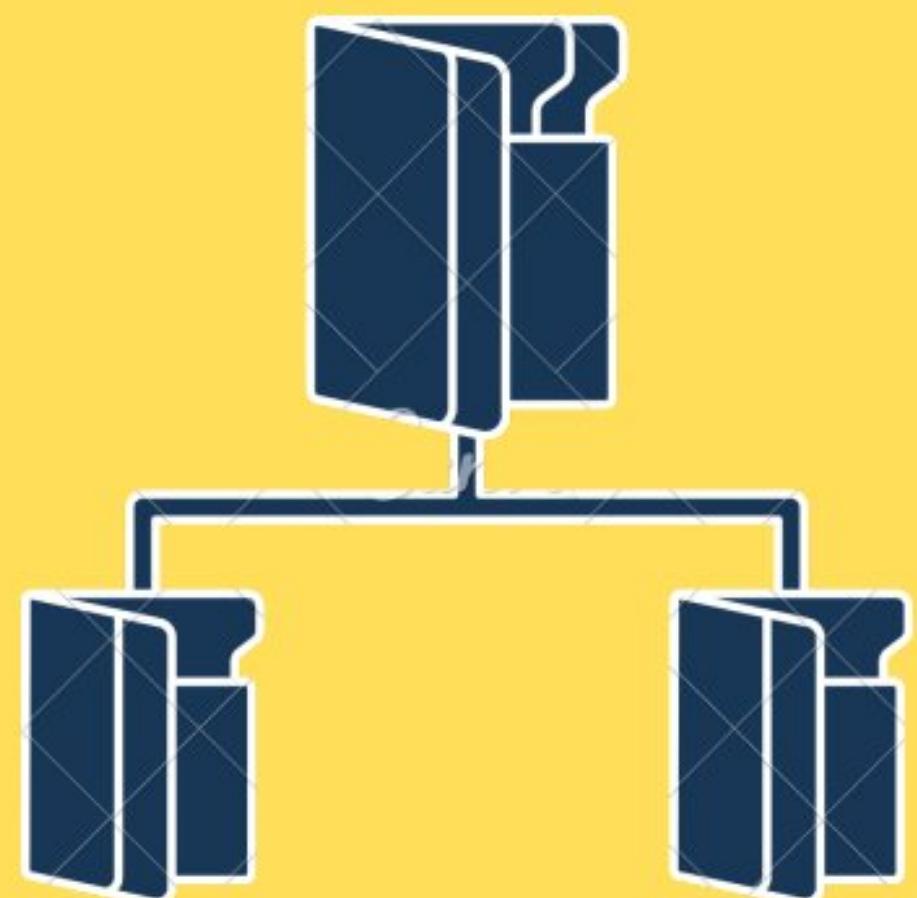
TREE :

- *A family tree, where each person is represented by a node in the tree and the relationships between the nodes represent parent-child relationships.*
- *An organizational chart, where each employee is represented by a node in the tree and the relationships between the nodes represent reporting relationships.*



TREE :

- *A file system, where each directory is represented by a node in the tree and the relationships between the nodes represent parent-child relationships between directories.*



GRAPH :

- *A social network, where each user is represented by a node in the graph and the relationships between the nodes represent the connections between users.*
- *A road network, where each intersection is represented by a node in the graph and the relationships between the nodes represent the roads connecting the intersections.*



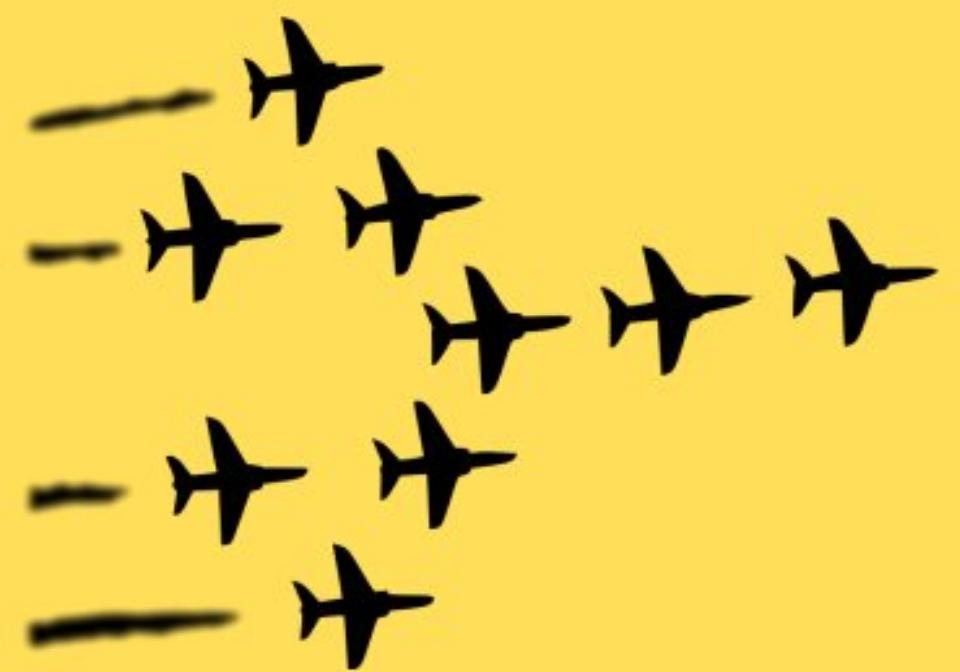
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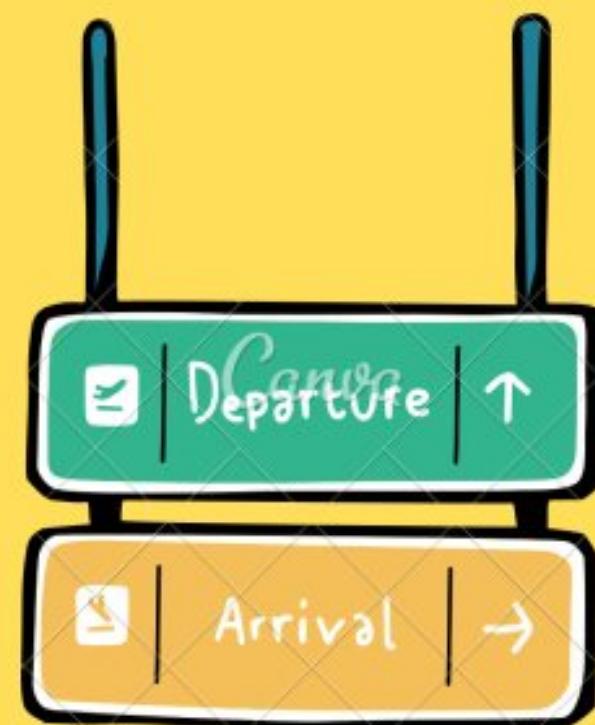
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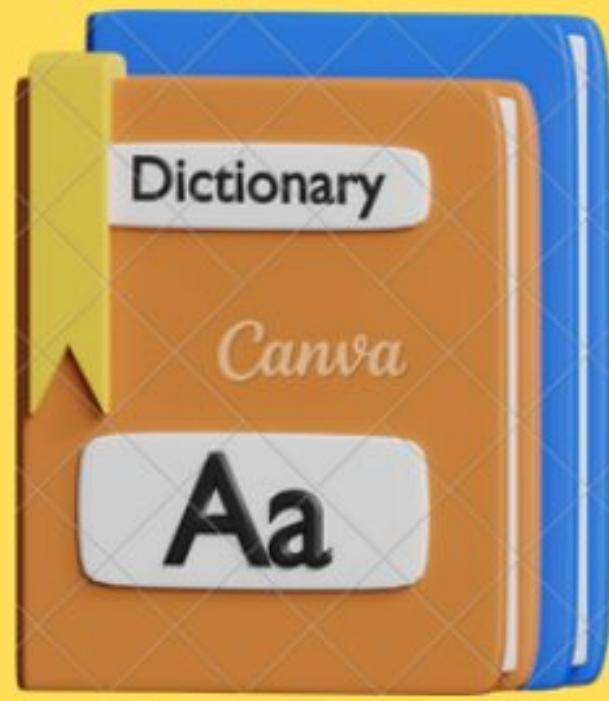
SWIPE >>>

GRAPH :



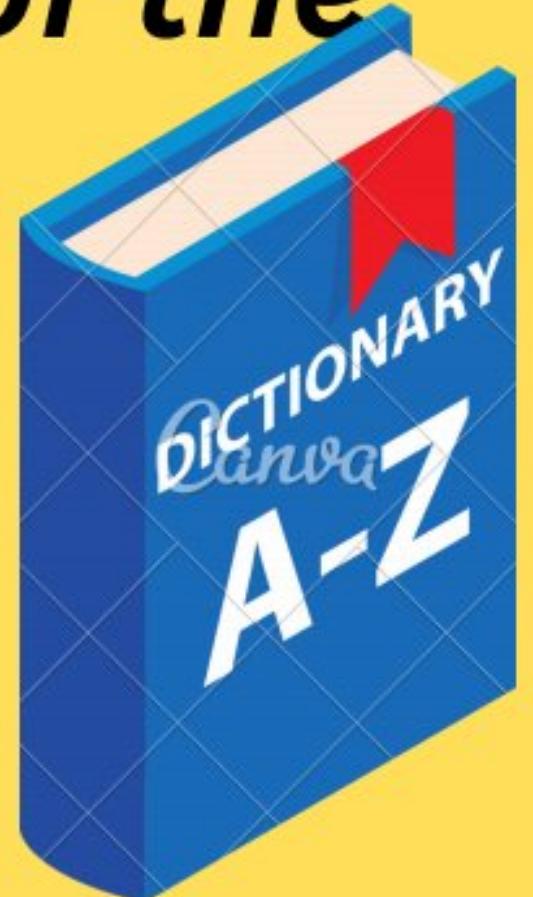
- *A flight network, where each airport is represented by a node in the graph and the relationships between the nodes represent the flights connecting the airports.*



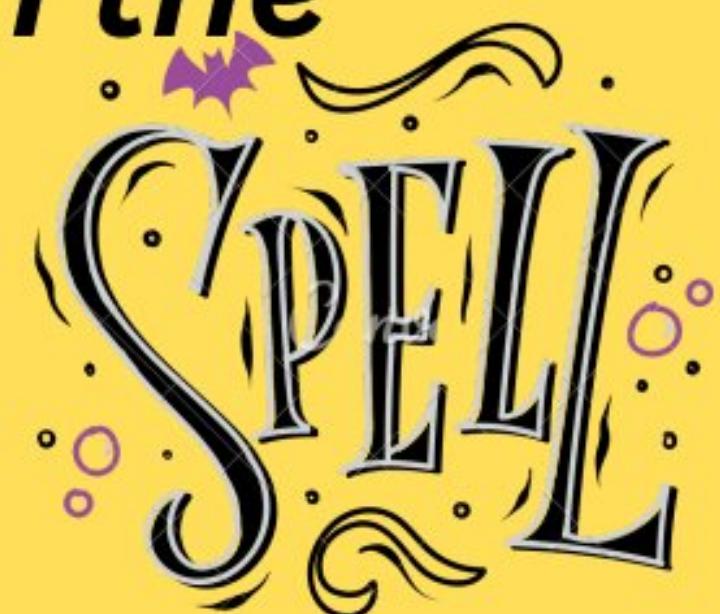


TRIE :

- *A dictionary, where each word is represented by a node in the trie and the relationships between the nodes represent the prefixes of the words.*
- *An autocomplete feature, where a prefix is represented by a node in the trie and the relationships between the nodes represent the possible word completions for the prefix.*



- *A spell checker, where a word is represented by a node in the trie and the relationships between the nodes represent the valid words in the dictionary.*



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SWIPE >>>

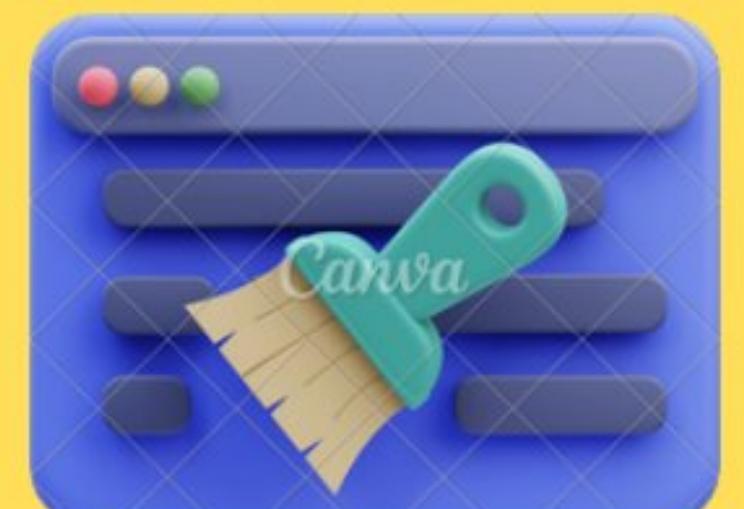
HASH TABLE :



- A *phonebook*, where each person's name is used as a key to look up their phone number.



- A *cache memory*, where frequently used data is stored using a hash function to map the data to a specific location in the cache memory.



- A *database index*, where the keys of the records in the database are hashed and used to quickly look up the records.



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SWIPE >>>



SEARCHING ALGORITHM :



- *In e-commerce, searching algorithms are used to quickly find products and services that match a customer's search query, making it easier for them to find what they're looking for.*
- *In search engines like Google or Bing, searching algorithms are used to find the most relevant results for a user's query based on a variety of factors like keyword relevance and popularity.*



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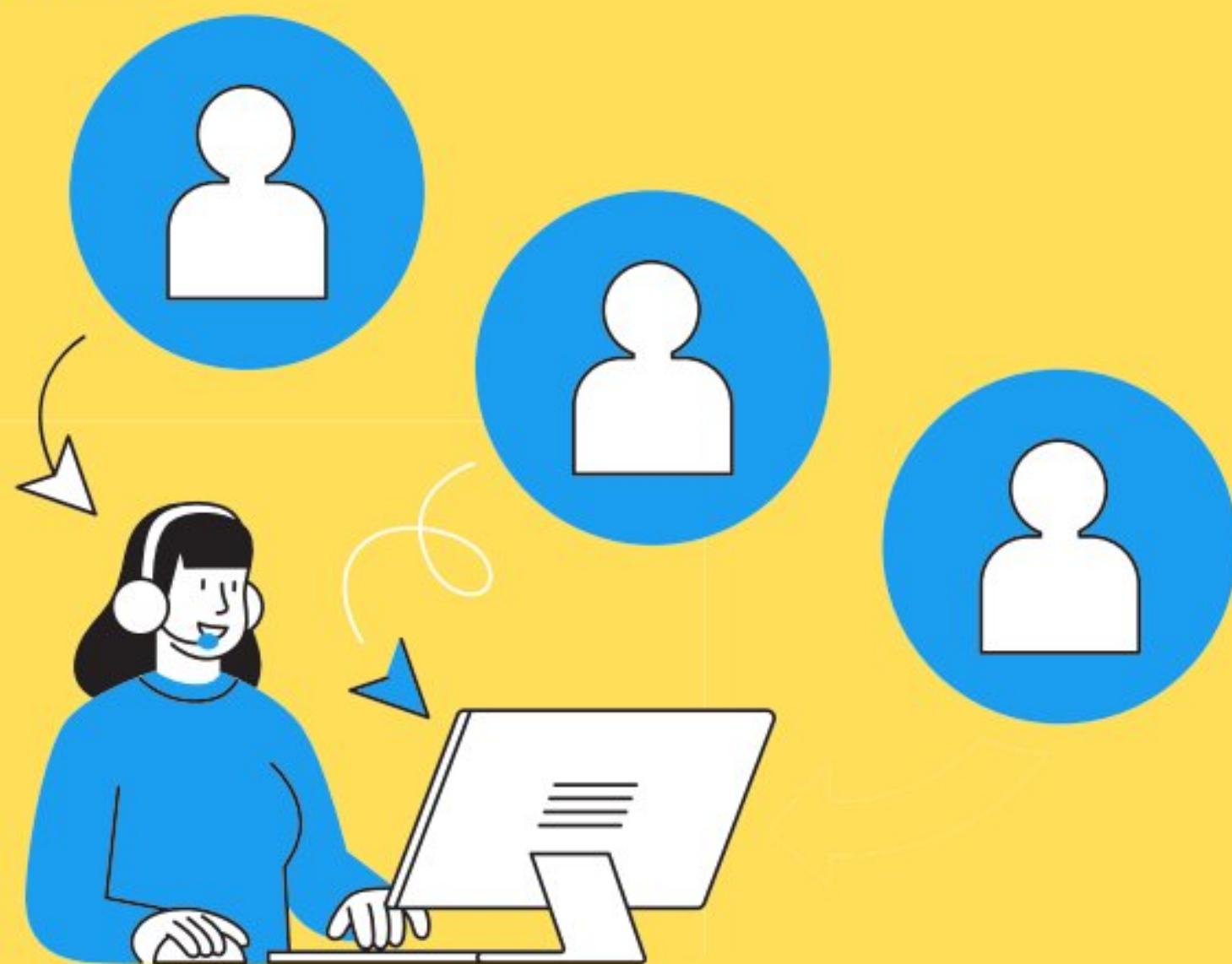
SWIPE >>>



SEARCHING ALGORITHM :



- *In customer support, searching algorithms are used to help agents quickly find relevant information in a database or knowledge base to answer a customer's question or resolve their issue.*

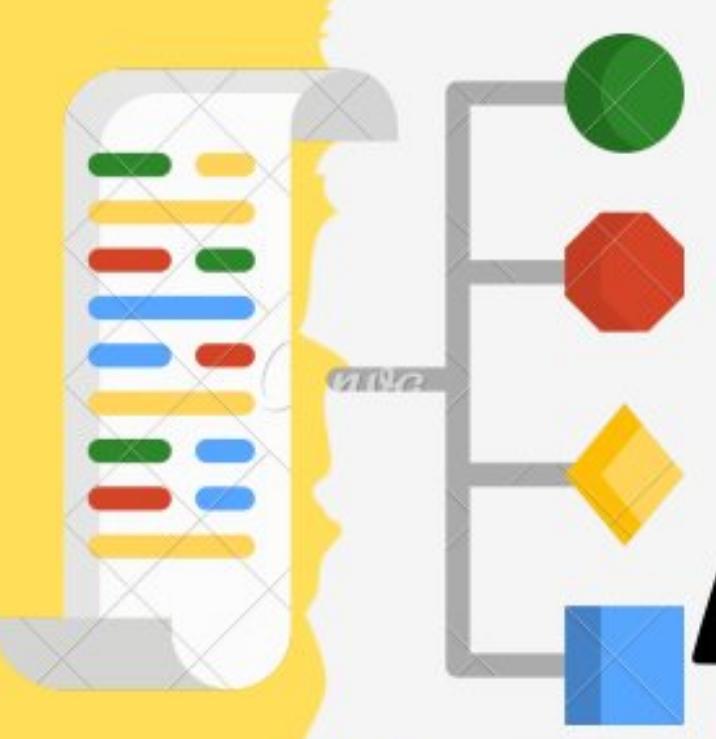


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SWIPE >>>



SORTING ALGORITHM :

- *In e-commerce, sorting algorithms are used to organize products based on different criteria like price, popularity, and rating, making it easier for customers to find what they're looking for.*
- *In social media platforms like Twitter or Instagram, sorting algorithms are used to show users the most recent or most relevant posts based on their interests and behavior.*



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SWIPE >>>

SORTING ALGORITHM :



- *In music streaming services like Spotify or Apple Music, sorting algorithms are used to suggest songs and playlists based on a user's listening history and preferences.*



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