



Hendri Karisma
Informatics Engineering 2011



Algorithms and Programming

Introduction of Algorithms



Steps of the Day



Let's Start 





Rules of Lecture

Description of Subject, Rules, References and Value

Description of Subject

- Name of subject : Algorithm and and Programming
- Prerequisite : none
- Lecturer : Hendri Karisma
- SKS : 4 SKS (Divide into 2 Teoritics and 2 Practises)





Don't be late to come in my classroom

Rules



Presence must be above 80%

Rules



Do all components of value



Don't be CHEATING!!!

Components of Value

- Presence : 10%
- Homework : 20%
- Middle Test : 30 %
- Final Test : 40%

- Rinaldi Munir, Algoritma & Pemrograman
- Inggriani Liem, Diktat Algoritma dan Pemrograman



Syllabus

Before and After Middle Test

- Introduction of Algorithms
- Introduction of Dev Pascal, Data Type, value, and naming
- Sequential Structure
- Branching Structure
- Looping and Structure
- Procedure and Function
- Middle Test

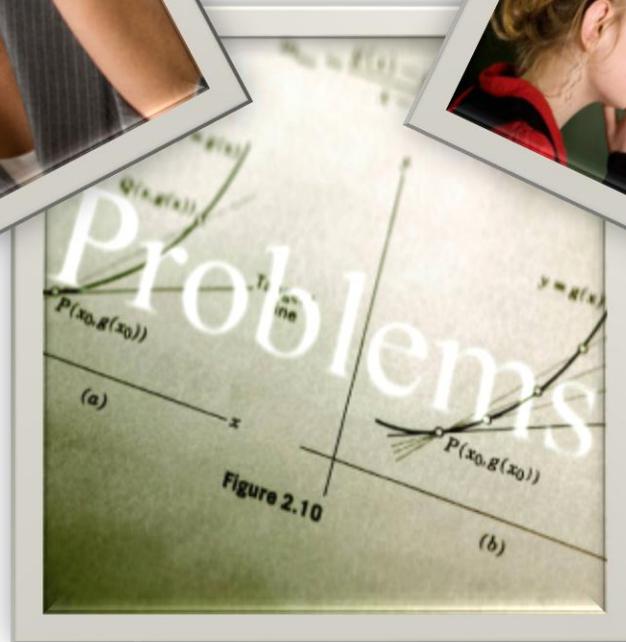
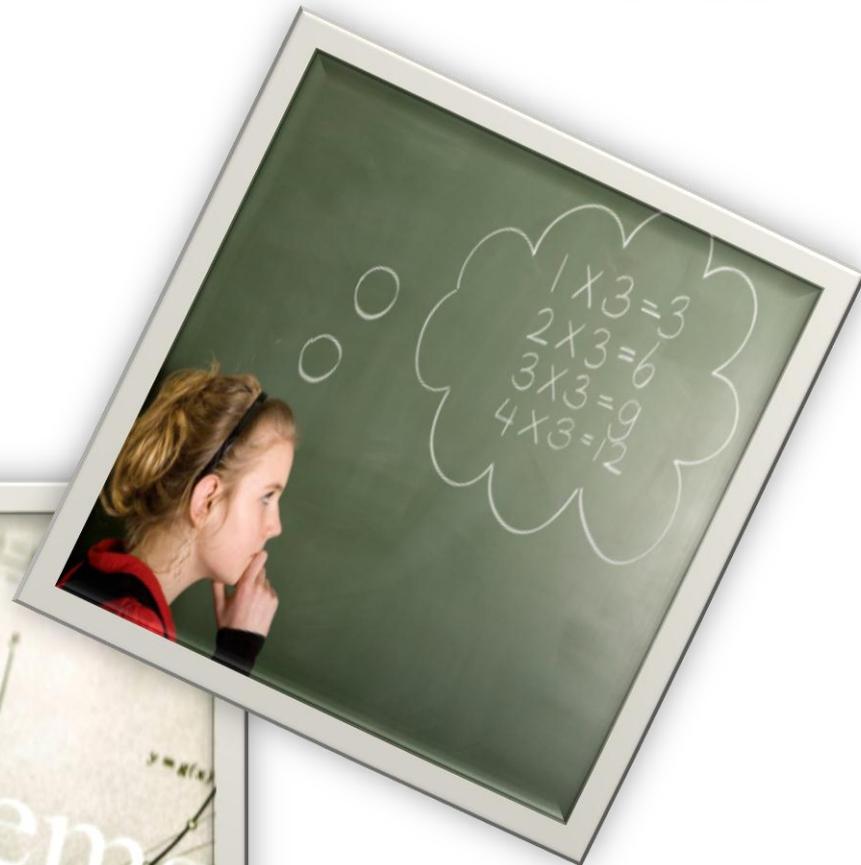
- One Dimension Array
- Two Dimension Array
- Record
- Array of Record
- Searching
- Sorting
- Final Test



Introduction Of Algorithms

Definition and Example

Why We Must Study Algorithm?



What is the Definition of Problem?



Question or set of works that must be done with human.

**Algorithm and
Programming can
solve the problems**



Some Terms in Programming

- **Program** is implementation of **ALGORITHM** that was made from one programming language.
- **Programming language** is notation that was used in **ALGORITHM NOTATION** to communicate with computers.
- **Programmers** are people who made the programs with **ONE OR MANY** programming languages.

Types of Programming Languages



- High Level
- Middle Level
- Low Level

Build the Program

- Problem Definition
- Requirements Analysis
- Build the algorithms
- Coding
- Testing and Debugging
- Maintenance
- Documentation

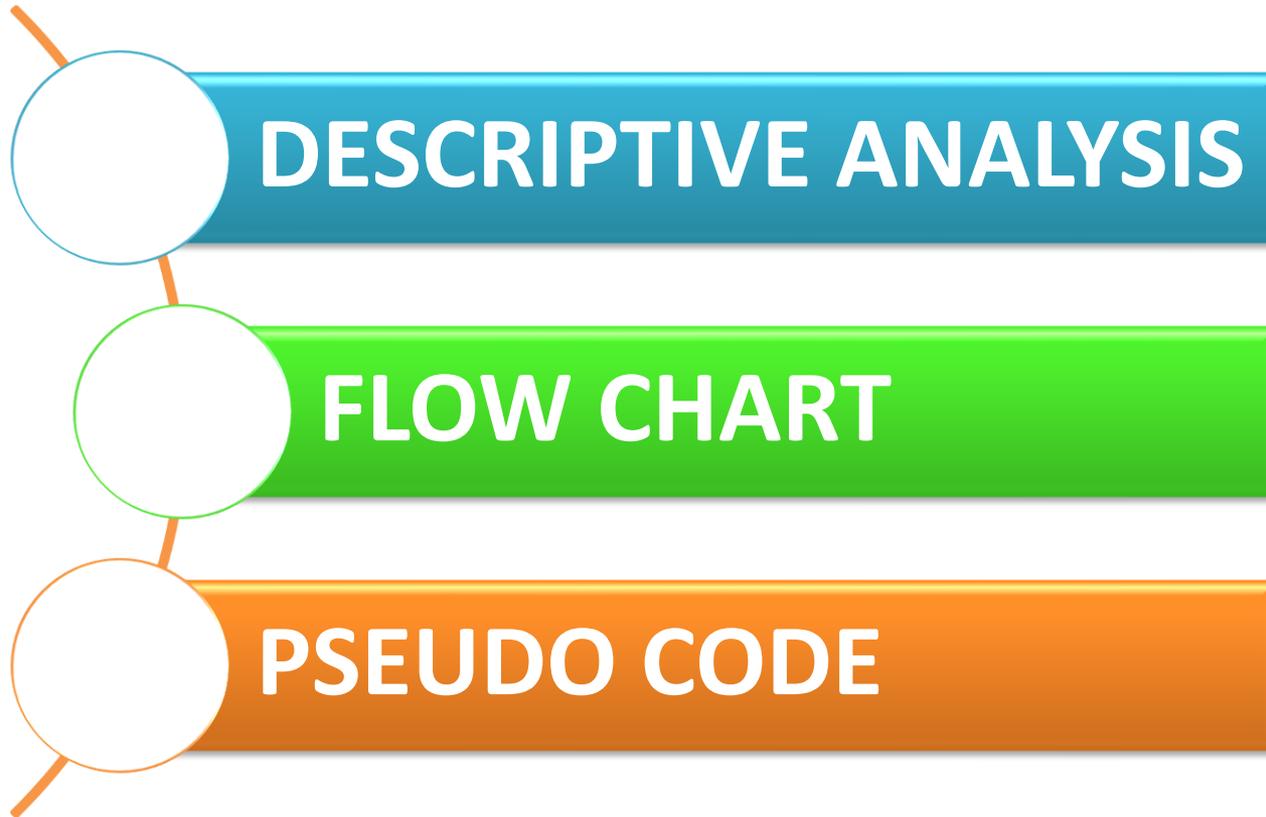


What is Algorithm?



Sequence of steps to solve the problems.

Presentation of Algorithm

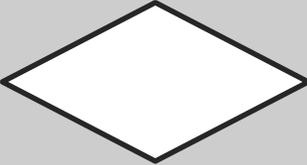


Example of Descriptive Analysis

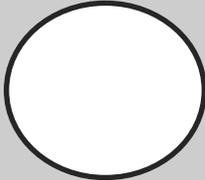
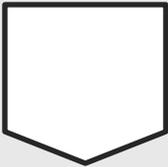
How to Make Scramble Egg:

- Pour oil into skillet.
- Heat oil.
- Break the eggs and pour into the hot oil.
- Fry it
- Serve on a plate

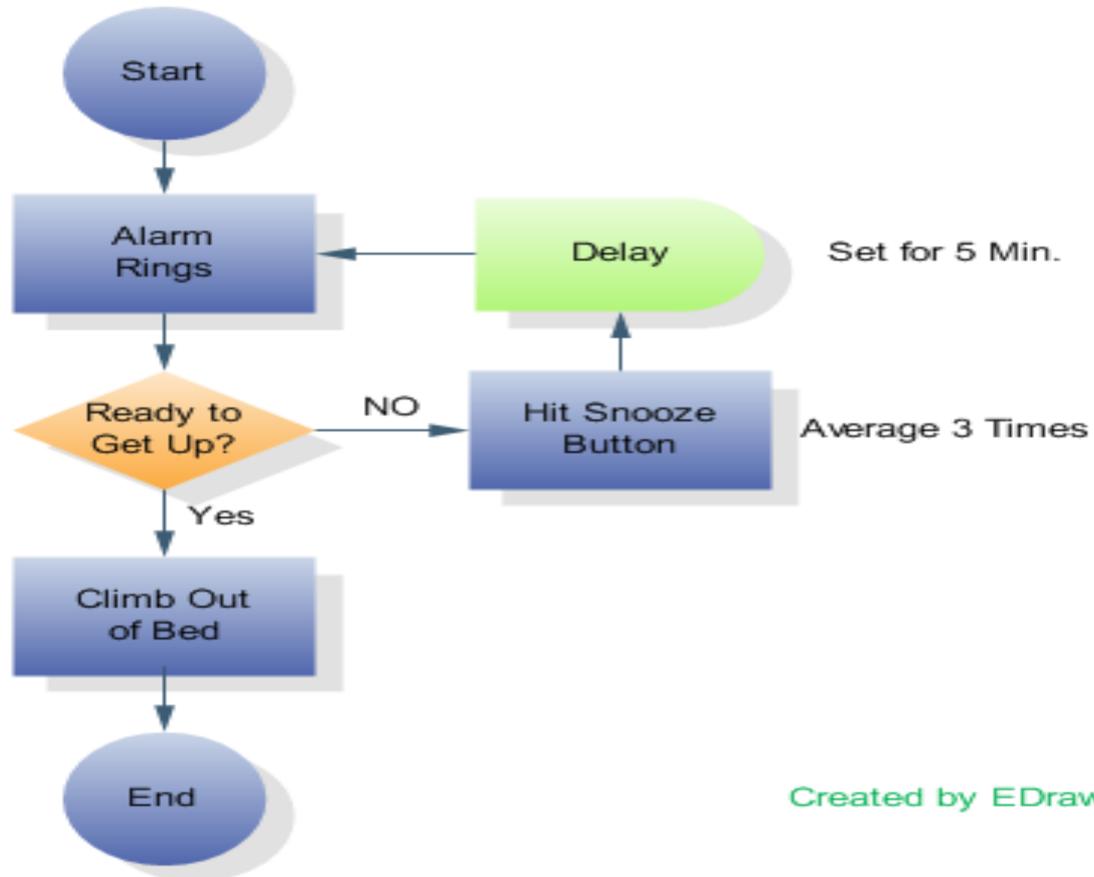
Example of Flow Chart

SYMBOL	ACTIVITY
 The image shows two symbols: a parallelogram on the left and a rounded rectangle on the right. A double slash symbol is positioned between them.	INPUT/OUTPUT
 A simple horizontal rectangle.	PROCESSING
 A diamond shape, also known as a rhombus.	DECISION
 A horizontal rectangle with two vertical lines near the left and right sides, creating a border.	PROCEDURE/SUBROUTINE

Example of Flow Chart

SYMBOL	ACTIVITY
	FLOW LINES
	START/TERMINATOR
	ON PAGE CONNECTOR
	OFF PAGE REFERENCE

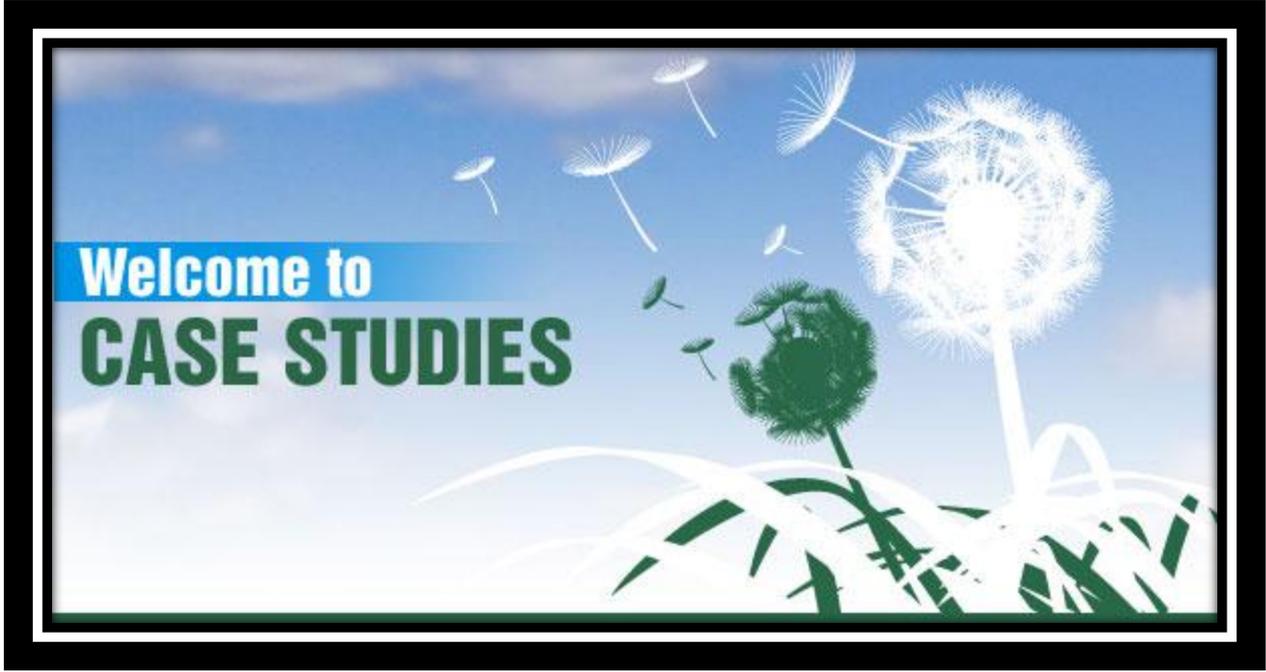
Example of Flow Chart



Created by EDraw

Example of Pseudo Code

```
1  Algoritma Tambah_Nilai
2  {I.S.: Nilai kesatu dan kedua diinisialisasi}
3  {F.S.: Menghitung penambahan nilai kesatu dan kedua}
4
5  Deklarasi: {atau Kamus:}
6      a,b,c:integer
7
8  Algoritma:
9      a←1
10     b←2
11     c←a+b
```



Welcome to
CASE STUDIES

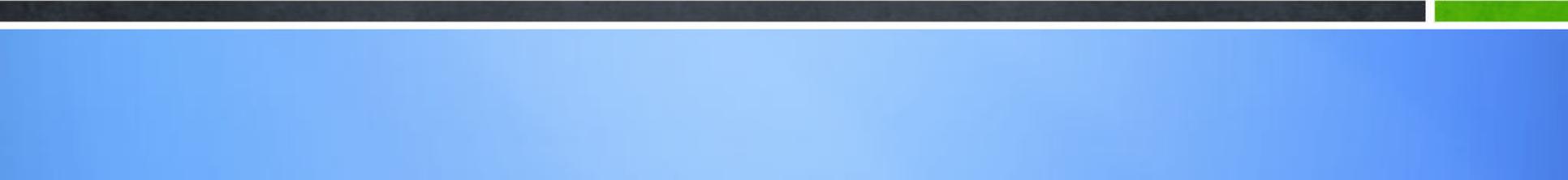


Illustration of Exchange Value with Variable

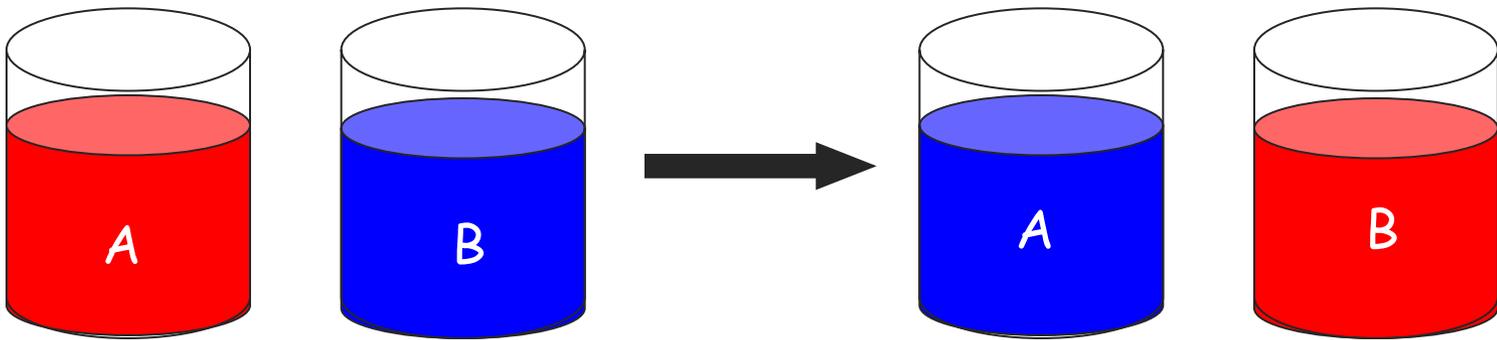


Illustration of Exchange Value with Variable

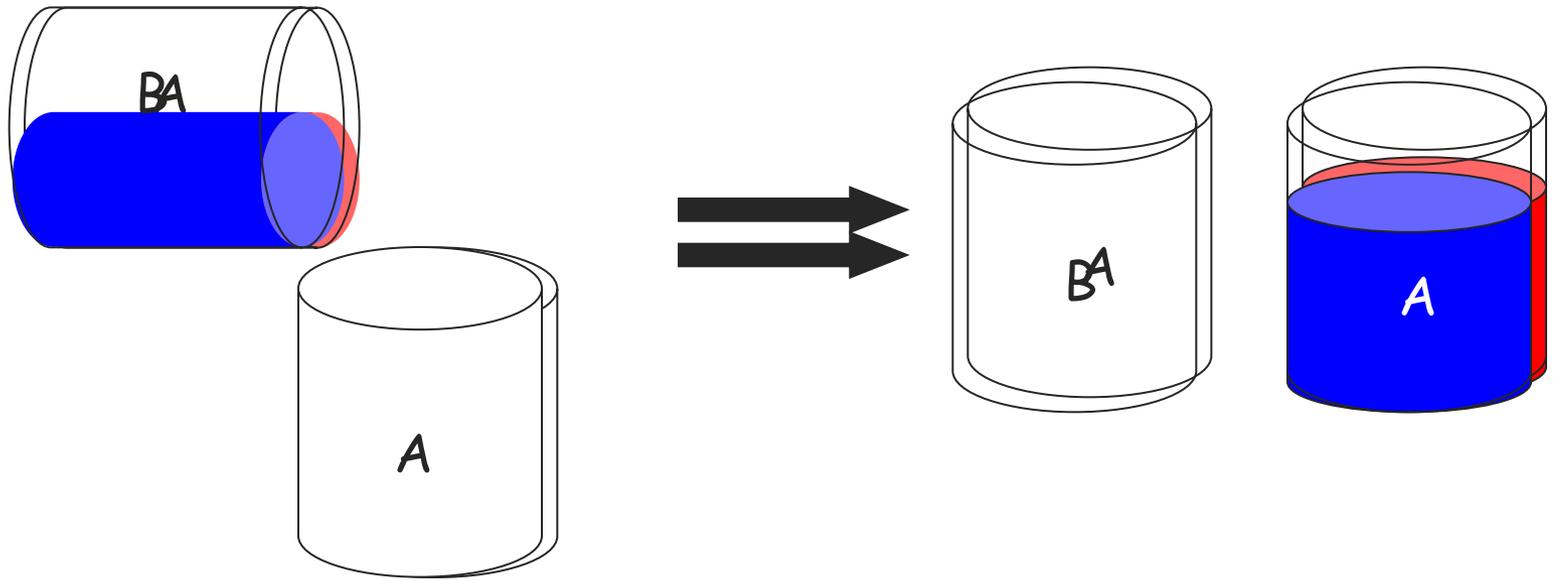
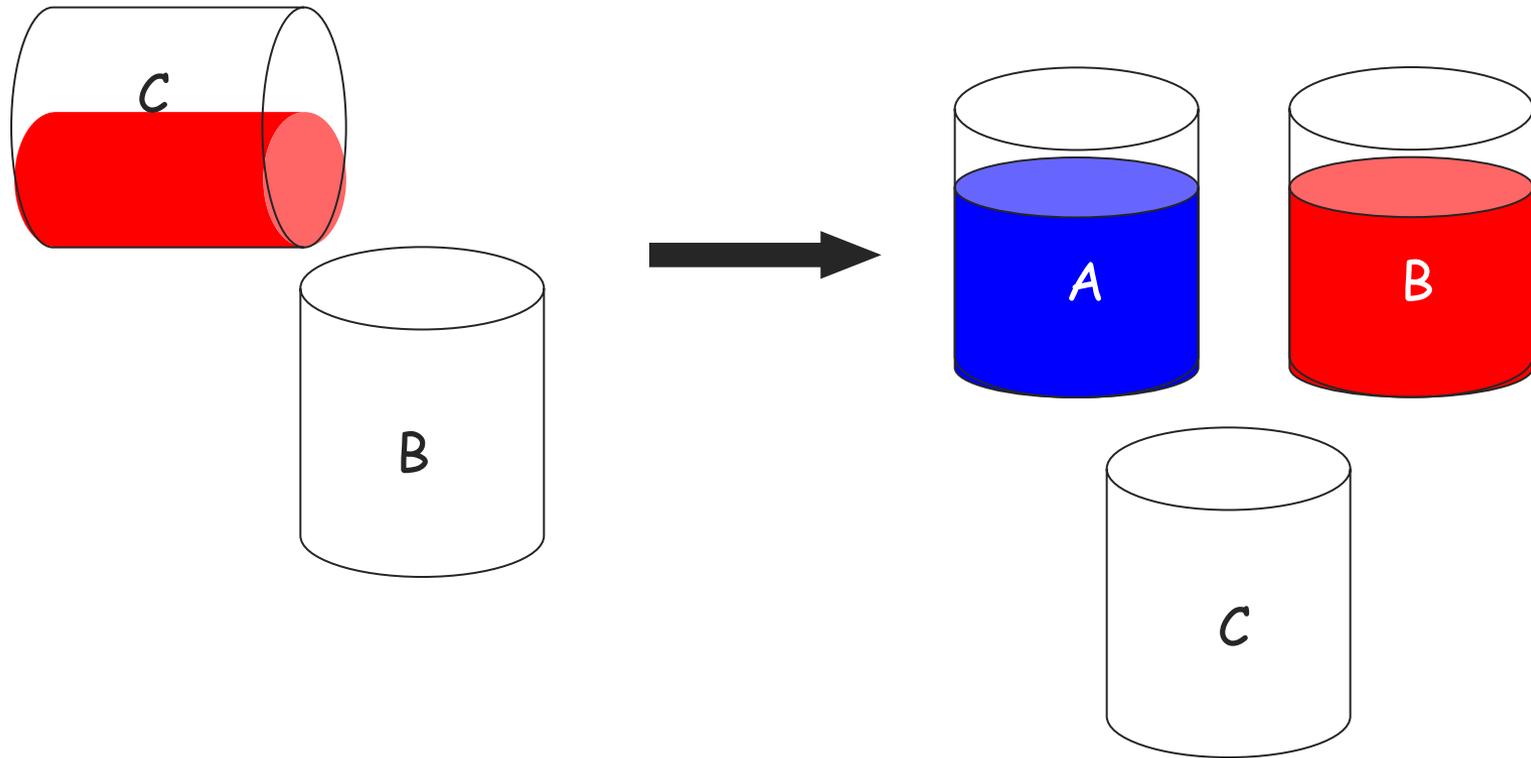
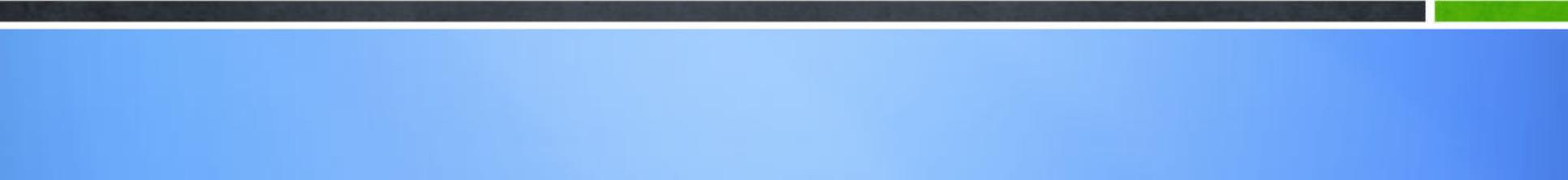


Illustration of Exchange Value with Variable





EXERCISE



Exercise 1

Turn the process of exchange value with variable into:

- Descriptive Analysis
- Flow Chart
- Pseudo Code

Exercise 2

**Make algorithm for exchange value without variable
(this case only suitable for integer) in:**

- Descriptive Analysis
- Flow Chart
- Pseudo Code

Exercise 3

Make algorithm for basic arithmetic operation (add, subtract, multiply, and divide) in:

- Descriptive Analysis
- Flow Chart
- Pseudo Code

Contact

Hendri Karisma

YM : hendri_karisma_x125d

skype : situkangsayur

FB : hendri.karisma

twitter : @infoHendri

Email: situkangsayur@gmail.com

Blog: <http://situkangsayur.wordpress.com>