

Task 2: Editing and correcting Flowcharts – Predict, Run & Investigate

In this task you will learn how to **edit** and **correct** flowcharts.

You may be given a flowchart that does not work - it doesn't do what it is supposed to do. Or you could be given a flowchart that needs to be changed to do something new, or to do something extra.

Before you do either of these, you first need to trace the algorithm yourself. You need to walk through the flowchart one step at a time to find out what it does.

How do you go about making the correction in the flowchart?

If you need to correct an error, compare what the flowchart does to what it should do.

For example, the number 20 is output instead of the number 10. You need to find out why and then make the change.

Common errors may include:

- using the wrong mathematical operator (+, -, *, /)
- using the wrong values in a calculation
- not taking the correct value as input from the user
- outputting an incorrect value.

*The first step is to trace the flow of the flowchart and figure out what it is doing.
• Then check all the symbols.
• Then check the flow lines.
• Then retrace the flowchart to recheck the order.*

You need to test the flowchart before you look for the error, and then test it again with the same data after to make sure it now works.

Practice now:

A. This flowchart should add together three numbers that are input by the user and output the result.

There is an error in the flowchart.

Work in pairs to walk through the flowchart and find out what it does.

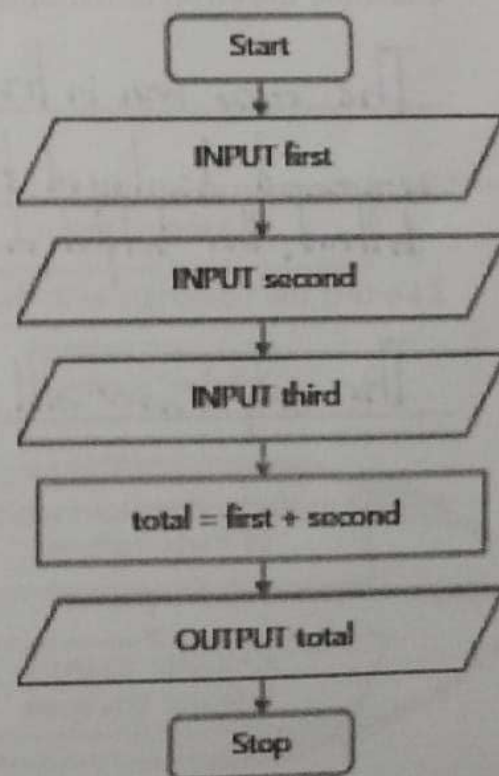
Input some numbers - for example, 1, 2, 3 - and see whether it outputs the correct value (6).

Did the flowchart give the correct result? No

Discuss with your partner where the error is and change the flowchart.

What did you change? Total = first + second →
Total = first + second + third

Test your flowchart with the same data and see if it gives the correct result.



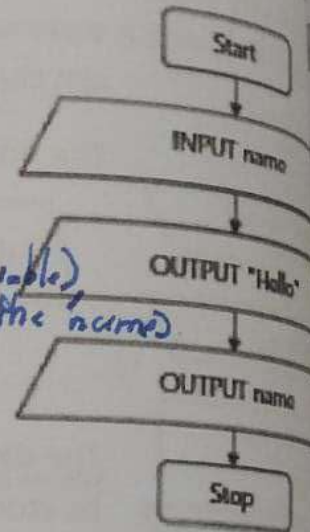
Monday, August 24, 2026

Classwork.

Task 1: Investigate and Predict Flowchart Outcome

Investigate:

- Read through this flowchart by yourself and identify its purpose.
- Join with a partner and explain to your partner what the flowchart does.
- Identify the variable and what it will store. *(name is the variable, it stores the name)*
- Use your own name as input and tell your partner what the output is.



Predict:

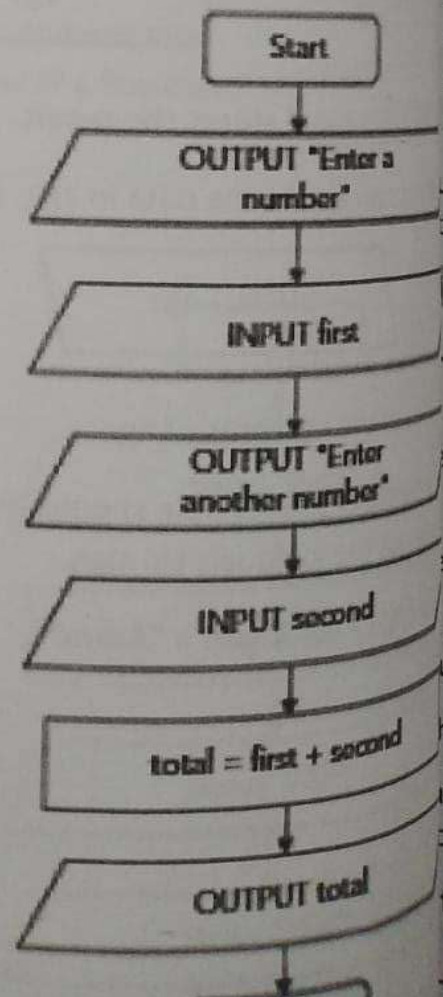
Discuss the purpose of the following flowchart with a partner. Explain to each other what the flowchart will do.

Run:

Test your program. The first time, input the number 10. The second time, input the number 20.

What is the total? 30.

Were you correct? Yes.



B.

This flowchart should:

- take a number from the user
- multiply the number by 2 and output it in a message
- multiply the number by 4 and output it in a message.

Predict: Identify a number to be input.

Write down what the output should be.

If number = 2 then first = $2 \times 2 = 4$, so output is 4. Then second = $2 \times 4 = 8$, and second output should be 8.

Run: Test the flowchart with the number you have identified and write down the output.

Investigate:

1 Identify where there is a difference between what you predicted, and the result.

I predicted the second output should be '8'. But instead both the outputs were '4'

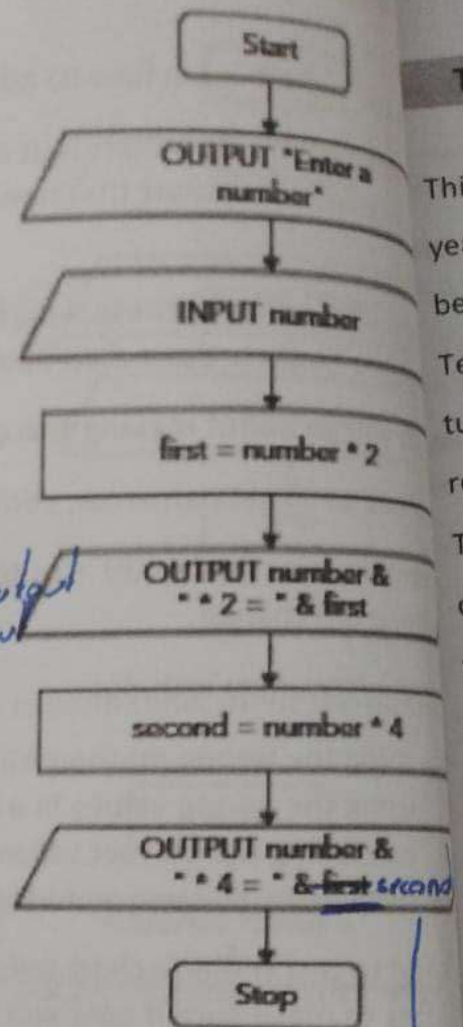
2 Identify the error, or multiple errors, and change the flowchart.

The error was in the last output symbol where OUTPUT command displayed the result of the 'first' calculation again. Instead, the output should display the variable 'second'.

3 Re-test the flowchart with the same number. Write down the output.

The output now will be the number '4' then the number 8.

Repeat until the flowchart works.



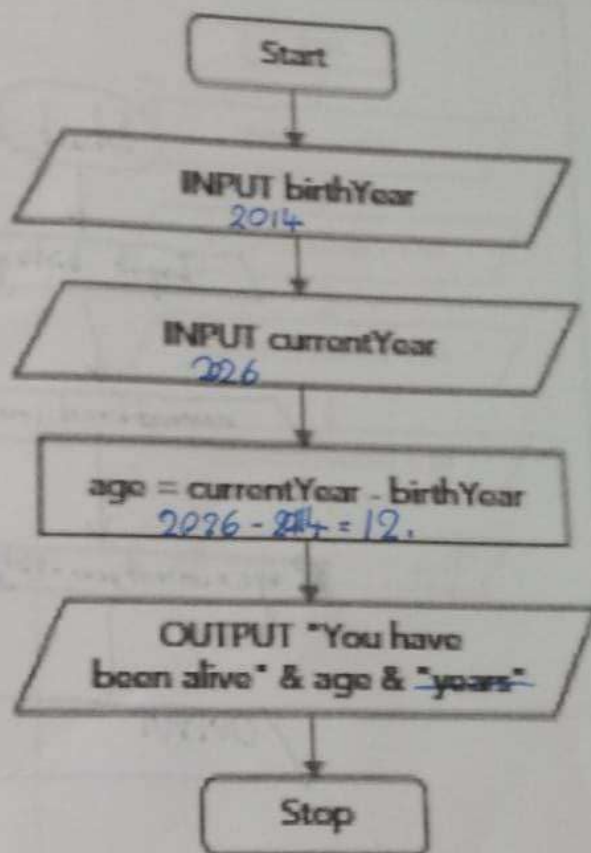
Task 3

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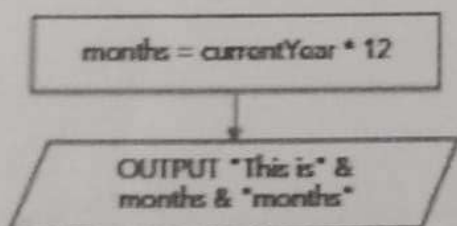
Task 3: Select the Best option and Redraw the Flowchart

- This flowchart calculates the number of years (approximately) that someone has been alive.
- Test the flowchart with a partner. Take it in turns to input the data and calculate the result.
- The flowchart needs to be changed to also output the number of months in that many years. For example, in 10 years there are 120 months.
- There are four different additions below but only one will perform the change required. Work out with your partner which is the correct addition.

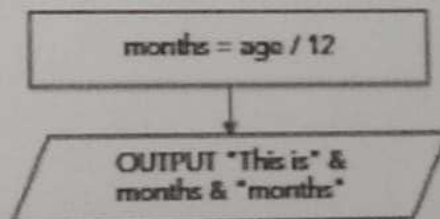


The four given options are as follows:

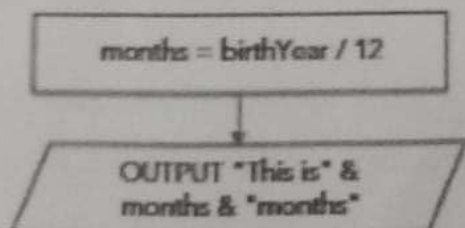
Option A



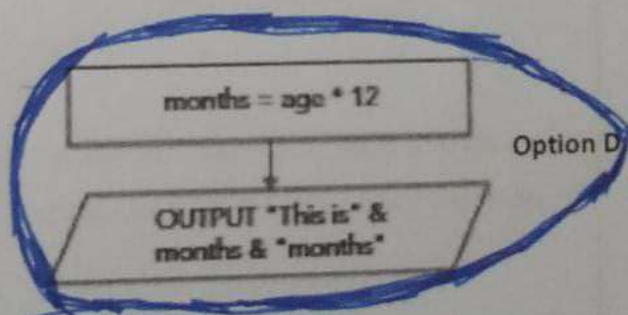
Option B



Option C



Option D



Redraw the flowchart with your selected addition.

Task 4: Number Adding Flowchart – Predict, Run, Modify

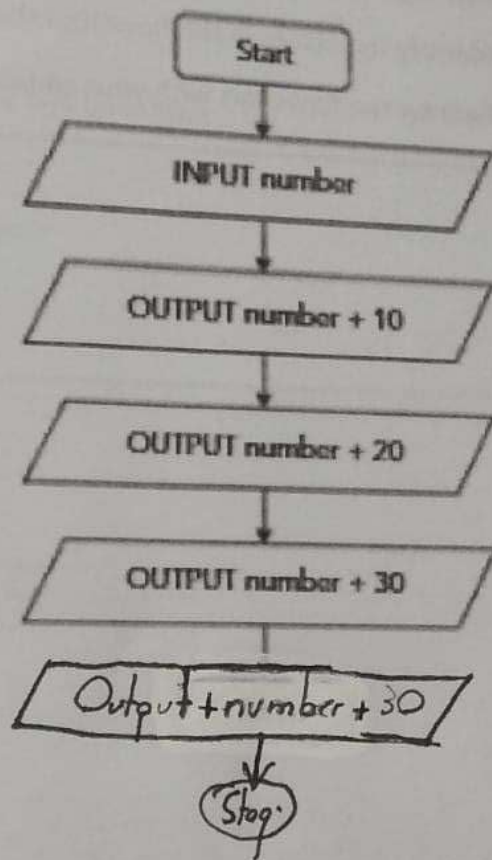
Use this flowchart for a programming task:

Predict: Identify a number to input and write down what you think will be the output.

Test: Test the flowchart by inputting your number and writing down the output. Compare the output to your prediction.

Modify 1: The flowchart needs to also output the result of the number input + 40:

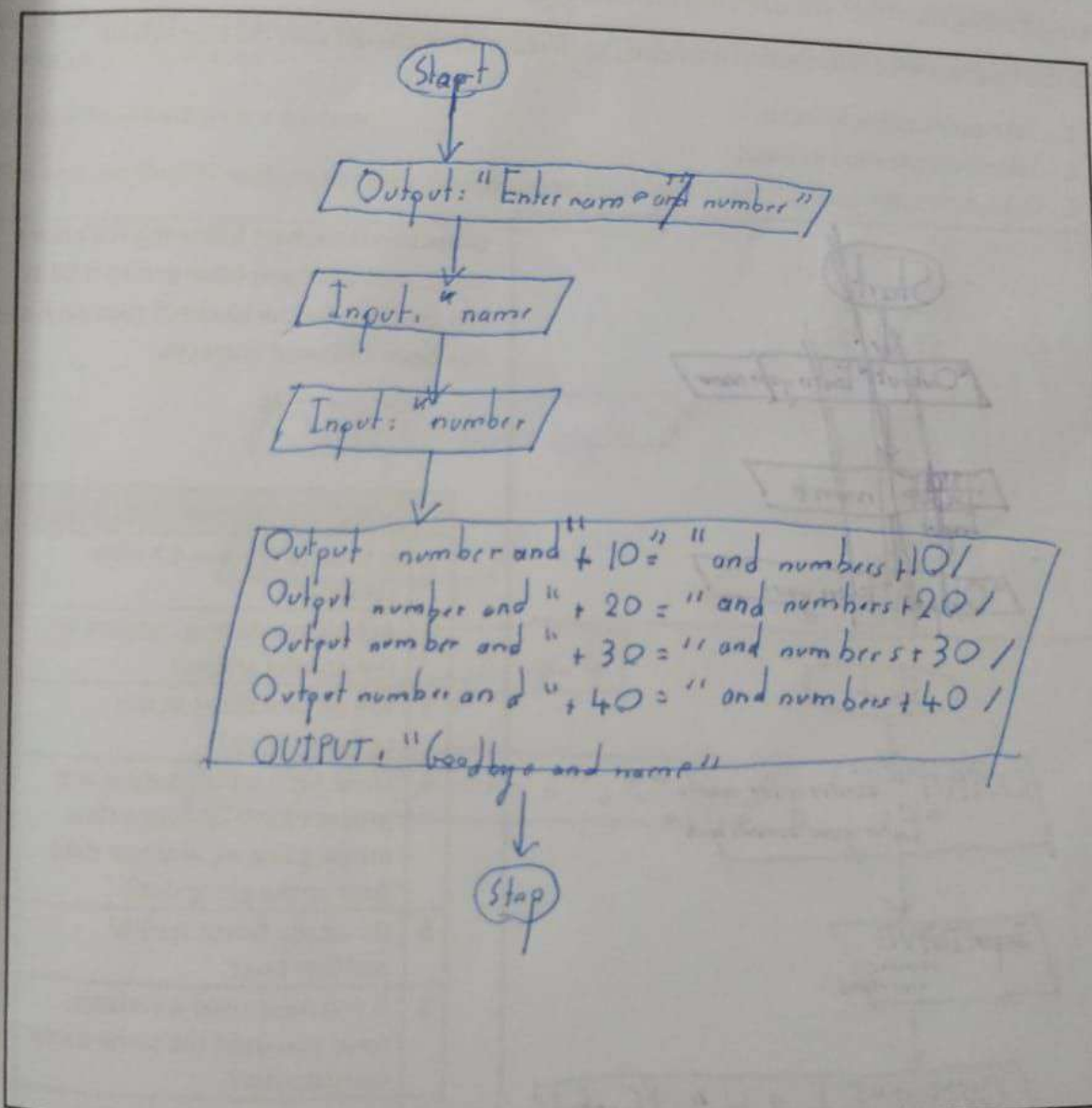
- Identify the flowchart shape that this calculation will be put into. 
- Identify the position in the flowchart for this to be put.
- Redraw the flowchart with your addition.



Share your flowchart with a partner. Predict and run your partner's flowchart. Did it give the correct answer? If not, tell your partner what the difference was, so they can find and correct the error.

Modify 3: The flowchart needs to ask the user to input their name at the start, and then a message that says "Goodbye" followed by their name.

- Identify how the name will be input, and how the message will be output:
- Identify the place in the flowchart where the input will go.
- Identify the place in the flowchart where the output will go.
- Redraw the flowchart with your addition.



- Swap your flowchart with a partner. Predict and run your partner's flowchart. Did it give the correct answer? If not, tell your partner what the difference was, so they can find and correct the error.

Classwork Monday, August 31, 2026.

Task 5: Creating a Flowchart from a Problem Statement

You have learnt the symbols for flowcharts, you have followed flowcharts, and you have made and corrected flowcharts. Now it is time to create your own flowcharts.

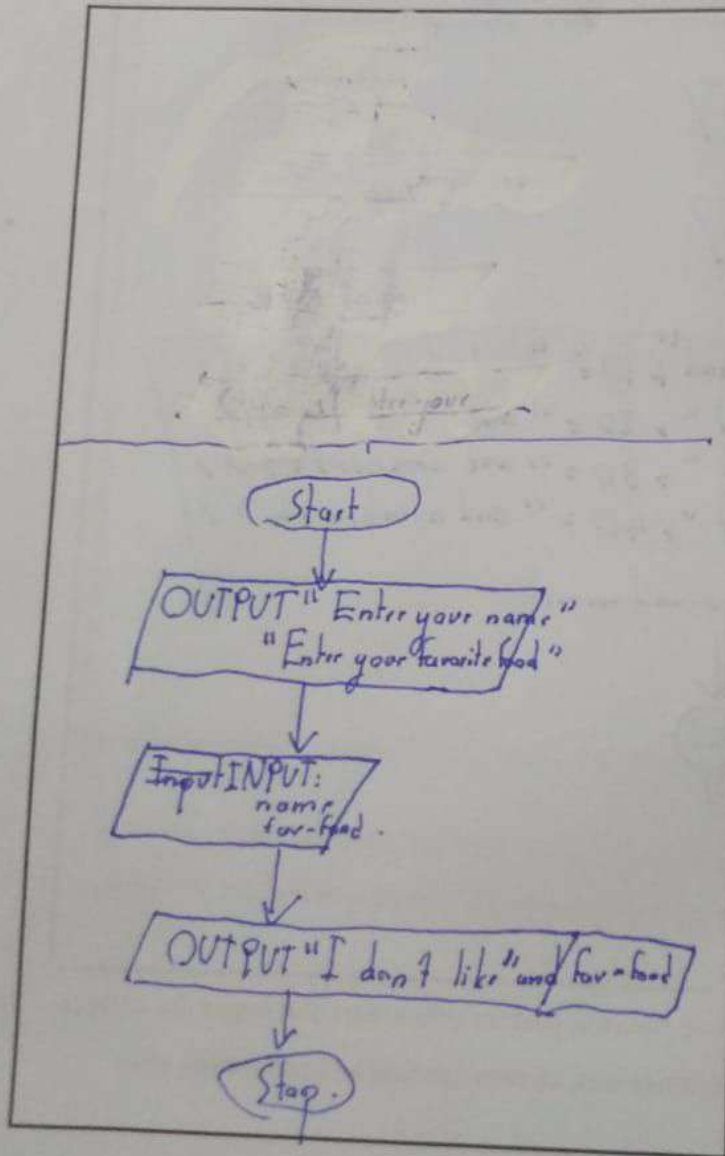
When you create a flowchart for an algorithm, it is a good idea to start by writing down the algorithm.

Example:

A flowchart needs to take a user's name and their favourite food as input, and then output a message telling them that you don't like the food they have chosen.

Split this long sentence into short statements, each statement should only do one action.

1. Take user's name as input.
2. Take favourite food as input.
3. Output message saying "I don't like" food entered.



Draw this flowchart following the steps, and after you have drawn it, use the checklist below to check that you have followed correctly:

Requirements checklist	
1	Is there a start and a stop symbol?
2	Are all inputs and outputs in the correct shape?
3	Are all processes in the correct shape?
4	Does each input, output and process have one data flow arrow going in, and one data flow arrow going out?
5	Do all the boxes lead to another box?
6	If you have used a variable, have you used the same name consistently?
7	Have you used the correct mathematical symbols (+ - * /)?

Task 6: Make and Predict – Flowchart Drawing Practice

Make: The perimeter (the length of all the sides added together) of a square is the length of one side multiplied by 4.

The area of a square is the length of one side squared.

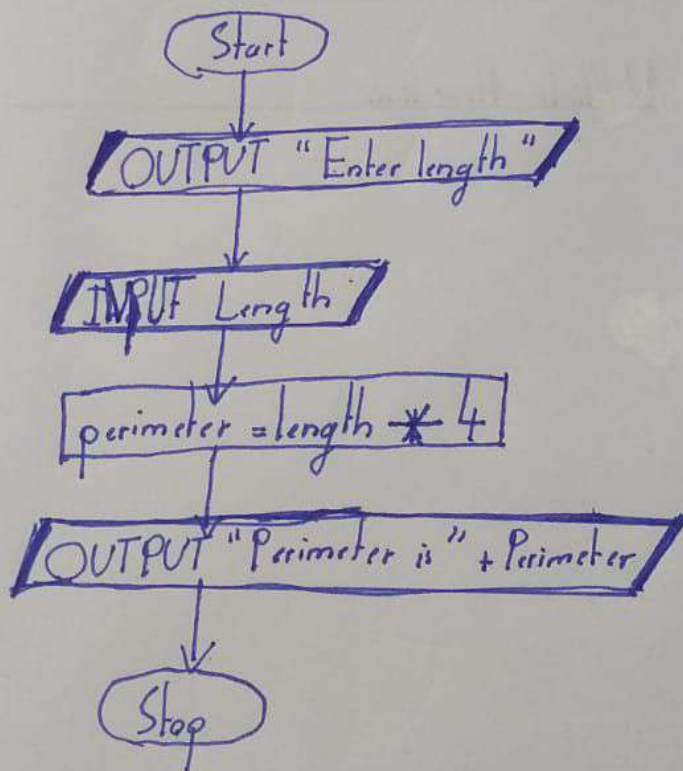
Problem Statement: Draw a flowchart to take the length of one side of a square as input, and then output the perimeter and area.

When you have drawn your flowchart, **compare** it to the flowchart checklist in the previous task.

Predict and Modify: Predict the outcome and run your flowchart to make sure it works. If it doesn't, then modify it until it does.

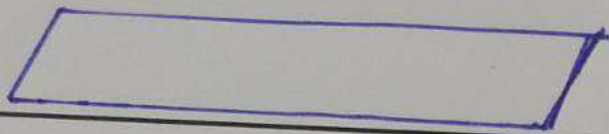
Swap your flowchart with a partner.

Predict and run their flowchart to make sure it works.

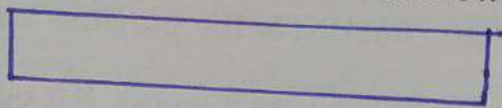


Task 7: Flowchart Q & A

1. Draw which shape you would use to print/ output something to the user:



2. When you have to do some calculations or some processing on data which flowchart symbol will you use? Draw it below:



3. When you start the flowchart do you make any flow lines go **into** the start symbol?

☐ Yes

☒ No

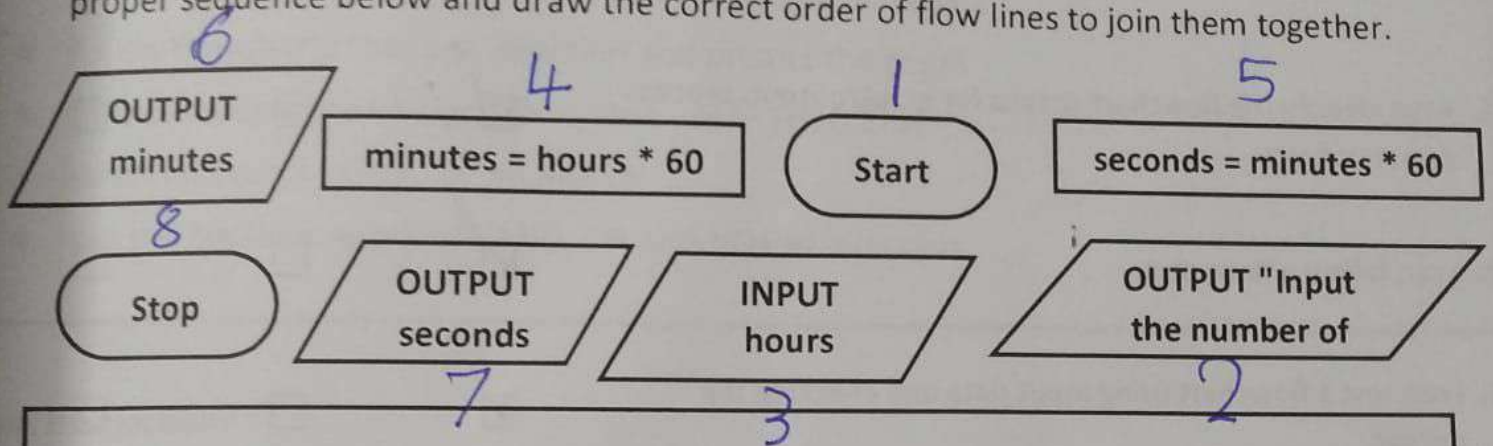
4. Which symbol is used to **end** the flow of a flowchart? **How many** data flow lines go into



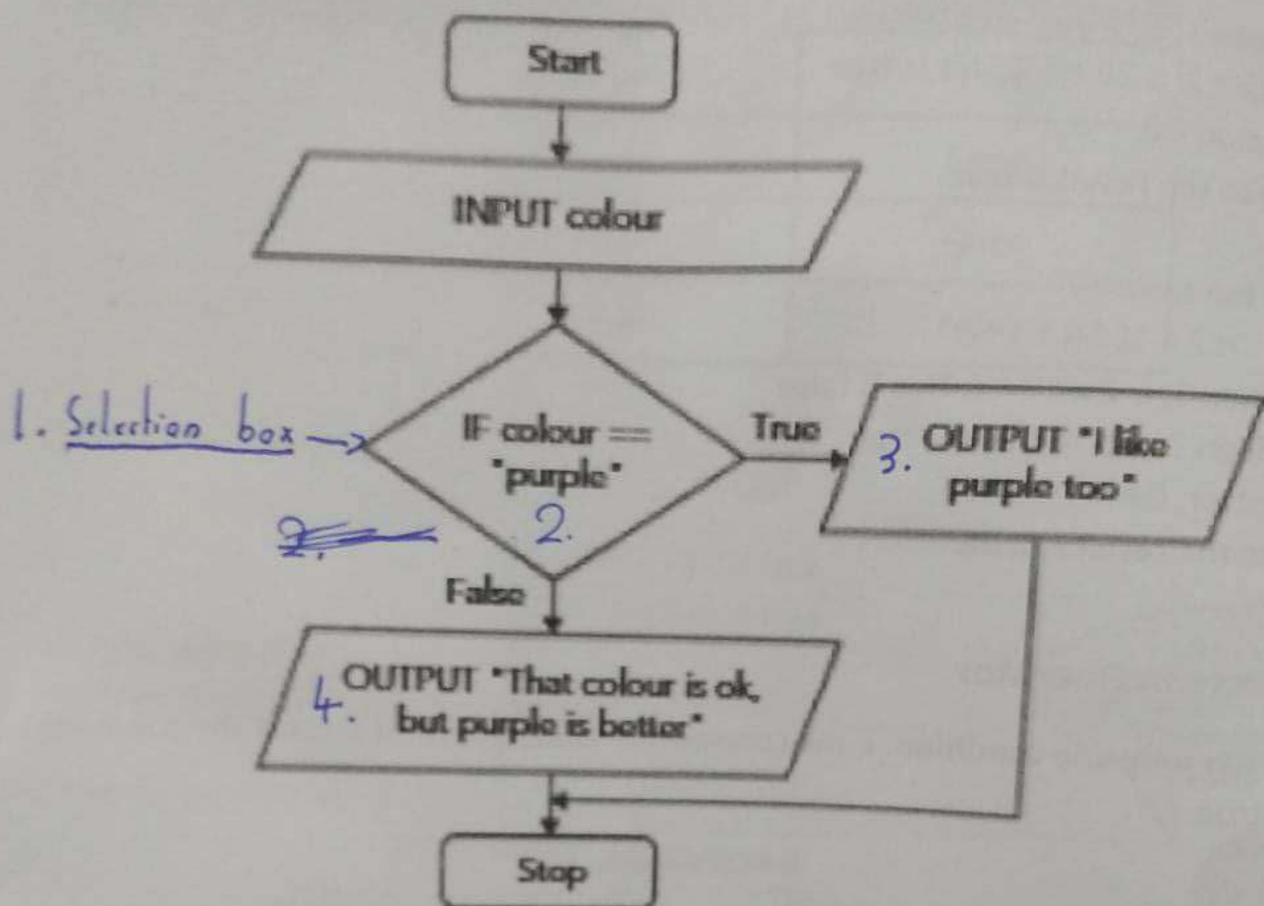
Multiple flow lines

Task 8: Flowchart Fun

- An algorithm needs to take the number of hours from the input, and then output the number of minutes in those hours, and the number of seconds.
- Flowchart pieces are shown in a random order. Re-arrange the flowchart pieces in the proper sequence below and draw the correct order of flow lines to join them together.



Task 9: Color Checker Flowchart – Investigate



Read this flowchart.

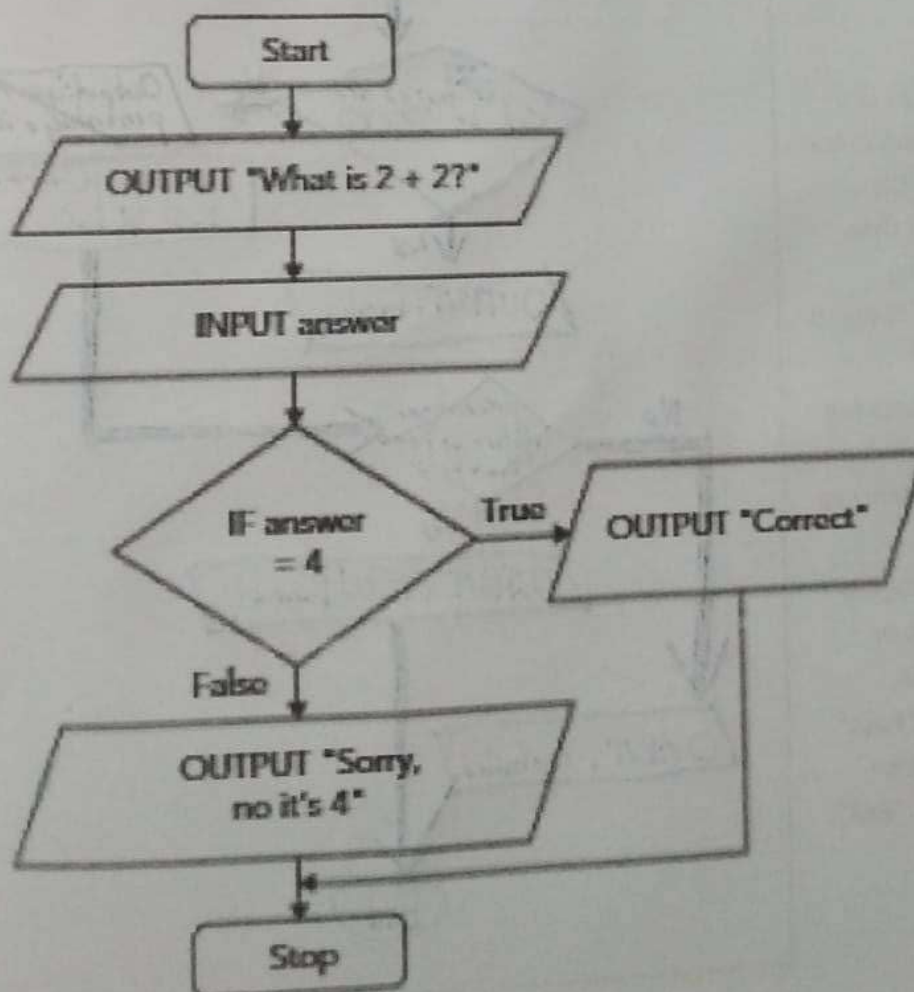
Investigate: Discuss these questions with a partner. Point to the different parts of the flowchart and write your answers to the questions.

1. Where is the selection box in the flowchart? In the middle, the diamond (◇).
2. What is the condition in the flowchart? 'IF colour == purple'
3. What happens if the condition is true? The flowchart says: "I like purple too"
4. What happens if the condition is false? The flowchart says: "That colour is ok, but purple is better"

Task 10: Number Addition Check Flowchart – Predict

Predict: Work with a partner and follow this algorithm. Predict what will happen if:

- the number 4 is input into the algorithm?
If 4 is entered then the output "Correct" will be shown.
- the contents of the two output boxes are swapped around (although the arrows stay in the same place)?
The output will be incorrect.
- there is no INPUT answer box?
Then we will not be able to get the value of the variable "answer".
- the decision changes to IF answer ≥ 4 ?
In the case of ≥ 4 answer will be incorrect.
- the 'True' and 'False' are removed from above the data flow arrows?
The flowchart will be incomplete.



Task 11: How well do you know Boolean Values? (Q & A)

1. What are the two Boolean values?

True and False. (1 and 0).

2. What is the result of True AND True?

True.

3. When will a Boolean OR condition give False?

When both conditions are False.

4. What does a Boolean NOT do?

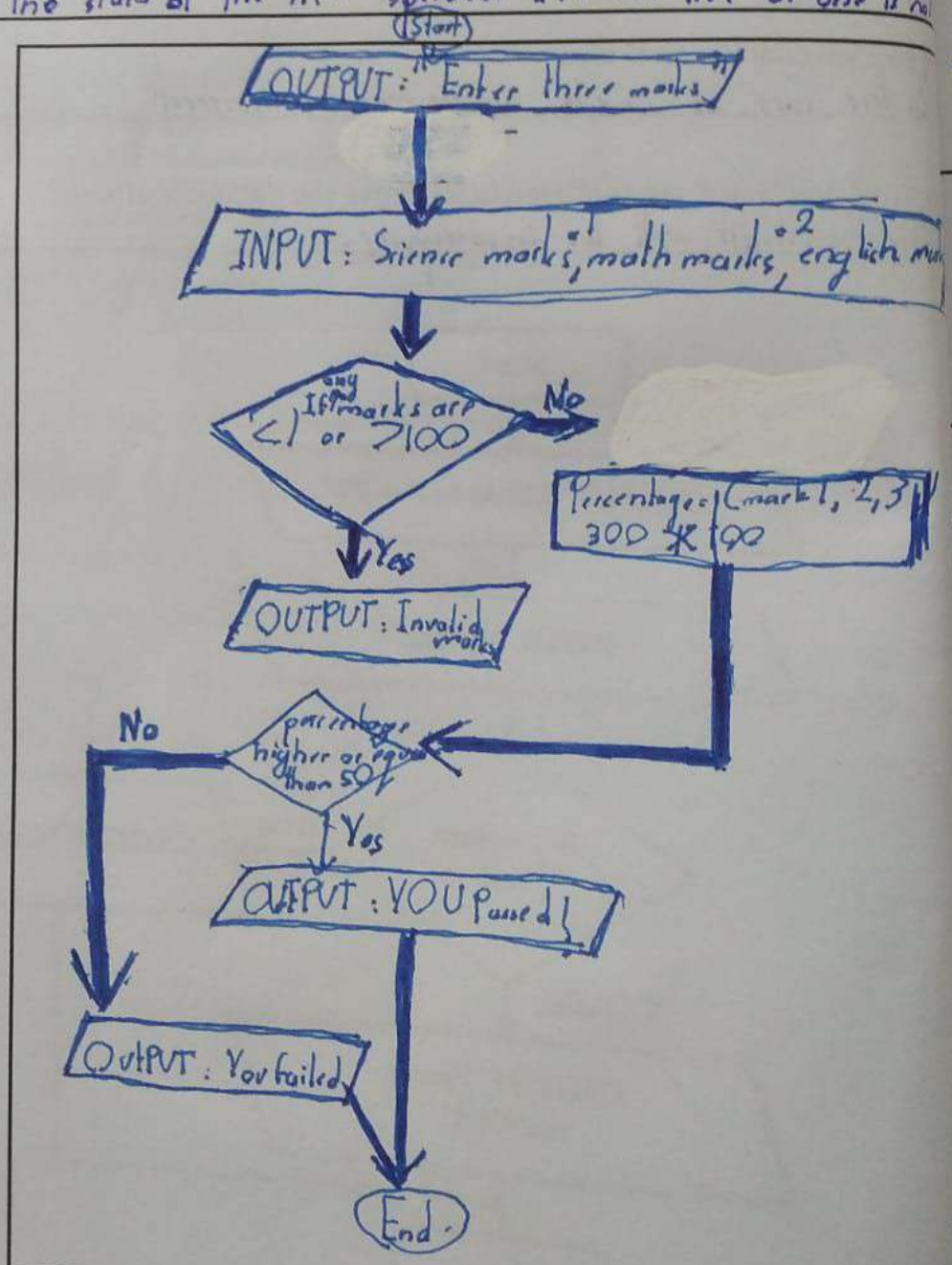
It reverses the result.

5. When will a Boolean AND condition not give True?

When both the sides of the AND operator are not true or one is not.

6. Draw a flowchart that takes input for three subject marks.

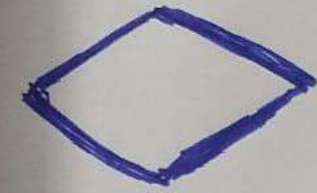
- First, check if any mark is less than 1 OR greater than 100. If so, display "Invalid marks".
- If all marks are valid, calculate the percentage.
- If the percentage is equal to or above 50, display "Pass". Otherwise, display "Fail".



Task 12: Q & A Selection & Logic in Flowcharts

1. What is a selection statement?

A diamond is used to represent a decision or a selection in a flowchart. Inside this box diamond, a condition is written or tested and the flowchart follows different results based on the result. Selection statements have three parts: Condition, true, and false. It can be written as: IF (condition), Then (true), Else (false).



A diamond shape.

3. How many arrows come from a selection box in a flow chart, and what is written on each?

Two arrows can come out of a selection box, one one is written: "False" and on the other, it is written "True".

4. What are the three parts of selection statement? Name them.

i. ~~Condition~~: IF: The condition can be true or false.

ii. ~~True~~: THEN: The action that happens if the condition is true.

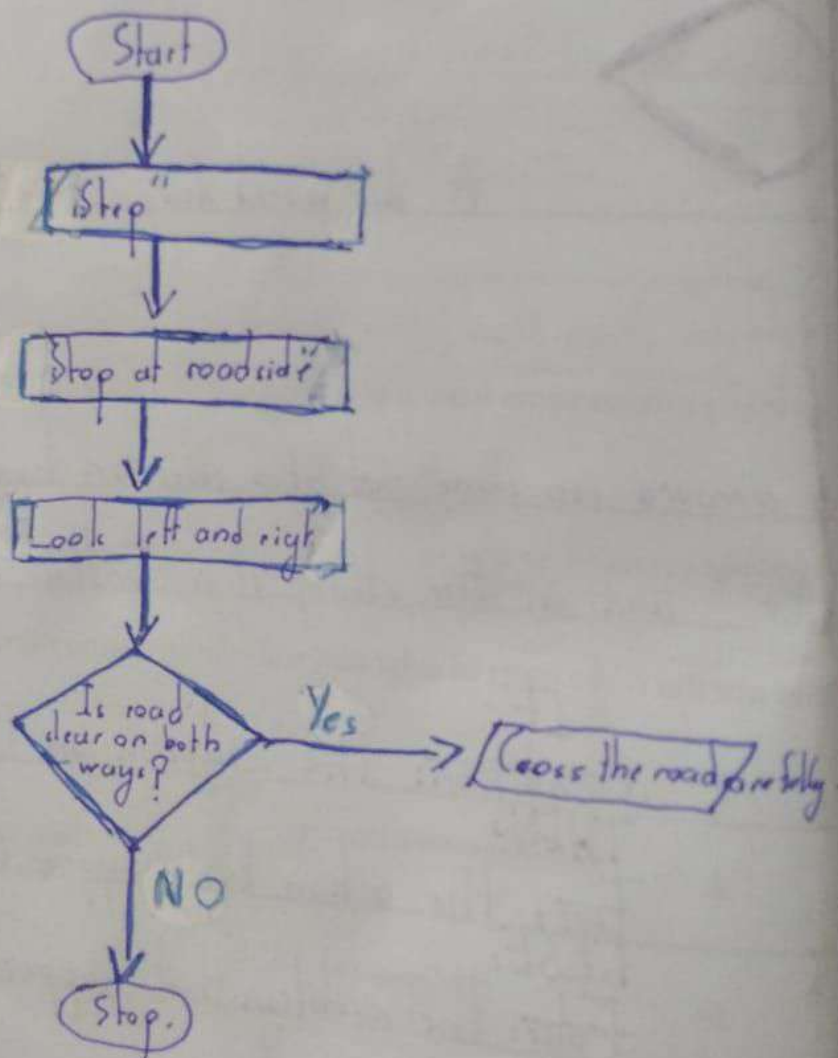
iii. ~~False~~: ELSE: The condition that happens if the condition is false.

Task 13: Draw the Flowchart from Given Steps

1. Draw a flowchart below which follows the given outline of steps involved in crossing the road. The flowchart also uses selection in one of the steps.



#	Step
1	Stop at the roadside
2	Look left and right
3	Is the road clear both ways?
4	Cross the road carefully



2. Draw a flowchart for a simple calculator.

- The calculator should take two numbers and an operation symbol (+, -, *, /) as input.
- It should perform the operation and display the result.
- Add a decision to check if the second number is zero before performing division.

