

Flowcharts

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Exercise 1-1

Your task is to design a flowchart that outlines the process of making a cup of tea.

Consider all the necessary steps, from starting the process to drinking your tea. Think about the decisions you might need to make along the way, such as choosing the type of tea or adding extras like milk or sugar. Your flowchart should be clear, logical, and easy to follow. Make sure to use appropriate symbols for each step and decision point.

You can use the <https://app.diagrams.net/> website to build the flowchart.

Exercise 1-2

Translate the previous flowchart ([Exercise 1-1](#)) into Pseudocode.

Exercise 2

Start with a number N.

Calculate the sum of all numbers from 1 up to and including N.

Translate the previous English instructions into:

1. Flowchart
2. Pseudocode
3. Python Code

Exercise 3

Take a number and determine if it is a prime number.

Translate the previous English instructions into:

1. Flowchart
2. Pseudocode
3. Python Code

Exercise 4

Given a string, count the number of vowels and consonants in it.

Assume the string contains only alphabetic characters (no number, no punctuation ...).

Translate the previous English instructions into:

1. Flowchart
2. Pseudocode
3. Python Code

Exercise 5

Write a program that takes a sentence and returns the longest word in that sentence. If there are multiple words of the same length, return the first one encountered.

Translate the previous English instructions into:

4. Flowchart
5. Pseudocode
6. Python Code

Exercise 6

Design a flowchart about the following problem:

Some of your customers are answering wrong birth dates in your questionnaire. Your task is to check if the date exists to avoid any further issue.

Tips:

It's a simple problem that has a lot of exceptions :

- *Years have 12 months*
- *Months can have 30 or 31 days*
- *Beware of February that has 29 days on leap years and 28 days otherwise*
 - a. *A leap year is divisible by 4*
 - b. *If the year is divisible by 100, it is not a leap year*
 - c. *If the year is divisible by 400, it is a leap year*

Exercise 7

Design a flowchart about the following problem:

Your task is to create a simple one player Rock, Paper, Scissors game. The game is a best-of-three match but each draw is a restart of the current round. The player is playing against a computer. After each match, display the scores and ask the player to play again.