

# 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

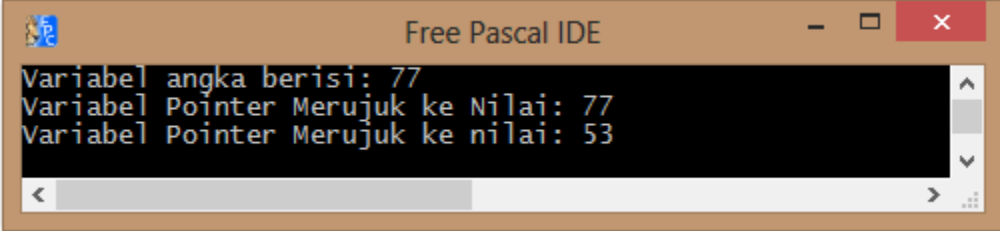
```
1  var
2    angka: integer;
3    pointer_angka : ^integer;
4  begin
5    pointer_angka := @angka;
```

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.
```

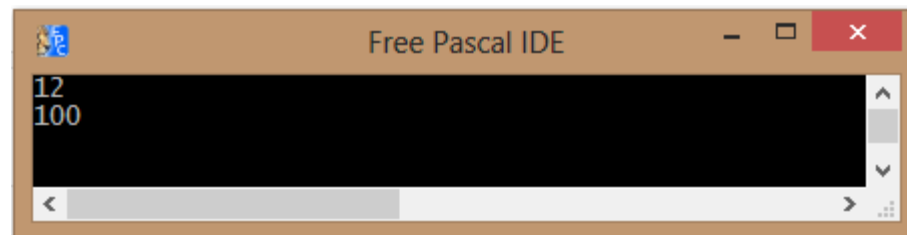


The screenshot shows a window titled "Free Pascal IDE" with a black output area containing the following text:

```
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.
```



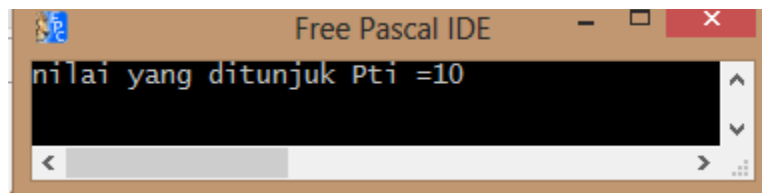
The screenshot shows a window titled "Free Pascal IDE" with a black output area. The output contains the following text:

```
12
100
```

The output demonstrates that the pointer variable `p` initially points to the memory address of `nilai`, which contains the value 12. After the program changes the value at the address pointed to by `p` to 100, the output shows 100, followed by the original value of `nilai`, which is 12.

## Contoh 3:

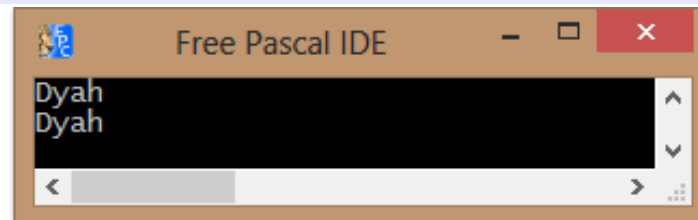
```
1 program ptint;
2 uses wincrt;
3 var
4   I :integer;
5   Pti :^integer;
6 begin
7   Clrscr;
8   i := 5;
9   new (pti);{alokasi}
10  pti^ := 10;
11  writeln('nilai yang ditunjuk pti =',pti^);
12  dispose (pti);{dealokasi}
13 end.
```



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 displays two lines of text: "Dyah" followed by another "Dyah" on the next line. The terminal has a black background with white text and a scrollbar on the right side.



Thank you!

