Praktikum Algoritm Pemrograman

Module 1 - Algorithms and Code

Sunday, 1 November 2020

Do the following assignments in **ipynb format**, and submitted the **collaboratory link** in our LMS, Edmodo as scheduled. The purpose of all assignments is to make you understand to all the subjects, how to solve problems using algorithms and code, and improving your coding abilty. However, honesty is still the main purpose, therefore, always keep in mind, you have to **do all the assignmenst individually**, and plagiarism is not accepted.

1 Algorithms Concept

Write your own summary in Indonesian (1 up to 4 paragraphs or cells, you can also give the examples in Python) about the following items:

1. Data Type
2. Algorithm (the definition, how to write algorithms, kind of algorithms)

2 Implementation

2.1 Odd Numbers - Algorithms

Write an algorithm using **pseudocode** to display n sequence of odd numbers (n is user's input), and sum of all number.

2.2 Odd Numbers - Code

Implement your pseudocode from previous number using Python. The result of execution can be seen in Fig.1a or Fig.1b:

```
masukkan jumlah bilangan = 5
Bilangan ke- 1 : 1
Bilangan ke- 2 : 3
Bilangan ke- 3 : 5
Bilangan ke- 4 : 7
Bilangan ke- 5 : 9
Total =  25
```

(a) $n = 5$

```
masukkan jumlah bilangan = 10
Bilangan ke- 1 : 1
Bilangan ke- 2 : 3
Bilangan ke- 3 : 5
Bilangan ke- 4 : 7
Bilangan ke- 5 : 9
Bilangan ke- 6 : 11
Bilangan ke- 7 : 13
Bilangan ke- 8 : 15
Bilangan ke- 9 : 17
Bilangan ke- 10 : 19
Total =  100
```

(b) $n = 10$

Figure 1: Display Odd Numbers and sum up all the numbers

2.3 Arithmetic Series - Algorithm

Write an algorithm using **flowchart** to display numbers and total of numbers, based on an *arithmetic series* (deret aritmatika):

$$U_n = a + (n-1)b \quad (1)$$

$$S_n = \frac{n}{2}(2a + (n-1)b) \quad (2)$$

$$(3)$$

where
U_n : n^{th} term (n is user's input) in the sequence
a : the first term (user's input)
b : the difference between terms (user's input), and
S_n : sum of the series from the first, up to the n^{th} term

2.4 Arithmetic Series - Code

Implement your algorithm from previous number using Python, as seen in Fig.2a or Fig.2b.

```
masukkan nilai n = 3
masukkan nilai a = 4
masukkan nilai b = 6
u- 1 = 4
u- 2 = 10
u- 3 = 16
sn= 30.0
```

(a) $n = 3, a = 4, b = 6$

```
masukkan nilai n = 5
masukkan nilai a = 6
masukkan nilai b = 7
u- 1 = 6
u- 2 = 13
u- 3 = 20
u- 4 = 27
u- 5 = 34
sn= 100.0
```

(b) $n = 5, a = 6, b = 7$

Figure 2: Arithmetic Series

Selamat Mengerjakan, Selalu Latihan, Jujur harus dimulai kapanpun, Bertanya jika kurang mengerti, #StayAtHome, #LearningFromHome