



String

Logic Algorithm

Yunia Ikawati, Tri Hadiah Muliawati



Objectives:

Students able to understand the underlying concept of String



Subject:

1. Overview
2. Flowchart and pseudocode in String

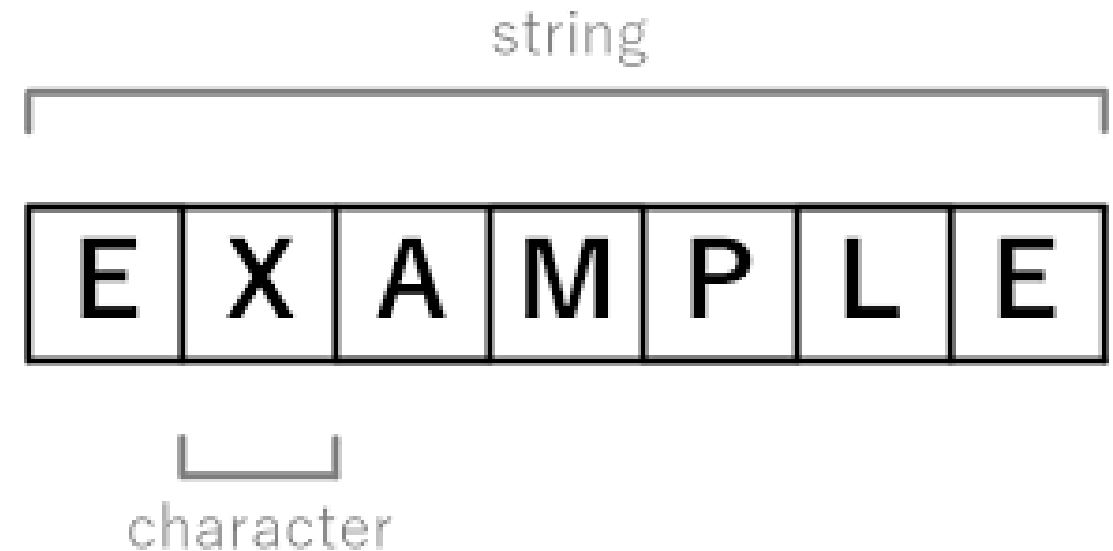


Overview

String Overview

Text is represented in programs by the string data type

A string is a sequence of characters enclosed within double quotes (") or single quotes (')



List vs String

List



String

`mylist = ['Compile', 'Your',
 'Skills']`

`CompileYourSkills`

Indexing

0	1	2	3	4	5	6	7	8
H	e	l	l	o		B	o	b

In a string of N characters, the last character is at position N-1 since we start counting from 0.

So, if a string is 10 characters long, the last character is at index 9.

Example

0	1	2	3	4	5	6	7	8
H	e	l	l	o		B	o	b

```
>>> greet = "Hello Bob"
>>> greet[0]
'H'
>>> print(greet[0], greet[2], greet[4])
H l o
>>> greet[-1]
'b'
```

Substrings and Slicing

0	1	2	3	4	5	6	7	8
H	e	l	l	o		B	o	b

- Indexing only returns a single character from the entire string.
- We can access a substring using a process called slicing.
- Substring is a (sub)part of another string, whereas slicing is a process to retrieve a portion of the string.

Example

0	1	2	3	4	5	6	7	8
H	e	l	l	o		B	o	b

```
>>> greet[0:2]
```

```
'He'
```

```
>>> greet[5:9]
```

```
' Bob'
```

```
>>> greet[:5]
```

```
'Hello'
```

```
>>> greet[2:-3]
```

```
'llo '
```

String Operators

Operator	Definition
+	Concatenation operator
*	Replication operator
STRING[#]	Indexing a String
STRING[a:b]	Slicing a String from index a to index b (excluded)
len(STRING)	Calculating String length

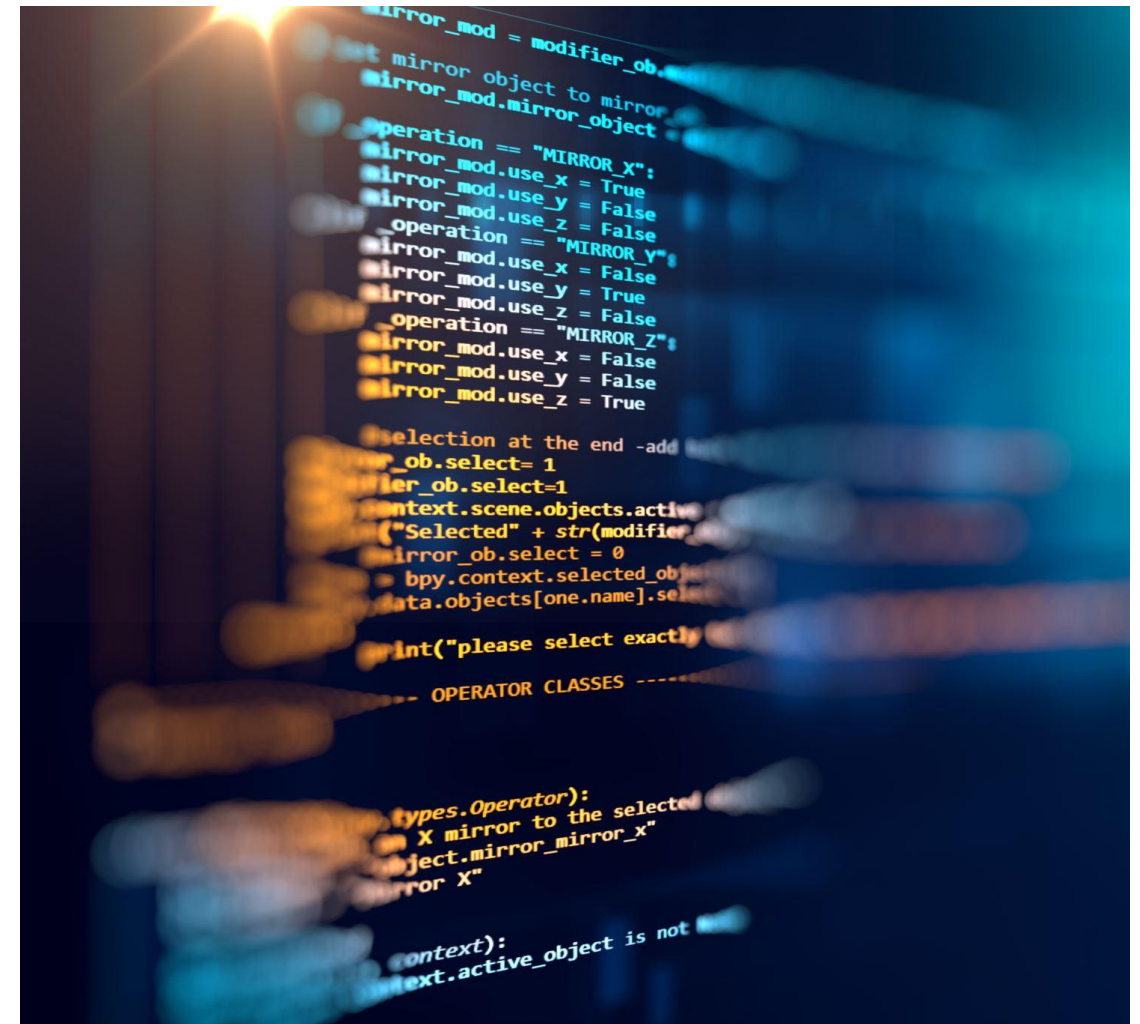


String in flowchart and pseudocode

Let's Try

Create program to say hello when user input first name and last name

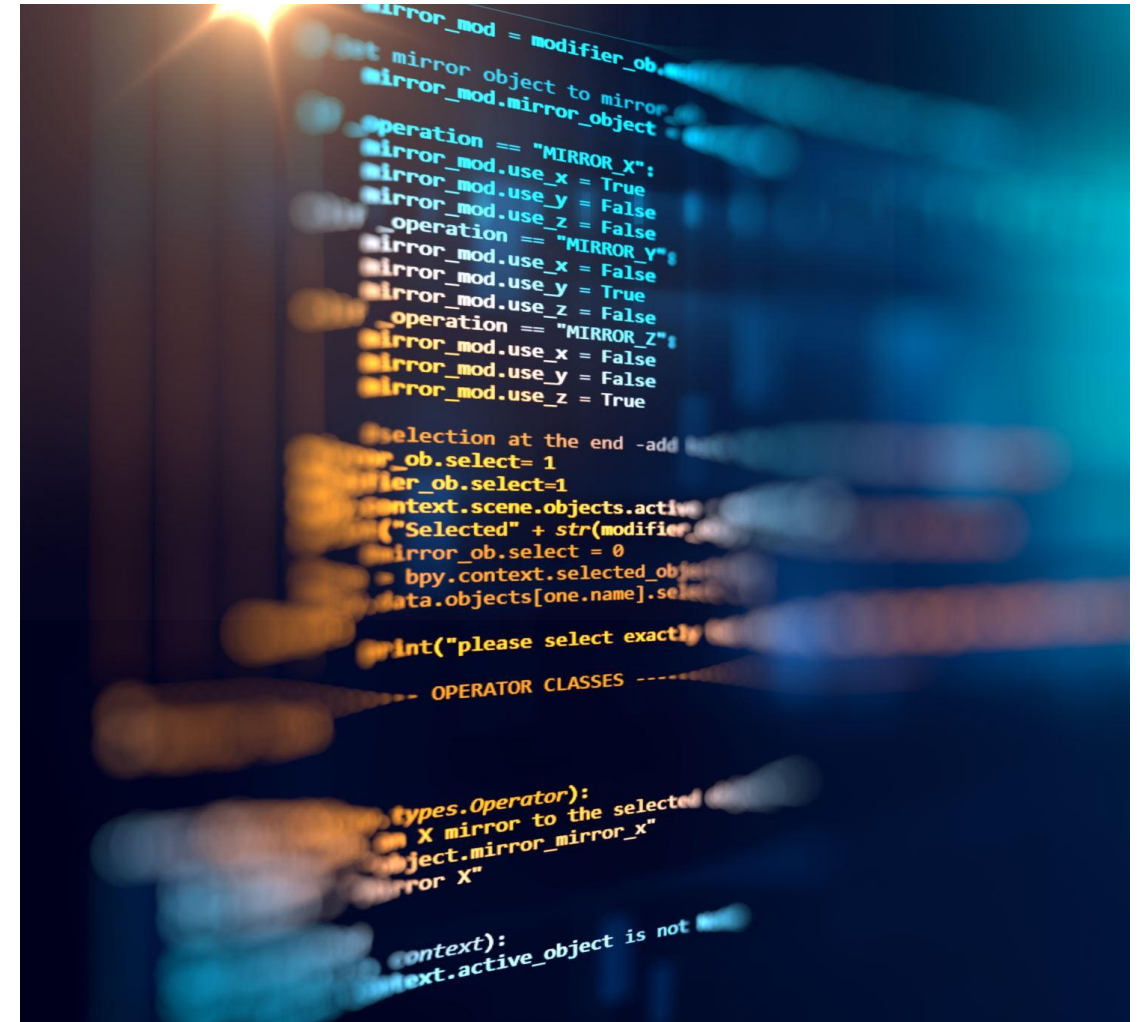
What are the input, process, and output of the program?



Let's Try

Create program to say hello when user input first name and last name

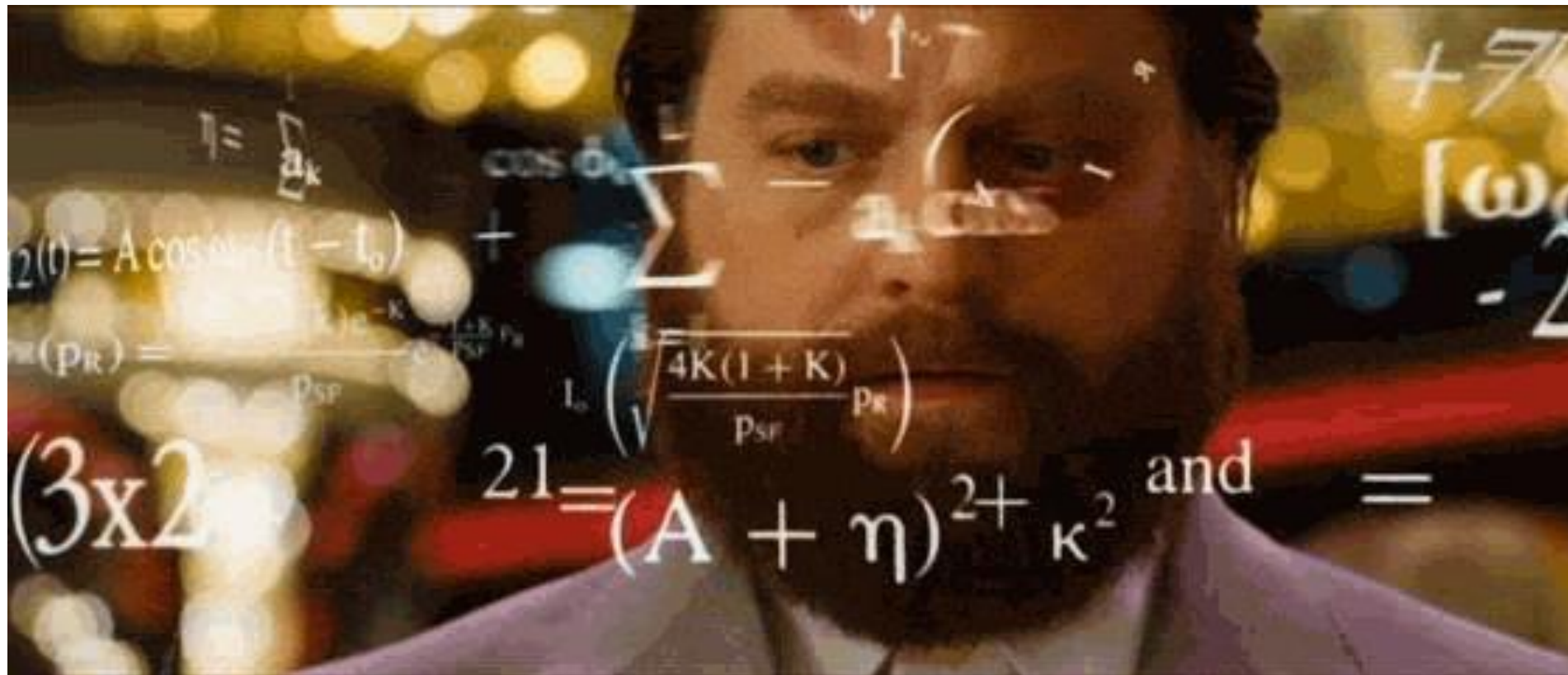
- **Input:**
Input first name (*first*), input last name (*last*)
- **Process:**
concat (*first*) and (*last*)
- **Output:**
Display "Hello" (*first*) (*last*)



Let's Try

Pseudocode ?

Flowchart ?

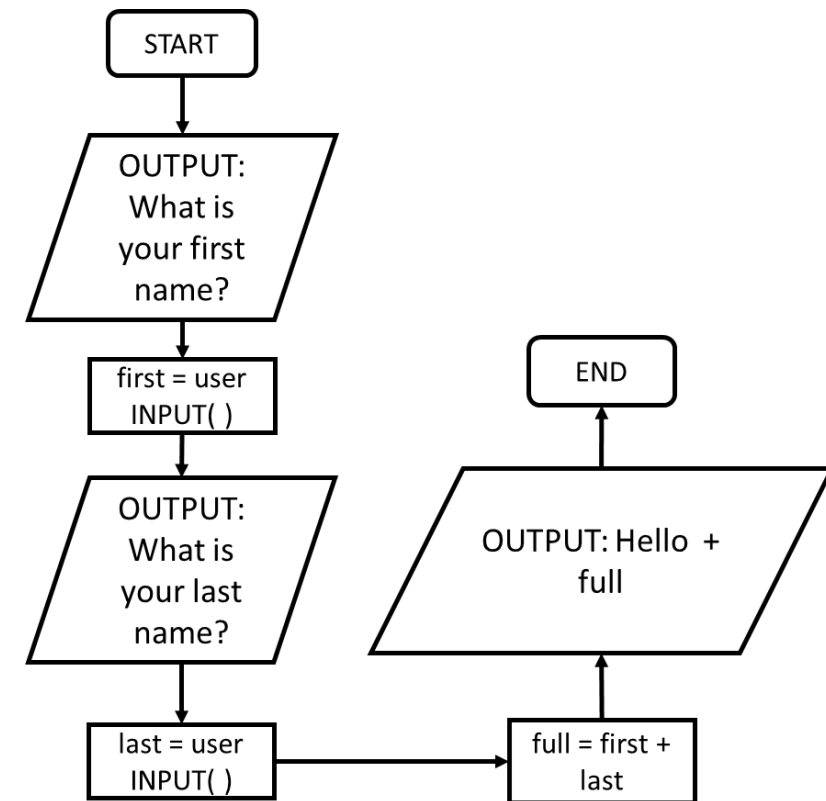


Let's Try

Pseudocode:

```
1. START
2. DISPLAY "What is your first
   name?"
3. first = user INPUT( )
4. OUTPUT "What is your last
   name?"
5. last = user INPUT( )
6. full = first + last
7. DISPLAY "Hello" + full
8. END
```

Flowchart



Summary

- Text is represented in programs by the string data type
- A string is a sequence of characters enclosed within double quotes (") or single quotes (')
- We can access a substring using a process called slicing

Latihan

Diskusi Antar Kelompok

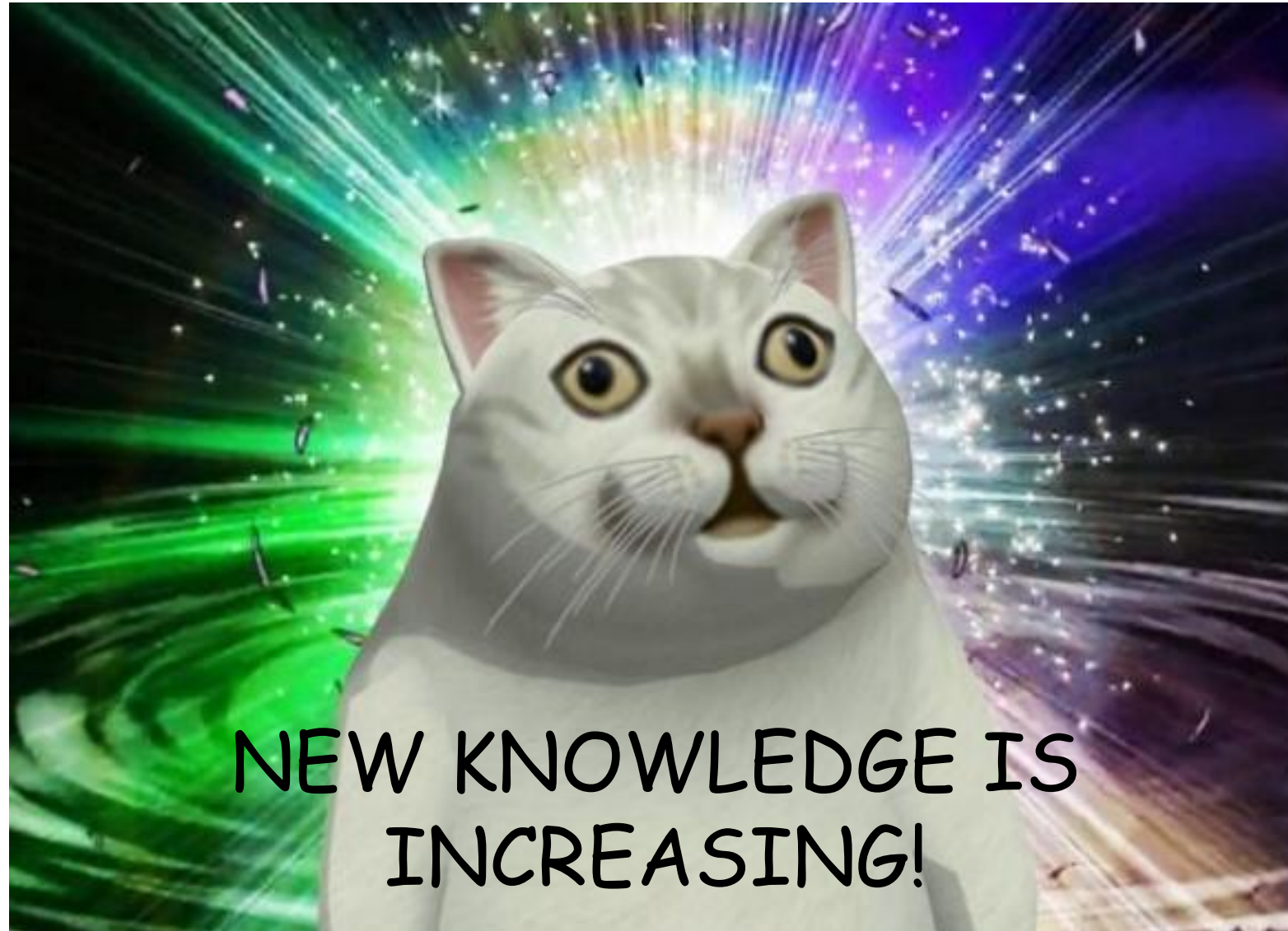
Setelah 15 menit pengerjaan:

- Setiap kelompok mengerjakan solusi dan logika(flowchart, pseudocode dan program) di kelompoknya.
- Setelah itu setiap kelompok mengunjungi kelompok lain untuk mengetahui solusi dan logika dari kelompok lain.
- Kelompok lain memberi masukan atau alternatif pendekatan.
- Bandingkan Solusi dan logika dari beberapa kelompok lain dan bandingkan perbedaanya dengan pengerjaan kelompokmu.
- Analisalah

Latihan

Study kasus:
inputnya diubah menjadi
“kelompok satu”

No	Tantangan String
1	Ubah input "Yunia Ikawati" menjadi "Ikawati, Yunia"
2	Hitung jumlah huruf vokal dalam input string
3	Cek apakah input adalah palindrom (contoh: "katak")
4	Gabungkan dua input string dan tampilkan panjang totalnya
5	Ambil 3 huruf pertama dan 3 huruf terakhir dari input
6	Ganti semua huruf vokal dengan *
7	Hitung jumlah kata dalam kalimat
8	Bandingkan dua string: apakah sama atau tidak



NEW KNOWLEDGE IS
INCREASING!

Reference

1. Karl, Beecher. "Computational Thinking: A Beginner's Guide to Problem-Solving and Programming." Swindon, UK: BCS, The Chartered Institute for IT (2017).
2. CSE 1300 - Introduction to Computing Principles, Kennesaw State University
3. Computer Science (CS) and Computational Thinking (CT) : Pattern Recognition in the AYA curriculum, Miami University

Next week

We will learn about **Searching and Sorting**. Please read references about it.



THANK YOU!