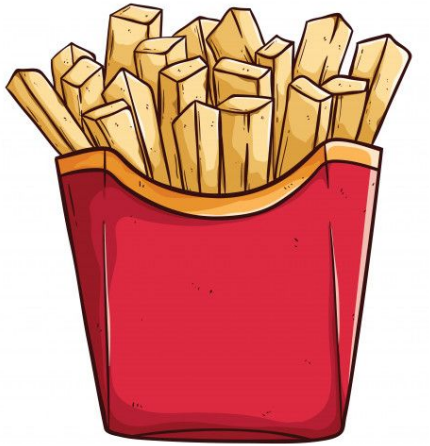
AN INTRO TO COMPUTER PROGRAMMING

HOW WILL YOU...

It's a nice cool winter evening and you decide to make some potato fries for snacks. What are the steps you will follow?



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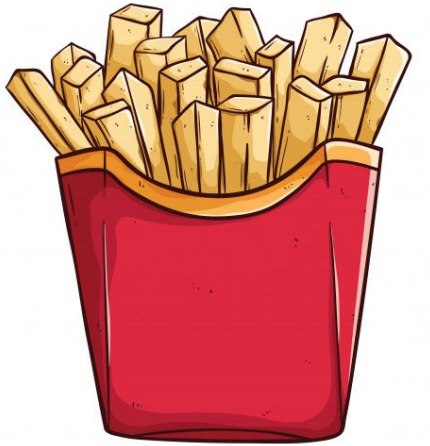

1. Wash, peel and cut a few potatoes.
2. On a pan, heat oil and add the potatoes when hot.
3. Fry the potatoes for a couple of minutes, remove them when golden.
4. Add salt and serve hot.

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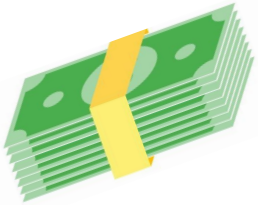
1. First, we pick up the necessary amount of cash
2. Wear our slippers and head downstairs
3. Walk to the general store
4. Choose his favorite flavour of chips
5. Pay the amount, then walk back towards home.
6. Climb back the stairs and reach the apartment
7. Remove his footwear
8. Open the packet and enjoy his snacks.

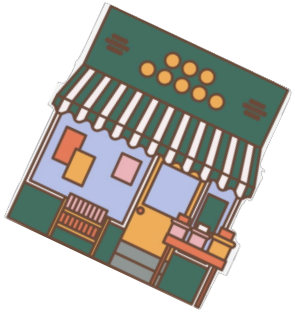
THE STEPS

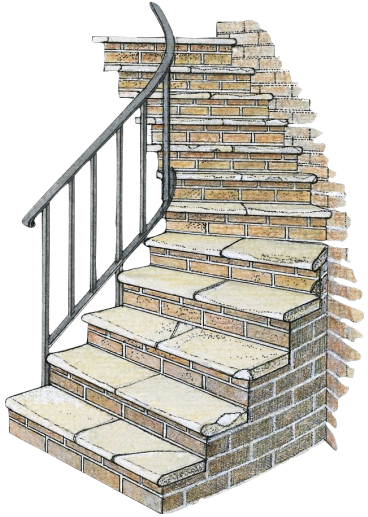
Clear &
Complete

Sequential

Ordered







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Can we change the order of the above steps?

Instead of doing tasks one after the other, can we do them together(at the same time)?

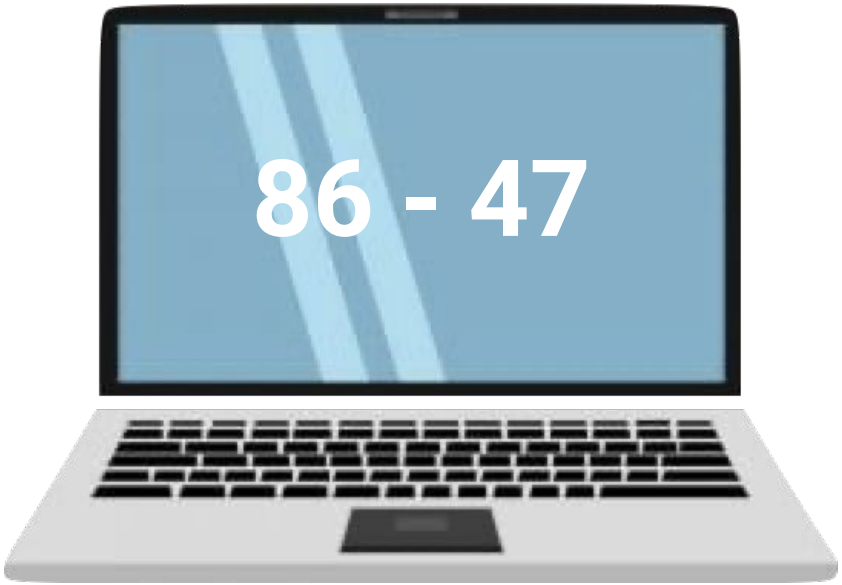
Sequencing in a Computer

Clear

Ordered

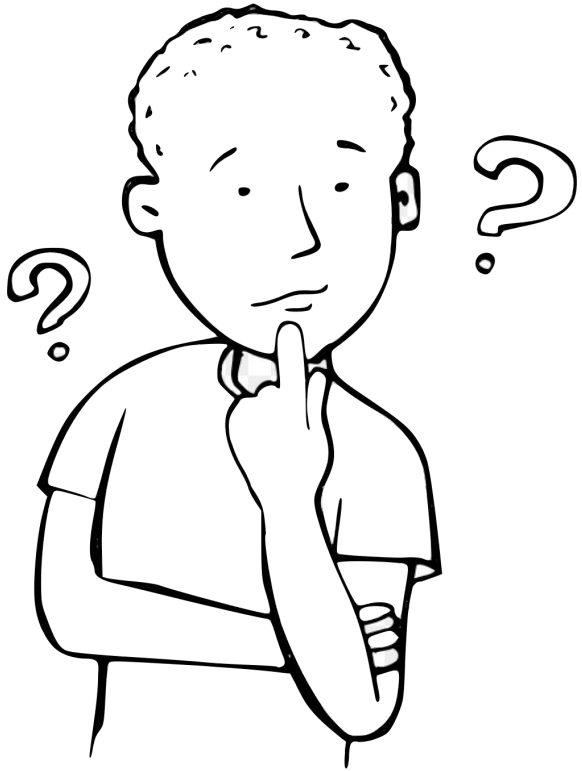
Sequential

A computer will be given two numbers, which it has to subtract and display the result. What are the steps the computer will undertake to solve this?



A computer will be given two numbers, which it has to subtract and display the result. What are the steps the computer will undertake to solve this?

1. Accept(Input) the first number from the user (Eg - 86)
2. Accept the operator, in this example '-'
3. Accept the second number (Eg - 47)
4. Add both the numbers in the processor
5. Display the result



Can you identify what we have missed?
(Hint - Think about the numbers 86/47)

FINAL SET OF STEPS

1. Start
2. Enter first number (86)
3. Enter operation (Subtract -)
4. Enter second number (47)
5. Press enter/equal to sign
6. First number gets converted to binary
7. Second number gets converted to binary
8. Both numbers get subtracted in binary
9. Binary result is converted to decimal
10. This decimal is displayed on the screen (39)
11. Stop

If a computer understands only binary, then why don't we do everything in binary?

Every instruction that we give to a computer via the keyboard/mouse will be converted to binary and then executed by the processor.

Example - This document on a computer will be first converted to binary and then saved in the memory by the processor. We click on the underline option available in Word, it sends an instruction to the processor, which will again be in the binary language format.

INDEPENDENT PRACTICE

QUESTION - How would a computer calculate - 5 + (4 - (6 x 7))

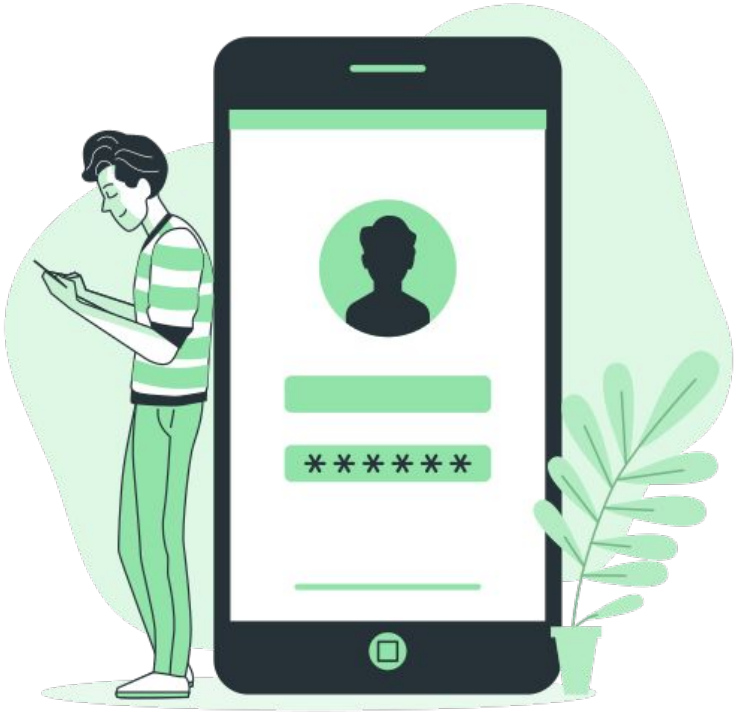
MAKING DECISIONS

Aayush went to the general store to buy his packet of wafers, the store may have run out of wafers.

Buy a packet of biscuits

Buy nothing and return home.

List down the steps for this task in detail - starting and logging into a computer.

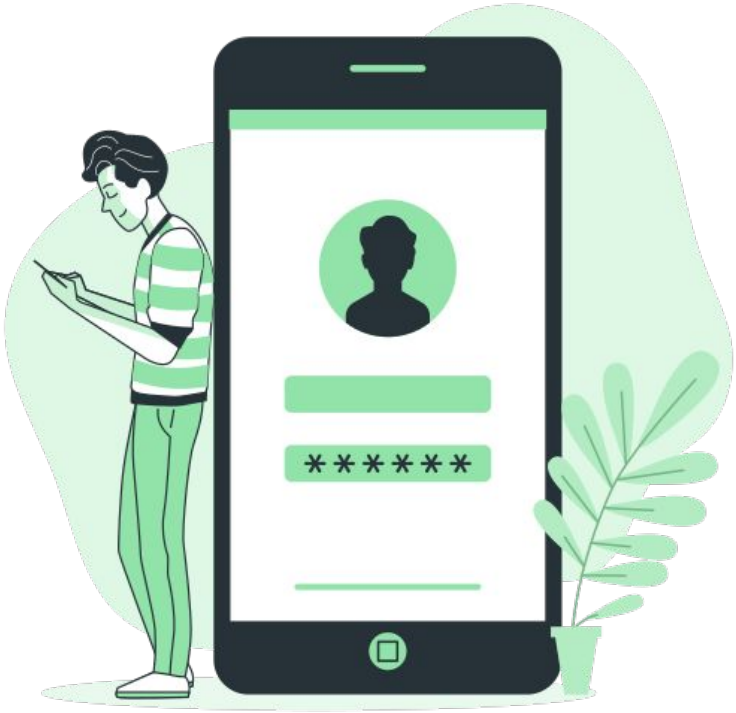


List down the steps for this task in detail - starting and logging into a computer.

1. Start the computer and wait for it to boot
2. Login screen appears
3. Enter the password
4. **Check - Is the password correct?**

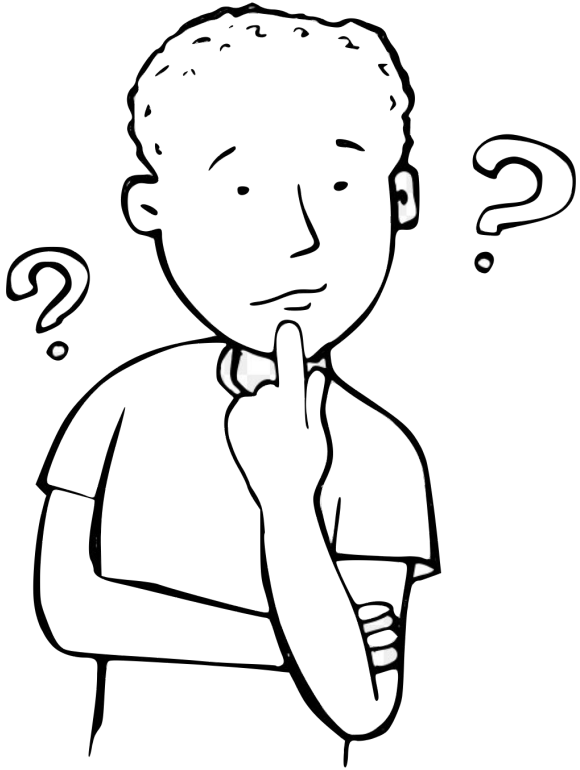
   A. NO - If incorrect, then send a message that the password is incorrect.

   B. YES - If it is correct Then enter the home screen.
5. Perform Step #3 till the password is correct.
6. Stop



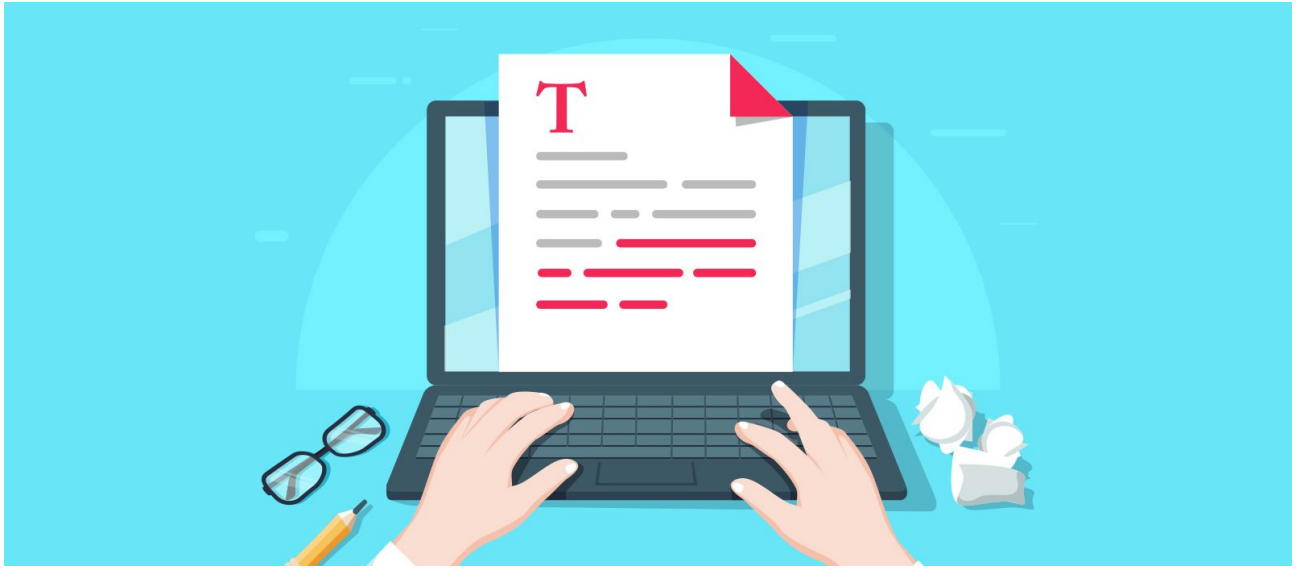
In this case, the computer seems to be majorly having two options - Yes or No.

Why does the computer have only two options?



GUIDED PRACTICE

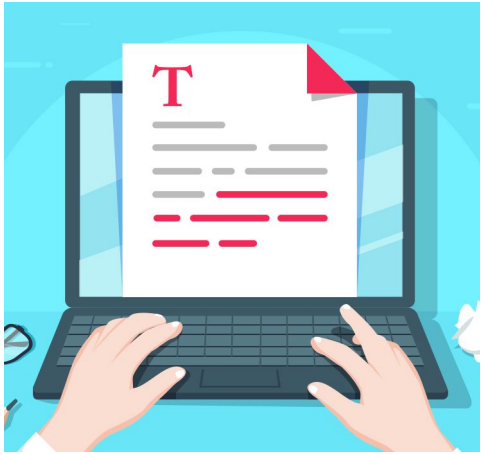
You have been working on a word document and are about to save it. What would your steps look like?



GUIDED PRACTICE

You have been working on a word document and are about to save it. What would your steps look like?

1. Send the command to save file (Ctrl+S)
2. Computer checks - if the file has been saved before or this is the first time
3. **Check - Has the file been saved before?**
    - **A. NO -** If not, ask the user a name for the file and save it.
    - **B. YES -** If yes, save the new version
5. File has been saved - Stop.

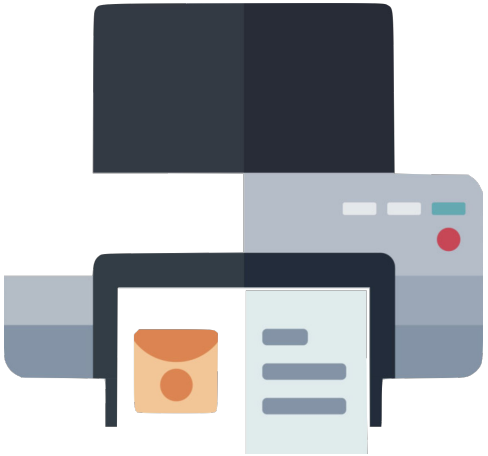


In Step 3.A, the computer again has to check something, can you identify what it is?

1. Send the command to save file (Ctrl+S)
2. Computer checks - if the file has been saved before or this is the first time
3. Check - Has the file been saved before?
    A. NO - If not, ask the user a name for the file and save it.
        Check - If a file with the entered name already exists or not.
        A. If it exists, display an error and ask for a different name
        B. If not, save the file and proceed.

    B. YES - If yes, save the new version
5. File has been saved - Stop.

INDEPENDENT PRACTICE



You have been working on a document and wish to print it. Mention the clear steps how a computer would go about printing it. Will the computer have to check for something and make a yes/no decision in this task?

You are dividing any two numbers on a computer. How would a computer go about achieving this? Will the computer have to check for something and make a yes/no decision in this task? (Hint - Dividing by a particular number is not possible)