

# Praktikum Struktur Data

## Pertemuan Ke-4

# POINTER

- ❑ Suatu variabel penunjuk, berisi nilai yang menunjuk
- ❑ Pointer tidak berisi nilai data, melainkan berisi suatu alamat memori atau null jika tidak berisi data
- ❑ Pointer yang tidak diinisialisasi disebut dangling pointer
- ❑ Lokasi memori tersebut bisa diwakili sebuah variabel atau dapat juga berupa nilai alamat memori secara langsung

# Deklarasi Variabel dan Tipe Pointer

```
1 | var  
2 |   angka: integer;
```

Variabel 'angka' disiapkan untuk menyimpan tipe data integer

```
1 | var  
2 |   pointer_angka : ^integer;
```

Tanda 'topi' atau 'caret' adalah tanda untuk deklarasi tipe data pointer di dalam pascal. **^integer** berarti menyiapkan sebuah **pointer** untuk **variabel integer**

```
1 | var  
2 |   pointer_kata : ^char;
```

Membuat pointer ke alamat variabel yang bertipe data char

# Menampilkan Alamat Memori

Karakter '@' berfungsi untuk menampilkan alamat memori suatu variabel

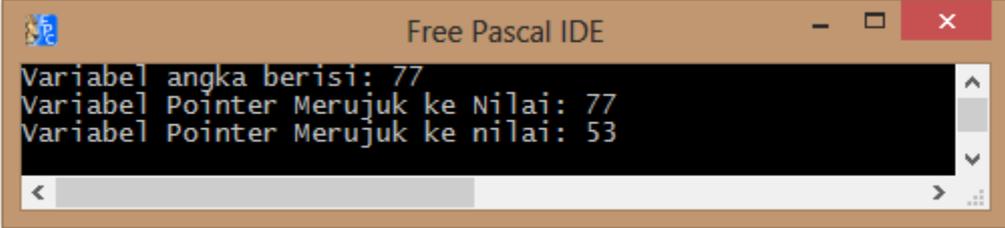
```
1  var
2    angka: integer;
3    pointer_angka : ^integer;
4  begin
5    pointer_angka := @angka;
```

Pointer\_angka := @angka kode yang mengaitkan kedua variabel ini.

Variabel angka akan berisi alamat memori dari variabel 'angka'

# Contoh 1:

```
1  program tipe_pointer;
2  uses crt;
3  var
4      angka: integer;
5      pointer_angka : ^integer;
6  begin
7      clrscr;
8      angka := 77;
9      writeln('Variabel Angka Berisi: ',angka);
10
11     pointer_angka := @angka;
12     writeln('Variabel Pointer Merujuk ke Nilai: ',pointer_angka^);
13
14     angka:= 53;
15     writeln('Variabel Pointer Merujuk ke Nilai: ',pointer_angka^);
16
17     readln;
18 End.
```



The screenshot shows a window titled "Free Pascal IDE" with a black output area. The output text is as follows:

```
Variabel angka berisi: 77
Variabel Pointer Merujuk ke Nilai: 77
Variabel Pointer Merujuk ke nilai: 53
```

## Contoh 2:

```
1 Program DeklarasiPointer;
2 Uses crt;
3 Var
4     p: ^integer;
5     nilai : integer;
6 Begin
7     Clrscr;
8     nilai := 12;
9     p:=@nilai;
10    writeln(p^);
11    p^ := 100;
12    writeln(p^);
13    writeln(nilai);
14    readln;
15 End.
```

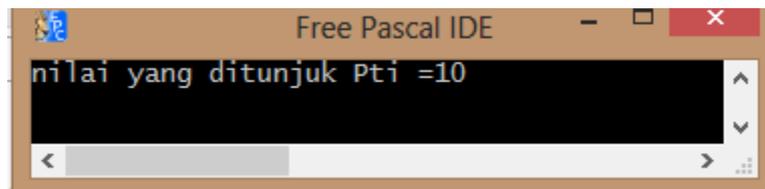


The screenshot shows a window titled "Free Pascal IDE" with a black output area. The output contains the following text:

```
12
100
```

## Contoh 3:

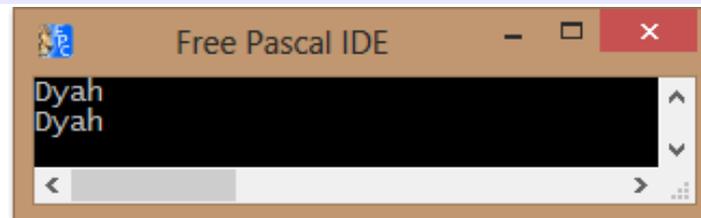
```
1 program ptint;  
2 uses wincrt;  
3 var  
4   I :integer;  
5   Pti :^integer;  
6 begin  
7   Clrscr;  
8     i := 5;  
9     new (pti);{alokasi}  
10    pti^ := 10;  
11    writeln('nilai yang ditunjuk pti =',pti^);  
12    dispose (pti);{dealokasi}  
13 end.
```



The screenshot shows a window titled "Free Pascal IDE" with a black output area containing the text "nilai yang ditunjuk Pti =10". The window has standard Windows window controls (minimize, maximize, close) and a scrollbar.

# Contoh 4:

```
1 Program PointerString;
2 uses wincrt;
3 var
4     firstname,lastname:^string;
5 begin
6     clrscr;
7     new(firstname);new(lastname);
8     firstname^ := 'Arma';
9     lastname^ := 'Dyah';
10    firstname^ := lastname^;
11    lastname^ := 'Dyah';
12    writeln(firstname^);
13    writeln(lastname^);
14    dispose(firstname);dispose(lastname);
15    readln;
16 end.
```



The screenshot shows a window titled "Free Pascal IDE" with a terminal output area. The output area contains two lines of text: "Dyah" followed by another "Dyah" on the next line. This matches the program's logic where the first name is overwritten by the second name, and then the second name is printed.

Thank you!

