Pertemuan 7: Composite Variable (Struct / Record)

Problem 1

Buat pseudocode untuk input 10 data mahasiswa. Selanjutnya tampilkan 10 data tersebut berdasarkan kamus data di bawah

```
Struct             : Mahasiswa:
                           String: nama, alamat, jenis_kelamin, domisili
Array of Mahasiswa : Dt_mhs
Integer            : i
```

Jawaban :

Algoritma

```
1.  BEGIN
2.  |   i <- 1
3.  |   WHILE i <= 10
4.  |   |  Dt_mhs[i].nama          <- READ(Keyboard)
5.  |   |  Dt_mhs[i].alamat        <- READ(Keyboard)
6.  |   |  Dt_mhs[i].jenis_kelamin <- READ(Keyboard)
7.  |   |  Dt_mhs[i].domisili      <- READ(Keyboard)
8.  |   |  i <- i + 1
9.  |   ENDWHILE
10. |   i <- 1
11. |   WHILE i <= 10
12. |   |  WRITE(Screen) Dt_mhs[i].nama, " "
13. |   |  WRITE(Screen) Dt_mhs[i].alamat, " "
14. |   |  WRITE(Screen) Dt_mhs[i].jenis_kelamin, " "
15. |   |  WRITE(Screen) Dt_mhs[i].domisili, " "
16. |   |  WRITE_NEWLINE()
17. |   |  i <- i + 1
18. |   ENDWHILE
19. END
```

Tracing

i	Dt_mhs[i].nama	Dt_mhs[i].alamat	Dt_mhs[i]. Jenis_kelamin	Dt_mhs[i].domisili
~~1~~	"Alpha"	"Bandung"	"Pria"	"Palembang"
~~2~~	"Beta"	"Jakarta"	"Pria"	"Jakarta"
~~3~~	"Chandra"	"Jakarta"	"Pria"	"Bandung"
~~4~~	"Deandra"	"Surabaya"	"Pria"	"Bandung"
~~5~~	"Eliza"	"Bandung"	"Wanita"	"Bandung"

~~6~~	"Fathur"	"Bandung"	"Pria"	"Jakarta"
~~7~~	"Galuh"	"Yogyakarta"	"Pria"	"Bandung"
~~8~~	"Haikal"	"Surabaya"	"Pria"	"Bandung"
~~9~~	"Iman"	"Surabaya"	"Pria"	"Subang"
~~10~~	"Joko"	"Semarang"	"Pria"	"Bandung"
11				

Output

```
Alpha Bandung  Pria  Palembang
Beta  Jakarta  Pria  Jakarta
Chandra  Jakarta  Pria  Bandung
Deandra  Surabaya Pria  Bandung
Eliza Bandung  Wanita  Bandung
Fathur  Bandung  Pria  Jakarta
Galuh Yogyakarta  Pria  Bandung
Haikal  Surabaya Pria  Bandung
Iman  Surabaya Pria  Subang
Joko  Semarang Pria  Bandung
```

Problem 2

Tambahkan subvariabel `thn_lahir` pada variabel komposit `Mahasiswa` dan tampilkan mahasiswa yang memiliki umur di atas 20 tahun

Jawaban :

Kamus Data

```
Struct             : Mahasiswa:
                          String : nama, alamat, jenis_kelamin, domisili
                          Integer: thn_lahir
Array of Mahasiswa : Dt_mhs
Integer            : I, jml_dewasa
```

Algoritma

```
1.  BEGIN
2.  |   jml_dewasa <- 0
3.  |   i <- 1
4.  |   WHILE i <= 10
5.  |   |  Dt_mhs[i].nama          <- READ(Keyboard)
6.  |   |  Dt_mhs[i].alamat        <- READ(Keyboard)
7.  |   |  Dt_mhs[i].jenis_kelamin <- READ(Keyboard)
8.  |   |  Dt_mhs[i].domisili      <- READ(Keyboard)
9.  |   |  Dt_mhs[i].thn_lahir   <- READ(Keyboard)
10. |   |  IF 2024 - Dt_mhs[i].thn_lahir > 20 THEN
11. |   |    jml_dewasa <- jml_dewasa + 1
12. |   |  ENDIF
13. |   |  i <- i + 1
14. |   ENDWHILE
15. |   WRITE(Screen) "jumlah orang dewasa: ", jml_dewasa, "orang"
16. END
```

Tracing

i	Dt_mhs[i].nama	Dt_mhs[i].alamat	Dt_mhs[i].jenis_kelamin	Dt_mhs[i].domisili	Dt_mhs[i].thn_lahir	jml_dewasa
~~1~~	"Alpha"	"Bandung"	"Pria"	"Palembang"	2004	0
~~2~~	"Beta"	"Jakarta"	"Pria"	"Jakarta"	2008	0
~~3~~	"Chandra"	"Jakarta"	"Pria"	"Bandung"	2006	0
~~4~~	"Deandra"	"Surabaya"	"Pria"	"Bandung"	2003	1
~~5~~	"Eliza"	"Bandung"	"Wanita"	"Bandung"	2003	2
~~6~~	"Fathur"	"Bandung"	"Pria"	"Jakarta"	2001	3
~~7~~	"Galuh"	"Yogyakarta"	"Pria"	"Bandung"	2000	4
~~8~~	"Haikal"	"Surabaya"	"Pria"	"Bandung"	2012	4

~~9~~	"Iman"	"Surabaya"	"Pria"	"Subang"	2001	5
~~10~~	"Joko"	"Semarang"	"Pria"	"Bandung"	2002	6
11						

Output

```
jumlah orang dewasa: 6 orang
```